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AfricaLics External Evaluation

Final Evaluation Report

Francie Sadeski, Karine Kouassi Lou – Kouacou, Soheir Dani, Gerwin Evers, Maarten Koopmans, Makany Touré

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Executive summary

Now in its 8th year of existence, AfricaLics is currently going through critical structural reflections and potential institutional changes. While it is looking to formalise its model and ensure its activities' sustainability, reviewing the lessons learned since the start is critical to feed into the current strategic reflections and the preparation of new funding applications – to SIDA and other potential funders.

This report constitutes the final deliverable in the evaluation of the AfricaLics network activities (hereafter referred to as "the evaluation"). As per the agreement between SIDA and the African Centre for Technology Studies (ACTS), this external evaluation was commissioned to review and document results from the AfricaLics activities supported by SIDA grants as well as all the voluntary inputs provided by the AfricaLics community since 2012. The evaluation is both retrospective and formative in nature.

The present report follows a data collection phase conducted from February to May 2021, as well as a Learning Workshop organised on June 2nd, 2021. Hence it was drafted based on an extensive desk review, data analysis, bibliometric analysis, interviews of about 40 stakeholders and reflections from about 27 participants to the Learning Workshop.

The evaluators have found that **AfricaLics is a relevant initiative in the context of a lack of research capacities in the field of innovation & development (I&D) in Africa. It has successfully created a unique and multi-disciplinary network of scholars working with innovation and development issues on the continent.** The interest of policy makers for science, technology, and innovation (STI) policy advice and support in Africa is ever-increasing. And yet, there are still relatively few African scholars capable of doing research and of advising governments on I&D in Africa, nor enough policy-relevant, collaborative research opportunities in Africa in this specific field of study. AfricaLics appears to be the only (network) initiative with a goal to address specific gaps in I&D capacity building, research, and outreach. While the needs are extensive, AfricaLics partly addresses this gap. Additionally, African sub-regions (if not each country) display different levels of maturity of their I&D research and policy ecosystems. The modalities used by AfricaLics to intervene primarily target individuals' needs and are designed to have a catalytical effect, e.g., through the organisation of events in different countries/parts of Africa. Yet, in order to build capacity at an institutional level in a more sustainable manner, AfricaLics could adapt its modes of intervention to directly focus on institutions, while continuing building capacity at an individual level.

While results on researcher careers and level of publications are encouraging, the overall lack of (collaborative) research opportunities are limiting their scale. An AfricaLics network is formed. AfricaLics covers a significant part of Africa and contributed to the creation of NationaLics/RegionaLics (two so far in Nigeria and Burkina Faso). The Research Capacity Building (RCB)project/SIDA support has been instrumental in funding capacity building, research, and outreach activities. The quality of research (measured through a citation analysis) conducted in the field of I&D by trained individuals has increased. However, only a few scholars (10+) have produced high-quality research[1] and concentrated in a few countries. Collaborative research remains limited (phase 1 of the RCB included a few dedicated activities by providing seed funding for collaborative research. Phase 2 did not include similar activities).

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[1] In this evaluation, to assess high-quality research, we looked at the number of publications in top journals, citations, and references by policy documents.

Policy outreach activities (mainly in RCB Phase 2) are currently primarily conducted by a small nucleus of the very active people in AfricaLics, and overall, policymakers are not well reached.

Implementation of AfricaLics activities has been well managed and knowledge generated is being used. Activities have been implemented with the highest professionalism and commitment and the evaluation team found that conferences, PhD academies and the VFP constitute strong means for interaction, sharing research results and eventually for capacity building. There is also strong evidence that knowledge gained by PhD students and early career researchers is being used. At the same time communication/ capitalisation on results has lagged behind. The good level of mindfulness and adaptation of the initiative to the evolving paradigm upon which it intends to act is proven by the fact that many of the strategic questions posed to the Network have already been discussed by the Scientific Board and have been investigated by the Secretariat). The recently enhanced involvement of the Board members in the leadership of the Network has proven adequate to steer AfricaLics Network.

Considering the initial situation (baseline), AfricaLics has made a significant contribution in building the capacity of researchers in I&D. Through an **innovative learning approach** (combination of interaction with PhD candidates through Academies, VFP and in some cases also conference participation and a pilot mentorship programme linked to conference participation), AfricaLics reached more young researchers than foreseen while keeping them at their home institutions. As a result, AfricaLics is also indirectly helped building institutional capacity. **Yet, the broader impact of AfricaLics activities,** as stated in the theory of change (the extent to which knowledge on I&D produced by AfricaLics scholars inform decision-making), **is still limited.** There are some signs of increases in the number of publications on I&D from Network members and policy advisory provided to policy makers by some of the most active Network members. There is still a long way to reach a critical mass of I&D scholars and researchers, yet it is not clear if AfricaLics can do it alone. Visibility and use of research results are low. Too few activities (funding) are done (available) to disseminate research outputs and make policymakers and practitioners aware of the research.

The current approach and setup of AfricaLics appear to be challenging to sustain in the long term. Activity implementation benefited greatly from the support from SIDA. Still, SIDA support is not sustainable through time, as donors might shift their funding interest. Sustainability of results in terms of capacity-strengthening is also limited by the lack of opportunities for scholars to actively conduct research, except some scholars embedded in institutions providing them with the required means. The hub and spoke model with national-LICS shows promise in mobilising large communities at national level and enhancing scientific outputs. However, the creation of national- LICS has been slow. The Network could benefit from increasing its synergies with other policy and knowledge providers (e.g., OECD, UNESCO).

Based on these conclusions, the following paragraphs present recommendations that were discussed with the ASB and Secretariat on June 28th.

Recommendation 1: Revise AfricaLics' strategic framework

- Consider adopting a long-term vision for AfricaLics; generate African-embedded evidence-based policy advice on I&D and include it in AfricaLics strategic framework.

- Consider capacity-building, collaborative research and outreach as part of a pipeline oriented to this long-term vision.

- Consider deploying a tailor-made approach per sub-region, eventually relying on some partner institutions in each of these (see Recommendation 2). This would present three

advantages: scaling up of the AfricaLics activities thus potential impact, enhancing the efficiency in the use of resources, enhancing sustainability.

Recommendation 2: Consider transitioning to a more institutional-individual model

- Transition the network model to a more institutional-individual model and strengthen governance

- Consider relying on institutions which are hosts of NationaLics to act as regional spokes

- Consider a pragmatic approach and create synergies with existing research networks and higher education and research institutions (universities) in 3-5 challenge areas to benefit the most from I&D in Africa. Consider partnering with some of the partner universities of other existing networks (cf. AERC and CARTA).

- Identify and develop MoUs with a limited number of Institutions (2-3 MoUs in 4-5 countries at the most) to ensure capacity is built both at individual and organizational level and to allow progress on the creation of I&D teaching and research streams at the higher education level.

Recommendation 3: Continue with capacity-building activities

- Consider selecting beneficiaries of AfricaLics activities – or some of these - from a selected range of partner institutions to increase possibilities for generating both individual and institutional development.

- Continue exploring the right balance between face-to-face collaborative activities and virtual e-learning. Consider digitalizing activities as much as possible to reduce costs and enhance sustainability. In this process, AfricaLics should capitalize on best practices identified during the COVID-19 crisis as a way forward.

Recommendation 4: Strengthen (collaborative) research opportunities

- Consider awarding small research grants for AfricaLics members through annual calls focusing on specific challenges. These grants should be tailored to the needs of researchers in countries with weaker research systems, for instance by supporting funding of research equipment and materials. This could be done through partnering with Science Granting Councils or other Research Networks and/or international donors (see Recommendation 2).

- Consider developing partnerships with targeted innovation journals and enhance training for researchers on how to access them.

Recommendation 5: Strengthen outreach activities

- Consider mapping all actors, initiatives and donors involved in supporting the development of STI in Africa to eventually develop a strategy to connect to these, notably the African Academy of Sciences AESA, AU-NEPAD, but also the EU-AU High Level Partnership, the EU-AIEP, the OACP Policy Innovation Facility.

- Connect with donors such as the AfDB, EU, CEDEAO, UNESCO, African Union, but also Google or Microsoft, in order to get funding for research chairs and use them for outreach.

- Consider developing extra activities, pro bono, such as senior policy seminars, which can be back-to-back with other existing events organized by other actors (cf. African innovation summit), to discuss I&D research results.

Recommendation 6: Continue strengthening the governance of AfricaLics

- Continue enhancing the engagement level of Board Members to steer change and accelerate spill overs.

- In particular, consider revising the interim constitution to reflect all of the above.

- Maintain a strong, well-funded Secretariat. Research and other capacity-building networks (AERC and CARTA) show that this is a key to success.

- Ensure the Secretariat acts as a catalyst. Along with Recommendation 2, revise the role of the secretariat versus the partner institutions and other networks. Attribute roles, and as much as possible devolve (pro-bono) responsibilities to partners.

- Consider developing a funding policy and developing funding sources. All options already explored by AfricaLics could be combined, and diversifying funding sources is key for sustainability. Consider launching a short, targeted survey to all AfricaLics current members to assess the potential for introducing a membership-fee model as well as payment-for-conferences model.

Recommendation 7: Monitor, evaluate, capitalise, highlight and communicate actively on research results and best practices in the Network

- Develop an active strategy to disseminate research results from the AfricaLics community to other communities. Consider developing partnerships with scientific journals, and support members to publish in these. Consider setting up policy workshops to introduce policy makers to some of the research results.

- Develop an active strategy to strengthen the alumni community. Enhance the members database, tracking their research interests, institutional embedment and mobility and seniority.

- Develop activities aiming to enhance representation of women in the field of I&D research: showcase success stories of women in the AfricaLics network, use them as role models to inspire others, involve them in mentorship activities focusing on building leadership skills for the part of AfricaLics concerned with women.

- Consider capitalising on the best practices across the network: annually, identify these best practices through learning exercises, then disseminate through the network communication channels. For example, showcase the processes and successes of NationaLics' development.

- Improve reporting on implementation of activities, progress in reaching targets and changes through time.

- Improve the AfricaLics members data base.

- Consider recruiting a professional to support the team with advocacy, M&E and capitalisation tasks.

1 Evaluation background, objectives and methodology

1.1 Context for African Innovation & Development

In today's world, countries need strong innovation systems to develop, but what exactly is an innovation system? An innovation system is a network of organisations within an economic system that are directly involved in the creation, diffusion and use of scientific and technological knowledge, as well as the organisations responsible for the coordination and support of these processes[2]. Innovation systems create an enabling environment for development through the inclusion of factors that promote innovation such as infrastructure, policy, education among many other factors. Innovation is increasingly important because countries nowadays are ranked not by their natural wealth or their resources in the subsoil, but by their capacity for innovation. Now that we are faced with the challenges of climate change and the biodiversity crisis, Africa needs to innovate even in its agricultural practices. The world today is talking about precision agriculture that takes into account the exact measurement of the amount of water that is needed for a vegetable crop, for example[3]. Innovation increases productivity and efficiency in all the sectors that can make an economy grow. Africa needs innovation for two reasons:

- It will no longer be possible to be a major geopolitical entity without having invested in innovation.
- Innovation is the only way out of poverty.

It is the responsibility of policy leaders in Africa to create a favourable environment to innovation. They need to put in place legislations, define a reglementary framework and set up ecosystems where African talents can bloom in the field of innovation. This ecosystem needs to create access to innovative mechanisms and financial instruments that are tailored to supporting innovation by investing in venture capital for example[4].

How do we create a system of innovation in Africa?

There are four school of thoughts around innovation, theoreticians believe that[5]:

- Innovation is any improvement on a process or product including all organisations and institutions contributing to this improvement (Lundvall).
- The core of an innovation system is composed of organisations and science, technology and innovation institutions that conduct Research & Development (R&D) (Nelson).
- Innovation is regional and countries have their concentrated regional innovation centres (Cooke and Howells)
- Innovation is sectoral, all countries concentrate their innovation activities on a few industries (Malerba).

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[2] Dantas Eva. The 'system of innovation' approach, and its relevance to developing countries. SciDevNet. Feb, 2018.

[3] Diawara Malick. Thierry Zomahoun : « Faire de l'innovation un moteur de développement pour l'Afrique ». Le Point Afrique. Apr. 2020.

[4] Diawara Malick. Thierry Zomahoun : « Faire de l'innovation un moteur de développement pour l'Afrique ». Le Point Afrique. Apr. 2020;

[5] Niosi Jorge. Industrial and Corporate Change. Volume 20, Number 6. pp. 1637–1643.

In Africa innovation systems are built in an environment characterized by amongst others:

- the privatisation of public concerns,
- the rise of a strong SMEs sector but with limited experience in research and development, and innovation
- a relatively weak industrial sector in terms of performances
- Inefficient human resources and lack of equipment[6].

The environment in most African countries is not favourable for the foundation of strong and operational innovation systems. African countries do not invest enough in innovation thus it is difficult for these economies to transform efficiently compared to others that invest in their innovation systems. We observe that some countries invest around USD 30 to 50 dollars per 100 spent on research and innovation while no African country invest more than USD 1 dollar[7]. This difference in investment has an impact when we see the difference in innovation outputs between developed and developing countries.

Table 1   The state of R&D in the world (2001)

	Number of Engineers involved in R&D	Total R&D (%GNP)	Performance (%): Production sector	Performance (%): Higher education
Developed countries	2 704 205	1.94	53.7	22.9
Developing countries	1 034 333	0.39	13.7	22.2
Sub-Saharan Africa	3 193	0.28	00	38.7
North Africa	29 675	0.40	NA	NA
Latin America	107 508	0.45	18.2	23.4
Asia (excluding Japan)	893 957	0.72	32.1	25.8
World	4 684 700	0.92	36.6	24.7

Source: Djeflat Abdelkader, Building systems for innovation 'take off' in African economies.

Innovation systems need strong policy impulses and investment from governments for innovation to effectively take place. This is necessary because:

- Most African countries' innovation systems are still in a construction stage with incomplete national systems of innovation as well as weak or missing links between the industry and research and development.

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[6] Niosi Jorge. Industrial and Corporate Change. Volume 20, Number 6. pp. 1637–1643.

[7] Diawara Malick. Thierry Zomahoun : « Faire de l'innovation un moteur de développement pour l'Afrique ». Le Point Afrique. Apr. 2020.

- There is a need for the creation of learning capacities.
- The need for a strong state support regarding the institutional dynamics in terms of regulations, salaries and incentive systems, public procurements for example[8].

Another important element when working on the creation of innovation system in Africa is the investment in human capital. In two centuries 40% of the youth in the world will be African, an extraordinary demographic resource in which African countries should invest[9]. This human resource needs investment in their education and research activities because a well-trained human resource guarantees a qualified workforce, good researchers and highly qualified technicians that will constitute a strong base to develop an innovation strategy. Africa will thus be able to use innovation as a development agent.

Innovation in Africa is an opportunity to accelerate development to reduce poverty and increase job creation. In that view, the combination of research and development with industry productivity increase would be a key element of innovation systems in Africa. Innovation in developing countries is determined by the interactions and abilities of public and private actors, formal and informal institutions to drive economic growth[10]. The role of universities in this link between research and development and the industry is to produce higher labour productivity. They tackle the need to create new and relevant innovations that respond to local needs while building the capacities of communities to absorb new knowledge. Unfortunately, the links between universities, governments and the industry are highly fragmented, and this represents an obstacle for efficient innovation systems in Africa[11]. The efforts to build research capacity in Africa needs to be accompanied with wider efforts to build a research culture that increases the number of employable graduates and enables them to become critical thinkers and innovators. However, it remains a problem in Africa that very few universities hold programmes and dedicate research grants to the field of R&D and innovation[12]. It is important to develop the field of research and innovation in African universities that Africans can come up with their own innovative solutions for the continent.

To address the above, there is a trend in Africa to apply existing strategies of innovation that have been successful in other countries locally. However, the innovation landscape in Africa is weak compared to other regions because of the weak institutional arrangements to foster innovation systems[13]. As such these models cannot be directly and uncritically applied to African countries. Innovative theories and methods that are more suitable to African contexts can be developed. Building the capacity of researchers in Africa who can analyse and advise on the above issues is essential for the successful development of innovation systems that address all of the challenges previously mentioned so that innovation can thrive, and unicorns can grow on the continent.

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[8] Djeflat Abdelkader. Building systems for innovation 'take off' in African economies. Jan, 2013.

[9] Diawara Malick. Thierry Zomahoun : « Faire de l'innovation un moteur de développement pour l'Afrique ». Le Point Afrique. Apr. 2020.

[10] Kingiri, Hanlin, Tigabu and Andersen. Strengthening innovation and development-research capacity in African universities. OpenEdition. p.43-48.

[11] Kingiri, Hanlin, Tigabu and Andersen. Strengthening innovation and development-research capacity in African universities. OpenEdition. p.43-48.

[12] Kingiri, Hanlin, Tigabu and Andersen. Strengthening innovation and development-research capacity in African universities. OpenEdition. p.43-48.

[13] Kingiri, Hanlin, Tigabu and Andersen. Strengthening innovation and development-research capacity in African universities. OpenEdition. p.43-48.

1.2   Presentation of AfricaLics

The African Network for Economics of Learning, Innovation, and Competence Building Systems – AfricaLics is a **research and capacity building network** of scholars, researchers, and policy analysts from Africa and beyond (Europe, South and North America, and Asia) who study development, innovation, learning, and competence building in an African context. In total, the network includes 628 unique members as of December 2020. Nearly 90% of the members are from African origin (see section 7.7 for more details on the membership).

AfricaLics focuses on '**research *on* innovation'** and not 'research *in* innovation'. The Network endeavours to understand why innovative activity is important for society (at community, firm, national, regional, international levels) and how to promote innovative activity and deal with problems that arise in trying to promote it. Most of the research undertaken by the Network fits within the field of the social sciences. I&D studies are a multidisciplinary field that includes theories and methods from a range of disciplinary areas, the most common of which are economics, business management, politics, sociology, and development studies.

The AfricaLics perspective is systemic, socio-economic, institutional, evolutionary, and policy-oriented, seeking to support an inclusive development process. It recognises that innovation and development are value-laden concepts and provides a space for exploring the consequences of the choices made in the innovation process. It aims to promote inclusive and sustainable development in African countries.

AfricaLics, a regional network of Globelics, is still a young network, as it was founded during the All-Africa Globelics Seminar on Innovation and development workshop in March 2012 in Dar es Salaam, Tanzania. The workshop was co-organised by the Globelics Secretariat and the Science, Technology and Innovation Policy Research Organisation (STIPRO), a Tanzanian independent think tank. The establishment of the network in 2012 was the culmination of a longer process during which several Globelics conferences on the African continent, South Africa (2005) and Senegal (2009), had initiated debates on how to support the development of the field.

The rationale for the creation of AfricaLics lies first in the growing recognition of the role of innovation to solve development challenges faced by African countries, and second, in the need to build the capacities of African scholars, researchers, and policy analysts to provide high-quality research outputs in the field of innovation and development to inform policymaking.

According to AfricaLics Interim Constitution, the network's **vision is to facilitate the production and use of high-quality research in innovation and development to promote inclusive and sustainable development in African countries**.

Hence, the AfricaLics main objective is to promote the development of I&D research capacity in Africa with strong links to users – including policy makers and the private sector.

One long-term aim is to enable Africa to become more self-sufficient in studying, monitoring, and evaluating its innovation activities and systems through an evidence-based policy orientation for the betterment of society. The work of AfricaLics intends to complement the research and capacity-building activities of other players in innovation studies both in the academic and policy arena.

To achieve this goal, the network provides both:

- support – through **capacity building** – to African scholars, especially early career researchers, to produce excellent research on innovation studies that is relevant for policy and practice, including resolving African communities' developmental challenges,

- and a **platform for collaboration** amongst researchers, policymakers, and practitioners particularly in Africa but more generally worldwide.

According to the interim constitution, the AfricaLics network aims at achieving its vision/mission through a combination of three different types of activities:

- Promotion of research training in innovation and development including promotion of innovation and development curricula (MSc and PhD level) in universities in Africa.

- Supporting research incubation and networking between African scholars active in the field of innovation and development

- Influencing policy makers through training and dialogue to adopt policies for innovation and development in Africa.

An individual becomes an automatic member of AfricaLics on attending an AfricaLics conference and PhD Academies. Anyone who wishes to become a member without attending the conference can apply in writing to the Secretary-General.

Members have a background in various disciplines: economics, other social sciences (sociology, political science, science and technology policy, geography, history, development studies), STEM (science, technology, engineering, and mathematics), and manufacturing. They are active within a broad range of areas such as energy, sustainable development/transformation, gender, health, agriculture, manufacturing and work organisation, big data, and the fourth industrial revolution.

AfricaLics functions since its inception, as an informal network, drawing on the good-will and engagement of senior scholars (from AfricaLics itself, but also from Globelics and other regional LICS) working in the field of innovation and (economic) development.

A scientific Board – ASB steers the network and is currently (since 2020) chaired by Dr. George Essegbey, Chief Research Scientist at the Science and Technology Policy Research Institute (STEPRI) of the Council for Scientific and Industrial Research (CSIR) in Ghana as President and Dr. Geci Karuri-Sebina, Associate of African Centre for Cities, and Adjunct Visiting Fellow at University of Witwatersrand, South Africa as Vice President. The ASB comprises seventeen (17) people and ensures gender and geographical balance and comprehensive coverage of disciplines. Dr Ann Kingiri, Director of Research and Innovation at the African Centre for Technology Studies (ACTS) is Secretary-General. She is supported by a small secretariat in implementing activities agreed upon by the ASB.

An essential part of AfricaLics activities rest on voluntary contributions. The network also received dedicated multi-year funding from SIDA in 2013 and 2017 for approximately 4.3 million USD. So far, AfricaLics activities can be categorised around:

- Activities supported by the SIDA Research Capacity Building (RCB) project

- Activities supported by the IDRC

- Activities carried out by the ASB members and the network members.

1.3 The Sida-funded Research Capacity Building project

Until 2017, the AfricaLics Research Capacity Building (RCB) project was part of a bigger project under Globelics and administered by Aalborg University (AAU) in Denmark, supported by AAU and SIDA. The AfricaLics RCB was therefore one of Globelics initiatives implemented with a focus on 'Research Capacity Building initiative on Innovation Systems & Economic Development for Africa.'

In 2013 a dedicated grant of 11,800,000 Swedish Kroner (SEK) was provided by SIDA to help support the development of AfricaLics. An additional grant of 25,600,000 SEK (Phase II of the AfricaLics Research Capacity Building project) was approved by SIDA in 2017 to continue the AfricaLics research capacity building activities. The total AfricaLics grant from SIDA for the period 2013 – 2021 stands at 37,700,000 Swedish Kroner (app. 4.3 million USD).

The first phase of the Research Capacity Building project (RCB 2013-2016) grant was held by Aalborg University as previously mentioned. Phase I covered initially the period 2013 to 2015 and eventually extended until 2016. Phase II runs from 2017 to 2021 and the grant is held by ACTS. A request for extension of Phase II has been submitted to Sida and if approved will extend the Phase II until end of 2022, thus allowing time for development and processing of a Phase III application to Sida and other fund-raising activities.

1.4 The IDRC support to AfricaLics

IDRC supported the Nairobi PhD Academy (November 2012) by funding accommodation and subsistence for lecturers, students and facilitators, and other logistical costs for a total amount of $55,963. IDRC also supported in 2018 PhD students and post-docs to participate in the 2018 Globelics conference in Ghana.

1.5 Activities carried out by ASB and Network members

Board members and other network members contribute to capacity-building and various policy outreach activities. Mainly, these pro-bono activities include:

- review of papers submitted for conferences, applications for academies and the Visiting Fellowship Programme.
- lectures and feedback on papers at PhD academies by senior scholars.
- participation in ASB meetings.
- participation in conferences and;
- advocacy for the network through engagement in selected policy related activities.

2 Evaluation objectives and methodology

2.1 Evaluation objectives and scope

Now in its 9th year of existence, AfricaLics is currently going through critical structural reflections and potential institutional changes. It is looking to formalise its model and ensure its activities' sustainability. Reviewing the lessons learned since the start appears critical to feed into the current strategic reflections and the preparation of new funding applications – to SIDA and other potential funders.

As per the agreement between SIDA and the African Centre for Technology Studies (ACTS) concerning support to the AfricaLics network, ACTS, on behalf of the AfricaLics network, has commissioned an external evaluation of the activities conducted since the on-start.

The present evaluation's overall objective is thus to review and document results from the AfricaLics network activities since 2012. The evaluation is both retrospective and formative in nature, to:

- Assess and analyse the aims, activities, and results of AfricaLics, for the activities supported by the SIDA grant, and the network activities more broadly.
- Document achievements and lessons learned, foster learning throughout to the evaluation process and propose recommendations to support the network's future development.

In terms of scope, the evaluation covers all network activities since 2012, namely: activities supported by the SIDA grant, wider network activities, and all the voluntary inputs provided by the AfricaLics community.

The evaluation focuses on achievements made by the AfricaLics research network, including achievements made through the Sida-supported Research Capacity Building Project – RCB (Phase I and Phase II).

The evaluation is expected to be useful for the AfricaLics network itself and to shed light on how the RCB has contributed to the overall vision of AfricaLics.

2.2 Overview of our methodological approach

We conducted the evaluation of AfricaLics based on the following principles:

- A **theory-based evaluation relying on a contribution analysis:** contribution analyses provide a rigorous approach to assess the effectiveness and impacts of an intervention. This approach is appropriate for a formative evaluation, since it does not focus exclusively on measuring the outcomes of an intervention, but also assesses the process through which the intervention has produced its effects and tests the assumptions that underpin its design. Contribution analysis relies on an **intervention logic** which links together the inputs and activities of an intervention with its expected outcomes and impacts. The RCB project (Phase II) has a TOC developed by the AfricaLics secretariat. Building from the initial RCB Phase II theory of change and RCB phase I & II log frames, the documentary review, scoping interviews and own analysis, we developed a revised theory of change for AfricaLics. This theoretical model specifies how the intervention is intended to produce the desired results and formulates assumptions that must be met for the transformation of inputs and activities into the expected outcomes and results and for the achievement of the objectives. This approach allowed us not only to assess whether expected changes have occurred but also to judge whether the design and assumptions underpinning AfricaLics are appropriate.

- **Prioritising learning and a collaborative approach:** the formative dimension of this evaluation is central, as its findings and recommendations will support AfricaLics' future development. Learning must be embedded in the methodology. We have therefore prioritised collective learning and a collaborative approach that will lead to the formulation of recommendations in our methodology. This includes a learning workshop with the network, which will also aim to co-construct relevant recommendations for the future.

- **Capitalising on existing data & evidence**. The AfricaLics Secretariat already has various sets of data, gathered from multiple sources (existing evaluations, annual surveys, ongoing bibliometrics activities, database etc.) The evaluation builds on and aims at complementing this existing evidence base and avoiding any duplication of efforts.

- **Balancing breadth and depth**. There is much added value to consider both getting a global view of the whole set of capacity building activities that have been undertaken as well as understanding the details of each activity and:

  - Considering that all activities are also situated within a much larger field of I&D studies and policy work on the continent but also globally.

  - Getting the right balance between a focus on RCB project activities and the activities of the wider network.

  - Considering both areas of teaching/ learning and building national hubs (and note that it's not just *research* capacity building that has been focused on).

  - Ensuring we have a focus on the learning relating to organisational set up and not just activities per se i.e., the organisational arrangements that have worked/ not worked so well.

  - When focusing on pro-bono activities and contributions, considering the motivations and incentives for these following the methods used in the first external evaluation of Globelics/ AfricaLics.

- **Combining qualitative and quantitative investigations.** Using quantitative techniques will bring a wealth of information to substantiate the qualitative analysis and notably:

  - Considering limitations of different databases and access to publications e.g., PhD theses and working papers. Microsoft Academic is more comprehensive compared to other bibliometric databases and can thereby provide better insight into the scientific output.

  - Using a two-pronged approach to bibliometrics, going by the individuals in the database but also by the field as well. The interest here is to see to what degree the AfricaLics members 'are' the I&D fraternity in Africa or if there are pockets or larger I&D research communities that the network is not reaching.

  - Geomapping the AfricaLics network to provide visual and thus quickly understandable information.

- **Proposing concrete and actionable recommendations**: We will ensure that the results and recommendations from the evaluation are practical, operational and grounded in the reality of AfricaLics' objectives and activities to facilitate their take-up by the network.

2.3   Evaluation framework

The evaluation framework focuses on the OECD-DAC evaluation criteria of **relevance, efficiency, effectiveness, impact, and sustainability:**

- **Relevance**: the extent to which the interventions are responding to society / environment / context (validity of the concept)

- **Effectiveness**: the extent to which the outcomes of the interventions are in line with the original objectives (if not, why not?)

- **Efficiency**: the extent to which the cost (financial and other resources) produces commensurate benefits (comparing with other approaches)

- **Impact**: the extent to which the interventions made an impact in light of the context in which they are operating, and which can be attributed to the intervention (whole or part)

- **Sustainability**: the extent to which the impacts will remain after the end of the intervention, what conditions will help this? Can other conditions be put in place for future programs to augment sustainability?

To assess AfricaLics against these criteria, we will test the hypotheses and assumptions that underpin its theory of change to assess their validity in view of the results achieved.

To ease identification of outputs and outcomes, for the purpose of this evaluation the evaluators have distinguished three pillars of the AfricaLics activities, namely:

- The research and training pillar,

- The outreach pillar,

- And the institutional strengthening pillar.

3 Theory of Change for AfricaLics network activities

A theory of change (ToC) presents a set of hypotheses - empirically testable - that are logically related to each other. It explains why and how the activities and outputs of AfricaLics may have contributed to the observed outcomes and impacts, highlighting a set of plausible indicators that can reduce uncertainty about the difference a programme makes to the observed outcomes.

The application for the AfricaLics RCB project (Phase II) includes a TOC developed by the AfricaLics secretariat. See Figure 1.

Figure 1 AfricaLics RCB project's theory of change
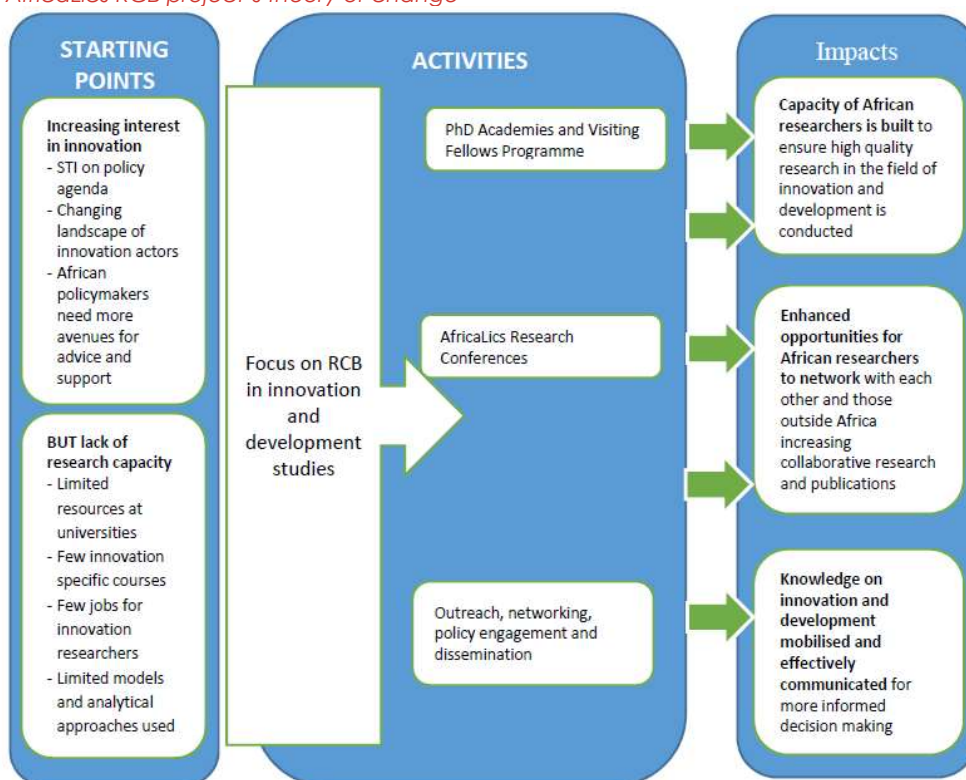
Source RCB project Phase II application document, AfricaLics, December 2016

The project's theory of change is described following four pathways which revolve around four main constituents of stakeholders and beneficiaries:

- **Pathway 1**: African based innovation and development scholars and their employer organisations
  - Through the PhD academies, the Visiting Fellows Programme, and the bi-annual research conference will provide the opportunity for young and post-doctoral researchers to **enhance their research skills and their ability to become dedicated innovation and development scholars**.
  - For more senior and established scholars, the bi-annual research conferences – together with their interaction at the Academies as facilitators and the VFP as mentors will **enable them to increase their collaboration with each other and with young scholars across**

Africa leading to more joint research projects and publications. The bi-annual research conferences will also **provide important opportunities for publication and research results dissemination, furthering the career opportunities for African innovation and development scholars at all stages of their careers**.

- **All the above activities as well as the outreach activities availed through the project will provide African based innovation and development scholars opportunities to expand their networks enhancing their ability** to: (a) conduct collaborative research activities; (b) gain knowledge of different theories, methodological approaches, examples and experiences and; (c) disseminate research results to policy makers and other relevant stakeholders.

- **Pathway 2**: Innovation and development scholars based elsewhere in the world

    - In Phase II, RCB project endeavours to collaborate and share lessons with scholars in other parts of the globe that have shown interest in AfricaLics' approach to RCB. This will **aid the advancement of the research field as a whole on innovation and development within the Globelics community**, including the Regional LICs and other parts of the globe.

- **Pathway 3:** Policymakers, the business community and other stakeholders concerned with innovation and development in African countries

    - RCB project Phase II also places an increased emphasis on **engaging with stakeholders outside of academia**. The project engages this group of beneficiaries through the dedicated policy and stakeholder outreach activities being proposed (social media activity, bilateral meetings etc.) as well as through increasing the involvement of policymakers and representatives of the private and third sectors at AfricaLics events.

- **Pathway 4**: Stakeholders involved in research capacity building in Africa

    - Through dedicated policy engagement, RCB Phase II intents to **share lessons learnt to the broader research capacity building community in Africa** (and even beyond).

Building from the initial RCB Phase II theory of change and RCB phase I & II log frames, the documentary review, scoping interviews and own analysis, the evaluation team developed a revised and detailed theory of change for AfricaLics (see Figure 2). The main differences between the initial ToC (see Figure 1) and the revised ToC are as follows:

- The revised ToC outlines in detail the outputs (short term results), outcomes (medium-term results), and impacts (long term results), which the initial ToC does not show. The activities, outputs, and outcomes derive from RCB Phase I & II log frames, and we ensure that the impacts mirror the objectives set in each project. In Figure 2, we highlight in red-framed boxes the results (outcomes/impacts) that we added.

- Our understanding of the initial ToC impacts is that they are rather intermediary results – outcomes, than long-term results – impacts. For example, capacity building is an outcome of the training activities. One impact of this outcome is that "a sustainable academic community in Africa working in the field of I&D is formed". Similarly, we treat the "enhancement of collaboration opportunities." The only exception is the result "knowledge on innovation and development mobilised and effectively communicated" that we consider a long-term result. Impacts from the initial ToC are marked in bold in the outcomes and impacts of the proposed ToC.

- We structure AfricaLics ToC around three categories/set of activities: **research & training**, **policy outreach & stakeholders' engagement**, **institutional & organisation strengthening,**

which encompass all the interventions conducted by AfricaLics. As such, the proposed ToC does not solely focus on the RCB project and gives more clarity to AfricaLics intervention.

- We highlight the assumptions, which are key conditions to be met for the results to be achievable.

Figure 2 Theory of change

Inputs	Activities	Outputs	Outcomes	Impact	Assumptions

POLICY OUTREACH & STAKEHOLDERS' ENGAGEMENT

See above

Training on policy Outreach *(RCB Phase II)*

Stakeholder and policy oriented meetings and seminars are organised by AfricaLics members *(RCB phase II)*

H1 Awareness of AfricaLics network among relevant stakeholders is enhanced.

Policy and stakeholder oriented activities *(RCB phase II)*

The number of policy briefs authored by attendees at AfricaLics events (delineated by gender and country of residence) is increased. *(RCB phase II)*

The number of females who are targeted for policy outreach is increased. *(RCB phase II)*

The number of female researchers who are engaged as facilitators/experts is increased. *(RCB phase II)*

The number of policy documents that reference research from AfricaLics members' and scholars linked to AfricaLics is increased. *(RCB Phase II)*

The number of policy makers and analysts joining AfricaLics increases.

AfricaLics (Members, ASB and Secretariat) is regularly consulted to provide support and advice to policy makers.

AfricaLics seminars *(RCB Phase II)*

AfricaLics seminars are organised. *(RCB Phase II)*

H2
H3 AfricaLics scholars are recognised as driving force in policy advice in the field of I&D in Africa.

H4

Stakeholders' engagement meetings organised by AfricaLics Secretariat and ASB *(RCB Phase II)*

Stakeholders' engagement meetings are organised by AfricaLics Secretariat and ASB. *(RCB Phase II)*

Followers on social media, downloads from website by stakeholders, and media coverage are increased. *(RCB Phase II)*

The number of citations and references of AfricaLics examples/ case studies as good practice for Research Capacity Building is increased. *(RCB Phase II)*

The number of policy documents that reference research from AfricaLics members' is increased.

Participation in events *(activities carried out by ASB and Secretariat and AfricaLics members)*

AfricaLics Scientific Board, Secretariat and Members actively participate (speech, presentation, facilitation, lecture, training...) to major events related to I&D.

Contribution to research papers, working papers, policy briefs, ... *(activities carried out by ASB and Secretariat and AfricaLics members)*

AfricaLics Scientific Board, Secretariat and Members contribute to major research papers, working papers, reports, policy briefs related to I&D.

Linkages with other research and capacity building networks are fostered.

H5
H6 knowledge on I&D is mobilised and effectively communicated for more informed decision making.

- **H1**: AfricaLics scholars are willing to participate in AfricaLics outreach activities at their respective countries.
- **H2**: AfricaLics members receive support from their affiliated institutions to participate in stakeholders' activities.
- **H3**: AfricaLics members are willing to share information about potential platforms for stakeholders' engagement.
- **H4**: ASB members and AfricaLics Secretariat widely promote the Network's activities and vision.
- **H5**: Stakeholders frequently access AfricaLics website for resources.
- **H6**: Policy makers are convinced of the pivotal role of innovation and development and place it on top of economic policy agenda.

Inputs	Activities	Outputs	Outcomes	Impact	Assumptions

INSTITUTIONAL & ORGANISATIONAL STRENGTHENING

See above

Activities:

- Capacity upgrading of ACTS and establishment of AfricaLics secretariat at ACTS *(RCB Phase I)*
- Support to AfricaLics Scientific Board *(RCB Phase I & II)*
- Creation of **AfricaLics website and social media** *(RCB phase I)*
- **Mapping of the research landscape and specification of baseline for RCB project** *(RCB phase I&II)*
- Formalisation of AfricaLics' network *(RCB Phase II)*
- Technical and advisory support to national level I&D research networks *(RCB Phase II)*

Outputs:

- An Expert is recruited to support ACTS advisory capacity in innovation studies. *(RCB phase I & II)*
- Internal capacity building activities amongst ACTS staff who are members of AfricaLics Secretariat are organised. *(RCB phase I)*
- Deployment of networking IT tools *(RCB phase I)*
- The ASB meets regularly according to Constitution. *(RCB Phase I & II)*
- The website and social media are fully functional and advertised. *(RCB Phase I)*
- A mapping and a baseline study is conducted. *(RCB Phase I&II)*
- AfricaLics Constitution is revised. *(RCB Phase II)*
- A paper that outlines options available to AfricaLics with regards to formalisation is written. *(RCB Phase II)*
- At least one national/regional level I&D networks is established. *(RCB Phase II)*

Outcomes:

- ACTS is able to function as key node in AfricaLics.
- ACTS is able to provide advice and guidance to AfricaLics members.
- The networking tools are used by AfricaLics Scientific Board.
- The AfricaLics Scientific Board functions effectively according to its mandate.
- The website and social media are regularly updated, serve as an effective way to diffuse knowledge and research on I&D and are a major avenue of communication with network members.
- AfricaLics has a robust M&E framework.
- The financial sustainability of the network is ensured.
- AfricaLics is transformed into a legal entity.
- Groups of researchers focusing on AfricaLics thematic areas work together at national/regional level.

Impact:

H1, H2, H3, H4

AfricaLics has a strong and effective governance structure, and the network activities are sustainable and cover all African regions.

Assumptions:

- **H1**: The SIDA grant agreement is extended for a longer period.
- **H2**: AfricaLics has capacity and the governance structure to attract additional donors.
- **H3**: AfricaLics members are willing to contribute financially or in-kind to the network activities.
- **H4**: AfricaLics covers all African regions and extend links beyond Africa

Source: Technopolis Group, based on analysis of internal documents (2021)

4 Outputs of AfricaLics network activities

4.1 Description of the network membership

In total there are 628 unique members registered in the AfricaLics database as of December 2020[14].

Nearly 90% of the members are from African origin. Outside Africa, India (10 members) and the United Kingdom (7 members) are the largest countries. Figure 15 displays the geographical distribution of the African AfricaLics scholars both in absolute terms and relative to population size.

Part of the geographical pattern could be explained by the fact that conferences have been organised in some of the highlighted countries as there tends to be a geographical proximity bias in conference attendance and conferences are one of the key sign-up moments for the network.

Yet, this pattern is likely to be also the result of the initial geographical coverage of the network, as the AfricaLics 2014 baseline study also indicates a strong presence of members from countries such as Nigeria, South-Africa and Kenya.

There is a considerable male over-representation in the database who comprise 73% of all members, meaning a gender ratio of about 3:1. This is quite similar to the gender ratio observed in the 2014 baseline study conducted by AfricaLics.

Figure 3   AfricaLics membership
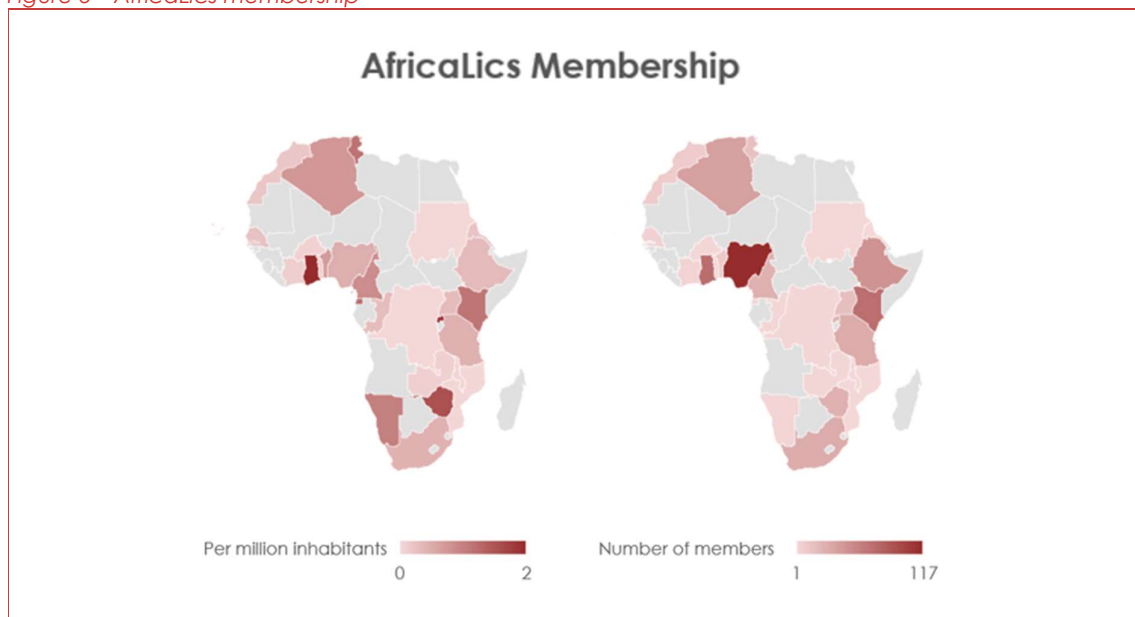
Source: AfricaLics database

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[14] Note that, as most variables are rather sparsely populated, there is only complete data on country of origin and gender. The database does not allow to have a dynamic view of information through time (eg. now versus in 2016, date of the baseline survey).

4.2   Overview of key performance indicators

The table below presents the key performance indicators of the RCB project phase 1 & 2. It shows that AfricaLics achieved its KPIs in phase 1. In phase 2, KPIs on PhD Academies and VFP are not yet been achieved, mainly because of COVID 19 which prevented the organisation of physical events. However, the Secretariat is exploring and planning virtual events that will certainly help to catch up.

Table 2 RCB project KPIs

Phases	Activities	Performance Indicator	Baseline	Target	Achieved
Phase 1	PhD Academies	Number of Academies held	0		4
		Number of Applicants	0	100	277
		Incl. females	0	N/A	N/A
		Number of Participants	0	N/A	110
		Incl. females	0	N/A	38
		Incl. Participants from LICs	N/A	N/A	18
		Extent of Change in Knowledge	N/A	N/A	N/A
	Conferences	Number of Conferences	0	N/A	2
		Papers Accepted	0	N/A	126
		Incl. females	0	N/A	38
		Papers Published	0	N/A	12
		Number of Participants	0	N/A	284
		Incl. females	0	N/A	72
		Incl. LICS	0	N/A	33
	VFP	Number of Cohorts	0	N/A	2
		Number of Applicants	0	N/A	41
		Number of Participants	0	N/A	11
		Incl. Women	0	N/A	2
		Incl. LICS	0	N/A	11
		Incl. Joint Degrees	0	N/A	1
	Supervisor Training	Brainstorming session	0	N/A	1
		Supervisors seminar attendees	0	N/A	20
		Visits to Aalborg University Occurrence	0	N/A	1
		Number of supervisors to visit	0	N/A	4
		Number PhD Completion	0	N/A	112
		Utilisation of skills gained from academies and conferences	0	N/A	147
		Engagement in Collaborative Research	0	N/A	29
	Development of master's Programme	Number of Courses Developed	0	N/A	1
		Total implementation by universities	0	N/A	2
		Partial Implementation by Universities	0	N/A	7
	Thematic research Projects	Number of Workshops	0	N/A	2
		Incl. Number of Projects Members	0	N/A	25
		Incl. number of projects funded	0	N/A	6
		Incl. of Publications	0	N/A	12
		Incl. Policy Dissemination Work	0	N/A	3
	Media	Number of Websites Established	0	1	1
		Incl. Number of Visitors	0	N/A	1 149 078
		Incl. Number of Downloads	0	N/A	9 088

	ASB Meetings	Number held	0	N/A	5
	Increase the advisory capacity on innovation studies and establishing	Number of Seminar Series	0	N/A	7
Phase 2	PhD Academies	Number of Academies held	4	N/A	2
		Number of Applicants	277	N/A	133
		Incl. females	0	N/A	
		Number of Participants	112	90	56
		Incl. females	38	45	17
		Incl. Participants from LICs	18	21	11
		Extent of Change in Knowledge	N/A	N/A	N/A
	Conferences	Number of Conferences	2		2
		Papers Selected	126	N/A	161
		Incl. females	35	N/A	49
		Papers Published	N/A	N/A	106
		Number of Participants	266	450	270
		Incl. Females	72	N/A	83
		Incl. LICS	33	N/A	N/A
	VFP	Number of Cohorts	2		4
		Number of Participants	11		12
		Incl. Women	2	10	6
		Incl. LICS	11	15	7
		Joint Degrees	0	3	1
	Post Doc VFP	Number of Cohorts	0	N/A	1
		Number of Participants	0	N/A	3
		Incl. females	0	N/A	1
	Supervisor Training	Brainstorming session	1	N/A	1
		Supervisors' seminar attendees	20	N/A	20
		Visits to Aalborg University Occurrence	1	N/A	2
		Number of supervisors to visit	4	N/A	6
	Mentoring	Number of Mentees	N/A	N/A	14
		Incl. Females	N/A	N/A	9
	Policy Outreach	Attendance to Policy Outreach Events	N/A	N/A	44
		Number of events held	9	15	11
		Number of Hubs	0	2	2
		Number PhD Completion	112	80	42
		Utilisation of skills gained from academies and conferences	147	360	350
		Engagement in Collaborative Research	29	48	33
	Media	Facebook Followers	N/A	N/A	N/A
		Twitter Followers	N/A	N/A	1032
		Number of YouTube videos	N/A	N/A	16
		Number of Blog posts	N/A	N/A	29
		Website Visitors	N/A	N/A	61537
	ASB Meetings	Number held	3	N/A	6

Source: Technopolis (2021) from documentary review

4.3 Research & training activities and outputs

AfricaLics research and training activities are essentially carried out through the RCB project (phase 1 for initiation and phase 2 for consolidation).

These include two types of activities:

- Capacity building activities including notably PhD Academies, PhD visiting fellowship programme
- Research activities, including conferences, research projects and collaborations

4.3.1 Capacity building activities (RCB phase 1 &2)

4.3.1.1 PhD Academies (RCB Phase 1 and 2)

> **Key outputs**
>
> - In total, between 2012 and 2020, AfricaLics organised six (6) PhD Academies: 2 in East Africa (Kenya), 3 in North Africa (Algeria, Tunisia and Morocco), and 1 in West Africa (Nigeria).
> - 277 PhD applied to the Academies.
> - Overall, through the six Academies, AfricaLics has trained 166 PhD students, a third are women.
> - PhD Academies alumni are mainly concentrated in Nigeria (22%), Kenya (16%), Morocco (10%), Algeria (8%), Ethiopia (7%), Tunisia (7%), Cameroon (5%).

The PhD Academies endeavour to support the training of African PhD/Masters students engaged in research on Innovation and Technology Systems for Development and stimulate their awareness of policy and management issues related to this field of research. These Academies aim to host students selected primarily from Africa and small number of students from the rest of the world. The evaluators use the following criteria to evaluate and select the papers:

- Relevance in terms of topic and content as well as quality.
- Regional distribution
- Gender consideration

The facilitators are drawn from frontier researchers in innovation and development from around the world and provide lectures and mentor the selected students.

The Academies programmes capture major themes relevant to Africa's innovation and development. Some of which are highlighted herein.

- Basic and fundamental themes:
  - Innovation systems, innovations studies and innovation policy
  - Innovation capabilities and relevance to Africa
  - Building innovation systems in developing countries
  - The economic foundations of technology policy
  - Management of innovations at the firm level
  - Innovation indicators
  - Learning and capability building as strategies for innovations and implications for Africa
  - The political economy of innovations and challenges of development
  - …

- Research methodology
  - Innovation and research methods /Survey methods
  - Using econometrics to link innovation and development
  - Research methodology and research design for case study analysis
  - Qualitative research in STI studies: methods, instruments, and issues in an African setting
  - Support and discussion related to the organisation of the thesis work
  - Issues in quantitative research in innovation studies in Developing Countries
  - …

The programmes are structured to accommodate lectures, seminars, roundtable discussions, open events, students' presentations, commentaries from fellow students and senior scholars and adequate time for discussion. They usually last 2 weeks.

In total, between 2012 and 2020, AfricaLics organised six (6) PhD Academies: 2 in East Africa (Kenya), 3 in North Africa (Algeria, Tunisia and Morocco), and 1 in West Africa (Nigeria). See Figure 4.

Figure 4 Summary of AfricaLics PhD Academies

Source: Technopolis (2021) from documentary review

The Academies are organised in collaboration with host institutions (universities) that play an active in the scientific and logistical preparation. They also often contribute financially or in-kind and are instrumental in securing other partnerships.

The first inaugural AfricaLics academy was held in Kenya, from 19th November to 30th November 2012 at the Kenya School of Monetary Studies (KSMS). This Academy was jointly organised by the African Centre of Technology Studies (ACTS), Kenya and the Globelics Secretariat which at the time was hosted by Aalborg University. The participants were mainly from English speaking countries. For this academy, the organising committee received 120 applications. Majority of the applicants were from West Africa (mainly Nigeria) and South Africa. 30 papers were selected to the Academy (25% acceptance rate). All travelling costs and accommodation for both students and lecturers were met by Sida through Globelics Secretariat. The IDRC, Moi University and ACTS co-sponsored all costs related to accommodation and local transport for local organising team. The cost of one of the social events was met by the Government of Kenya through the National Council for Science and Technology (NCST). The total budget of the Academy was 42,551 USD.

The second AfricaLics PhD academy was conducted from the 20th to the 31st of October 2013 at the Institute of Higher Education and Planning (ISGP) in Algiers. This second Academy mainly targeted French speaking countries in Africa. The organising committee received about 50 applications from various part of Africa and mostly from North and West Africa. At the end, a

list of 30 students were selected (60% acceptance rate). In the end, only 19 students could attend: the remaining 11 were not able to come for various reasons: illness, maternity leave, the majority (8) suffered several problems (visa procedure, difficulty in advancing the money for their tickets, etc.). The academy benefited from three main sources of funding: Globelics Secretariat in Aalborg through the Sida grant, the host institution (ISGP) and local sponsors. Local partners mobilised 35,852. 71 €, while SIDA funded through the RCB project 22,856.91€.

The 3rd AfricaLics Academy was held at Moi University in Mombasa from 2nd March to 13th March 2015. 50 applications were reviewed by a scientific review committee made up of members of the AfricaLics Secretariat and Scientific Board. A total of 33 students were selected (66% acceptance rate). Unfortunately, three students were unable to participate at the end of the day due to visa issues and clashes with other commitments. The academy benefited from two main sources of funding: AfricaLics Secretariat at ACTS through the Sida grant, the host institution, Moi University, and the Kenyan National Commission for Science, Technology and Innovation (NACOSTI). The total budget amounted 61,671.48 USD.

In addition to this, Moi University provided in-kind contributions as follows:

- Transport for students and facilitators to and from the venue and airport/ accommodation
- The venue for the event (conference hall, three breakout rooms and lunch area) for 12 days
- Support staff for the conference facilities (to assist with video conferencing and other audio-visual equipment) and general support staff (cleaners, secretarial staff etc.)
- Video conferencing and other audio-visual equipment for the whole 2-week period
- Full time photographer and media liaison officer for the duration of the Academy

NACOSTI covered the costs of programme printing and costs relating to the Open Symposium.

The 4th AfricaLics PhD Academy was hosted by Ecole Superieure de Commerce de Tunis in collaboration with the University of Manouba, Tunisia. 57 applications were received and reviewed by a scientific review committee made up of members of the local organising committee in Tunisia, the AfricaLics Secretariat and Scientific Board. A total of 34 students were selected following a review of all extended abstracts received (60% acceptance rate). Only one student out of the 34 was unable to attend making a total of 33 students who participated at the event in Tunisia in March 2016. The academy benefited from two main sources of funding: AfricaLics Secretariat at ACTS through the Sida grant (58,316.84 USD) and the host institutions, Ecole Supérieure de Commerce de Tunis and University of Manouba (16,650 USD). The local organisers provided the contributions as follows:

- Transport for students and facilitators to and from the venue and airport
- Support staff for the conference facilities (to assist with video conferencing and other audio-visual equipment)
- All costs of the social events including the academy dinner

In addition, the local organisers raised outside funds (from Wiki Start Up) for one of the student excursions to the value of 1,500 USD.

The 5th AfricaLics PhD Academy was held at the National Centre for Technology Management, Obafemi Awolowo University Ile-Ife from 19th June – 30th June 2017. 54 applications were received. A total of 31 students were selected following a review of all extended abstracts received (57% acceptance rate). Five (5) students out of the 31 were unable to attend, making a total of 26 students who participated at the event in Nigeria.

The 6th AfricaLics PhD Academy was held at Université Cadi Ayaad, Marrakesh, Morocco. The academy was hosted by the Faculty of Legal, Economic and Social Studies at the Université Cadi Ayaad. A total of 79 applications (59 English language applications and 20 French language applications) were submitted. A total of 28 students were selected following a review of all extended abstracts received (35% acceptance rate). Due to the difficulty of getting visas to Morocco for some students and other commitments only 19 out of the originally selected 30 students from outside Morocco were able to attend. They were joined by 11 students from Morocco's host university. The local organisers provided the contributions as follows[15]:

- Transport for students and facilitators to and from the venue
- Support staff for the conference facilities (to assist with video conferencing and other
- audio-visual equipment)
- Costs relating to field trips and the formal academy dinner.

Overall, through the six Academies, AfricaLics has trained 166 PhD students, a third are women. See Figure 5 and Figure 6 .

Figure 5 Number of PhD Academies participants over year
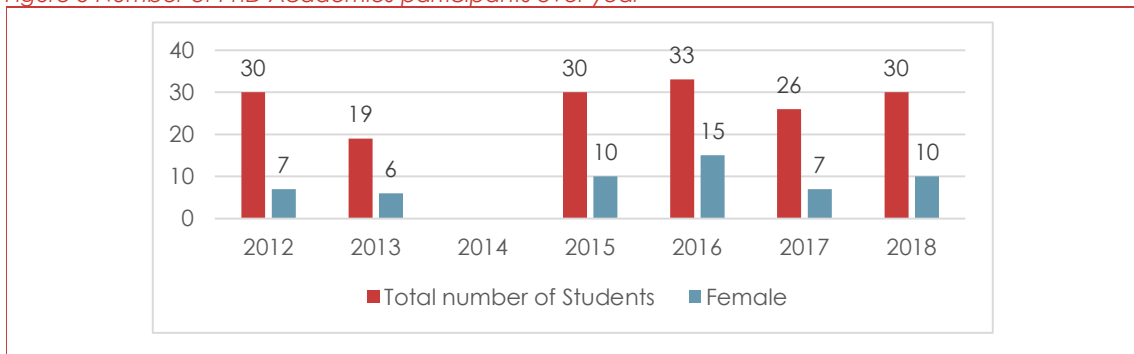
Source: Technopolis (2021), from documentary review.

Figure 6 PhD Academies participants, gender repartition
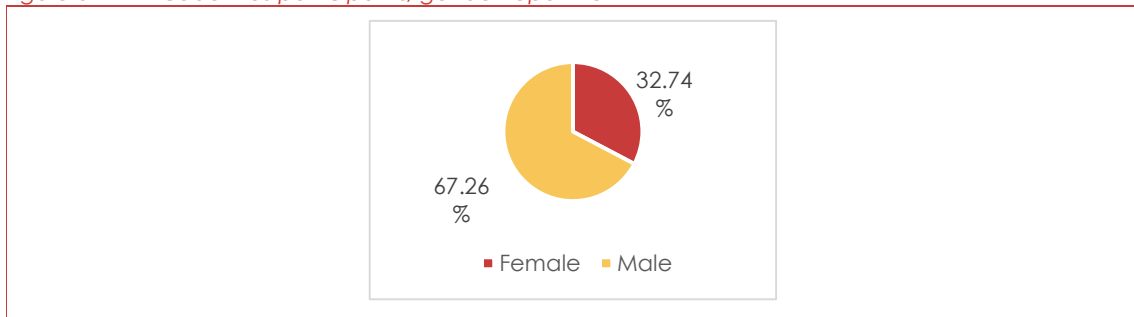
Source: Technopolis (2021), from documentary review.

As shown by Figure 7, **PhD Academies alumni are mainly concentrated in Nigeria (22%), Kenya (16%), Morocco (10%), Algeria (8%), Ethiopia (7%), Tunisia (7%), Cameroon (5%).**

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[15] Estimation of the local partner in-kind contribution is not provided in the Morocco PhD Academy report.

Figure 7 PhD Academies participants, geographical dispersion

Source: Technopolis (2021), from documentary review.

4.3.1.2 PhD Visiting Fellowship Programme (pilot in RCB phase 1 and consolidated version in phase 2) with pilot programme for post-docs (phase 2)

Key outputs

- 6 rounds/cohorts of PhD Visiting Fellows involving a cumulative total of 23 PhD students (8 are women), over 14 AAU mentors and over 17 home supervisors.
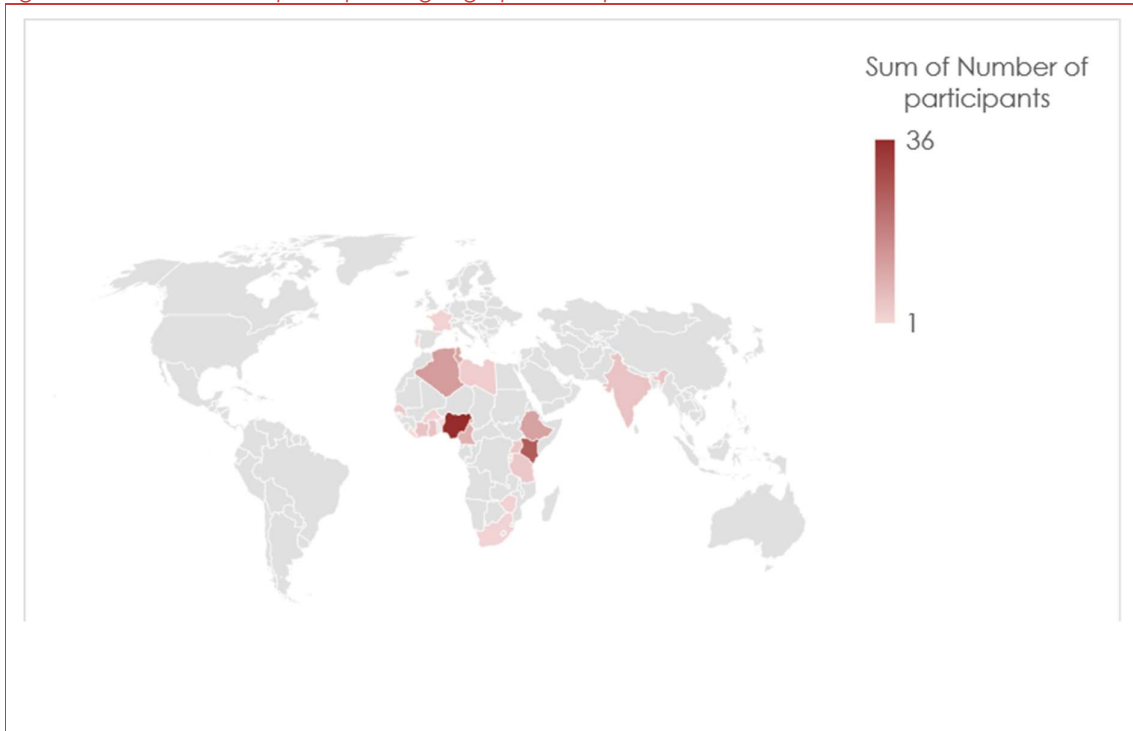- With inputs from the programme, 14 of the 23 PhD visiting fellows have completed their PhDs and 3 more students have submitted their PhD dissertations and are expecting to defend in 2021. One student completed his dissertation as a joint degree
- Participating PhD students produced a broad range of specific outputs during the study visit incl. revised PhD proposals, chapters of their PhD dissertations, journal articles and presentations for various seminars and conferences.
- 3 post-docs were selected for the programme for early career development piloted in RCB phase 2.
- Two post-docs have completed and published articles on the basis of their AfricaLics supported research, while the third has submitted a paper to the Globelics conference 2021. In addition, one post-doc has submitted a research proposal to his home university and received support for follow-up research.
- Post-docs also guest-edited a special issue of the journal Innovation and Development focussing on sustainable industrialisation in Africa.

The AfricaLics PhD Visiting Fellowship Programme (AfricaLics PhD VFP) aims at helping African PhD students working in the field of innovation and development to strengthen their

academic/research qualifications; improve quality of their dissertations and prepare for a career in innovation and development either within academia or outside (e.g., in the private sector or in government/policy making). The programme does this by increasing the international mobility and level of exposure of African PhD students to international knowledge in the field of innovation and development. The programme provides time away from home (~5 months) for the PhD candidates to focus on their PhD dissertation and writing up papers and articles, access to scientific databases and new research methodologies. The programme forms part of the overall efforts by AfricaLics to contribute to the development of a vibrant research community in Africa in the emerging field of Innovation and Development studies research. Funding for the visiting scholarships is provided by SIDA through the RCB project.

The VFP was developed in 2015-16 by staff from the IKE group at the Department of Business and Management at Aalborg University in collaboration with the AfricaLics secretariat. Funding for the initial efforts including scholarships for an initial group of 11 PhD visiting fellows was provided by Sida through the first Phase of the RCB project managed by AAU. All but one of the visiting fellows participating in Phase 1 have completed their PhDs with the last one expecting to submit in 2021. The programme has been extended in RCB phase 2 to include a pilot programme aimed at supporting young African researchers (post-doc) working with innovation and development in their career development and thereby help develop research hubs in innovation and development at their home institutions.

6 rounds/cohorts of PhD and Post Doc Visiting Fellows involving a cumulative total of 23 PhD students (8 are women), over 14 AAU mentors and over 17 Home supervisors were realised between 2015 and 2021. More than 20 paper presentations seminars and over 100 bilateral and/or trilateral mentoring sessions were realised. A total of **14 of the visiting fellows have completed their PhDs with inputs from the programme. One of these (Dr. Abdi Yuya Ahmad from Ethiopia) completed his PhD as a joint degree** from Adama Science and Technology University and Aalborg University in 2017). Three more students are expecting to either submit or defend in 2021. Several students have faced administrative delays at their home universities in the process of getting their PhD dissertations assessed. The AfricaLics secretariat maintains links with the students and seeks to assist where possible e.g., with complementary mentoring and moral support after students return to their home countries. In addition, **3 post-docs (one female and two males) were recruited for inclusion in the pilot programme for early career development**. There was no visit by PhD and Post Doc fellows to Denmark in 2020 due to the Covid-19 crisis, but activities (incl. paper presentations; mentoring and a joint course on Writing Skills) continued online via Skype/Zoom and mail. In 2021, five PhD visiting fellows have visited Denmark to receive face-to-face mentoring, participate in paper presentation seminars and selected PhD courses plus work on their PhDs. **Two post-docs have completed and published articles on the basis of their AfricaLics supported research, while the third has submitted a paper to the Globelics conference 2021**. In addition, **one post-doc has submitted a research proposal to his home university and received support for follow-up research.**

4.3.1.3 Training of PhD supervisors (RCB Phase 1 and Phase 2)

Key outputs

- 43 PhD supervisors benefited from capacity building activities in RCB phase 1 on PhD supervision.

> - AfricaLics also developed a 'good practice' paper on PhD supervision in I&D and a draft outline of a PhD programme on I&D.

The RCB phase 1 implemented activities to enhance the capacities of PhD supervisors in the field of I&D, mainly organised back-to-back with other events.

An initial meeting of African PhD supervisors was held in Maputo, Mozambique back-to-back with the first AfricaLics Conference with 14 participants. The meeting concluded that AfricaLics should set up a knowledge bank of key innovation and development literature as well as develop a handbook on PhD supervision.

During the PhD Academy of Mombasa, Kenya in March 2015, another meeting was organised with a total of 20 supervisors participating. The main agenda for this event consisted of Experience sharing, review of draft manual on PhD supervision, Launch PhD supervisors' forum on website.

In addition, **as part of the pilot VFP, the PhD supervisors were invited to come to Aalborg University** to meet their students and the Aalborg University mentors and to participate in a one-day seminar on PhD supervision to provide possibilities for home supervisors and mentors at AAU together with PhD students to reflect on good practices and new ideas on how to improve PhD supervision. **In 2015 5 out of 6 supervisors participated and in 2016 4 out of 5 supervisors participated.** In 2016 the PhD supervisors also participated in a one-day research seminar on "Innovation and Development in Africa" with AAU scholars from the IKE and IBC groups. The seminar focused on research relating to strategies for upgrading technological capabilities and innovation in relation to natural resources and renewable energy. In 2018 and 2019, home supervisors also visited Denmark in order to have interactions with their students and AAU mentors with discussions on supervision practices and discussions of research and research priorities for the AfricaLics network. Due to the COVID19 pandemic, the planned visit by home supervisors in 2021 was unfortunately not possible to realise but home supervisors have been exceptionally active as far as online participation in paper presentation seminars is concerned.

AfricaLics also developed a 'good practice' paper on PhD supervision in I&D entitled "A good practice guide for students and supervisors working in innovation and development" has been in English and French, as requested by the PhD supervisors. Finally, an outline of a PhD programme on I&D was developed and is available online on the AfricaLics website.

4.3.1.4   Design of model course (RCB phase 1)

Key outputs

- AfricaLics developed a full Master course on "Masters of Science in Innovation and Sustainable Development.
- At least 23 universities were sensitised on the module across 10 countries (including six universities in four low-income countries).

From 10th - 14th November 2013 participants from 3 African Universities came to Aalborg University to discuss further collaboration on development and implementation of courses in innovation studies. In May 2014, AfricaLics organised a workshop, hosted by the College of Engineering and Technology at the University of Dar es Salaam and supported in the organisation by STIPRO to discuss the current state of I&D related capacity building in East Africa and how to move forward with the development of module courses in I&D.

These reflections evolved, and as a result, a **full master's course/module on Innovation and Sustainable Development** was developed that could be adapted and contextualised by those wanting to introduce new curriculum into their teaching offerings. In addition, an outline of the courses (modules) that could be included to make up a "Masters in Innovation and Development" and a "PhD in Innovation and Development" were also developed. All three materials were made available open access on the AfricaLics website.

AfricaLics publicised and created awareness on the module in 2015 and 2016 with at least 23 universities sensitised across 10 countries (including six universities in four low-income countries). For instance, **AfricaLics held a workshop entitled 'Teaching innovation and development** for university lecturers in Africa in Kenya from 29th November 2016 to 2nd December 2016. The workshop was attended by 19 participants from 17 countries. The workshop programme was a mix of lectures and in-class activities as well as group work. Participants were selected based on an initial open call for interest through the AfricaLics' social media platforms and other affiliated networks. Interested individuals were asked to contact the AfricaLics Secretariat with details of why they would be interested in attending a teaching workshop and to state if they had tried to use any of the course materials already. In addition, representatives of the original partner universities that were involved in the development of the course materials were also invited. The recruitment and selection process were favoured as much as possible a mix between those who had an experience of teaching and researching innovation and others who were in the process of introducing the innovation subject in their institutions but had very little knowledge of the subject. The training programme was designed to utilise the materials from the AfricaLics model module on Innovation and Development.

4.3.1.5 Curriculum development for a Master on I&D at AAU with recruitment from Universities in Africa (RCB Phase I)

Key outputs

This activity has not been realised due to a change in legislation. As a response to this situation, AAU included an elective course track under the existing MIKE-E education focusing on "Globalisation, Innovation and Development".

This activity was reoriented to adapt to a changing environment: a national governmental decision on conducting institutional accreditations of all Danish universities meant that no new educations could be approved at Aalborg University until 2016 at the earliest. **As a response to this situation, AAU included an elective course track under the existing MIKE-E education focusing on "Globalisation, Innovation and Development"**.

In parallel, the Globelics Secretariat kept looking for other opportunities to develop a master programme on Innovation and Development. This effort has resulted in submission of an application to the Nordic Council for support to the development of a master programme on Innovation and development. The application was made together with colleagues in Sweden, Norway and Finland (Lund, Oslo, and Tampere) and was approved by the Nordic Council in 2015. As a first step towards developing the Nordic master in innovation and development, an Erasmus agreement on exchange of students between Lund University (Department of Economic History) and Aalborg University (the MIKE programme) has been signed and exchange of students between the two universities are therefore possible as from September 2017.

4.3.2 Research & collaboration activities (RCB phase 1 & 2)

4.3.2.1 Conferences (RCB phase & & phase 2)

> **Key outputs**
>
> - Since its inception in 2012, AfricaLics organised four (4) conferences, that gathered more than 500 participants, 30% are women. 287 papers have been selected for presentation during the conferences.
> - The countries (top 10) that account for the most participants to conferences are: Rwanda (the Rwanda conference gathered the most participants of any conference), Nigeria, Kenya, Tanzania, South Africa, Algeria, Uganda, Ethiopia, Cameroon, and Ghana.

One of the objectives of AfricaLics is to increase quality research in innovation within specific relevant areas for Africa's development and encourage its increased use by scholars and policy makers in the region and globally. AfricaLics biannual conferences aim to create a platform for domestic scholars and international scholars to achieve this endeavour. Conferences are constructed around themes relevant to African development and organised in partnership with host institutions (universities).

The Secretariat initiates an open call that invites submission of original, unpublished papers applications for the conference in line with the main conference theme or sub-themes. The call encourages the participation of young researchers. The selection of the papers is based on a peer-review process. The Conference Scientific Review Committee is often made up of members of the host university and senior scholars from the AfricaLics community and AfricaLics Scientific Board and Secretariat. Each paper goes through a double-blind peer review. Each paper is reviewed by two reviewers and scored on relevance to the conference themes, originality, research methods, relevance, academic and scientific quality, and originality.
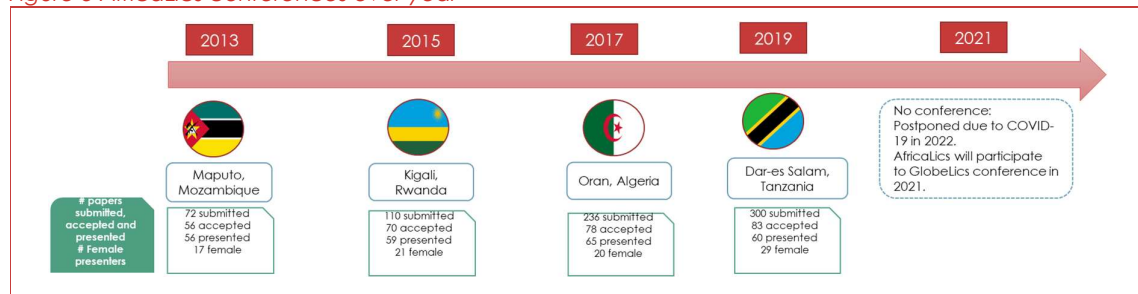
Since its inception in 2012, AfricaLics organised four (4) conferences, that gathered more than 500 participants, 30% are women. 287 papers have been selected for presentation during the conferences. See Figure 8.

Figure 8 AfricaLics conferences over year

	2013	2015	2017	2019	2021
# papers submitted, accepted and presented # Female presenters	Maputo, Mozambique 72 submitted 56 accepted 56 presented 17 female	Kigali, Rwanda 110 submitted 70 accepted 59 presented 21 female	Oran, Algeria 236 submitted 78 accepted 65 presented 20 female	Dar-es Salam, Tanzania 300 submitted 83 accepted 60 presented 29 female	No conference: Postponed due to COVID-19 in 2022. AfricaLics will participate to GlobeLics conference in 2021.

Source: Technopolis (2021), from documentary review.

The countries (top 10) that account for the most participants to conferences are: Rwanda (the Rwanda conference gathered the most participants of any of the conferences), Nigeria, Kenya, Tanzania, South Africa, Algeria, Uganda, Ethiopia, Cameroon, and Ghana.

The first AfricaLics Conference was held in Maputo from 2nd to 3rd December 2013. It was organised in a form of a research workshop aimed at bringing together researchers from the innovation and development community towards providing a space for creative thinking concerning new research projects or research dissemination projects in this area. It was a first step towards the possible funding of new networked research projects that take cognisance

of Africa's development in view of its unique context. The theme of the first conference were guided by a number of thematic areas essential to the development of African economies and livelihoods. These are:

- The role of women in Africa's innovation systems.
- Work organisation and competence building in formal and informal sector.
- Overcoming raw material curse through new manufacturing and service activities.
- National strategies to stimulate spill overs from BRIC presence in Africa.
- Engineering design capacity building and economic development in Africa.
- Building Low-carbon Energy Innovation Systems.
- Agro-industrial innovation systems and food security.
- The role of financial institutions in relation to innovation and development in Africa.
- Other areas of interest (e.g., health innovation)

The workshop was also part of the efforts by AfricaLics network to enable groups of researchers to apply for seed funding for research projects and book projects.

The 2nd AfricaLics conference was the first conference focusing on the current state of research on African Innovation and Development to be held in Africa specifically targeting the academic and policy communities. It took place in Rwanda from 17 – 19 November 2015 and was hosted by University of Rwanda, College of Business and Economics (CBE). The theme of the Conference was "unpacking systems of innovation for sustainable development in Africa'. The programme comprised of interactive activities namely plenary sessions, paper parallel sessions, special sessions, poster session and teaching track. The event also consisted of an Open Symposium allowing members of the public to attend and engage in debates on innovation and development in Africa, and Rwanda specifically.

The third AfricaLics Conference was hosted by University of Oran 2 Mohamed Ben Ahmed, Oran, Algeria from 27-29 November 2017. The theme of the Conference was "Emerging innovation systems for sustainable development in Africa'.

The fourth AfricaLics Conference was held in Dar es Salaam, Tanzania from the 22nd – 24th October 2019. The overall theme of the conference was "Innovation and transformative capacities for growth and sustainable development in Africa". Figure 9 presents a word cloud of papers presented during AfricaLics conferences. It shows that the most popular themes are inclusive innovation, technology, sustainability, capacity building, enabling environment.

Figure 9 Word cloud of papers presented during AfricaLics conferences

Source: Technopolis (2021), from documentary review

4.3.2.2 Incubation of research projects (RCB phase 1)

Key outputs
- Six projects were funded, with varying amounts of funds up to $35,000 (total $190,000) lasting from 3 months to one and a half year.
- The projects resulted in the development of journal articles, research proposal submissions and/or book proposals. It also provided opportunities for enhanced collaborations among researchers in Africa as well with other scholars outside Africa.

AfricaLics Incubation project research main objective was to stimulate an increase in the quality of research within specific relevant areas for Africa and increased use of it by scholars, business communities and policy makers.

The Research Capacity Building project included an activity whereby seed funding for small research proposal and book project grants were advertised and then managed; with the main aim of stimulating an increase in quality research targeting specific areas of African innovation and development relevant for Africa's development. The activity was also developed so as to increase collaboration between researchers, particularly young and emerging scholars, in Africa.

During the first AfricaLics conference in 2013, 14 research groups interested in submitting applications for the call in 2014 was established. The call was launched beginning of 2014, and a total of 19 applications were submitted out of which **six projects were funded, with varying amounts of funds up to $35,000 (total $190,000) lasting from 3 months to one and a half year. The projects resulted in the development of journal articles, research proposal submissions and/or book proposals. It also provided opportunities for enhanced collaborations among researchers in Africa as well with other scholars outside Africa**. An overview of the granted projects is presented in Figure 10 below:

Figure 10 Research grants

Name of grantee/s	Institutional affiliation	Name of project	Project duration	Funding	Status as per final report (April 2016)
Abdi Yuya Ahmad	Adama Science & Technology University, Ethiopia	Natural Resource Endowment and Innovation Behaviour of Firms	11 Months	20,000 USD	A research report was completed and reviewed by an external reviewer late in 2015.
Mammo Muchie	Tshwane University of Technology (TUT), South Africa	Engineering Design Capacity Building and Economic Development in Africa	15 Months	35,000 USD	Five draft papers submitted by the researchers. 5 additional papers from scholars who attended the conference in Kigali and SARChi postdocs. Result: 10 papers.\n\nThey experienced delays in the submission of papers but all now in peer review.\nProject on course to see published journal papers and ultimately a book.
Radhika Perrot Mapungubwe	Institute for Strategic Reflection (MISTRA), South Africa	Building low carbon innovation energy systems in Africa	12 Months	35,000 USD	6 Full Chapters were submitted by project members to the project leader in September 2015.\nAgreement received before project end for a the chapters to be published in a Special Issue in a relevant journal.\n\nAn online report-book for the project with the six chapters to be prepared in early 2016.
Williams Ezinwa Nwagwu	University of South Africa (UNISA), South Africa	The Role of Women in Science and Technology Innovation in Grassroots Agriculture in Africa	15 Months	30,000 USD	Two documents submitted to the AfricaLics Secretariat with the final report:\n• "Contributions of Rural Women farmers to Grassroots Innovations in Agriculture in Africa:A meta literature review"\nA project proposal entitled: "Making the Contributions of Grassroots Women Farmers Count in the Stock of Agricultural Innovations in Africa".
Erika Kraemer-Mbula	Institute for Economic Research on Innovation, South Africa	Work organization, competence building and innovation in formal and informal microenterprises in Africa	15 Months	30,000 USD	Two off-shoot funding proposals submitted in 2014 but neither proposal successful. A larger proposal involving a larger number of interviews in each country is currently in progress.\n\n5 country reports were submitted with the final report. These are being worked into journal papers.
Simon Roberts	Centre for competition, Regulation and Economic Development, University of Johannesburg, South Africa	The Southern African regional value chain for mining inputs: An opportunity to build regional technological capabilitiesin the mineral and non-mineral sectors?	5 Months	10,000 USD	All project deliverables completed and project closed.\n\nA joint research proposal was submitted to funders and funding for one element of the research awarded by UNU-WIDER

Source: AfricaLics

4.3.2.3   Facilitation of meetings of potential collaborators (RCB phase 2)

Key outputs
- **33 new collaborations took place as a result of AfricaLics events between 2017 and 2020.**

In 2020, AfricaLics identified, through its surveys that, **33 new collaborations** took place as a result of AfricaLics events between 2017 and 2020.

4.3.2.4   Training and publishing support to participants of AfricaLics events (RCB Phase 2)

Not many activities have been implemented regarding training and publishing support to participants of AfricaLics events. Special sessions were held at the AfricaLics Conference in 2019. Sessions at PhD Academies were also dedicated to providing support on scientific writing. The VFP has started a writing workshop for 2020 cohort where targeted support is given to participants with a facilitator to assist in developing a publishable output.

4.3.2.5 Mentorship for applicants from LICs and LMICs (RCB Phase 2)

> **Key outputs**
>
> - AfricaLics ran a pilot mentorship programme that commenced in 2018 to enhance participation of scholars from LICs and LMICs to AfricaLics and Globelics conferences. A short term (approximately one year) mentorship activity was organised culminating to the Globelics conference in Accra, Ghana 2018.
> - The second part of the pilot mentorship programme involved 14 mentees for the coming Globelics conference in 2021.
> - Formal mentorship takes also place within the VFP.
> - More informal mentorship is also occurring as students and facilitators from Academies continue to interact post-Academies.

AfricaLics provides mentorship especially for scholars from LICs and LMICs to help the mentees to become more technically competent in the field of I&D studies in terms of understanding, review, analysis, and application in their respective areas of expertise/research or academic interest.

Mentorship within AfricaLics is present across several core activities and occurs in an informal and formal manner. Formal mentorship (or that which is explicitly labelled 'mentorship') takes place within the visiting fellows programme and as part of conference planning (since 2018). More informal mentorship is also occurring as students and facilitators from Academies continue to interact post-Academies.

AfricaLics ran a pilot mentorship programme that commenced in 2018 to enhance participation of scholars from LICs and LMICs to AfricaLics and Globelics conferences. A short term (approximately one year) mentorship activity was organised culminating to the Globelics conference in Accra, Ghana 2018.

The second part of the pilot mentorship programme involved another pilot activity organised around the Globelics conference initially scheduled to take place in 2020 in Costa Rica but postponed to 2021 due to the COVID-19 pandemic. The conference was identified as the end goal and therefore the mentees were expected to develop a paper for submission to this conference. Following the postponement, mentees and mentors were contacted to see if they would like to continue their engagement despite the conference having been postponed. Most mentees decided that they would stay engaged in the mentorship programme. Since then, at least two mentees (out of 14) have submitted the papers they had prepared for Globelics to journals for publication. They have used comments received from their AfricaLics mentors as an input to this process.

A survey was conducted in 2020 to identify perspectives and experiences of AfricaLics scholars about mentorship in the context of Africa. The survey concluded that it is timely to develop an AfricaLics strategy on mentoring to provide direction on mentoring activities and a dedicated mentorship programme for AfricaLics.

AfricaLics developed in 2020 a mentorship strategy which outlines the AfricaLics approach to mentorship and takes note of the resource limited setting (human, technical and financial) and the nascent nature of the I & D field of study in Africa. The strategy is also focused on assisting more generally in making students and early career researchers more confident, more visible, and better networked, as they build their I & D research skills thereby increasing their leadership potential in the policy and in a socially responsible manner.

4.4 Policy outreach activities and outputs (RCB Phase 2)

AfricaLics policy outreach and stakeholders' engagement activities are carried out through the RCB project (especially phase 2), and voluntary inputs provided by the AfricaLics Scientific Board members and the wider AfricaLics community.

These include two types of activities:

- Participation to events such as open policy fora organised back-to-back with AfricaLics PhD academies and conferences, outreach events at Globelics conferences and participation/presentations by ASB members or members of the secretariat e.g. in the African Innovation Summits; Sida meetings and Sida Science Days, an International Development Research Centre (IDRC) conference in Paris in 2016 and the Donor Harmonisation Group meeting on support to research and higher education in Copenhagen in 2018[16].

- Other outreach activities including involvement of members of the ASB and the network members; most recently for example a number of ASB members have taken an active role in the preparation of the UNESCO 2021 Science Report[17].

About 45 outreach activities have been realised between 2017-2020 by AfricaLics globally to sensitise about their activities and model, get recommendations on how to implement their programme, gain knowledge and share experience on similar (different) programmes operated internationally, enhance capacities on research aspects, enhance the capacities of women on innovation aspects, etc. based on the list of participation by the ASB and Secretariat, the following categorisation in events can be made :

- 12 participations in international conferences/forums/summits
- 5 participations in seminars
- 13 participations in lecturing/academy/curriculum building related events
- 7 participations in workshops/symposiums
- 4 participations in meetings with other external/internal actors.

These have been within the framework of seminars, workshops, international or national conferences, lecturing sessions in other institutions, etc; and there has been a multitude of partners involved from academia, research organisations, international & multilateral organisations and many others. The sections below shade lighter on the outreach activities of AfricaLics. However, there is not information to measure how many people have been attendees to these events, but there is definitely an undoubtable reach to multiple corporate, academia, government, research community and other stakeholders.

4.5 Institutional & organisational strengthening activities and outputs

AfricaLics institutional and organisational strengthening activities are essentially carried out through the RCB project (phase 1 for initiation and phase 2 for consolidation) but also at the margin some in-kind contributions of ACTS.

These include two types of activities:

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[16] Terms of Reference: External evaluation of Research Capacity Building Project AfricaLics 2013 - 2020

[17] Idem

- Internally oriented activities such as setting-up and operating AfricaLics governance institutions

- Externally oriented activities such as communication and social media as well as support to regional/national research hubs

By 2019-2020, the AfricaLics secretariat hosted by ACTS had established its internal systems:

- The governance of AfricaLics was established and maintained. The AfricaLics Scientific Board (ASB) made of 17 members.

- At the Secretariat, three investigator positions were filled (two at ACTS, one being attached to Aalborg University, with which it had signed a collaboration agreement), one academic officer position (Aalborg), and 3,5 IT and administrative support positions (ACTS, Kenya) (0,5 of which being ACTS in kind contribution to AfricaLics).

- A presentable website has been developed (http://www.africalics.org/), providing key information about the program such as core information about the program, activities, news & events, resources, etc. Social media pages have also been created with Facebook, LinkedIn and Twitter accounts (2012-2014).

- Mapping and baseline study was conducted (2016) and another one is embedded in the current evaluation study.

- An Interim constitution was developed (2018)

- A revised evaluation protocol was implemented (2017), a revised RBM survey was conducted in 2018, a tracer study was conducted in 2019-2020, and the M&E plan was restructured to collect outcome (if not impact) data throughout the second phase of the programme.

- Administrative and financial capacities were upgraded working through the KPMG audit report recommendations of 2017 (2018). An audit in 2018 confirmed compliance of ACTS accounts to SIDA requirements.

- Video conferencing equipment was acquired and upgrading ACTS internet connection was performed to move ASB meetings online as a more frequent and normal procedure. (2019)

- Paper that outlines options available to AfricaLics with regards to formalisation and sustainability (fundraising) have been written and discussed by the ASB (2020). Have helped advance discussions about the future of the network.

- Technical advisory support to the national level innovation and development research networks has been carried out. The Nigeria hub, NigeriaLics, was set up (2020) and the Nairobi hub is in the process of being setup (even though this has been slowed down by Covid-19). Another hub is being setup in Burkina Faso. Efforts to set up a North Africa hub predated all of these but have been hampered by institutional issues within the university hosting the hub in Algeria.
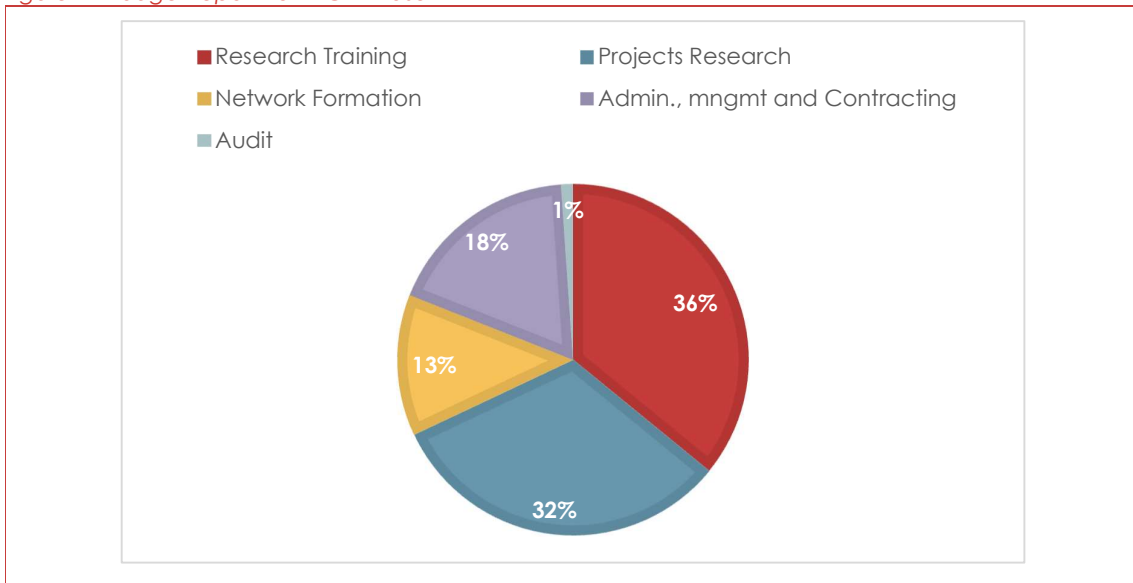
4.6 Budget

The RCB project was funded 11,800,000 Swedish Kroner (SEK) for phase 1 and 25,600,000 SEK for phase 2. (The total AfricaLics grant from SIDA for the period 2013 – 2021 stands at 37,700,000 Swedish Kroner (app. 4.3 million USD).

In phase 1, 68% of the budget was allocated to research & training activities (see Figure 11). In phase 2, the same proportion (68%) was allocated to research & training activities. It is important to note that the Visiting Fellowship Programme (VFP) absorbed 39% of the budget (See Figure 12).

In phase 2, disbursement rates by 2021 are high (80% on average), except VFP which rates is 59%. The COVID 19 outbreak slowed down the realisation of this activity. (See Figure 12).

Figure 11 Budget repartition RCB Phase 1

Source: Technopolis (2021), from documentary review

Pro bono contributions are estimated to be 697,000 SEK (5.8% of SIDA grant) in phase 1 and 9,625,200 (37.6% of SIDA grant) in phase 2.

Figure 12 Budget repartition and expenditure RCB Phase 2 (USD)
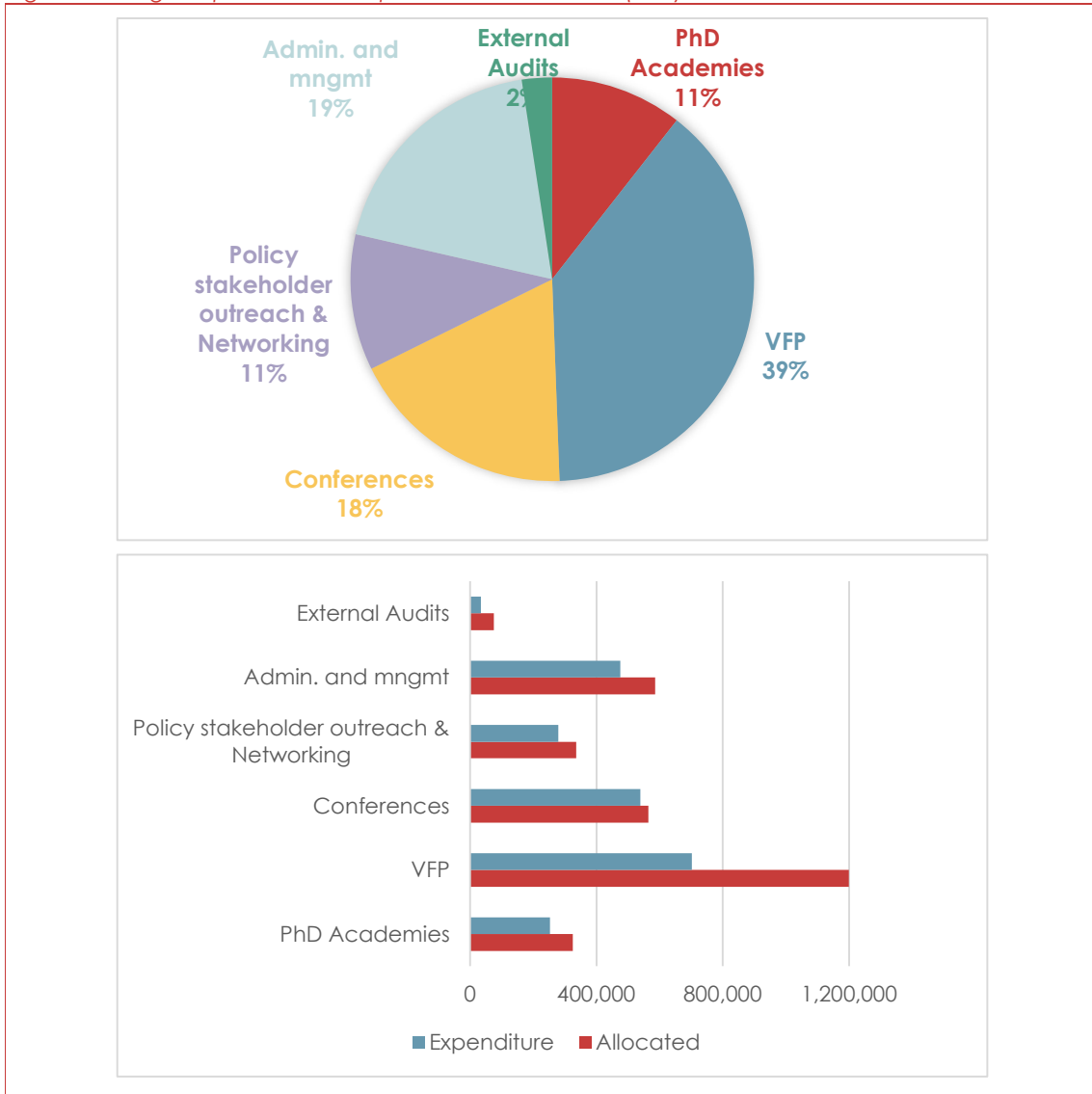
Source: Technopolis (2021), from documentary review

The pro bono contributions by AfricaLics members consist of:

- Pro bono work (conference keynotes and other invited speakers): No one speaking at events charges for their time.
- Individuals covering own flights and/or accommodation: Some members cover their own airfare to attend events.
- Co-hosts in-kind contributions at events: host of events cover local transportation, the venue, local printing costs and at least one event dinner.
- In-kind contribution of reviewers: reviewers of paper do not charge for their time.
- In-kind contribution by ACTS and AAU: staff time and additional support.

Figure 13 shows that pro bono contributions are dominated by in-kind contributions by ACTS, AAU, and speakers to events.

Figure 13 Pro bono contributions (SEK)
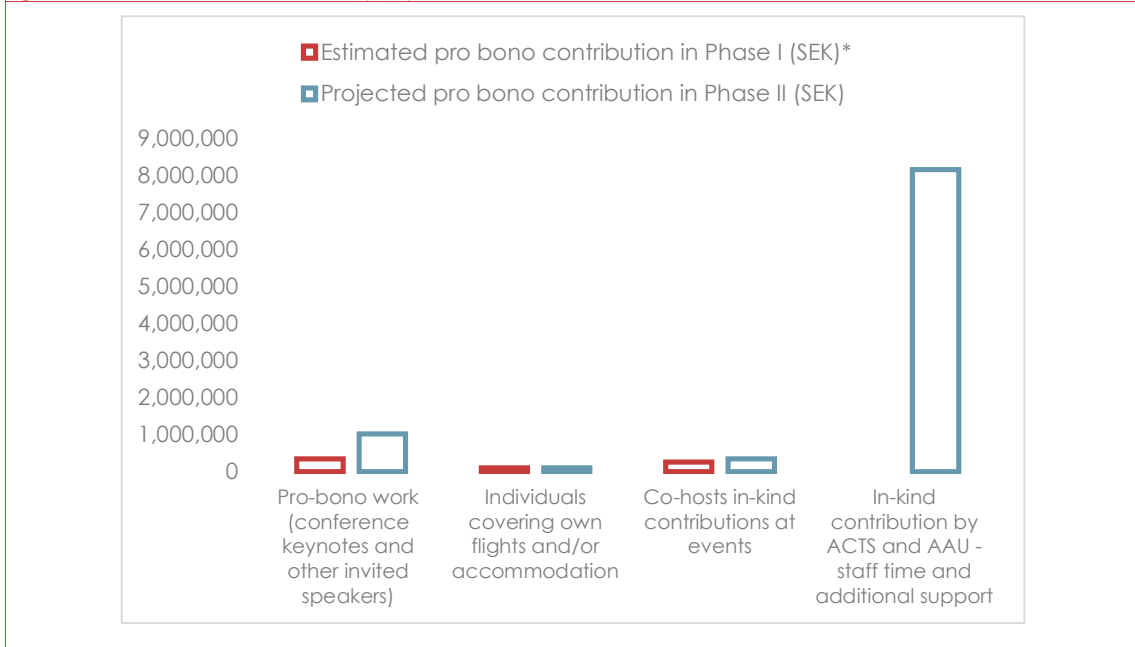
Source: Technopolis (2021), from documentary review

5   Findings on the research & training pillar

Reminder of Evaluative Questions

- **Q1 How relevant have the various AfricaLics activities been to enhance research capacities and networking in order to support a vibrant research community in I&D, to facilitate high-quality I&D research and to ensure utilisation of I&D research in Africa countries?**

- **Q2 To what extent have the AfricaLics activities achieved their objectives and outcomes?**
  - What is the nature of the collaboration established in the network?
  - To what extent has the Sida support contributed to establishing or strengthening existing collaboration?
  - To what extent have pro-bono contributions contributed to the achievement of objectives?
  - What is the effect of AfricaLics on the careers of individual researchers?

- **Q3 How efficient have the implementation of AfricaLics activities and its set-up been?**
  - How well has the RCB project been managed?

- **Q4. To what extend has AfricaLics impacted I&D research and related policy in Africa?**
  - How much can be attributed to the efforts of the project?
  - To what extent is the network creating an innovation studies community focused on development issues in Africa?

Key messages of the evaluation

- (Relevance) Academies, Visiting Fellowships, training of PhD supervisors, are well addressing the needs of African scholars in terms of research capacity building on I&D. However, Francophone Africa appears to need even more attention.

- (Relevance) However, there is still a **gap in responding to the need to create a critical mass of I&D** scholars, thus in accelerating the creation of I&D teaching and research streams at higher education level. Currently, there are very few universities providing comprehensive master's and PhD Programmes in I&D in Africa. Therefore, the development of courses is pivotal to solve pipeline issues and build in a more sustainable way research capacity on I&D.

- (Relevance) **AfricaLics activities are addressing the needs of researchers to network and create a research community on I&D.** Conferences, Ph.D. Academies, Visiting Fellowship Programme are strong means to increase scholars' interactions, sharing research results, and eventually building capacity.

- (Effectiveness) AfricaLics succeeded in implementing the planned training activities for PhDs through the Academies, Visiting Fellowship programme, training of PhD supervisors, and programme for early carrier development. Gender balance in all programs is sought but difficult to reach (not enough female candidates).

- (Effectiveness) AfricaLics succeeded in implementing the planned research activities through the mentorship of applicants to AfricaLics and Globelics events, training and publishing support to participants of AfricaLics events and incubation of research project but also through the conferences. Gender balance in all programs is sought but difficult to reach (not enough female candidates).

- (Effectiveness) AfricaLics succeeded in enhancing the skills of PhD students and early career researchers and helped them improve the quality of their research papers. While they come from traditional disciplines like economics or engineering PhD students and early career researchers utilise skills and knowledge they gained from PhD Academies, VFP, and conferences to complete their thesis by introducing innovation systems and innovation studies thinking. They appreciate also both the theoretical and practical research techniques taught.

- (Effectiveness) **A few universities are developing new courses on I&D based on models provided by AfricaLics.** Many authorities and academics do not understand the concept of innovation and the importance of innovation for their country development and reaching the SDGs.

- (Effectiveness) AfricaLics succeeded in increasing the number of publications and high-quality research papers from African researchers on I&D. The overall level of publications remains low, however. It is also, in many cases difficult to directly attribute the exposure of researchers to their affiliation to AfricaLics.

- (Effectiveness). **Few scholars (Ph.D. Academies participants) do not feel like Network members**. Some AfricaLics scholars (Ph.D. Academies participants and postdocs) did not primarily take on their role of AfricaLics ambassadors. They recognised that they could have done much more to publicise AfricaLics. Some mentioned that the network still not being a legal entity limits what is possible in terms of partnerships with their home institutions. They also regret that their role as ambassadors was not discussed during the activities, they participated in.

- (Effectiveness) The scientific output of AfricaLics is overall geographically distributed, even though there is some concentration in intensity on some nodes. There are increased research collaborations among Africalics and Globelics members on I&D around 4 networks: ASB/Kenya, Ghana, Nigeria, Ethiopia/South Africa
- (Effectiveness) The contribution of women researchers and from low-income countries to high quality research on I&D increased but remains limited.
- (Efficiency) A large portion of the budget has been allocated to the research and training component, which aligns with the planned programme activities and purpose of the grant from Sida.
- (Effectiveness) AfricaLics capacity building and networking activities had positive effects on the beneficiaries, many of whom integrated in the network (the community) and gained visibility in their university and community.
- (Impact) A sustainable academic community in Africa working in the field of I&D is definitely formed but has not yet reached a critical mass.
- (Impact) The magnitude of rigorous research on I&D conducted within African academic institutions and by African researchers has increased.
- (Impact) **Opportunities for research collaborations and publications within the AfricaLics community are still too limited.** The network had limited activities aiming at fostering inter-African collaboration to set up joint projects. Structural issues also explained this situation, notably the lack of funding.

5.1 High relevance of the activities to respond to beneficiaries' needs in terms of research capacity building and networking and to create a research community in I&D

The observations which led to the creation of AfricaLics in 2012 and the set-up of the RCB, i.e., the gap in capacities to conduct research in I&D, remain valid as of today. The participants interviewed, mostly PhD Academies participants, confirmed these needs for capacity building and networking, emphasising that francophone Africa appears to be less mature than anglophone and South Africa, thus required more support on capacity building while the rest of Africa would need more support on the second pilar of the AfricaLics (i.e., policy outreach activities).

Our investigation shows that the needs of participants (in 2012 and still today) are well reflected in the aims of the programme's research and training pillar.

Additionally, and while there are very few universities providing comprehensive master's and PhD Programmes in I&D in Africa, the development of courses is pivotal to solve pipeline issues and build in a more sustainable way research capacity in I&D.

5.2 AfricaLics succeeded in enhancing capacity of African Researchers to research in I&D but there is much to do in terms of achieving a critical mass and aiming at excellence.

- **AfricaLics succeeded in implementing the planned training activities for PhDs through the Academies and Visiting Fellowship programme[18] but also through the conferences.**

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[18] The PhD VFP seeks to support African PhD students working in the field of innovation and development to strengthen their academic/research qualifications; improve the quality of their dissertations and prepare for a career in innovation and development either within academia or outside. The programme also provides away-time for the PhD candidates to focus on their dissertation and write up papers and articles; access to scientific databases and new research methodologies, as well as interact with the scholars from AAU & peers. The VFP offers a model where students are enrolled at African universities and supervised by "Home supervisors" in Africa but spend approximately 5 months in Aalborg University Department of Business and Management (AAU) or (in 2021) the Department of Politics and

Also note that the introduction of the Post docs is an important milestone. While SIDA-funding was insufficient for fully funded post-docs, a low-cost model was attempted. The model has proven difficult to implement, mainly because post-docs have been looking for alternative opportunities while working with AfricaLics on the post-doc pilot programme. Each of the post-docs did, however, work with collaborating partners (colleagues and master students) at their home universities and two of them have published articles on the basis of this work, while the third post-doc has recently submitted a paper to the Globelics conference 2021 on the basis of his AfricaLics supported research. The post-docs also took responsibility of being guest-editors for a special issue of the Innovation and Development journal. Thus in "2019, the post-docs invited 25 shortlisted contributors to submit full papers and 18 full papers were received. The post-docs managed reviews of the articles submitted (apart from reviews of articles they submitted themselves) and have written up the introductory article to the special issue in the course of 2020/early 2021" [19]. The guest-editing has been a challenge for the VFPs but by May 2021, the guest editing process has been successfully completed[20].

Last but not least, the number of participants in the conferences have reduced from the 2nd conference, but the number of paper submissions and presentations has remained constant for the 2nd and 3rd conference and increased in the 4th conference. However, it should be noted that the number of participants in each conference depends on the available funds and number of quality papers. Regardless, a decision was taken to keep the participation small in order to increase discussions at the conference and networking.

- **AfricaLics succeeded in enhancing the skills of PhD students and early career researchers and helped them improve the quality of their research papers.**

Based on the satisfaction surveys organised at the end of the Academies, most participants are generally satisfied with the content and organisation or the trainings and feel that the learning outcomes have been achieved. Concerning the visiting fellows, also based on the satisfaction survey, they express being quite satisfied with the knowledge, network, organisation and interactions within the VFP. Note that some academies participants and a couple of fellows faced challenges in paying their visa up-front and getting the biometrics done in time.

All the interviews we conducted highlight that the conferences remain an effective way of bringing researchers together, sharing research results, and building capacity. They allow researchers to stay abreast of innovation thinking and improve their knowledge and future research works.

Our investigation then concludes that there is strong evidence that PhD students and early career researchers utilise skills and knowledge they gained from PhD Academies, VFP, and conferences to complete their thesis. All ten interviews we conducted with PhD Academies and VFP participants credited the programme with fast tracking their research work and therefore thesis defence. The content of the training, the mentorship during and after the

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Society to interact, create networks and learn from the senior scholars, including AAU mentors. The initial cohorts in 2015 and 2016 served as the pilot versions of the VFP, and it was recommended for the future programmes to get more applications, more women involved, integrate online networking facilities and many others. After 2016, the funding for the program has been extended through the SIDA phase II, and two more VFP cohorts visited DK in 2018 and 2019 respectively with a third group attending the programme in 2020-21. A pilot programme focussed on early career development and integrating three Post Doc students in the programme has also been part of Phase II.

[19] Technical report: AfricaLics PhD and Post-doc VFP activities 2019

[20] Internal communication with AfricaLics secretariat, May 2021.

sessions, the valuable feedbacks they got, the exposition to a wider research community, and access to experienced academics in the I&D field helped them significantly. The VFP particularly offers an ideal research environment favourable to research. We share below some testimonies.

"I widened my knowledge through courses from professors from all over the world, and they gave me mentorship. I spent over 6 months at Aalborg University and got a joint diploma there. I had access to resources and databases there for my research. AfricaLics invested in me. I participated in international conferences and gained a good exposure via Globelics."

A Participant to Nairobi Academy, VFP 2015

"The Academy accelerated the progress of my thesis and allowed me to remove the methodological blockages I faced. The first essay of my thesis has been greatly improved in terms of methodology and orientation."

A Participant to Tunis and Nigeria Academies.

"My whole Ph.D. thesis was motivated by AfricaLics. The focus of my thesis was not developed before I met the network. My interest shifted; being in the network pushed me to go towards innovation-related issues. We had a number of seminars that helped me draft my first three chapters, do the literature review, develop the methodology. I managed my time very well. I am the only one out of 7 in my department who submitted on time my thesis. The Academies and support I received exceeded my expectations."

A VFP 2018 participant.

"The participation in these (..) conferences was for me a great achievement I have done during my stay in Aalborg since, not only it allowed me to get insight on the recent development in the areas of focus of each of these conferences (e.g. the concept of disruptive innovation and allied issues from ICABR and the feminist economics methodologies from IAFFE) but also allowed me to extend my network since I it put me in contact with a number of experienced researchers"

One participant to Nigeria Academy, VFP 2018.

Concerning the 3 post Doc fellows, it was also set that each of them would be able to publish at least 1 article. As of 2021, 2 have already done so and one has submitted a working paper to the Globelics conference 2021. In addition, one of the post-docs has developed a research proposal and obtained funding for this from his home university.

- **PhD supervision**

The evaluation responses from the PhD supervision seminar held in Aalborg show general satisfaction, especially as far as the home supervisors are concerned. One of the home supervisors from the first batch comments that:

"Beyond and above the objectives set by the programme, the discussions that we had with our students was a wake-up call for us supervisors to improve our way of supervising."

- **Research capacities have improved, but the extent to which it leads to high-quality research is still somehow limited.**

Then, according to interviewees AfricaLics made tremendous progress in building individual research capacities in I&D on the continent. Through an innovative learning approach (combination of interaction with PhD candidates through Academies, VFP and in some cases also conference participation and a pilot mentorship programme linked to conference participation), AfricaLics reached more young researchers than foreseen while keeping them at their home institutions. As a result, AfricaLics is also indirectly helped building institutional capacity.

However, most of the publications in the field are not reaching high-impact journals.

Additionally, only a few African universities are developing courses in innovation studies in African Universities: during phase 1 of the RCB project, AfricaLics developed courses template and various materials (available on the website)[21]; these courses need a refresher to include recent developments, for example progress re: STI policies in Africa and linkages between STI and the SDGs. As mentioned, however, AfricaLics did conduct a number of training and sensitisation around these materials.

20 people attended the training in Nairobi in 2016 and 7 participants are reported to be using the course in any other capacity: some have introduced the material into their lectures, existing courses; others have set up new modules to be taught. But overall, a few are developing new courses:

- JOOUST (Kenya) recently approved a full programme at masters and PhD level
- UDSM (Tanzania) recently developed a Masters in entrepreneurship and innovation which builds on AfricaLics contribution.
- University of Johannesburg (South Africa) has a PhD in Economics (through school of economics) with Specialisation in Innovation, and a PhD in Public Management and Governance with specialisation in innovation (through school of management). There are efforts ongoing to develop further programmes that are fully focused on innovation and development at master's and PhD level at the university.
- There are other programmes at other universities (e.g., Wits University in South Africa and OAU in Nigeria) that are relevant. They have not been set up using the AfricaLics materials but have been introduced or are run by ASB members.

However, the ongoing experiences show that it takes time to get buy-in from the universities and go through the public accreditation process. Another issue is that many public authorities hardly understand the content and the orientation of the courses being developed. There is a need to challenge and develop the understanding of innovation within such accreditation agencies/bodies.

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[21] They include:

- A 30-week module that can be taught at master's level (introductory course on what is innovation and how it relates to development. It teaches some practical and cognitive skills at the same time.
- An outline of a full PhD programme: courses, format of a 3-year phd programme
- A Course template at master's level
- Documents on PhD students' supervision in the I&D field

Box 1 JOOUST Masters and PhD in I&D case study

Jaramogi Odinga Odinga University of Science and Technology (JOOUST), recently approved Master and PhD Programmes in Innovation & Development, developed in close collaboration with AfricaLics. The process of development of the courses included the following steps:

- Interview of key stakeholders to identify gaps and needs.
- Design of the programme for Master and PhD, based on course models developed by AfricaLics and stand stakeholders' needs.
- Organisation of stakeholders' workshop to discuss the content of the course
- Integration of stakeholders' inputs
- Design of final syllabus
- Official approval process

The stakeholders' workshop (industry, entrepreneurs, academicians, researchers…) revealed that no university in Kenya offered a course in innovation & development. JOOUST is the second university offering such a unique course in Africa.

The model courses developed by AfricaLics were instrumental in creating this new programme and inspired JOOUST to a great extent. AfricaLics is also building capacities of the lecturers and professors on innovation studies thinking.

The programme has been launched for PhD level. Currently, three students are enrolled in PhD. Two of them are supported by ACTS through a partnership with the University of Sussex, as part of the Trilateral Chair initiative between University of Johannesburg, University of Sussex and ACTS. This chair has been possible due to AfricaLics. The linkages that AfricaLics has created between researchers at ACTS and University of Johannesburg (and to some extent Sussex University) have leveraged the funding that became available from SA's NRF and the UK's British Council.

The Masters stream is expected to be opened soon.

Source: Technopolis (2021), from interview with JOOUST

- **Opportunities for research collaborations and publications within the AfricaLics community are still too limited.**

The RCB project in phase 1 sought to incubate thematic research and book projects as a means to build up research capacity on innovation and development in Africa[22].

To set up and manage the seed-funded projects was challenging as there was procedural slowness on the part of the grantee institutions, which was due to:

- The ability to find qualified principal investigators and/or institutions with the project management skills and experience to manage grants and
- The difficulty in keeping PIs, co-investigators and their institutions interested with a rather limited amount of funding available.

There were also difficulties to enter in collaborative process. In order to overcome these challenges, AfricaLics organised a write shop and grants management workshop with the purpose to build capacity in technical writing and team ethics, through a group writing activity, and to enhance research grants management capabilities of researchers in the field of innovation and development. Despite the challenges in total more than 20 research papers, book chapters and reports were developed within the projects.

Recent updates regarding the projects are presented below:

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[22] See Section 4.3.2.2.

- Dr. Abdi Yuya - Natural Resource Endowment and Innovation Behaviour of Firms project: the project team started drafting the follow up proposal. However, they did not push further to finish the proposal due to other urgent issues.
- Dr. Oluseye Jegede - Work organization, competence building and innovation in formal and informal microenterprises in Africa project: the research team submitted two applications that were not successful in 2014/2015. Asides the write shop which was organised in South Africa on Feb 15 to 19, 2018, the team has not really been active. in 2017, the Team did a presentation at the Globelics conference at Athens. After that, the team expanded and revised the manuscript, and published it in January 2019.
- Dr. Maruf Sanni - Building low carbon innovation energy systems in Africa project: The articles under this project seed fund "Building low carbon energy innovation systems in Africa" were compiled and published as a special issue (Volume 10, Issue 5, 2018) in the African Journal of Science Technology and Innovation Development by Taylor and Francis. Here is the link to the articles: https://www.tandfonline.com/toc/rajs20/10/5?nav=tocList

5.3 AfricaLics succeeded in increasing the number of publications and high-quality research papers from African researchers in I&D, however overall level of publications remains low.

In total there have been 3241 publications by the AfricaLics scholars over the timeframe 2012-2020[23]. Nearly half (47%) of these publications are classified as journal publications. As mentioned before this output is realized by the 330 scholars for which we have bibliometric data. Figure 14 displays the development of both the scientific output published in journals and the annual number of publishing AfricaLics scholars over the first two decades of the 20th century.

While there have been some slowdowns, the general trends are a steady growth with an average annual growth rate of 13% for the scientific output and 15% for the journal output over the timeframe 2000-2020. This growth does not necessarily reflect an increase in productivity, as part of this can also be attributed to new scholars—including early career researchers—starting to publish. Over the timeframe 2000 to 2020 there has been an annual growth of 14% in the number of publishing AfricaLics members. In total 215 of the 330 scholars have realized their first publication over the timeframe 2012-2020, indicating the strong focus on early career researchers within the AfricaLics network. In this sense the network now includes considerably more early-career researchers than the 2014 AfricaLics baseline study in which only 25% of respondents to the survey classified themselves as having low seniority, and only 27% being 35 or younger.

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[23] Data is retrieved from Microsoft Academic. All scholars are included, except non-African star scientists as this would provide an imprecise picture of the overall bibliometric output of the network. Bibliometric data is retrieved based on first and lastname provided in the database. Several checks have been run to filter out false positives and negatives. Yet, manual inspection for each other has not been possible

Figure 14 AfricaLics Scientific output over time

Development of scientific output and number of AfricaLics Scholars
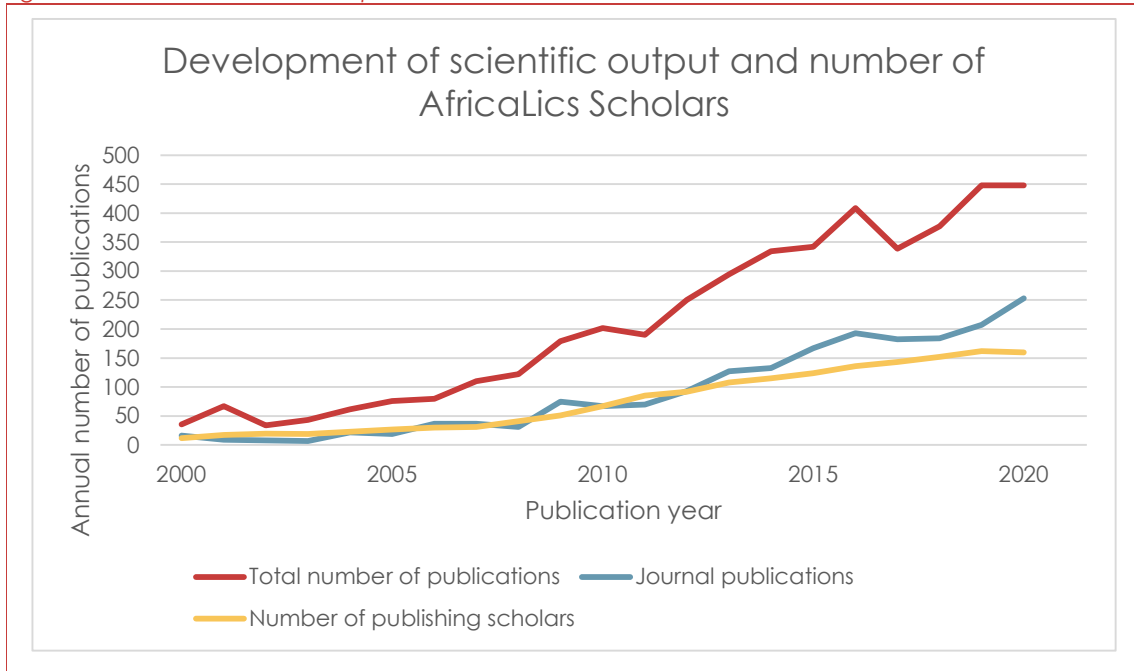
Source: Technopolis (2021), data from Microsoft Academic.

To put the development of these numbers in context, Figure 15 provides a benchmark for the scientific output and the journal publications by comparing it to the total African scientific output published in Scopus indexed journals. Using 2012 as index year, there is a considerable growth visible for both the AfricaLics and African scientific output.

Figure 15 Indexed development of AfricaLics scientific output

Development of AfricaLics scientific output relative to total African scientific output (index=2012)
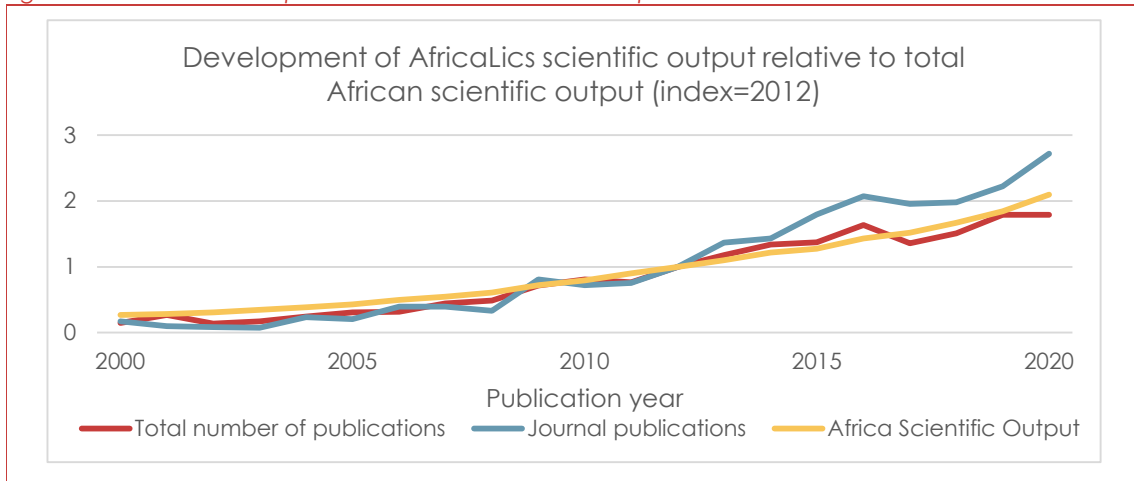
Source: Technopolis (2021), data from Microsoft Academic, Scopus. Note: A direct comparison is not possible as AfricaLics publication data is retrieved from Microsoft Academic and data on African Scientific output is retrieved from Scopus.

Authors

At the author level there are considerable differences visible in publication output. While the majority of the sample consists of scholars in their early careers who realize a couple of

publications, there are also some senior researchers—such as Professor Mammo Muchie—that are listed on more than 100 papers as author over the period 2012-2020. Such a large output is partly explained by local authorship attribution practices such as supervisors being listed as author on the papers of their PhD students. This is line with the observation that these scholars are only on a fraction of these papers listed as first author. In general, AfricaLics scholars are listed 43% of the times as first authors, 26% as second authors, 15% as third authors, while in the other cases they have an author position outside the top three.

Considering these outliers, the number on the median number of publications presented in Table 3 gives the best representation of the scientific output per author. The median number of publications for both genders is 4. Next to the number of papers per author, Table 3 also provides the summary statistics of the number of authors per paper. In these numbers the co-authors who are not members of the AfricaLics network are also included. In these numbers a similar strong gender bias is visible as is the case for the AfricaLics members.

Table 3   Publications by author

	Number of papers per author			Number of authors per paper (including non-AfricaLics co-authors)[24]		
	Overall	**Male**	**Female**	**Total**	**Male**	**Female**
Min	1	1	1	1	0	0
Median	4	4	4	3	2	1
Mean	10.35	10.68	9.38	3.86	2.75	1.00
Max	133	133	80	128	84	43

Source: Technopolis (2021), data from Microsoft Academic

Institutions

The affiliations in the bibliometric data have been used to determine the affiliation of the AfricaLics scholars. Based on their publications, we have assigned authors the affiliation with whom they have published the most. As this data is rather incomplete, owing partly to scholars not listing their affiliations on outputs such as working papers, this data is complemented with the affiliation data available in the AfricaLics database. After this complementary step, we gathered affiliation data for 308 of the 330 authors.

Table 4 provides an overview of the most common affiliations among the AfricaLics members for which we have bibliometric data. The largest institutions in the AfricaLics network are the Obafemi Awolowo University (Nigeria) and the Addis Ababa University (Ethiopia) with both 10 AfricaLics members that have published[25]. All these institutions were also already present in the AfricaLics 2014 baseline study.

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[24] For less than 3% of the authors there is no data on their gender

[25] There are more members, but these counts only includes members that have published

Table 4   Top 10 affiliations by number of AfricaLics members

Name	Number of publishing AfricaLics members
Addis Ababa University (Ethiopia)	10
Obafemi Awolowo University (Nigeria)	10
Council of Scientific and Industrial Research (Ghana)	9
Tshwane University of Technology (South Africa)	7
University of Zimbabwe	6

Source: Technopolis (2021), data from Microsoft Academic

Journals

Nearly half (47%) of the AfricaLics scientific output is published in journals. For the other part the publication type is either unknown[26], working paper, conference paper or book (chapter). Table 5 lists the top 10 journals by number of publications by AfricaLics members in the timeframe 2012-2020. These journals include several journals from the field of innovation studies, but also includes journals from other scientific fields.

Table 5   Publications by Journal

Journal	Number of publications
African Journal of Science Technology Innovation and Development	87
Procedia Cirp	35
Innovation and Development	23
Procedia Manufacturing	23
The International Journal of Academic Research in Business and Social Sciences	12
Science And Public Policy	12
Sustainability	11
European Scientific Journal	11
European Journal of Business and Management	10
Agricultural and Food Science	10

Source: Technopolis (2021), data from Microsoft Academic

Research Impact

Citations by the literature are a commonly used method to get an indication of the quality and relevance of scientific publications. The median of zero indicates that most publications do not get any citations. However, if we only consider the journal publications, the median increases to 2, with a mean of 6.6 citations per publication.

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[26] Although it is unknown, this category is unlikely to include journal publications

Table 6   Citations of AfricaLics scientific output by publication

	Citations of all scientific output	**Citations of Journal publications**
Min	0	0
Median	0	2
Mean	3.8	6.6
Max	429	429

Source: Technopolis (2021), data from Microsoft Academic

Table 7 provides an overview of the total number of citations an author's publications that were published in the timeframe of our study receives. Of the 330 authors, 30% (99) have not received any citations. In some cases, this could be a time effect as it takes time for citations to accumulate. The median author receives 4 citations, while the mean is pushed considerable by a group of authors that receive 300+ citations for their publications in the timeframe 2012-2020.

Table 7   Citations of AfricaLics scientific output by author

|	**Citations by author**
Min	0
Median	4
Mean	39
Max	646

Source: Technopolis (2021), data from Microsoft Academic

Research topics

AfricaLics scholars are addressing a variety of topics in their work. Figure 16 displays a word cloud based on the abstracts of the scientific publications of the AfricaLics members. Innovation, policy and development are strongly present in these papers.

Figure 16 Word cloud based on abstracts of publications by AfricaLics members
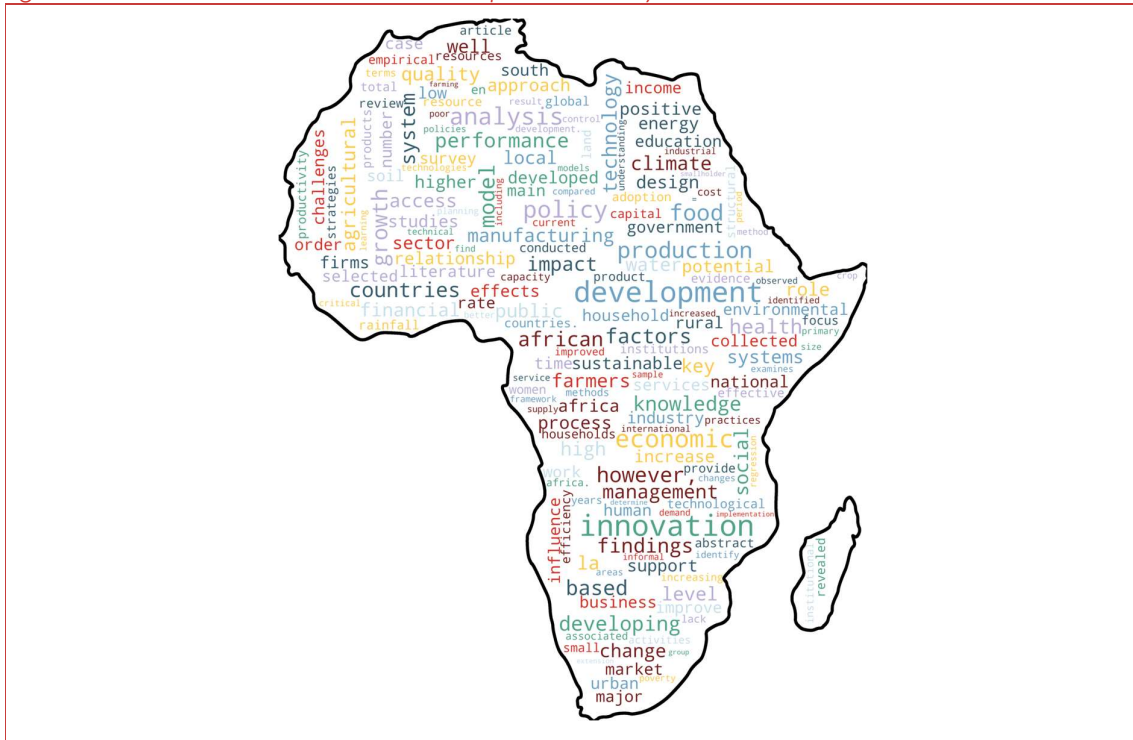
Source: Technopolis (2021), data from Microsoft Academic

While the above picture provides a first glance at the topics addressed by the AfricaLics scholars, a further distinction can be made to scientific subfield using Microsoft Academic classification algorithm. Microsoft Academic assigns topics to each scientific publication based on several variables. On average each publication is assigned 7.6 topics, with a maximum of 12. Four percent of publications are not classified, which are primarily non-English publications. This results ultimately in a total of 3104 publications (or 96%) for which there is information on their topics.

The topics assigned are subsequently structured in a multi-level hierarchy, the Microsoft Academic Topic Tree[27]. Figure 17 provides an overview of the top part of one of the 37 branches of the tree.

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[27] 11% of the topics is not assigned a place in the topic tree and will therefore be not included in the analysis. As publications have multiple topics, the latter will not result in exclusion of publications.

Figure 17 Microsoft Academic Tree structure
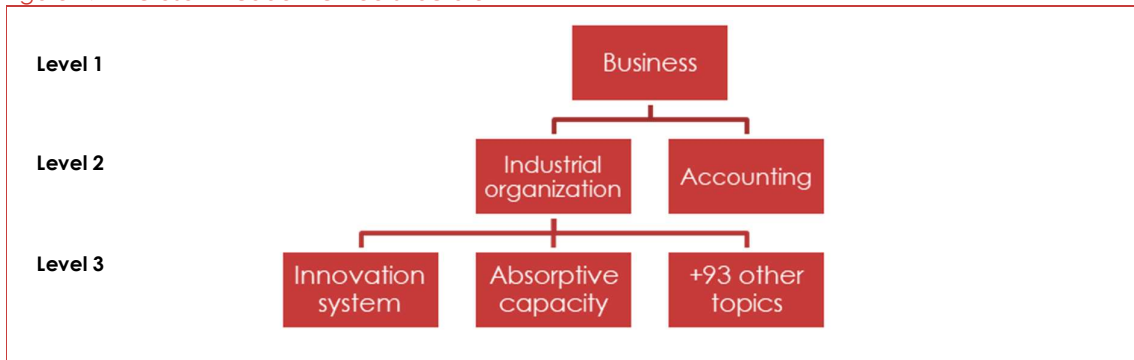
Source: Microsoft Academic

The papers are assigned at level 1 to one the 37 branches of the topic tree. As Figure 18 shows, more than half of the AfricaLics scientific output can be classified into either Business, Economics or Political science. The inclusion of topics in the natural sciences is in line with the AfricaLics 2014 baseline in which several respondents indicated to have a background in the natural sciences.

Figure 18 Main disciplines in AfricaLics scientific output
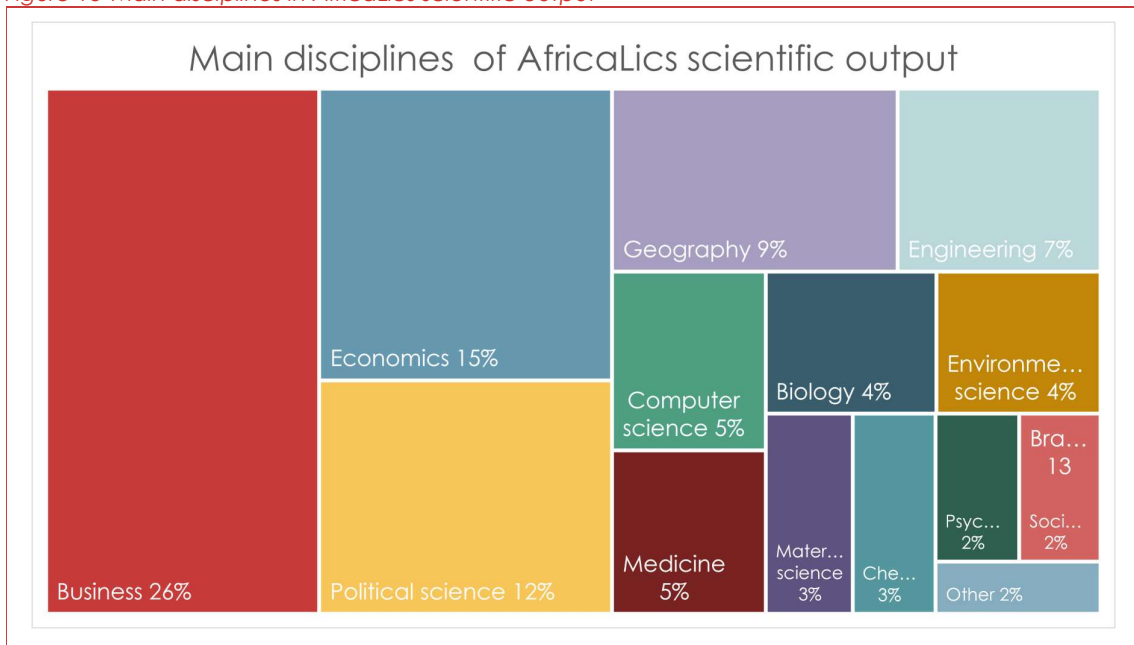
Source: Technopolis (2021), data from Microsoft Academic

Table 8 provides an overview of the overall top 10 of subdisciplines in the AfricaLics scientific output.

Table 8 Subdisciplines in AfricaLics scientific output

Subdisciplines	Number of publications	Share of total AfricaLics Scientific output
Economic growth	230	7%[28]
Industrial organization	152	5%
Agricultural economics	141	5%
Marketing	105	3%
Environmental planning	100	3%
Public relations	95	3%
Development economics	92	3%
Knowledge management	87	3%
Socioeconomics	69	2%
Natural resource economics	68	2%

Source: Technopolis (2021), data from Microsoft Academic

Table 8 shows the dominance of disciplinary fields for AfricaLics researchers.

5.4 The contribution of women researchers and from low-income countries to high quality research in I&D is increased but remains limited.

- **The representation of women and participants from low-income countries in AfricaLics activities increases but remains low.**

The I&D field is new. Therefore, it is a challenge in ensuring gender representation and in low-income countries. The SIDA RCB funded project requires considering inclusivity issues. AfricaLics endeavours to do so in all activities: conferences, academies, VFP. In the evaluation of applications, AfricaLics ensures that women and low-income countries are taken into consideration: 70% are selected on merit. The remain 30% are taken to get balance in terms of gender and geography. As a result of this deliberate effort, the number of women and low-income countries participants increases year after year but remains low. However, the interviews reveal that it is challenging to reach the 30% threshold, without compromising on quality of the research paper selected. The I&D research field also suffers from structural issues explaining the low representation of women and low-income countries in science[29].

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[28] 230 papers represent 7% of the 3104 papers for which we have topic data.

[29] Note that women are 30% of researchers in Africa in STEM subjects which is similar to international average (28%). PASGR study (social sciences) has some universities having less than 10% female PhD holders in African universities and in some as low as 5%.

- **The AfricaLics scientific output is geographically distributed.**

Based on the countries of the AfricaLics authors we have assigned the publications to countries. A single publication with multiple AfricaLics authors, from different countries is in this way attributed to multiple countries.

Figure 19 presents the geographical distribution of the AfricaLics scientific output per capita next to the geographical distribution of the African output in Innovation journals per capita[30]. There are some similarities visible in the countries with a relatively high (e.g., Ghana, Tunisia, Kenya) and relatively low output (e.g., Niger). There are however also some geographies in which there are remarkable differences; Morocco has relatively a lot of output in innovation journals but is not as strongly represented in the AfricaLics scientific output. At the same time, Zimbabwe has a stronger AfricaLics presence than would be expected based on the total Zimbabwean scientific output in innovation journals.

Although there is a strong geographical distribution of the AfricaLics scholars, including to Francophone countries, more than 95% of the publications by members of AfricaLics are in English. The next two largest languages by number of AfricaLics publications are French (2.3%) and Spanish (1%). The focus on English is quite common in the global scientific community. Considering that AfricaLics is an international network and English is the language used during events [31]and in AfricaLics communication, it is natural to see such a dominance of English.

Figure 19 Geographical distribution of Scientific Output
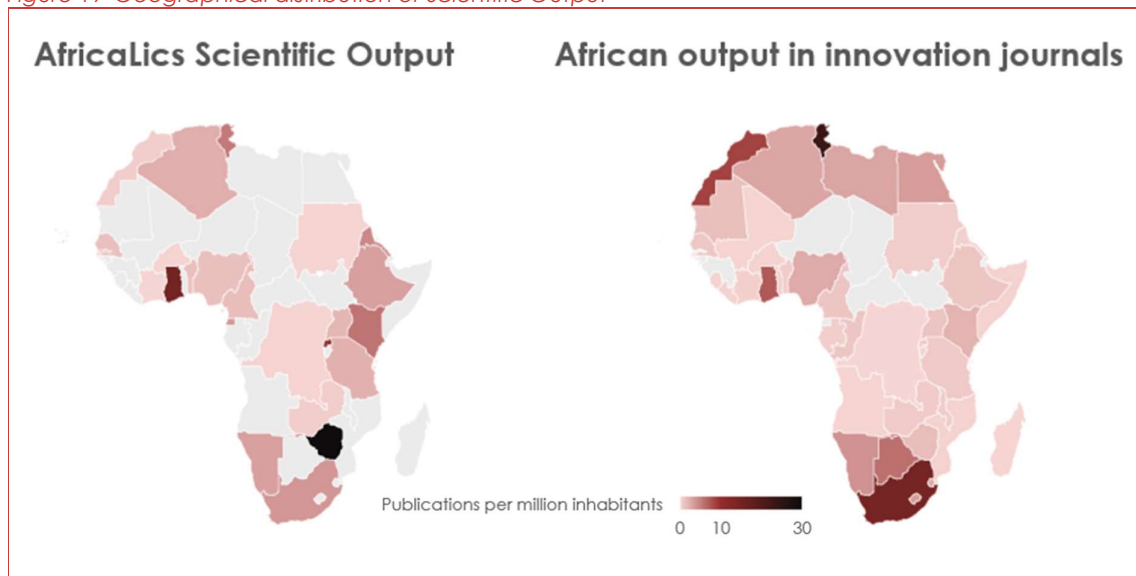
Source: Technopolis (2021), data from Microsoft Academic, Scopus[32]

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[30] Based on the Scopus data of journals included in the Scimago Management of Technology and Innovation journal ranking

[31] Although AfricaLics has offered simultaneous interpretation at several events

[32] This is a stylised map which is not geographically or politically accurate as it omits non-self governing states (as defined by the UN) and island states in Africa due to the focus of the map on where the majority of AfricaLics activity can be found in Africa.

5.5 Increased research collaborations among AfricaLics and Globelics members on I&D

Fostering collaboration within the African innovation studies community is one of the key objectives of the AfricaLics network. While collaborations can take a variety of forms, co-authorship on scientific papers is indicative of intellectual collaboration of a substantial intensity. Co-authorship data presumes collaborative ties to be present between all authors that are listed on the same paper. If a paper has three authors, Author A, Author B and Author C, we can identify three collaborative ties namely A←→B, A←→C and B←→C.

AfricaLics co-publications are papers authored by two or more AfricaLics members. Table 9 provides an overview of the number of AfricaLics co-publication relationships at the author and country level. Of the 3241 papers, 4.7% (151 publications) list more than one AfricaLics author, in which most cases are publications authored by two AfricaLics members. Most of the AfricaLics co-publications take place within the same country, as only 1% of the total number of AfricaLics publications are the result of cross-border co-publications.

Table 9   Co-publications authors and countries

Multi-author AfricaLics co-publications		Multi-country AfricaLics co-publications	
Number of Africalics authors on publication	Number of publications	Number of countries represented by AfricaLics authors	Number of publications
1	3090	1	3207[33]
2	134	2	30
3	13	3	2
4	3	4	1
5	1	5	1

Source: Technopolis (2021), data from Microsoft Academic

Visualising the co-publication network can provide at a glance an understanding of the structure of the AfricaLics network. Figure 20 provides an overview of the co-publication ties between authors. The nodes represent the authors, and the edges represent co-publications. The thicker an edge, the more co-publications have been realized in the timeframe 2012-2020. The colour of the nodes indicates the country of origin of the AfricaLics scholar. The size of a node indicates its "betweenness centrality". Betweenness centrality is calculated based on the times a node is on the shortest path between two other nodes. In this way, nodes with a high betweenness centrality can be considered to have a potential to play a bridging function in the network. As example, Dr. George Owusu Essegbey (the large red node on the right side) has a high betweenness centrality because he is on all shortest path connecting the upper part of the red network with the bottom and left part of the red network.

The structure of the network is characterized by four subnetworks:

- The East African network: this network on the left side is composed of several AfricaLics secretariat members (in which there are some members that originate from the United

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[33] While every single-author publication is a single-country publication, some multi-author publications are written by authors from the same country, and thereby also single-country publications. In this way, the number of single-country publications will always be at least equal or larger than the number of single-author publications.

Kingdom), and the remaining members are for a large proportion having Kenya or Tanzania as country of origin.

- The Ghana network: this red network on the right side composed solely of scholars from Ghana, in which Dr. George Owusu Essegbey is the actor with the highest betweenness centrality.

- The Nigeria network: this blue network on the bottom is composed solely of scholar from Nigeria.

- The Ethiopia/South Africa network: this purple network on the top is centred around **Dr.** Mammo Muchie, who originates from Ethiopia but is currently based in South Africa....

Based on these geographical patterns, and the low share of intra-Africa international co-publication ties, the AfricaLics co-author network is still primarily taking place within national borders. Apart from the four larger subnetworks, there are several dyads and triads visible that are based on the co-authorship data unconnected to the four larger subnetworks.

Figure 20 AfricaLics co-publication network (with country markings)
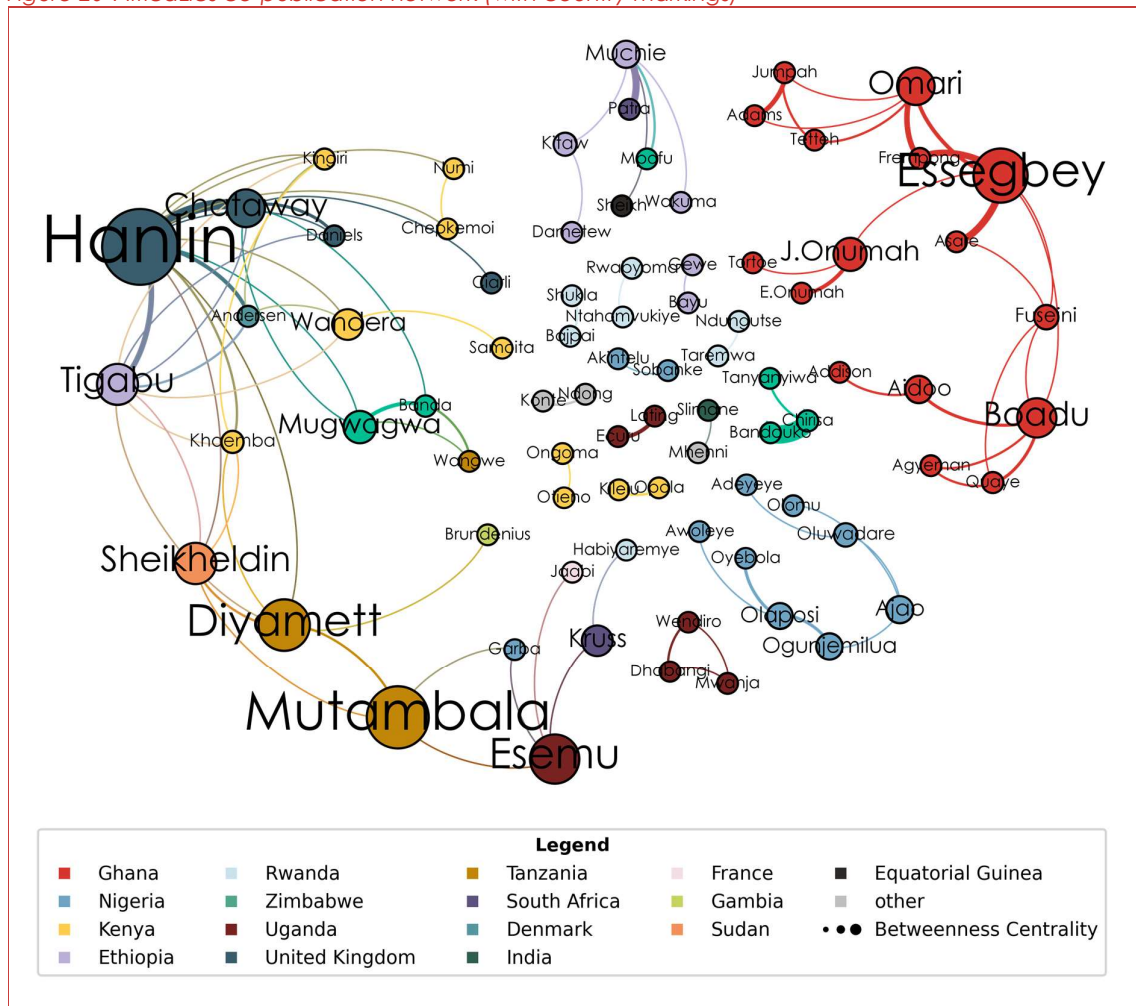
Source: Visualisation made by Technopolis Group based on Microsoft Academic data

In addition to the network displaying the country clusters, Figure 21 displays the same network but with the gender of the AfricaLics members highlighted. In the AfricaLics board/Kenya network we see several centrally located female members. 59 collaborative papers include both male and female AfricaLics members as authors. scientist

Figure 21 AfricaLics co-publication network (with gender markings)
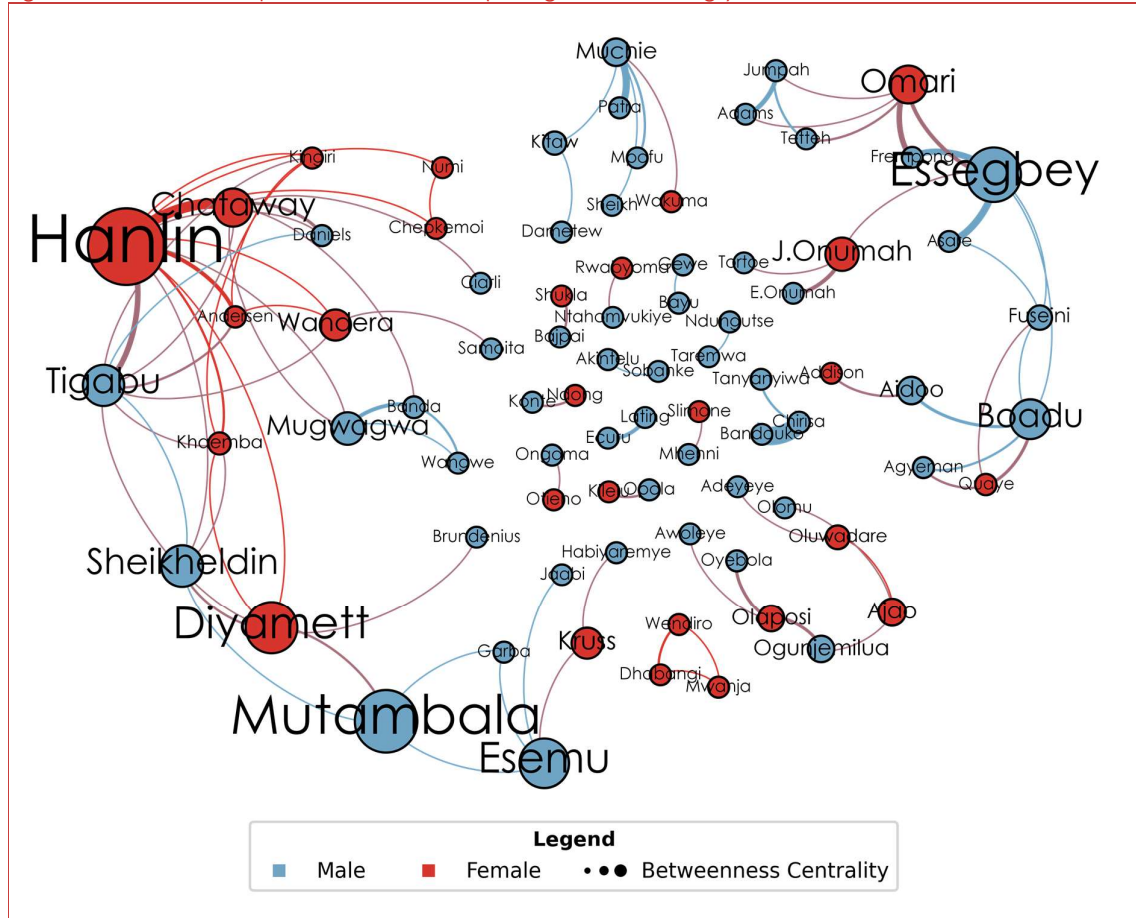
Source: Visualisation made by Technopolis Group based on Microsoft Academic data

Apart from the visualizations, several indicators can be used to evaluate the connectedness of the network and the centrality of actors. The density of the network indicates the realized network connections as share of the total theoretically possible connections. In a network with 330 actors (the number of authors for which we have bibliometric data), 54285 possible connections could be realized (=330*329/2). In the current network 94 have been realised, which results in a network density of 0.17%. Such a small number is not uncommon for larger network, as when networks grow, it is impossible to maintain with all members co-publication ties.

At the node level, we can inspect indicators regarding the centrality of the AfricaLics members in the network. Table 10 lists the top 10 central actors by both betweenness centrality and degree centrality. Rebecca Hanlin is the most central actor, being connected to 3.6% of all members and on 0.22% of the shortest paths. While there is a strong representation of the more established academics, there are also a few more junior researchers featured among the most central actors in the AfricaLics network.

Table 10 Network indicators

Betweenness centrality		Degree Centrality	
Member	Share on shortest path between two authors	Member	Share of members member co-published with
Rebecca Hanlin	0.22%	Rebecca Hanlin	3.6%
Musambya Mutambala	0.17%	Aschalew Tigabu	2.7%
George Owusu Essegbey	0.14%	Joanna Chataway	1.8%
Bitrina Diyamett	0.12%	George Owusu Essegbey	1.8%
Timothy Esemu	0.11%	Bitrina Diyamett	1.8%
Gussai Sheikheldin	0.08%	Rose Omari	1.5%
Aschalew Tigabu	0.08%	Paul Boadu	1.5%
Paul Boadu	0.08%	Mammo Muchie	1.5%
Joanna Chataway	0.07%	Winnie Khaemba	1.5%
Rose Omari	0.07%	Gussai Sheikheldin	1.5%

Source: Technopolis (2021), data from Microsoft Academic

5.6 Positive impacts but yet much to go

- **A sustainable academic community in Africa working in the field of I&D is formed.**

The community has grown but has not yet reached a critical mass. The representativeness of women and low-income countries also increases, even if it is still low. There is a considerable male over-representation in the database who comprise 73% of all members, meaning a gender ratio of about 3:1.

- **The magnitude of rigorous research on I&D conducted within African academic institutions and by African researchers is increased.**

Citations linkages can provide us a view on the place of the AfricaLics network in the scientific community. In here we can distinguish upward linkages (AfricaLics members citing other scholars) from downwards linkages (AfricaLics scholars being cited by other scholars)

The Microsoft Academic data has only a limited coverage of reference data for a considerable part of the output. This can be due to that reference lists are not provided in the right format or are behind paywalls, inhibiting the Microsoft Academic to include it in their collection. Nevertheless, the 54% of papers for which we have the references can provide insight in the scholars of relevance to the AfricaLics scientific community.

Table 11 list the scholars and publications that have received the most attention within the AfricaLics network. In this ranking we find Globelics founder Bengt-Åke Lundvall on top as author with both the most articles in the "top 100 most cited publications by AfricaLics members" and as author of the most cited publication (and as co-author to another top 10 publication). The attention Globelics founder Lundvall is not surprising given his involvement in a variety of AfricaLics activities.

Table 11 Top Authors and top 10 publications by AfricaLics citations

Top 10 authors		Top 10 publications		
Author by number of publications in 'top100 most cited publications by AfricaLics members'		**Top publications**	**Authors**	**Citations by AfricaLics**
Bengt-Åke Lundvall	4	National Systems of Innovation Towards A Theory Of Innovation And Interactive Learning	Bengt-Åke Lundvall	36
Staffan Jacobsson	4	Technological Capabilities And Industrialization	Sanjaya Lall	33
Bradfield Lyon	3	Absorptive Capacity A New Perspective on Learning And Innovation	Daniel A. Levinthal, Wesley M. Cohen	31
Richard R. Nelson	3	National Innovation Systems A Comparative Analysis	Richard R. Nelson	24
Christopher Freeman	3	Diffusion of Innovations	Everett M. Rogers	23
Wesley M. Cohen	3	An Evolutionary Theory of Economic Change	Sidney G. Winter, Richard R. Nelson	22
Anna Bergek	3	Forms of Knowledge And Modes of Innovation	Morten Berg Jensen, Edward Lorenz, Bengt Åke Lundvall, Björn Johnson	22
Fred Gault	2	Innovation In Informal Settings Reflections And Proposals For A Research Agenda	Judith Sutz, Susan Cozzens	20
Raphael Kaplinsky	2	The National System of Innovation In Historical Perspective	Christopher Freeman	20
David C. Mowery	2	Technology Policy And Economic Performance Lessons From Japan	Christopher Freeman	19

Source: Technopolis (2021), data from Microsoft Academic

The left side of Table 12 lists the journals that have published the most articles that have cited AfricaLics scientific output. The Sustainability journal is the journal that published the most articles that cite AfricaLics scientific output. On the right side the most common affiliations of authors that cite AfricaLics scientific output. Wageningen University and Research Centre, a university based in the Netherlands with a strong international reputation in the area of agriculture, is the institution with the most publications citing AfricaLics scientific output.

Table 12 Publications citing AfricaLics scientific output

Top 10 Journals publishing papers that cite AfricaLics publications		Affiliations from authors that cite AfricaLics publications	
Journals	**Number of publications**	**Affiliation**	**Number of publications**
Sustainability	234	Wageningen University and Research Centre	159
Environmental Science And Pollution Research	117	Jiangsu University	110
Plos One	112	University Of Oxford	110
Journal Of Cleaner Production	108	Kwame Nkrumah University Of Science And Technology	97
Vaccine	93	University Of Ghana	95
African Journal of Science Technology Innovation And Development	87	Chinese Academy Of Sciences	92
Renewable & Sustainable Energy Reviews	78	University Of Cape Town	92
Research Papers In Economics	74	University Of Sussex	80
Technological Forecasting And Social Change	67	University Of Kwazulu Natal	79
Science Of The Total Environment	66	Tshwane University Of Technology	78

Technopolis (2021), data from Microsoft Academics.

6 Policy outreach and stakeholders' engagement pillar

Reminder of Evaluative Questions

- **Q1 How relevant have the various AfricaLics activities been to enhance research capacities and networking in order to support a vibrant research community in I&D research, to facilitate high-quality I&D research and to ensure utilisation of I&D research in Africa countries?**

- **Q2 To what extent have the AfricaLics activities achieved their objectives and outcomes?**
  - To what extent has the Sida support contributed to establishing or strengthening existing collaboration?
  - To what extent have pro-bono contributions contributed to the achievement of objectives?

- **Q3 How efficient have the implementation of AfricaLics activities and its set-up been?**
  - How well has the RCB project been managed?

- **Q4. To what extend has AfricaLics impacted I&D research and related policy in Africa?**
  - What impact have AfricaLics activities (by members and secretariat) had on the policy debates in the region?
  - How much can be attributed to the efforts of the project?
  - To what extent is the network creating an innovation studies community focused on development issues in Africa?

Key messages of the evaluation

- (Relevance) **Policy outreach and policymakers' engagement activities are currently not entirely responding to the Network and stakeholders' needs.** Even if AfricaLics increased policy outreach activities in the RCB project phase 2[34], overall, there is a consensus among Network's members that these activities are still narrow in terms of scope, intensity, and format. Very few activities are done to disseminate research outputs by Network members and have policymakers and practitioners be aware of that research. Policy outreach activities are also limited to very few pockets of policy-making influence (mainly universities and research institutes) and concentrated in a few countries.

- (Effectiveness) **AfricaLics was successful in implementing policy outreach planned activities under the RCB**.

- (Effectiveness) However, **awareness of AfricaLics Network among relevant stakeholders is limited**. Only a few universities, a few departments, a few organisations across Africa know about the Network. AfricaLics does not have much visibility at AU level nor within the RECs. At national level, awareness from stakeholders is correlated to AfricaLics scholars' density and the dynamism of the national Lics (node).

- (Effectiveness) Most of the influence of AfricaLics is at academic/research level. **Policymakers and industry are to a lesser extent reached by AfricaLics activities. The number of policymakers joining AfricaLics increases but is still low.**

- (Effectiveness) **Requests for policy advice and support have gone up since the creation of the Network**. They **mainly concern ASB members** that are now getting more invitations to speak to panels, events, and other policy and research spaces. However, it is **difficult to assess more largely the influence of AfricaLics scholars in the policy field since this information is difficult to document**. Network's members are not responsive to communicate and report on their policy engagement activities. In addition, network's members received requests *intuitu personae* to a great extent. They do not necessarily mention that they are members of AfricaLics when they give presentations or provide policy advice.

- (Effectiveness) **The number of policy documents that reference research from AfricaLics members' is difficult to estimate**. **Members' contributions are often not acknowledged in policy reports**. Using the data at our disposition, we provide insight into the extent to which the scientific output of the AfricaLics members is utilised within the policy domain. We find that the scientific output of the AfricaLics members have received 540 citations by policy-related documents (think tank reports and other policy studies). Most of citations come from think tanks (55% of citations), and inter-governmental organisations (30%). 14% of citations origin from governments.

- (Effectiveness) **AfricaLics has developed linkages with some research and capacity-building organisations/networks** (CARTA, African Economic Research Consortium (AERC), African Academy of Science (AAS), African Technology Policy Studies Network (ATPS); academic organisations with some capacity-building elements: SPRU, UNU-MERIT, UCAD (in Senegal), think tanks like STIPRO (Tanzania)). But these **collaborations have**

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[34] Policy outreach was not AfricaLics focus at the start of the RCB project. The Network realised its importance as time has proceeded.

> **not been cemented** through the signing of Memorandum of Understanding (MoUs) because AfricaLics is not a legal entity. AfricaLics is unique in creating such a network of scholars and bringing on board all the disciplines.
>
> - (Efficiency) **Policy outreach and stakeholders' engagement activities took very little funding proportionally and were not the main focus in terms of time and human resources allocated.** Yet, policy outreach is recognised as an area where AfricaLics should focus more and devote more budget.
>
> - (Impact) **AfricaLics has contributed to a lesser extent to make knowledge on I&D visible to influence policymaking.** From a **structural perspective**, there is a disconnection between policy-making and economic research in Africa.
>
> - (Impact) **There are a number of gaps between research and policy that must be bridged** such as (i): Limited policy relevant research; (ii) Insufficient access to research; (iii) Ineffective communication by researchers; (iv) An under-emphasised but very important area is the limited understanding by policy makers, politicians and incapacity of overstretched bureaucrats to absorb research and (v) improving the demand for evidence in a systematic and rigorous way. **Addressing these structural challenges goes beyond AfricaLics' ambition.**
>
> - (Impact) **AfricaLics has had limited impact in engaging policymakers to the Network and making research done by its members more visible. Policy outreach activities are currently mainly demand-driven** (AfricaLics responding to requests) **and not executed in a coordinated strategic way. A policy engagement strategy is presently lacking.**

6.1   Beneficiaries' needs and evolution over time

According to AfricaLics Interim Constitution, the network's vision is to facilitate the production and use of high-quality research in innovation and development to promote inclusive and sustainable development in African countries. **AfricaLics' aim to ensure that innovation research done by AfricaLics members informs policymaking in Africa. Therefore, policy outreach and stakeholders' engagement activities are pivotal to reach this goal.** In their conception, these activities aim at ensuring that stakeholders are aware of AfricaLics activities and recognise the value of AfricaLics' members' research. In practical terms, they consist of expanding the network through increased numbers of scholars interacting with one another and publicising the network to policymakers and other stakeholders, including similar networks and potential donors.

The interviews we conducted with AfricaLics beneficiaries' (Ph.D. students, early-career researchers, scholars) show that one need they have, after capacity building, is networking with other researchers. They are willing to expand their research network to other early-career and more established researchers in Africa and beyond to learn from them, exchange, and for potential future collaboration. The ones who are already active in innovation studies and associated fields (researchers and practitioners) express the need to be connected to organisations with the same interest in innovation that share the same understanding of a more holistic approach of innovation, based on innovation system theory. Before 2012 (the date of the creation of AfricaLics), such organisations/networks were inexistent in Africa.

We were not able to identify policy makers' needs, since we have not been able to conduct the interviews with them. However, the consultation of flagship policy documents (African Union, 2014) reveals that, capacity needs, and priorities are:

- **Insufficient funding for STI**: Recent statistics from UNESCO and ASTII show that Africa's current level of R&D by Africa as a continent (of which more than half is internationally funded) puts Africa at a strategic disadvantage.

- **Organisational capacity by entities responsible for STI policy making**: Most of the entities responsible for STI policy making operate in isolation from other policy agencies, with weak links not just to the private and education and research sectors, but also to African and international Policy Research Think Tanks. Not having easy access to empirical material and recent knowledge in STI policymaking and ignoring inter-sectoral linkages and policy mixes make their institutional outputs much less reliable.

- **Infrastructure to support innovation**: There are different levels of infrastructure readiness to support innovation in African economies. This is also reflected in Africa's low scores in many major rankings or indices such as the world's leading universities, World Economic Forum competitiveness index.

- **Inadequate Expertise on STI policy development**: Many of the officials involved in or responsible for drafting policy documents do not have the necessary skills or training and have no experience in evidence-based policymaking. Moreover, in most countries, institutions responsible for STI policy do not have appropriate libraries or easy access to sources of relevant information for policy-making purposes. Very limited evidence-based policy development takes place in Africa.

- **Bilateral and multilateral cooperation**: Bilateral and multilateral partnerships have shaped STI development in Africa. However, most of these interventions and cooperation mechanisms are not adequately designed to promote African ownership, accountability, and sustainability.

The interviews we conducted demonstrate that the needs above are still actual even today. Whether economic, social, political, or technological, contextual changes have had little influence on the expectations of beneficiaries and their needs.

6.2 Relevance of policy outreach and stakeholders' engagement activities as regard to identified needs

The beneficiaries we consulted express that they are very satisfied with networking activities among the AfricaLics community; however, there is a consensus that policy outreach activities and policymakers' engagement with the network are still limited.

AfricaLics main activities (conferences, Ph.D. Academies, Visiting Fellowship Programme) are strong means to increase scholars' interactions. The vast majority of Ph.D. Academies participants think that approaches used to enhance interactions among Ph.D. scholars are appropriate: 76% during Nigeria Academy in 2017 and 85% during Morocco Academy in 2018[35]. The same applies to Conferences: 74% of participants to Oran Conference in 2017 were satisfied with the interaction among participants, 86% for Tanzania Conference in 2019[36].

One improvement area is that interactions initiated do not necessarily continue after the event. A reason being that conference attendees do not have access to or know each other contacts, research interest, and they have not access to the AfricaLics members database. In addition, networking activities often do not evolve to research collaborations. Before COVID, the interactions were limited to annual events. Now, the webinars offer the possibility to interact on a more regular basis. They have been exceptionally positive and fostered more interactions among Network's members, notably at the policy level, even if they have not been so much productive yet in terms of concrete outcomes.

On the contrary, **policy outreach and policymakers' engagement are limited. Even if AfricaLics increased policy outreach activities in the RCB project in phase 2, overall, there is a consensus among Network's members consulted that these activities are still narrowed in terms of scope, intensity, and format.**

At every academy and conference, an open event is organized to sensitise a larger group of people – including policymakers about AfricaLics and why innovation in relationship with

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[35] Academies evaluation survey

[36] Conferences evaluation survey

development is important. Some of those events have been more successful than others. This is linked to the influence of the host university, the place where the event is organised (capital city or close to where policymakers are). These open events are also helpful to the host university: it helps to legitimate its leading position in the I&D field and helps publicise what the university and its researchers do. Some interesting debates start during the events. Yet, the degree to which they continue depends on how connected the individuals of the host university are.

Very few activities are done to disseminate research outputs and have policymakers and practitioners be aware of that research. This has been hindered at times by a difficulty in generating interest from members to publish through AfricaLics channels e.g., blog posts. When this has occurred, it has taken a great deal of time (e.g., editing blog posts) which detracts away from the main focus of the RCB project: capacity building.

Policy outreach activities are also limited to very few pockets of policy-making influence and concentrated in a few countries. They do not target intentionally key stakeholders at Pan-African and regional levels (AU, RECs notably).

The Secretariat recently finalised a new communication strategy that will support policy outreach efforts. This strategy aims at building awareness about AfricaLics' activities by the AfricaLics community and other relevant stakeholders (policy makers, potential members of the AfricaLics community etc.) and to simultaneously increase the quantity, quality, relevance and utility of information AfricaLics makes available to its stakeholders. In order to complement the communication strategy, the Secretariat also plans to develop a policy engagement strategy for more tailored activities targeting policy makers. In addition, the Secretariat is exploring ways of increasing online communication about research done by members of the network (research stories, policy briefs).

6.3   Awareness of AfricaLics network among relevant stakeholders is limited.

- **Overall AfricaLics is not yet well known.**

There are pockets of knowledge: only a few universities, a few departments, a few organisations across Africa.

At Pan-African level, AfricaLics do not have enough visibility at the AU level. Similarly, **at regional level, the awareness within the RECs is limited**. Yet, raising awareness at this level is critical to get traction within the policy and industry arena to recognise importance of innovation and policies and practices that are conducive for innovation.

At national level, the situation is not the same across countries. In some countries, there is more awareness than others, depending on AfricaLics scholars' density and the dynamism of the nationaLics (node). For example, in Nigeria, many members publicised AfricaLics, and many members of this node are well connected to policymakers. In East Africa, policy makers knowledge on the Network is limited, even if the Secretariat is based in Kenya. The situation is similar in Southern Africa and North Africa, despite the leading role of South Africa and North Africa countries in innovation studies. Finally, francophone countries in West and Central Africa are mainly left aside: the language barriers refrain the interactions and interest for AfricaLics, no conferences nor Academies has been organised in these countries. Therefore, the awareness is minimal, even at university level.

In terms of types of stakeholders, most of the influence of AfricaLics is at academic/research level. On the other hand, policymakers and industry are to a lesser extent reached by AfricaLics activities. For this to happen, specific, more deliberate, and strategic sensitisation activities need to be done towards these categories of stakeholders. Yet, AfricaLics has a much stronger

link with Science Councils across Africa because ACTS is involved with the Science Grant council initiative, since 2017. This collaboration will be formalised soon. As a result, there is much more knowledge about the network at science councils' level and some higher education ministries, which will continue because of the ongoing formalisation. The plan is that AfricaLics members will provide policy advice to science councils via a match-making process that ACTS will be setting up. That will be very useful because a number of science councils do not know that they have researchers doing research in I&D or on science in their countries. Ph.D. Academies and Conferences, because they rely upon host universities, also help disseminate awareness of AfricaLics within universities and research centres.

Policy outreach activities are currently mainly demand-driven (AfricaLics responding to requests) and not executed in a coordinated strategic way (a policy engagement strategy is being developed), which diminishes their impact and sustainability.

Moreover, **policy outreach activities are currently mainly conducted by a small nucleus of people** (ASB members, Secretariat, and very few members), diminishing their magnitude. The individual actions by the Secretariat and ASB members are probably the most influential because many of them are members of important committees. They participate in various events, panels, fora. The interviews highlighted that AfricaLics scholars (Ph.D. Academies participants and postdocs) did not primarily take on their role of AfricaLics ambassadors. They recognised that they could have done much more to publicise AfricaLics. Some mentioned that the network still not being a legal entity limits what is possible in terms of partnerships with their home institutions. They also regret that reflections on how they can publicise the network were not done during the activities they participated in.

In conclusion, the elaboration of a policy outreach strategy with dedicated activities and resources (staff and financial) and the institutionalisation will also be pivotal to increase awareness of the network. In addition, the decentralisation of activities at a more national/regional level, the increase of I&D researchers' density in the countries, and the dynamism of the nodes in terms of research outputs and policy outreach will also help to bring policymakers closer to AfricaLics.

6.4 The number of policymakers and analysts joining AfricaLics increases but is still low.

AfricaLics baseline study conducted in 2014 [37] (N=129 Network members) shows that 63% of the Network members were affiliated to universities, 18% to public research organisations, 8% to Governments, 4% to NGOs, 3% to Think tanks, 2% to the Private sector, 2% to Multilateral organisations.

In 2021, the Network database shows that for 204 of the 639 members we have data on organisation type, 36 members (or 18%) of these are working for governments, government research institutes or think tanks. This statistic has to be taken cautiously since we AfricaLics database is not explicit on variables that could give insight on the share of policymakers.

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[37] Author: Dr Kraemer-Mbula

6.5 AfricaLics' members, especially Board Members, are consulted to provide support and advice to policymakers; but the extent to which other members contribute to policymaking is challenging to assess.

The interviews we conducted show that the requests for policy advice and support have gone up since the creation of the Network. **It mainly concerns ASB members** that are now getting more invitations to speak to panels, events, and other policy and research spaces. They are also members of key committees related to STI, e.g., UN Technology Bank, SDG committees, national and international commissions, etc. **However, it is difficult to assess more largely the influence of AfricaLics scholars in the policy field since this information is difficult to document**. As reported by the Secretariat's interviews, the network's members are not responsive to communicate and report on their policy engagement activities. In addition, members' contributions are often not acknowledged in policy reports. It is also difficult to attribute the exposure of researchers to their affiliation to AfricaLics. Our interviews show that Network's members received requests *intuitu personae* to a great extent. They do not necessarily mention that they are members of AfricaLics when they give presentations or provide policy advice. There is also a question about whether people consider themselves as members. Our interviews reveal that a few scholars (Ph.D. Academies participants) do not feel like Network members.

Moreover, there are still few recognised experts in the field in Africa since I&D is a recent research field. Therefore, the demand is high for the few experts available and visible, strengthening the need for more trained experts.

6.6 AfricaLics scholars are not yet visible enough to be recognised as a driving force in policy advice in the field of I&D in Africa.

As a consequence of the little knowledge policymakers have regarding AfricaLics, and low research outputs, **the Network's members are not visible enough and not recognised as a driving force in policy advice in I&D in Africa**. However, within the pockets of knowledge, AfricaLics are considered go-to experts in the holistic approach to innovation.

6.7 The number of policy documents that reference research from AfricaLics members' is difficult to estimate.

Although scientific impact can provide insight into its effects on the scientific community, an important aim of the AfricaLics network is to impact the policy community. Therefore, we provide insight into the extent to which the scientific output of the AfricaLics members is utilised within the policy domain. We estimate the number of policy documents referencing research from AfricaLics' members using the Overton database. However, a note of caution needs to be placed, as the coverage of the Overton database that is used for this still has a bias to OECD countries and intergovernmental organisations.

The utilisation of the scientific output is tracked by assessment of citations in policy-related documents to the scientific output. These policy-related documents include both think tank reports and other policy studies utilising the scientific output of AfricaLics. **In total the scientific output of the AfricaLics members have received 540 citations by these documents**.

Table 13 Top 10 citations in policy-related documents by organisation

Organisation	Number of citations
World Bank	53
International Development Research Centre	53
CGIAR	45
RAND Corporation	24
Publications Office of the European Union	20
Institute of Development Studies	20
IFPRI	16
UNESCO	13
Food and Agriculture Organisation of the United Nations	11
IZA Institute of Labour Economics	11

Source: Technopolis (2021), data from Microsoft Academic, Overton

Table 14 provides an overview of these citations by type of organisation and geographical origin. Most of the citations are coming from think tanks and inter-governmental organisations. Inter-governmental organisations the largest group (which includes organisations such as the African Union) are also the largest group when the geographical origin of these policy citations is assessed.

Table 14 Citations by policy related documents by organisation type and geographical origin

Type of organisation	Number of citations	Geographical origin (excluding OECD countries)	Number of citations
Think tank	302	Intergovernmental organisation	156
Intergovernmental organisation	156	Kenya	13
Government	75	South Africa	9
Other	7	Brazil	7

Source: Technopolis (2021), data from Microsoft Academic, Overton

6.8   Linkages with other research and capacity building networks are nascent and not yet formalised.

AfricaLics has developed linkages with other research and capacity-building organisations/networks. **But these collaborations have not been cemented** through the signing of Memorandum of Understanding (MoUs).

Such organisations/networks include CARTA, African Economic Research Consortium (AERC), African Academy of Science (AAS), African Technology Policy Studies Network (ATPS); academic organisations with some capacity-building elements: RUFORUM, SPRU, UNU-MERIT, UCAD (in Senegal), think tanks like STIPRO (Tanzania).

6.9   Efficiency

Our investigation concludes that policy outreach and stakeholders' engagement activities took very little funding proportionally and were not the main focus in terms of time and human resources allocated. Up to now, AfricaLics, in the context of the RCB project, has made a conscious choice not to put so much emphasis on this set of activities, even if they were included in phase 2; the reason being that the primary mandate remained research capacity building.

The policy outreach activities that have been done, have been designed to actively involve AfricaLics members beyond the Secretariat and ASB members when applicable, with the idea of making them the "ambassadors" of the network.

Yet, all the stakeholders we interviewed have recognised policy outreach as an area where AfricaLics should focus more. Therefore, more resources (budget, time, resource) should be dedicated to this, without depleting the capacity building component.

6.10   Knowledge on I&D is still not visible and effectively communicated for more informed decision-making, even if progress has been made.

The interface between research and policymaking is gaining relevance as global challenges and their complexities increase. Policymakers worldwide discuss and need to address complex common global challenges such as climate change, peace and security or human food security. The complexity of the task requires at least two things. First, sound research-based evidence for informed decisions needs to be available, ideally based on evidence related to the local context. Secondly, this evidence should be accessible to decision-makers, which, in democratic societies, includes an interested public. In this context, "accessibility" stands for the need to summarise and translate complex data, and present research results in short, concise and implementable policy recommendations for decision-makers with limited time resources. The channels of communication can be either through the public media or through direct interactions between researchers and policymakers. (Grimm, et al., 2018)

As a conclusion of our investigation, we find that **AfricaLics has contributed to a lesser extent to make knowledge on I&D visible to influence policymaking**. The reasons for this situation are explained by a variety of structural and contextual factors and areas where AfricaLics' activities have a limited impact.

From a **structural perspective**, there is often a disconnection between policy-making and economic research in Africa. A wide gap exists between the producers and consumers of knowledge, and research could have a greater impact on development policy than it has had to date. Researchers as "knowledge makers" cannot understand why there is resistance to policy change despite clear and convincing evidence. Policymakers as "knowledge consumers" bemoan the inability of many researchers to make their findings accessible and digestible in time for policy decisions.

There are a number of gaps between research and policy that must be bridged such as (i): Limited policy relevant research; (ii) Insufficient access to research; (iii) Ineffective communication by researchers; (iv) An under-emphasised but very important area is the limited understanding by policy makers, politicians and incapacity of overstretched bureaucrats to absorb research and (v) improving the demand for evidence in a systematic and rigorous way. (Basil, 2011)

Research institutions have to build their credibility, develop a communication strategy and remain attentive to the needs of policymakers. ((IDRC) & Edited by Elias T. Ayub and Mohamed Ali Marouani, 2007). Achieving any form of impact on policy is linked to the attention researchers pay to the context in which the research is undertaken, the nature and credibility of the research; and the importance of nesting any single project in a broader programme of engagement with the policy environment that builds trust in the researchers. (Gilson & McIntyre, 2008).

Addressing these structural challenges goes beyond AfricaLics' ambition. However, as argued in previous sections, **AfricaLics has had limited impact in engaging policymakers to the Network and making research done by its members more visible.**

7 Institutional and organisational strengthening pillar

Reminder of Evaluative Questions

- **Q1 How relevant is the network-based approach to achieve intended results?**

- **Q2 To what extent activities contributed to the emergence of nationaLics/regionaLics all across Africa?**

- **Q3 How efficient have the implementation of AfricaLics activities and its set-up been?**

  – How efficient is the organisational set-up of AfricaLics?

  – How appropriate is the current division of responsibility between the Secretariat, the Scientific Board and the network's members?

  – How adequate has the monitoring established by AfricaLics been in terms of supporting decision making/adjustments of activities?

  – Has monitoring and follow-up by Sida been appropriate and useful for the achievement of objectives?

- **Q4 To what extent is the network creating an innovation studies community focused on development issues in Africa?**

- **Q5. To what extent are the current approach and set up of AfricaLics sustainable?**

  – What has been the role and importance of the support from ACTS, Aalborg University and the pro-bono contributions by partners in the network? Is this model sustainable?

  – What is the level of commitment from African governments (on funding the network and prioritising the programs supported by AfricaLics) as well as members of the network (on funding)?

  – Are there interesting examples of other initiatives to learn from? (ex. diversification of donors, creation of hubs in subregions, making AfricaLics' alignment with SDG more visible, expanding the partnerships and doing online apps, taking into account Covid 19 impact, payment of fees for conferences)

Key messages

- (Relevance). Derived from the Globelics approach and with similarities to that used by other organisations such as Schumpeter and ATPS, **the network-based approach used by AfricaLics is relevant to respond to Africa's needs in research on I&D as it allows to rely on these with capacities, willingness and excellence and activate a ripple effect (among countries and in countries)**.

- (Relevance) However, AfricaLics appears to find itself at a crossroads where it is about **time to extend its engagement with universities and work in depth on building I&D teaching and research streams** at institutional level.

- (Relevance) **The development of national or sub-regional hubs/lics appears as a relevant model to further develop**, responding to the needs to respond to regional specificities and create momentum at national level and institutional level.

- (Effectiveness) **AfricaLics contributed to the emergence of some national Lics, by planting some seeds (idea). However more could be done in terms of supporting the set-up of other national and regional hubs and supporting them better.** Difficulties faced by scholars who want to initiate networks are essentially the limited funding to finance the activities in building up a hub, the limited time, the political games, and political momentum to be navigated.

- (Efficiency) **The current organisational set up appears efficient, as well as the division of roles between the different governance organs.** However, if the network is to expand and include more institutions, there might be a need to reconsider the format and functions of the ASB. Virtual quarterly meetings in the last year allowed a more intense engagement of the ASB which appear to be beneficial.

- (Efficiency) **The monitoring is quite good but to be slightly enhanced, notably the maintenance of the membership database which is not complete**

- (Efficiency) **The communication tools (website, social media) are relatively effective, but more could be done to communicate members' research outputs and to target policy makers more specifically.**

- (Impact) **AfricaLics network appears to cover relatively well the African continent, notably in connection with the national nodes.** However, while countries like Nigeria, Kenya, Ethiopia are well covered, several countries from the **Sahel and Central Africa have not yet been effectively targeted.**

- (Sustainability) **AfricaLics model is very dependent on (few) donors' and their willingness to continue funding the network and contributions by a relatively small group of very active scholars.**

- (Sustainability) **The Network does not seem to be formally connected to other Networks** (apart from Globelics) and global I&D knowledge producers.

7.1 Relevance of the network-based approach but efforts to be made on institutional support provision

First, it is worth reminding that the network-based approach implemented in AfricaLics is derived from the Globelics approach: "The network provides a global platform of collaboration for researchers, practitioners and policy makers who see innovation and competence building as being at the heart of the economic development process. It has as explicit objective to promote South-South collaboration. Being a network of networks, the 'ethos' of Globelics is created and recreated through an on-going interaction between scholars from different parts of the world ".

AfricaLics provides a global platform at an African level, projecting itself as a network of national African networks (in the making) and aims at their continuous interactions and cross-fertilisation through organisation of e.g., research conferences, PhD academies and, starting in 2021, also monthly webinars. As the only member of the Globelics network and thanks to the funding from Sida, AfricaLics has also been able to develop a Visiting Fellowship Programme.

There is obvious evidence throughout other initiatives implemented in the past and present that building networks triggers a chance for a ripple effect: the network approach versus individual or institutional approach allows for breath in the change sought; researchers can interact and learn from each other; members of the network are empowered or given more credibility by other network members support and reputation (see Schumpeter, ATPS, ASIST UK to quote a few). This has been praised by many of the interviewees.

While this approach has so far proven relevant both for fostering research conducted in Africa on I&D and for networking of scholars in I&D (see pillar 1 assessment), interviewees however expressed the need to unpack the concept of network and be more specific about (the role of) individuals and institutions in the network. The evaluators notes that a more in-depth paper on how the hub and spoke model might more is being developed.

AfricaLics has mostly involved individuals. This presents some advantages, notably making sure the scholars which have capacities, willingness and excellence can access opportunities with no institutional filter (only the AfricaLics filter). So, networking and research capacity development are intertwined.

On the other hand, and to a certain extent, Africalics is also anchored in an institution (ACTS) plus collaborating institutions (such as AAU and participating universities to events). The Africalics nodes are also part of the institutional component of the network. Even if universities are not included as institutions, AfricaLics encourages students to require the institutional support of their home universities to participate into activities. However, collaboration with participating universities is rather ad hoc and so far on a temporary basis (linked to specific events or opportunities e.g VFP). This constitutes obvious weaknesses in terms of establishing long term relations.

Taking into account the difficulties faced by scholars notably in Africa to influence their universities hierarchy and raise funding to finance new training streams on I&D but also importantly research projects which are not to be overlooked, some interviewees mentioned the potential added value of getting support by the AfricaLics community and notably the Secretariat into establishing formal partnerships with Universities (MoUs) and assisting with for ex. the development of PhDs in I&D or simply building a training. Some other interviewees mentioned the roadblocks in formalising partnerships with universities, notably due to the high level of politics required.

7.2   The 'Hub and Spoke' model: a relevant model to further develop

As mentioned in its Interim Constitution, "whilst AfricaLics is committed to the realisation of an integrated Africa, it also recognises that the continent of Africa is composed of five regions: Central Africa, Eastern Africa, North Africa, Southern Africa, and West Africa. To ensure that AfricaLics advances the integration of Africa, the operations and functions of the AfricaLics must accommodate, where appropriate and possible, regional diversity, specificities, linguistics and equitable participation". For doing so, building institutional capacities in a few nodes/hubs is definitely key.

AfricaLics is thus currently assessing the options for formalising the network and is encompassing the option of developing the "Hub and Spoke" model. This model would entail the formalisation of partnerships with universities which would share the responsibility of supporting the regional/national networks and fundraising. In this new model key universities and/or consortia of universities would act as Spokes while the AfricaLics secretariat would remain as the Hub of the AfricaLics network. According to interviewees, this model appears as a logical step forward.

7.3   AfricaLics contribution to the emergence of national Lics

AfricaLics engaged into exploring potential for developing nationaLics or regionaLics, notably in Ghana, Ethiopia, Nigeria, Kenya and North Africa. National/regional networks were created in Nigeria (NigeriaLics) where it hosted 2 online seminars for Nigerian based scholars and practitioners in 2020 and which is counting about 200 members: as well as in Burkina Faso (FasoLics) and in North Africa. A network (FasoLics) has also been established in Burkina Faso with assistance from a senior member of the ASB but is yet to be formally registered as an AfricaLics affiliated network. Discussions about the establishment of a national network in Ethiopia and North Africa are yet to be completed. Overall, the establishment of sub-continental networks has been rather slow and cf. below there are many obstacles that need to be addressed for such national networks to materialise.

The ASB additionally requested to advertise broadly possibilities for developing national and regional hubs as a result a concept note and a template for expression of interest for hosting a hub was to be developed in the course of 2020.

The approach to national network setting is that they build up organically based on achieving a critical mass of individuals and/or interest in a single organisational entity e.g., university (which might have developed as a result of the organisation of an Academy within the organisation or participation of individuals in the VFP program):

- In the case of Nigeria, the idea was planted by a SIDA representative years before the involvement of the scholar who set up the national network. This is when the said scholar became a member of AfricaLics Board, that she developed a network in her country, hosted at her university.

- In the case of Burkina Faso, the participation to an AfricaLics Conference in 2017, as well as a co-publication with the Co-I of AfricaLics, planted the idea of creating a national hub in the mind of the scholar participating, which in turn resulted to the creation of the network. To note, the creation of the hub benefited greatly from another opportunity: the response to a call for proposal from the World Bank African Centres of Excellence (ACE). The network did formalise the 5 universities' partnership which was built for the ACE, even though the response to the call for proposal was not successful.

Interviewees engaged in setting up a network (not yet successfully) mentioned their difficulties to initiate these local networks, essentially pointing to the limited funding to finance the activities in building up a network, the limited time, the political games and political momentum

to be navigated. Interviewees concur that if AfricaLics decides to take a more proactive approach to setting the national networks, funding and technical assistance would be necessary, but this would not be advisable at all costs, as sustainability issues are at play.

In the case of Nigeria and Burkina Faso, there was no direct funding support from the Secretariat to set up the national networks, but informal support/ advice given over years from the Secretariat or from the ASB. However, one should note both in the case of Nigeria and Burkina Faso, the high level of appropriation of the network creation and sustaining processes: the creation of the Lics was based on interest in the countries of concern and the drive of key scholars.

It thus appears that scholars who want to engage in setting a local network are not always aware of the best practices in other national Lics or clear on what could be done pro-bono and what could not.

7.4   A good efficiency of the current organisational set up and the division of roles between the different governance organs

AfricaLics is currently a non-incorporated voluntary network hosted at ACTS. ACTS is providing the incorporated shell for receiving SIDA's grant. It notably bears the contracts for the Secretariat staff and provides some in-kind contributions to support the network.

The functions of the Secretariat are to act as representatives of AfricaLics; work together with the ASB to raise funds for AfricaLics activities; support the preparation of issues to be discussed by the ASB and handle the minutes of the meeting as well as follow up on decisions made; assure good communication with the AfricaLics community; support local organisers in organizing and preparing the AfricaLics conferences and academies; keep the membership database updated; facilitate and oversee the election process; maintain relationships with Globelics, other regional and national LICs and coordinate as necessary with the hosting organization of the Secretariat.

All interviewees praised the activities performed by the Secretariat, which is seen as very professional and effective. Interviewees concurred that the role division between the different governance organs is good.

To note, on the internal system side, changes were operated in 2017 and completed in 2018, having taken longer to implement than initially planned. An audit conducted in 2018 confirmed compliance of ACTS accounts to SIDA requirements. All subsequent yearly audits have confirmed the same. It has become a standard question that the auditor's report on each year.

Concerning the governance of the network, all interviewees considered it as strong and balanced between its members. The division of roles between the ASB, the Secretariat and its members, appears working well. However, if the network is to expand and include more institutions, there might be a need to revise the role and function of the ASB. Moreover, Board Members have been involved once a year only until last year 2020, when virtual quarterly meetings were implemented. This has allowed a more intense engagement of the members which seem to be beneficial.

7.5   A monitoring to be slightly enhanced to allow adjustment of activities

Concerning AfricaLics own monitoring of its activities, annual reports have been found by evaluators to be quite complete and informative. AfricaLics has recently enhanced its M&E framework thanks to a RBM approach (in 2018) and developed studies (baseline study, tracer study) which allow to report not only on activities but also outputs and outcomes, and thus

follow up on metrics from the logical framework and theory of change developed by the Secretariat.

The Secretariat is also maintaining a database in which it stores details about the members of the AfricaLics network. The evaluators have found that the maintenance of this database should be enhanced: at the start of the database, the Secretariat has sent out a request to the participants of previous events to join the network by signing-up via an online form. After this initial population of the database, participants of subsequent events were given the opportunity to sign-up for membership. As only participants were proactively asked to sign-up, meaning that applicants that were not accepted for participation or did decide to not attend are usually not included in the database. With the current change to online events such as webinars, participants are not proactively asked to sign-up, as this might lead to only artificially increasing the network. Yet interested individuals can reach out to AfricaLics to sign-up, but no proactive measures are currently undertaken to advertise this possibility.

The AfricaLics database is internally structured as a relational SQL database that is linked to the website. There is data available for two different kinds of entries:

- Individuals: this are people that have signed-up for AfricaLics membership. Data is available on several variables such as their names, gender, affiliations, highest qualification obtained and contact details.

- Conferences: for participants to each conference there is an entry indicating details about their participation in the conference such as the name of the paper presented and its DOI.

AfricaLics is currently updating the entries to the database. AfricaLics members are asked by email to complete and update their personal details and add information such as bibliometric data for the papers presented at AfricaLics conferences. At the moment the response of the members to follow-up on this request is, despite reminders. low. While in some cases this is due to outdated contact details, in other cases members start but do not complete the update request.

A closer inspection of the database confirms that this update request is necessary, as a closer inspection of the current data gives rise to some inconsistencies in the data[38]:

- Duplicate entries: A small number (11) of individuals have more than one profile in the database. While such duplicates are normally recognized by duplicate email addresses and names, this has not been the case for these entries

- Incomplete entries: For a considerable part of the variables data is lacking for some or most entries.

- Imprecise data: Data for some variables is imprecise. Several authors have "Congo" as country of origin, without distinguishing between DR Congo and the Republic of Congo

- Incorrect data: An inspection of the gender data revealed that for several authors the gender was mis specified

- Incomplete data on when members actually joined the network, which makes it difficult to attribute their scientific output to the network

Considering these concerns, several avenues could be considered to improve the quality. Sign-up and data completion process could be simplified and be made less time consuming by requesting participants to only provide DOIs and use these to collect the other relevant bibliometric data from sources such as CrossRef. Specification of country names can be done

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[38] Which have been fixed when necessary in the further analysis

according to a predefined list of countries from which participants can select their option. For some incomplete entries automated procedures can be used to complete the data (e.g., complete gender data by using the first names of authors to predict gender). In other cases, manual inspection could help to improve the data quality.

7.6   Relative effectiveness of the communication tools to network

Overall, the AfricaLics visibility on social media followed is quite encouraging, and AfricaLics has recently developed a communication strategy (see social media analysis in Annex).

7.7   Impact

AfricaLics' institutional strengthening activities' long-term objective is to ensure that the Africalics network covers all African regions. **Evaluators found that Africalics network cover relatively well the African continent as a whole, notably in connection with the national nodes.** However, while countries like Nigeria, Kenya, Ethiopia and, to some extent, Northern Africa (through PhD academies) are well covered, some countries from the Sahel and Central Africa are insufficiently addressed. The matter of maximizing geographical spread versus having a geographical focus on a selected number of countries to build up a critical mass of scholars in I&D has been a topic of debate within AfricaLics over the years and constitutes a real dilemma considering the resources available.

7.8   A model very dependent on donors' funding and a few persons contribution

Overall, interviewees underlined the dependence of AfricaLics to the SIDA grant, and the difficulty to break this dependency from donor's funding. Additionally, AfricaLics is relying on a few persons' dedication to the network, even though there seem to be willingness of all members to see the network continuing.

As a proof of it, the in-kind contributions of ACTS, Aalborg and network members, which are assessed as important by all interviewees:

- ACTS has notably provided in-kind contributions with 0,5 ETS in administrative support to the Secretariat, as well as has sought synergies with AfricaLics members throughout its recent 4 capacity building projects

- For each event, hosts institutions are paying for or providing in-kind contributions for airport transfer, organization, and of the proceedings and meals. These are assessed at 20,000-60,000 USD per event. To note, facilitators are traditionally not paid.

- On the top, should be counted the time spent by members of the network and the ASB in particular to review papers for conferences and applications for PhD Academies and VFP.

However, AfricaLics faces some rising questions:

- Paying for the mentors of the broader mentorship programme (mentoring people as they write papers for the conferences)
- Paying speakers to attend the conference

For the next years, while the extension agreement to the SIDA grant seems to be secured, and the discussion for a Phase 3 well advanced, with the different avenues to expand activities and support, reflections on attracting new donors is on the table, depending on how the institutionalisation of the network will go.

Commitment from other sources such as members, universities and governments currently explored:

- Having members pay an annual membership fee. Note that interviewees have mixed views about this. All welcome the idea as an important step that can and should be made if considered as necessary by the ASB; however, many also doubt that these will be effectively and consistently paid, which will create some additional equity of access issues, while not solving the sustainability one either.

- Having members pay for accessing conferences as well as for their travel. This has been tried at a modest level but has proven difficult. Note that with the current COVID-19 situation, the option for virtual conferencing and networking is on the table as it reduces the costs to organization and attendance. Also note that network members have expressed their openness to potential payments to access conference.

- Developing a sponsorship package for external sponsors (e.g., private companies or philantropists) and how to get the conference as cheap as possible.

- Developing a model where governments or regional organisations would be solicited and contribute

8 Conclusions

AfricaLics is a relevant initiative in the context of underdeveloped research capacities in the field of I&D in Africa.

The interest of policy makers for STI policy advice and support in Africa is ever increasing. At the international level, the EU and AU have entered into a high-level partnership on STI to address the research gap. The EU DG INTPA and OACPS have set up a policy support facility to provide technical expertise to governments to enhance their national innovation systems. The UN Technology Bank is currently working on Technology gap assessments in LDCs as well as a high-level report on the status of STI in LDCs for the next UN conference in Doha January 2022. At the national level, countries such as Rwanda, South Africa and Kenya have set up dedicated innovation units at strategic Ministries in order to steer the national STI agenda.

And yet, there are still relatively few African scholars capable of doing research and of advising governments on I&D in Africa, nor enough policy-relevant, collaborative research opportunities in Africa in this specific field of study. AfricaLics appears to be the only (Network) initiative with the goal of addressing specific gaps in I&D capacity building, research and outreach.

While the needs are extensive, AfricaLics does partly address this gap. AfricaLics Theory of Change is consistent, and all activities are relevant and complementary. While there is much effort put into the capacity-building component, activities are limited and lack adequate instruments to stimulate inter-African collaboration to set up joint research projects. Additionally, AfricaLics has a limited number of outreach activities and insufficiently reach policy makers.

The level of maturity of I&D research and policy ecosystems differs by African sub-regions (if not each country). The ecosystems of North Africa, South Africa, Nigeria, and Ghana appear to be the most mature. On the other end of the spectrum are the Francophone countries in West and Central Africa, with the least mature ecosystems. AfricaLics must therefore decide how to best address the capacity gap in I&D research and policy advice: continue with a broadband approach (which could result in a crowd out of the less currently dynamic countries) or adopt a tailor-made approach per sub-region.

The modalities used by AfricaLics to intervene primarily target individuals' needs and are designed to have a catalytical effect, e.g., through the organisation of events in different countries/parts of Africa. Yet, **in order to build capacity at an institutional level in a more sustainable manner, AfricaLics could adapt its modes of intervention to directly focus on institutions, while continuing building capacity at an individual level**.

While results on researcher careers and level of publications are encouraging, the overall lack of (collaborative) research opportunities is limiting their scale.

An AfricaLics network has been established. AfricaLics offers various networking opportunities in seminars, conferences, talks, workshops and through the visiting fellowship. AfricaLics scholars very much appreciate building connections with scientists in other countries and in other disciplines. The Covid-19 pandemic has created opportunities for regular online interactions through webinars, where interactions were previously limited to annual events. These remote events were assessed as remarkably positive and fostered increased interactions among the Network's members.

AfricaLics is extensive in its geographical reach. There is, at the time of this evaluation, less representation in the Sahel and Central Africa than other parts of the continent. This is

changing with the setting up of NigeriaLics and FasoLics. Nigeria has hosted one PhD Academy and Cameroon is the expected location of the 2022 conference. Several interviewees noted that the language barrier had been problematic in the past for those in French speaking West and Central African countries when accessing AfricaLics network and activities. With few exceptions, awareness of AfricaLics is minimal in these countries, even at the university level.

AfricaLics contributed to the creation of NationaLics/RegionaLics in Nigeria and Burkina Faso as well as to ongoing debates regarding possibilities for the establishment of national or regional lics in Ethiopia and Northern Africa.

The RCB project/SIDA support has been instrumental to the funding of capacity-building, research and outreach activities. It represents about 4/5 of the overall contributions, 1/5 being in-kind. In kind-contributions of ACTS and AAU are instrumental to operating the Secretariat, as about two thirds of the work of the Secretariat staff is done on a pro-bono basis.

The quality of research conducted in the field of I&D by trained individuals has increased. The training activities for PhDs through the Academies, Visiting Fellowship programme, training of PhD supervisors, and programme for early carrier development enhance the skills of the beneficiaries. PhD students and early career researchers affirm that the Academies and visiting fellowships are addressing their capacity strengthening needs well and assert that they have used the skills and knowledge gained to complete their thesis**.**

However, high quality research is produced by a small number of scholars. While there are 330 publishing Network members, the number of relatively active publishing members is still quite limited (10+) and concentrated in a few countries. PhD students are at a very early stage of their research career and need to find opportunities to perform and therefore develop their research skills. In countries with weak research systems, obtaining a research grant is a challenge and so is performing research in institutions that do not provide adequate scientific equipment and infrastructure.

Collaborative research remains limited. One of the main reasons is the lack of collaborative research opportunities. Another is that AfricaLics members' do not know each other sufficiently well, nor do they have access to the AfricaLics members database including contacts details and research interests. More could and should be done both by the network and donors to increase collaborative research opportunities.

Policy outreach activities are currently mainly conducted by a small nucleus of highly active people in AfricaLics, and overall, policymakers are not well reached. Communication by and about AfricaLics is not sufficiently visible for policy makers. Webinars have not yet been productive in terms of concrete outcomes related to policy influencing. Open events organized during each academy and conference to raise awareness about AfricaLics, and I&D (including among policymakers) are not always successful. Policy outreach activities are mainly demand-driven with insufficient coordination and strategic selection of policy outreach activities.

Implementation of AfricaLics activities has been well managed

Activities have been implemented with the highest professionalism and commitment. The existing positions at the Secretariat have proven adequate to steer and implement AfricaLics activities until today. However, involvement of most of the network members is limited and if new activities were to be added to the already existing ones in a next phase of the RCB, the Secretariat team would benefit from extra support, particularly for communication/ lessons learned which have proven to be lagging behind.

The mindfulness and adaptation of the initiative to the evolving paradigm upon which it intends to act is proven in particular by the fact that many of the strategic questions posed to the Network have already been discussed by the Scientific Board and have been investigated by the Secretariat (directly or through external consultants). The recently enhanced involvement of the Board members in the leadership of the Network has proven adequate to steer the AfricaLics Network.

Broader impact of AfricaLics activities is still limited

Considering the initial situation (baseline), AfricaLics has made a significant contribution in building the capacity of researchers in I&D. **Yet, the broader impact of AfricaLics activities,** as stated in the theory of change (the extent to which knowledge on I&D produced by AfricaLics scholars inform decision-making), **is still limited.**

There are some signs of increasing in the number of publications on I&D from Network members as well as policy advice provided to policymakers by some of the most active Network members. However, it is difficult to attribute this impact to AfricaLics activities**. Indeed, most publications come from a small number of research clusters with strong ties to the secretariat and ASB.**

There is still a long way to reach a critical mass of I&D scholars and researchers and it is yet not clear if AfricaLics can do it alone. Only a few universities in Africa provide specific master's and PhD streams on I&D. A few universities are developing new courses based on models provided by AfricaLics, but this remains insufficient to solve pipeline issues and build in a more sustainable way research capacity on I&D. The lack of opportunities to conduct research is critical.

Visibility and use of research results are low. Too few activities are done to disseminate research outputs and make policymakers and practitioners made aware of that research.

The current approach and set up of AfricaLics may be challenging to sustain in the long term

Activities implementation benefited greatly from the support from SIDA, ACTS, Aalborg and pro-bono participations from network members, but none of these contributions are sustainable in time, as donors might shift their funding interest, and partner institutions might decide to withdraw at some point. Diversification of funding is therefore key for the long-term sustainability of the network.

Sustainability of results in terms of capacity strengthening are so far limited by the lack of opportunities for scholars to actively conduct research, with exception of some scholars in institutions which provide them with the required means. Africalics focuses on individual capacity building and not on institutional capacity building. In the short term the skills and knowledge acquired by African scholars are very helpful and allow them to effectively complete their thesis. However, after they have completed their thesis, if these researchers are not able to conduct research in their countries or institution there are risks that they will not pursue a scientific career.

The hub and spoke model with national/regional LICS shows promise in mobilising large communities at the national level and enhancing scientific outputs. However, the creation of national/regional LICS has been slow. The Network lacks synergies with other policy and knowledge providers and funders (e.g., OECD, UN, EU and others).

9 Recommendations

Below we outline recommendations that were discussed with the ASB and Secretariat on June 28th.

Recommendation 1: Revise AfricaLics' strategic framework

- Consider adopting a long-term vision for AfricaLics; generate African-embedded evidence-based policy advice on I&D and include it in AfricaLics strategic framework.

- Consider capacity-building, collaborative research and outreach as part of a pipeline oriented to this long-term vision.

- Consider deploying a tailor-made approach per sub-region, eventually relying on some partner institutions in each of these (see Recommendation 2). This would present three advantages: scaling up of the AfricaLics activities thus potential impact, enhancing the efficiency in the use of resources, enhancing sustainability.

Recommendation 2: Consider transitioning to a more institutional-individual model

- Transition the network model to a more institutional-individual model and strengthen governance

- Consider relying on institutions which are hosts of NationaLics to act as regional spokes

- Consider a pragmatic approach and create synergies with existing research networks and higher education and research institutions (universities) in the 3-5 challenge areas to benefit the most from I&D in Africa. Consider partnering with some of the partner universities of other existing networks (cf. AERC and CARTA).

- Identify and develop MoUs with a limited number of Institutions (2-3 MoUs in 4-5 countries at the most) to ensure capacity is built both at individual and organizational level and to allow progress on the creation of I&D teaching and research streams at the higher education level.

Recommendation 3: Continue with the Capacity building activities

- Consider selecting beneficiaries of AfricaLics activities – or some of these - from a selected range of partner institutions to increase possibilities for generating both individual and institutional development.

- Continue exploring the right balance between face-to-face collaborative activities and virtual e-learning. Consider digitalizing activities as much as possible to reduce costs and enhance sustainability. In this process, AfricaLics should capitalize on best practices identified during the COVID-19 crisis as a way forward.

Recommendation 4: Strengthen the (collaborative) research opportunities

- Consider awarding small research grants for Africalics members through annual calls focusing on specific challenges. These grants should be tailored to the needs of researchers in countries with weaker research systems, for instance by supporting funding of research

equipment and materials. This could be done through partnering with Science Granting Councils, other Research Networks and/or international donors (see Recommendation 2).

- Consider developing partnerships with targeted innovation journals and enhance training for researchers on how to access them.

Recommendation 5: Strengthen the outreach activities

- Consider mapping all actors, initiatives and donors involved in supporting the development of STI in Africa to eventually develop a strategy to connect to these, notably the African Academy of Sciences AESA, AU-NEPAD, but also the EU-AU High Level Partnership, the EU-AIEP, the OACP Policy Innovation Facility.

- Connect with donors such as the AfDB, EU, CEDEAO, UNESCO, African Union, but also Google or Microsoft, in order to get funding for research chairs and use them for outreach.

- Consider developing extra activities, pro bono, such as senior policy seminars, which can be back-to-back with other existing events organized by other actors (cf. African innovation summit), to discuss I&D research results.

Recommendation 6: Continue strengthening the governance of AfricaLics

- Continue enhancing the engagement level of Board Members to steer change and accelerate spill overs.

- In particular, consider revising the interim constitution to reflect all of the above.

- Maintain a strong, well-funded Secretariat. Research and other capacity-building networks (AERC and CARTA) show that this is a key to success.

- Ensure the Secretariat acts as a catalyst. Along with Recommendation 2, revise the role of the secretariat versus the partner institutions and other networks. Attribute roles, and as much as possible devolve (pro-bono) responsibilities to partners.

- Consider developing a funding policy and developing funding sources. All options already explored by AfricaLics could be combined, and diversifying funding sources is key for sustainability. Consider launching a short, targeted survey to all AfricaLics current members to assess the potential for introducing a membership-fee model as well as payment-for-conferences model.

Recommendation 7: Monitor, evaluate, capitalise, highlight and communicate actively on research results and best practices in the Network

- Develop an active strategy to disseminate research results from the AfricaLics community to other communities. Consider developing partnerships with scientific journals, and support members to publish in these. Consider setting up policy workshops to introduce policy makers to some of the research results.

- Develop an active strategy to strengthen the alumni community. Enhance the members database, tracking their research interests, institutional embedment and mobility and seniority.

- Develop activities aiming to enhance representation of women in the field of I&D research: showcase success stories of women in the Africalics network, use them as role models to inspire others, involve them in mentorship activities focusing on building leadership skills for the part of Africalics concerned with women.

- Consider capitalising on the best practices across the network: annually, identify these best practices through learning exercises, then disseminate through the network communication channels. For example, showcase the processes and successes of NationaLics' development.

- Improve reporting on implementation of activities, progress in reaching targets and changes through time.

- Improve the AfricaLics members data base.

- Consider recruiting a professional to support the team with advocacy, M&E and capitalisation tasks.

Appendix A. Bibliography

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Appendix B List of interviewees

Category of respondents	Number of interviews	Name of interviewees	Key topics covered	**Objectives**
AfricaLics Scientific Board	6	• Bitrina Diyamett, Tanzania, Director STIPRO • George Essegbey, Ghana • AbdelKader Djeflat, Algeria, Chairman MagTech • Erika Kramaer-Mbula, South Africa, Senior Researcher, Institute for Economic Research on Innovation, Faculty of Economics and Finance, Tshwane University of Technology • Gergory Paulin Mvogo, Cameroon • Susan Cozzens, USA, Georgia Institute of Technology	• Relevance of activities proposed • Achievements, results, difficulties encountered • Governance of AfricaLics; efficiency of management • Sustainability of the model • Lessons learned and areas for improvement	• Understand their points of view from a strategic perspective on relevance, move towards achievement of results, sustainability and lessons for improvement
AfricaLics Secretariat	4	• Ann Kingiri, Secretary General of AfricaLics • Rebecca Hanlin, Consultant Innovation & Development Specialist of AfricaLics • Moses Owidhi, IT Manager • Marghrete Holm Andersen, Senior Advisor, Aalborg University	• Relevance of activities proposed • Achievements, results, difficulties encountered • Governance of AfricaLics; efficiency of management • Sustainability of the model • Lessons learned and areas for improvement	• Understand their points of view from a programme management on relevance, move towards achievement of results, sustainability and lessons for improvement
AfricaLics nodes	4	• Prof. Opeyemi Eyitayo Ayinde, NigeriaLics • Kassahun Yimer, EthiopiaLics • Dr. Samah Souleh, North Africa Lics • SAWADOGO Natewinde, Burkina Faso Lics	• Relevance of activities proposed • Achievements, results, difficulties encountered • Governance of AfricaLics; efficiency of management • Sustainability of the model • Lessons learned and areas for improvement	• Understand their points of view based on national realities and as benefactors on relevance, move towards achievement of results, sustainability and lessons for improvement
Members of the network (including current and former PhD	17	• Participants to PhD Academies (8) – Abdelheq Lachachi (Male), Algeria,	• Relevance of capacity building/network activities	• Understand their points of view as the direct beneficiaries on relevance, effects

Category of respondents	Number of interviews	Name of interviewees	Key topics covered	**Objectives**
students and visiting fellows, PhD supervisors trained, non-academic members of network) To be selected to ensure geographical, discipline and gender balance		Discipline: Economics, Participant to Algiers Academy, PhD, Tlemcen – Monica Addison (Female), Ghana, Discipline: Science, technology and/or innovation studies, Participant to Algiers Academy, Research Fellow, Kwame Nkrumah University of Science and Technology (KNUST) – Abdi Yuya Ahmad (Male), Ethiopia, Discipline: Economics, Participant to Nairobi Academy, VFP 2015, Assistant Professor, Adama Science and Technology University – Lawrence Kerefu (Male), Tanzania, Discipline: Engineering, Participant to Nairobi Academy, Lecturer and Director of Innovation and Techno-preneurship Acceleration Facility, St. Joseph University in Tanzania – Caleb Muyiwa ADELOWO (Male), Nigeria, Discipline: Science, technology and/or innovation studies, Participant to Mombasa Academy, Assistant Director, Research, National Centre for Technology Management (NACETEM). – Faten ATTIG – BAHAR (Female), Tunisia, Discipline: Engineering, Participant to Tunis Academy, PhD student, University of Carthage, Tunisia Polytechnic School – Boniface kouadio (Male), Cote d'Ivoire, Discipline: Development studies, Participant to Nigeria Academy, PhD Student, Université FHB Abidjan – Mclarence Shungu Mandaza (Male), Zimbabwe, Discipline: Development Studies,	• Perceived effects of AfricaLics activities • Perception of strengths and weaknesses of the model • Lessons learned and areas for improvement	and impacts of the training and lessons for improvement

Category of respondents	Number of interviews	Name of interviewees	Key topics covered	**Objectives**

		Participant to Morocco Academy, Climate Smart Agriculture Coordinator, Community Technology Development Organization
		
		• Participants to VFP (4)
		  3 PhDs
		  – Justina Adwoa Onumah (Female), Ghana, 2018 VFP Cohort
		  – Vincent Flifli (Male), Benin, 2018 VFP Cohort
		  – BERNADIN GERAUD COMLAN AHODODE (Male), Cameroon, VFP 2019
		  1 post-doc
		  – Charity Osei-Amponsah (Female), Ghana, Post-doc 2018
		
		• PhD Supervisors (2)
		  – Prof. Felix Ankomah Asante, Participant 2018 seminar
		  – Matthew Olugbemiga Ilori, Participant 2018 Seminar
		
		• Non-academic members of network (3)
		  – Julius Ecuru, Senior offical, Uganda National Council for Science and Technology
		  – Abiodun A. Egbetokun, Senior official, National Centre for Technology Management (NACETEM), Nigeria
		  – Festo Ezekiel Maro, Senior offical, Tanzania Commission for Science and Technology (COSTECH)		

Collaborating Universities (Including universities that use model	1	• Jaramogi Oginga Odinga University of Science and Technology -JOOUST (Kenya) Prof. Ben Muok	• Relevance of capacity building/network activities • Perceived effects of AfricaLics activities	• Understand their points of view from a donor perspective and expectations on relevance, move towards

Category of respondents	Number of interviews	Name of interviewees	Key topics covered	**Objectives**
courses developed)			• Perception of strengths and weaknesses of the model • Lessons learned and areas for improvement	achievement of results, sustainability and lessons for improvement
Globelics Members	1	• Rasmus Lema, Associate Professor, Aalborg University	• Perception of strengths and weaknesses of the model • Sustainability of the model • Lessons learned and areas for improvement	• Understand their points of view from a programme management on relevance, move towards achievement of results, sustainability and lessons for improvement
Total	33			

Appendix C Outputs of the outreach activities

Outputs in 2017.

In 2017 the ASB participated in the following **policy stakeholder engagement & outreach** activities:

- The World Economic Forum in Durban
- Namibia conference targeting technology transfer officers (SARIMA side event)
- UN multi-stakeholder Forum on Science, Technology and Innovation for the Sustainable development Goals (SDGs)
- Curriculum development meeting - Embu, Kenya,
- workshop organized by the Leiden-Delft-Erasmus Centre for frugal innovation in Africa (CFIA)
- Open symposium organized by National Centre for Technology Management in collaboration with AfricaLics
- Education and Innovation-EdTech conference, Senate Hall in the University of London
- 1st Africana Youth Conference - Kigali, Rwanda
- 8th Africana post-graduate academy (APGA) - Limpopo province, South Africa

Members and the secretariat also participated in a variety of activities that functions as platforms for outreach and to increase the knowledge of AfricaLics to new audiences. These include:

- Preparatory meetings related to the preparations of the African Innovation Summit (that later took place in Kigali, June 2018).
- Meetings with CAAST-Net Plus/ UNEP in Denmark.
- Meetings with Science Granting Councils initiative; and
- Interaction with Danida and the Danida Fellowship Centre (where the AAU coordinator for the AfricaLics VFP project serves as chair of the Board).

In the first year of the second phase of the programme, the majority of planned activities were completed.

A networking and capacity building meeting also took place to familiarise the academics on AfricaLics innovation & development materials and recommend adoption of aspects of the masters' module in specific courses (the BSc finance programme. BSc Information & Technology; BSc Agricultural Biotechnology. Several members of the AfricaLics Secretariat and the ASB are connected to different networks and have in 2017 participated in a variety of activities that functions as platforms for outreach and for increasing the knowledge of AfricaLics to new audiences. These activities include:

- Meetings related to the preparations of the African Innovation Summit (taking place in Kigali in June 2018).
- Meetings with CAAST-Net Plus/UNEP in Denmark.
- Meetings with Science Granting Councils initiative and interaction with Danida and the Danida Fellowship Centre (where the AAU coordinator for the AfricaLics VFP project serves as chair of the Board).

The network also uses online resources. In 2017, it focused its attention on expanding the number of links to existing more generic study support materials as well as trying to enhance

the types and quantity of training and funding calls that AfricaLics members are made aware of.

Outputs in 2018.

In 2018 the **policy stakeholder engagement & outreach** activities were:

- The African Innovation Summit in Kigali, Rwanda.
- The Global challenges, generational shifts and late retirements event - Aalborg University, Denmark, 1st June 2018.
- The 2018 international Doctoral Academy of the Globelics - Pretoria, South Africa, 3 - 14 December 2018.
- The AfricaLics Informal outreach event at the 16th Globelics Conference in Ghana
- The 10th All Africana Post-Graduate Academy (APGA).
- A participation in the meeting of the Donor Harmonization Group
- A presentation at Global challenges workshop and farewell reception at #IKE group Aalborg University in Denmark.
- A participation in the South Africa Science Forum.
- A presentation at the Global Work Tech Conference.
- A presentation at the Education Innovation Conference.
- Several Transformative Innovation Policy Consortium (TIPC) meetings on the continent and in UK.
- The linkage of post-docs visiting fellows with the DTU-UNEP partnership located at the UN city in Copenhagen as there are joint areas of interests linked in particular to the use of renewable energy as a strategy for sustainable industrialization in African countries.

2018 saw the implementation of a communications strategy plan which includes a **pro-active use of social media** to enhance AfricaLics' presence on the academic and policy scenes in Africa relating to innovation and development research and practice. A major focus was placed on increasing the number of blogs published by AfricaLics members in 2018 and the development of the first research videos to populate the AfricaLics YouTube site. Seven blogs were published in 2018 (3 by female scholars and 4 by male scholars). 20 research videos were recorded and edited in late 2018 (most of the recording being conducted during the Globelics conference in October 2018). The first four research videos are expected to be put onto the YouTube page in early 2019.

AfricaLics gained 537 new followers on social media in 2018 compared to 496. The website received 842,700 hits with 38,137 unique visitors in 2018 compared with 2017 where the site had 26,886 unique visitors with 475,141 hits. The Number of unique visitors increased in 2018 by 11,251 visits. AfricaLics call for post-doctoral visiting fellows recorded the highest number of downloads in 2018 with 2,030 hits followed by the fillable application form for PhD visiting fellowship programme with 878 hits. The AfricaLics media presence in 2018 predominately limited to the AfricaLics PhD Academy and the Globelics conference.

Additionally, possibilities for increased linkages between AfricaLics and the Danish network called Access2Innovation - which focusses on partnerships on innovation and business development in Africa and the Science Granting Councils Initiative– focused on building capacity of African science granting councils) has been conducted.

Finally, post-docs visiting fellows have been linked up with the DTU-UNEP partnership located at the UN city in Copenhagen as there are joint areas of interested linked in particular to the use of renewable energy as a strategy for sustainable industrialization in African countries.

Increased critical mass of innovation scholars with increased **engagement with policy makers** and expanded research communities is one of AfricaLics the major goals of AfricaLics. In view of this, work continued in 2018 towards consolidating AfricaLics Alumni groups and national groups to enhance coverage of the network. In particular, discussions revolved around future activities in the North African (French-speaking) region following a commitment to establish the new North African AfricaLics node at University of Oran 2 with funding from the University itself. Discussions continued with scholars in Ethiopia concerning modalities for establishment of Ethiopian national hub with activities to be initially focused on the co-hosting of the next AfricaLics PhD Academy in early 2020. The establishment of nationaLics and sub-regionaLics hubs are intended to enhance targeted capacity building efforts as well as leverage resources for collaborative activities.

The **policy engagement and outreach activities** outlined above are intended to attract partnerships and collaborations that can support AfricaLics broader capacity building vision. This is one way of leveraging the Sida funding for longer term sustainability of the network. These activities have involved not just the Secretariat, but also the wider ASB and other networks' members. It was agreed that a formal fundraising strategy would be developed building on ASB discussions in these areas over the last three meetings.

Outputs in 2019.

AfricaLics Secretariat organized and/ or participated in a variety of targeted policy events and bilateral meetings 2019 for policy stakeholder engagement & outreach. These events and meetings include:

- Inter-network dialogue: Towards a transformative agenda for the STI community" workshop in the Netherlands
- A Lecture on AfricaLics at Copenhagen University
- The AfricaLics preconference meeting, University of Dar Es Salaam in Tanzania,
- A Development Studies Association Conference at Open University,
- A presentation at the Institute for Development Studies based at University of Nairobi.
- A EuroLics workshop in Finland
- A JOOUST/ AfricaLics Stakeholders workshop
- A meeting with Lund University staff in Sweden
- A pre-conference event in partnership with COSTECH
- A presentation at the 10th All Africana Post-Graduate Academy (APGA)
- A presentation at the School of Policy, Georgia Tech
- Participation at the Danida Fellowship Centre seminar.

For networking and outreach purposes, AfricaLics has published 16 blogs and uploaded 9 research videos on YouTube. Facebook followers have increased from 462 to 882 (an increase of 420) and Twitter from 384 to 679 (an increase of 295).
Interaction with other networks and institutions such as EEIS-HEA, CARTA, SIHI, COSTECH and other African science grant councils, TIPC and STEPS, Sussex University, and the African Association of Universities (AAU) have been ongoing some cases, participation in the Sida Science Days in Stockholm in May 2019. In other cases, the participation of Secretariat members in other projects (notably the IDRC project re: Science Grant Council initiative and

the Trilateral project with University of Johannesburg and Sussex University, UK) have helped foster new linkages. Such linkages help increase the visibility of AfricaLics and ensures the network remains open to new academic and policy related ideas. In addition, they constitute important channels for influencing innovation policy and thinking based on research done by members of AfricaLics.

Members of the AfricaLics Scientific Board and the network at large are also actively contributing to the World Science Report 2020 and to a range of training activities on innovation and development theory, practice and policies both at post-graduate level and for policy makers.

Additionally, a **pre-conference workshop** was held to stimulate media attention and sensitise local policy makers and academics on the theme of the 2019 conference.

Appendix D Case studies

AERC Case Study

Network name	AERC – African Economic Research Consortium
Years of operation	AERC has been in operation since 1988
Targeted countries and / or region (s)	The target region of AERC is sub-Saharan Africa.
Network objectives	The immediate objective of AERC at the time of its founding in the late 1980s was to contribute to macroeconomic stability of African economies in the wake of fiscal deficits and unsustainable debt stocks; high inflation; deteriorating terms of trade; and over-valued national currencies. It was recognized that research within the economic discipline was often not tailored to the context of sub-Saharan Africa, therefore, results were applicable to only some extent for economic policymaking. AERC therefore set out to support the development of economic policy capacity, by supporting economic research in relevant themes for management of specifically African economies. This objective is supported by the Consortium of donors, which has grown substantially over the years to include major donor organisation.
	Over the past decades, African economies have changed rapidly and therefore the AERC approach has evolved. New challenges that are on the AERC's radar are the rapidly growing populations and the number of young people without job opportunities, widening inequality and persistent poverty. Furthermore, the AERC is placing increased emphasis on advocating for policy-change and increasing its network of influence; for instance, while good relations with central banks have been existing for several decades (increasingly so through alumni) ties with for instance with ministries of finance are now being increased.
	AERC's main objectives/pillars are to:
	• enhance the capacity of locally based researchers to conduct policy-relevant economic inquiry.
	• promote the retention of such capacity within the continent, and
	• encourage its application in the policy context.
Network activities	The objectives listed above represent AERC's three primary components or areas of activity: research, training and policy outreach. The organization integrates economic policy research, postgraduate training and policy outreach within a network of researchers, universities and policy makers in Africa and worldwide. According to the documentation and interviews, the training and research activities have been well established over the past decades (more about these activities in the sections below). Since then, increased emphasis has been placed on the component of policy outreach and advocating for sound economic policies. One of the activities is the organisation of senior policy seminars where research findings are shared with policymakers, including ex-alumni.
Description of capacity building activities	AERC works both on the institutional and individual level to support capacity building. AERC supports on the institutional level academic infrastructure in public libraries, entailing amongst others graduate libraries, accessibility to internet, computer labs and institutional grants and up-to date curricula. On the individual level the AERC provides scholarships and organises quality graduate programmes (see below). To adhere to certain conditions to the cooperation AERC signs MoUs with these public institutions. AERC now collaborates with a total of 37 universities.
	Poor salaries and students seeking quality graduate programmes led to many economics faculty members and students going or staying at foreign universities, instead of returning to their countries of origin. This process has resulted in a brain drain which impeded development of higher quality education at economics departments. In response, AERC created in 1992 a programme-the Collaborative Master Programme-with the aim of growing the number of people with economic expertise in the public sectors (researchers, analysts etc.). Other programmes, such as the Collaborative PhD Programme (CPP) and the Collaborative master's in agriculture and Applied Economics (CMAAE), when the focus shifted to agriculture, nutrition and food security, were added to the AERC portfolio.

AERC Collaborative Training Programmes

Year	Programme	Countries	Universities
1992	CMAP	21	26
2002	CPP	6	8
2005	CMAEE	13	17

Description of research activities	The AERC research programme should also be viewed in the frame of capacity building, it increases capacity for policy-oriented economic research in various thematic areas, including: • Poverty, Labour Markets and Income Distribution • Macroeconomic Policy and Growth • Finance and Resource Mobilization • Production, Trade and Economic Integration • Agriculture, Climate Change and Natural Resource Management As of 2019, 4520 researchers from 41 countries were involved in this thematic research programme. Additionally, AERC organises the Biannual Research Workshop, bringing together researchers and policymakers with university professors attached to the AERC (resource persons). During this event, researchers are given guidance and mentorship so as to improve the quality of research. The Biannual Research Workshop
Activity outputs	Training: As of 2019, 4000 master's and 400 PhD alumni were produced, taking positions as researchers, though-leaders, government institutions and think tanks and policy research institutes. Research: As of 2019, 4520 researchers from 41 countries were involved in this thematic research programme; 375 research papers published; 51 special papers; 41 book length volumes published. Policy: 1500 senior policymakers engaged; 10,200 Biannual Plenary attendees reached.
Evidence of activity outcomes / Assessment of activity contribution to said outcomes	According to the documentation, AERC has been influential in supporting the continent's quality of education and the retention rates in the partnered universities, as well as improved management in key economic institutions, such as central banks and ministries of finance. The alumni of AERC range from Ministers of Finance to Central Bank Governors of various countries, which illustrates the reach of its education. 27 large AERC collaborative research projects (selected through collaborative research calls) have had a substantial influence on regional economic policy, an example being the Growth and Poverty Project (Paul Collier, Stephen O'Connel and Benno Ndulu), which influenced the Bottom Billion and 'Africa Rising' narrative.
Enabling factors and/or obstacles to capacity building and development of research	A number of different obstacles to the objectives of the network have been mentioned. First of all, one interviewee has indicated that sometimes questions have been raised about ownership of the AERC due to the composition of the consortium, a large part of which are Western governments or institution. In addition, a challenge which has been recently picked up on is a more active alumni policy. Although there hasn't been a shortage of professors supporting the AERC or providing mentorship roles, there has not been an active strategy. Providing a balanced gender representation in activities has been an issue for AERC, to the degree that some donors pulled out for periods. This has been addressed, for instance with balanced panels and childcare support for female students in some cases.
Network membership and level of engagement	The Consortium currently consists of the following donor organisations: AERC's African Central Bank Governor's Forum; African Development Bank (AfDB); African Studies Centre Leiden University; Department for International Development (DFID); Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ); Economic and Social Research Council (ESRC); The Bill & Melinda Gates Foundation; International Development Resource Centre (IDRC); The National Treasury, Government of Kenya; Norwegian Agency for Development Cooperation (NORAD); Rutgers University; Swedish International Development Cooperation Agency (SIDA); US Agency for International Development (USAID); The World Bank (IBRD). The donor organisations are part of the Board of AERC and actively involved in its operation and strategy.

Description of institutional setup / governance	AERC is registered 501c3 non-profit in the United States, hosted in Kenya as an international non-governmental organization, supported by donor governments, private foundations and international organizations. The activities of AERC are managed by a governance structure comprising of the Directors, the Programme Committee and the Secretariat, which is supported by the Academic Advisory Board. The Board of Directors is concerned with fiduciary oversight, approves the strategic plans and budet and provides oversight of programme Management. The AERC Board consists of 5 to 18 directors that are appointed by donor organisations and others appointed in personal capacity due to their expertise. The Executive director is without voting power. In addition an-Audit and Risk committee strengthen risk Management.
Modes of financing	AERC relies on the donations of large funders, for example DFID, IERC, the Gates Foundation, the World Bank, etc. These funders sit on the board of AERC and provide recommendations to the strategy and direction of AERC, which encourages buy-in. While hosted in Kenya, AERC is a US registered non-profit which provides assurances on the due diligence and transparency related to the administration. This trust was mentioned by the interviewees as key factor of the AERC's attractiveness for international donors. Around 2016/2017, AERC has gained a new source of funding from a number of Central Banks from Africa which now have the obligation to provide 100.000 USD annually, which has increased African ownership of AERC. During the 2015-2020 Strategic Plan of AERC, the Consortium mobilized 58.4 million USD against a 73.2 million USD target. 74% came from governments (32% from African governments and institutions), while the rest was provided by Foundations (11%) and International Institutions (7%) and through other sources (7%).
Lessons learned and transferability to other initiatives	In terms of lessons learned through the decades' long operation, the interviewees emphasis several factors that have contributed to the delivery of AERC successes. First of all, during its operation AERC has gained a reputation for its good quality, there is a clear product, and the objectives of the network are clear. AERC has a well-defined idea of who their stakeholders are and the national universities that has been partnered with (by signing MoUs) are reputable organisations in their own right. Importantly, according to one of the interviewees, the partnered universities are national universities which have quality students (private institutions having the risk of being "money making institutions") but may lack funds for support in research and training. Students are selected based on merit, although in some cases a geographical selection is applied (for instance for post conflict countries). Providing students with grants and mentoring has undoubtedly increased attractiveness of the AERC but also provided an extra burden to select the most motivated students. According to the interviews, staying at the cutting edge of research and funding the most relevant fields is important for AERC, which has adjusted its programmes over de past decades from focusing on macroeconomic/financial stability towards issues such as (youth) unemployment. In terms of funding, the interviewees have stressed the importance of providing transparency to donors on what the money is used for. It should also encourage donors, in the case of AERC, that they are part of the Board of Directors and as such take an influential position in the Consortium. Funding, however, remains a challenge while some funders pull out and other funders must be found. Attracting support, in the case of AERC, demands having a clear vision and presentation on the added value of the organisation. Furthermore, as a suggestion to AfricaLics, the interviewees have suggested a proactive attitude to outreach, not sending letters but going outside of the organisation. Furthermore, an interviewee recommends that it would be of help to gather core-funding from the members so that the network secretariat can focus on raising money for programmatic funding. One interviewee recommended to get in contact with the African Union which according to them is interested in funding networks such as AfricaLics.
Sources of information and interviews conducted	AERC website (https://aercafrica.org/) AERC Strategic plan Interview with Sandra Coyle – Former AERC Chief Communications Officer (CCO) Interview with Mark Korir – AERC Manager/ Collaborative Masters in Agricultural and Applied Economics (CMAAE)

CARTA Case Study

Network name	
Years of operation	Since 2008-12 years
Targeted countries and / or region (s)	Africa, Europe and America. Tanzania, South Africa, Rwanda, Kenya, Malawi, Nigeria, Uganda Sweeden Canada, United Kingdom, Switzeland USA, Norway and Chile.
Network objectives	CARTA enhances the capacity of African universities to create sustainable multidisciplinary research hubs by supporting junior faculty members to undertake their doctoral training locally and to become internationally recognized research leaders. The objective is to foster well-trained PhD graduates, publications, research grants, research team mentorship, vibrant research endorsements. CARTA aims to: • Build a critical mass of highly trained African scholars at PhD level. • Institutionalize CARTA innovations at key partner institutions. • Secure the future of CARTA graduates by mentoring them to become leaders in their research fields. • Maintain a pipeline of high-quality early career researchers (ECR). • Enhance engagement of CARTA community with Society, Create research hubs, Mainstream CARTA interventions. • Focus on supporting/creating a vibrant African academy. • Support fellows for their PhD careers so their environment is conducive.
Network membership and level of engagement	As of today, the network has: • 229 fellows enrolled, • 630 trained faculty and staff, • 98 graduates, • 1147 peer-review publications. The members of the network are mainly from African partner institutions that their carry the of mentoring these members and strengthening the progamme. These partners are: - Moi Univertity, Kenya. - Makerere University, Uganda. - Obafemi Awolowo University, Nigeria. - University of Ibadan, Nigeria. - University of Malawi, Malawi. - University of Nairobi, Kenya. - University of Rwanda, Rwanda. - University of the Witwatersrand, South Africa. CARTA also has non-African partners that have the role to support in mentoring, These partners are: - Swiss Tropical and Public Health Institute (TPH) - Canadian Coalition for Global Health Research 5CCGHR). - Brown University. - University of Gothenburg. - The University of Warwick. - Umea University - University of Bergen Another membership component are the research institutions partners of CARTA. Their role is to be role models for research leadership; offer specialised training in areas of expertise; offer research infrastructure and systems including Health and Demographic Surveillance Systems (HDSS) and access to data for secondary analyses; provide access to their own and their inter-linked networks; mentor young researchers; offer supervisors for PhD fellows through joint appointments at CARTA universities, and host post-doctoral fellows and faculty visits. These research centers will allow CARTA to realize its aim of developing researchers and supporting Exceptional fellows to become research leaders and to increase university-research center research and training linkages. Some of the institutions include: African Population & Health Research Center (APHRC), MRC/WITS Agincourt Population and Health Unit, South Africa, Ifakara Health Institute (IHI), Tanzania, KEMRI/Wellcome Trust Research Program, Kenya.

	For the fellows coming from the partner institutions, it is expected that they promote and make CARTA visible by enhancing CARTA's activities within the university. Partner institutions are also expected to encourage their staff to apply to CARTA to receive doctoral and research training as well as capacity building.
Description of institutional setup / governance	CARTA is not a legally incorporated entity. It is an informal network managed through a Secretariat hosted at the APHRC. The Secretariat collaborates with institutionally appointed focal persons from the African partner institutions to ensure that CARTA strategies and activities are well coordinated, monitored and evaluated. The Secretariat coordinates the participation of non-Africa partners in the program. The Secretariat is directed by an Executive Directorate (ED), that has the overall responsibility for: • the day-to-day management; • decision-making; and • communication to partners and networks. CARTA holds an annual Partners Forum of all its partner institutions in order to: • present its status, progress, achievements and challenges; • present financial reports; • communicate specific information of importance to the partnership; • deliberate on, adopt and recommend directions and strategies for CARTA, developing/ reviewing and revising policies as needed; • decide on or approve awards including PhDs, post-docs, faculty visits; and • deliberate on fund raising endeavours and future plans. CARTA's funders are invited to participate in the Partners Forum, but do not have a role in decision-making.
Network activities	CARTA's activities include PhD fellowship, Joint Advanced Seminars (JASs), post-doctoral awards, supervision, research, placements, re-entry grants, alumni tracker, individual mentorship, mentoring and workshops. The network also co-designs for a CPE training (evidence brokerage, political economy analysis), and funds for CARTA community. These activities are delivered through the: • Selection and sustaining participation and PhD completion. This includes, among other things: – paying tuition fees for those who register away from their own institutions (own institutions agree to forgive fees as an institutional commitment to their own development) – providing a larger stipend to the 30% of fellows (as of end 2018) registered at partner institutions – four Joint Advanced Seminars (JAS) of four weeks each. These focus on promoting critical thinking, teaching advanced research skills and preparing fellows for their role as academics; namely to develop independent research programmes, train and mentor the next generation, and influence policy and practice through their research. – inter-JAS assignments – intentional supervision and mentoring. • Faculty and Administrative Staff workshop (FAS) annually brings together a diversity of faculty and support staff from each institution with the intention of changing attitudes, practices and systems to support and retain researchers. • Supervision training for fellows' supervisors, supervisor-supervisee contracting and monitoring their implementation • Graduate workshops to support new CARTA graduates with skills to develop research proposals • Two types of one-year postdoctoral grants to the CARTA PhD graduates: re-entry grants and postdoctoral fellowships. • Senior Faculty Visiting Research Fellowships open to all senior academic staff members from African partner institutions who would like to visit another CARTA African institution for up to three months for research and teaching exchange.

	• Ongoing engagement by focal persons at partner African universities to stimulate numbers of high-quality applications and to influence university senior leadership and faculty to take on board aspects of CARTA innovations that would strengthen university research capacity.
Description of capacity building activities	All CARTA's activities contribute to the capacity building of the members and institutions of the network, and they are highlighted in the row above. A few directly involving members are supervisor workshops, training for faculty on management, direct training, post-doctoral award and seniors visiting institutions for knowledge sharing.
Description of research activities	Knowledge Sharing & Easy Access to Information are the main research activities held by CARTA. Partner Universities and Institutions will advance research and learning in Africa through the CCL e-library interface, which will make more information available, enable knowledge sharing and make it easy for stakeholders to access research data and findings from remote locations. • Visibility for researchers & CARTA Partner Universities/ Institutions is also a research activity of CARTA. The CCL e-library interface provides global visibility for researchers and consequently link researchers to funding opportunities, consultations and further collaborations. CARTA strengthens university-wide systems to support research. CARTA also offers awards to graduates in the form of post-doctoral fellowships, traditional postdocs of one year or split in shorter stays, and re-entry grants, which are research grants that allow the graduate to undertake a research project at their home institution. **Post-doctoral and research re-entry grants by CARTA** The following table indicates the number of fellows who received research grants between 2017 and 2019.

Post-doctoral and research re-entry grants by CARTA

	Men	Women	Total
Post-doctoral Fellowships	8	7	15
Research Re-entry Grants	23	12	35
Number of individual fellows who have taken up at least one post-doctoral opportunity	25	17	42
Total no. of graduates at the moment of the last post-doc call	43	29	72
Percentage of post-doctoral fellows out of total graduates who have taken up a post-doc as of the last call	**58.1%**	**58.6%**	**58.3%**

The following table indicates the number of fellows who received research grants between 2017 and 2019.

Number of fellows who received research grants 2017 - 2019 by gender

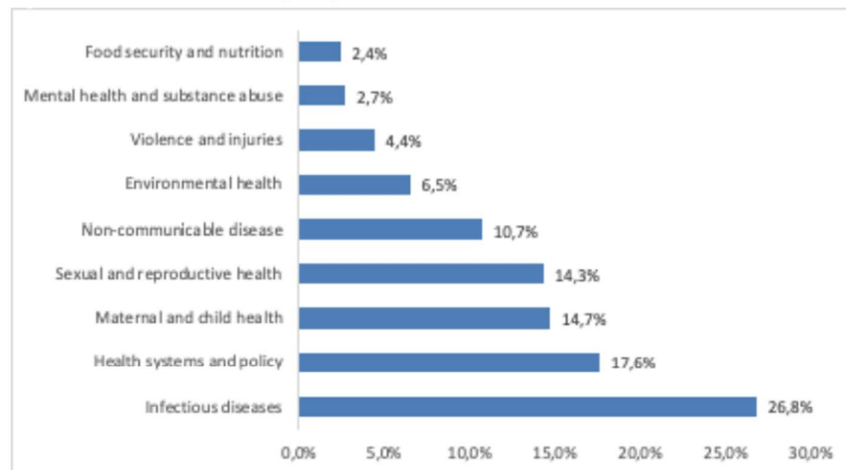|		Number of fellows	Number of grants	Amount US$	
PhD	Men	29	64	3,613,285.00	
	Women	53	107	6,368,268.88	
Graduate	Men	10	20	230,958.77	
	Women	10	20	3,102,306.58	
Total		**102**	**211**	**13,314,819.23**	
	Men total	39	84	3,844,243.77	average 98,570.35
	Women total	63	127	9,470,575.46	average 150,326.59

Activity outputs / modes of implementation of activities	To this day, CARTA has: • USD 19,945,919 in grants raised. • 98 graduates (47% Women, 53% men). • 1138 Publications. Other outputs are in the research activity, one of the principal activities of the network. The table below shows the different research outputs of the programme.

CARTA research output by research area

Research area	Percentage
Food security and nutrition	2,4%
Mental health and substance abuse	2,7%
Violence and injuries	4,4%
Environmental health	6,5%
Non-communicable disease	10,7%
Sexual and reproductive health	14,3%
Maternal and child health	14,7%
Health systems and policy	17,6%
Infectious diseases	26,8%

Evidence of activity outcomes / Assessment of activity contribution to said outcomes	The outcomes of CARTA have been described in its 10 years evaluation as "Passion, commitment, selflessness and robust accountability at all levels". Survey and interview responses from fellows, peer reviewers, focal persons and representatives from all partner institutions indicate seven broad factors that have facilitated these outcomes: • Competent, transparent, and participatory governance, • Partners' participation in selection and transparency in recruitment process, • Gender equity, • Teaching style, • Willingness to serve as volunteers, • Sustaining the work through fellows' and graduate's values. Other outcomes include competent, transparent and participatory governance; willingness from members to serve as volunteers; sustaining the work through fellows and graduates' values. CARTA enhanced research careers as well teaching responsibilities contributing to high quality evidence derived from high integrity research and commitment to train others along the same way.
Enabling factors and/or obstacles to capacity building and development of research	CARTA's secretariat identified the fast pace of activities sometimes causing the information to not trickle down to all the partners as a challenge even though the network is very transparent with its members. Respondents in the 10 years evaluation of the network identify the following constraints to CARTA's success: • the culture of responsive rather than anticipatory communication within the Secretariat, including ensuring all the diverse stakeholders are all kept in the loop about opportunities and decisions and about outcomes of their efforts. CARTA's new staff are held in high regard and perceived as taking steps to redress this. • the lack of systematisation of the vast quantity of data collected, and of its explicit use in CARTA's learning cycle, an issue raised also in the 2014 Sida evaluation. CARTA is in the process of implementing steps towards addressing these, but they still need further work before bearing fruit. • turnover of non-African partners, while not yet an issue, will become a challenge if institutional relationships aren't more formalised. • the lack of feedback loops for example to reviewers; the absence of a mechanism for those working with fellows to enable those who conducted reviews to know if and how these were or were not found useful.
Modes of financing	CARTA is funded by the Carnegie Corporation of New York, Sida, Uppsala Monitoring Centre (UMC), the Deutscher Akademischer Austauschdienst (DAAD) and the DELTAS Africa Initiative. The DELTAS Africa Initiative is an independent funding scheme of the African Academy of Sciences (AAS) 's Alliance for Accelerating Excellence in Science in Africa (AESA) and supported by the New Partnership for Africa's Development Planning and Coordinating Agency (NEPAD Agency) with funding from the Wellcome Trust (UK) and the UK government.

	The network also participates in a lot of grant writing, fundraising and partners hunting. To this day USD 19,945,919 has been raised by fellows
Lessons learned and transferability to other initiatives	CARTA's greatest lesson according to the secretariat is the consultative process that includes everyone. It gives a sense of ownership to members that represents a strength for CARTA. The network always uses the lessons from the evaluations change and develop the networks. The network has a strong leadership that listens, the consortium has put the resources in for the secretariat to be strengthened. The strong investment in governance and management structure allows for this consultative process to happen.
	CARTA also always ensured that there is someone with institutional memory to guide the consortium. This allows to continue the activities of the network at both institutional and individual level. According to the secretariat you cannot invest in only the institution or the individual, both need to happen. In all the activities for individuals, their institution needs to follow and vice versa to create a coherent and conducive environment for members. They cannot do without the researcher or the institution even though penetrating an institution can be very complicated.
	The fact that CARTA fellows are members of the network's partner institutions gives an insight, to do staff development. It is beneficial as the network can then chose to train students who are already in an academic institution already perpetrating CARTA's values.
	CARTA's values and ways of working are key to its success, these values are:
	• holding fellows accountable for achieving non-negotiable milestones as a means of ensuring excellence in the quality of the PhDs while providing critical inputs and supports to enable them to succeed.
	• building relationships of trust over time, collectively negotiating and then implementing policies that make transparent the bases on which institutions and fellows participate in the consortium and ensure accountability.
	• the mix of formal policy and highly intentional leadership with the space for each institution to participate as much as it is able and to incorporate approaches and methods in ways that work for its own context.
	• the explicit commitment – associated with public health – to equity demonstrated not only in the content of training on public health, but in the approach to teaching, the adult education methods that enable everyone to learn with and from each other, and the deliberate efforts to foster gender equity and ensure that patriarchal norms do not undermine women's ability to succeed in the programme.
	• maintaining an explicit commitment to the leadership of the African institutions in CARTA in a global context that continues to undermine this possibility.
	Another point made by the secretariat is the importance for networks to work with each other to be impactful. There are benefits in engaging other networks even though each network has its own way of working which creates an obstacle for African networks to collaborate. Collaboration has to be mutually beneficial so networks need to find common areas to join forces (could be capacity building, grant writings, etc...)
	CARTA already partners with smaller networks. Some non-African networks who want to expend geographical reach see collaboration with CARTA. Others that would like to extend CARTA's benefits to their members without having to start from scratch ask for partnerships.
	CARTA's secretariat main recommendation to Africalics is to mainstream their activities and involve African institutions. They find that fellowships alone are not sustainable they need to involve institutions to create an ecosystem for fellows to grow in.
Sources of information and interviews conducted	Evaluation of CARTA influence at 10 years report (https://cartafrica.org/wp-content/uploads/2020/01/BKC_CARTA-evaluation-report_V5.pdf
	CARTA's website https://cartafrica.org/
	Interview with Marta Vincente-Crespo Program Manager - CARTA - Research Training

Appendix E: Social media usage within AfricaLics

The internet has been a keyway in facilitating the dissemination of scientific knowledge. In the last decade there is a growing interest in the role that social media networks can play in this process. Especially for a distributed network like AfricaLics, with nodes in many different countries, these platforms are instrumental for disseminating relevant information to their members and stakeholders.

The followers of AfricaLics social media

AfricaLics is an active user of Twitter, Facebook and LinkedIn using it amongst others for the promotion of events, scholarships and news content. AfricaLics uses a tool to copy-post all 'core messages' automatically on all the three platforms. The AfricaLics secretariat prepares prior to events post that can be shared during the event. Apart from these prepared messages, the members of the AfricaLics secretariat can also use the channels to share content (such as pictures or quotes of a presentation) or respond to messages directed to AfricaLics on their own initiative.

Figure 22 shows the number of followers of the official AfricaLics social media accounts. In practice the messages are reaching a wider audience as these messages are retweeted, shared, and liked to individuals that are not directly following the AfricaLics accounts. Although there is no coordinated strategy to amplify the messages by liking and sharing the AfricaLics posts, the members of the AfricaLics secretariat and board nevertheless play a prominent role in this process. Next to the activities of this inner circle, the people involved in the AfricaLics activities are encouraged during events to share their experiences on social media. In some cases, the AfricaLics messages are picked up by not directly related accounts.

While the chart in Figure 22 could give the impression that LinkedIn is the most important platform for AfricaLics, it only plays a minor role in practice. While for many professions LinkedIn has achieved a strong position, its use in academia is rather limited. In the case of AfricaLics, there is a steady flow of content, comparable to the content published on the other social media platforms, and the post seem to attract some attention as indicated by the number of likes. Yet, the traffic data of AfricaLics-website shows only 66 incoming connections in 2020 from all LinkedIn pages combined, which is considerable little in comparison to traffic generated by Facebook (1450+) and twitter (+-930). Several reasons could explain this minor role for LinkedIn:

- LinkedIn users tend to be connected to more people, as this is the prime aim of the network, while other platforms such as Facebook and Twitter users do not want to follow too many people to keep focus on their news feeds.

- The market penetration of LinkedIn in Africa is generally low compared to Facebook and Twitter.

- Age bias, in which the age distribution of the Twitter or Facebook audience is more fitting for AfricaLics

Yet, although linked does not play a crucial role, there are some easy gains to be made in relation to AfricaLics presence on LinkedIn. AfricaLics is currently using a "personal" account on LinkedIn instead of the organisation account type. Switching to an organisation account or group account would allow people to list their AfricaLics membership as an affiliation which can be beneficial for the marketing of AfricaLics or in the further career advancement of members (e.g., participants of the AfricaLics Visiting PhD fellowship could list AfricaLics as an additional affiliation). Other benefits include the possibility to produce some organisation level analytics that are currently only possible organisation accounts.

Figure 22 Development of the number of followers of AfricaLics Social Media accounts
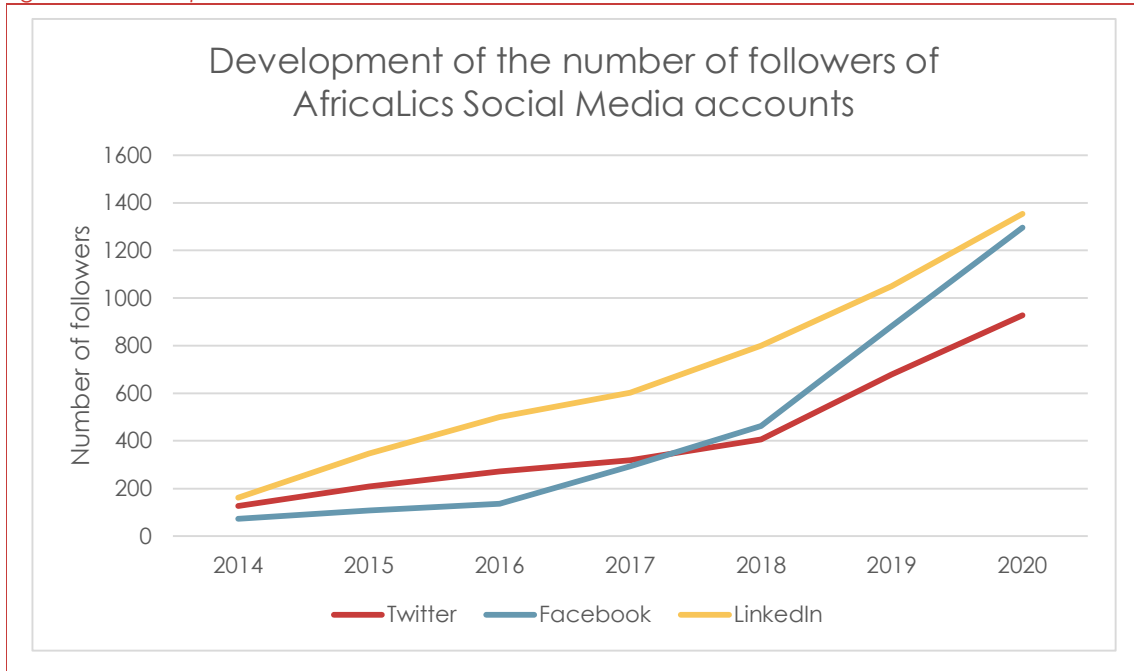
Source: Internal registration of the development of the follower counts (2021)

To get an understanding of the age and gender balance in the follower base we can make use of the analytical data from AfricaLics Facebook account. This data provides the distribution by age group and gender of both the followers of the AfricaLics Facebook account and the people reached. The latter group consists of people who have seen a post of AfricaLics. In this way it filters out inactive accounts (who are not being shown any posts), and also captures accounts that have seen posts of the AfricaLics due to people liking or sharing these posts.

In both the followers (70% male) and the people reached (57% male) there is a clear male overrepresentation. Part of this overrepresentation could be the result of a general male overrepresentation on Facebook, although this is unlikely to explain the whole difference in the number of followers[39]. It is however noteworthy that the gender difference in the share of actual people reached is considerable smaller, and closer than actually would be expected based on the male overrepresentation among Facebook users.

Figure 23 provides an overview of the distribution of both followers and people reached by gender and age. A clear concentration is visible in the age group 25-44 which accounts for 74% of the followers. The concentration in these age group is not just the result of the demographics of the Facebook users (as then the age group 18-24 would be the 2nd largest group), but probably reflects the age groups in which there is the strongest interest for AfricaLics activities.

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[39] We cannot say this with certainty, as Facebook only provides on global level user data by age and gender: https://www.statista.com/statistics/376128/facebook-global-user-age-distribution/

Figure 23 Gender distribution of Facebook AfricaLics followers and people reached


Gender distribution of Facebook AfricaLics followers and people reached
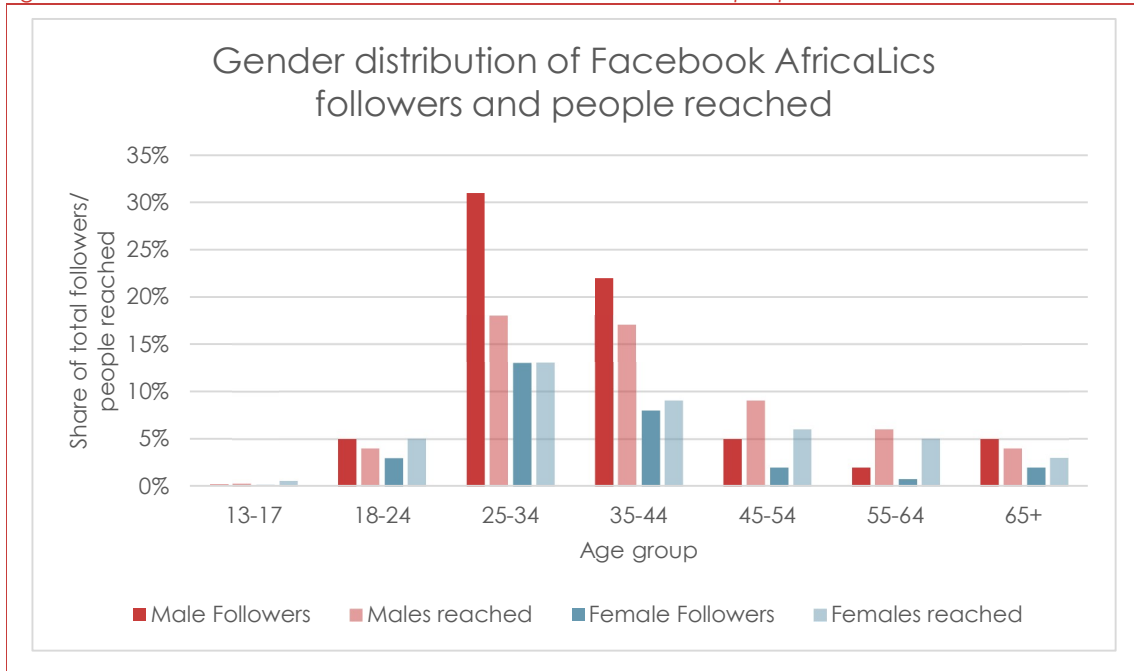
Source: Technopolis (2021), data from Facebook analytics (2021)

The geographical distribution of the follower base

The Twitter and Facebook analytical data can also be used to provide some insight into the geographical origin of the followers and people reached by the AfricaLics social media accounts. The large majority of the followers of the AfricaLics accounts are from African countries; 63% of Twitter users and 70% of the people reached on Facebook are from Africa. The maps in Figure 24 show the Twitter followers and the people reached on Facebook per capita. The geographical concentrations visible in Africa seems to highlight countries in which have seen quite some AfricaLics presence such as Kenya, Ghana and Algeria. The non-African audience of the AfricaLics social media accounts is distributed across the world, with Denmark being the country with the most Twitter followers and 'people reached on Facebook' per capita. The reason for this is most likely related to the presence of Danes in the AfricaLics board and secretariat (Lema, Andersen) and the fact that the Danish Aalborg University is the host institutions in the Visiting Fellowship Program.

While there seems to be some correlation between the distribution of "people reached on Facebook" and the Twitter followers, there are also distinct differences between the two platforms in the geographical distribution of the audience. This would argue for the complementarity of the two channels.

Figure 24 Geographical origin of the followers of and people reached by AfricaLics Social Media accounts
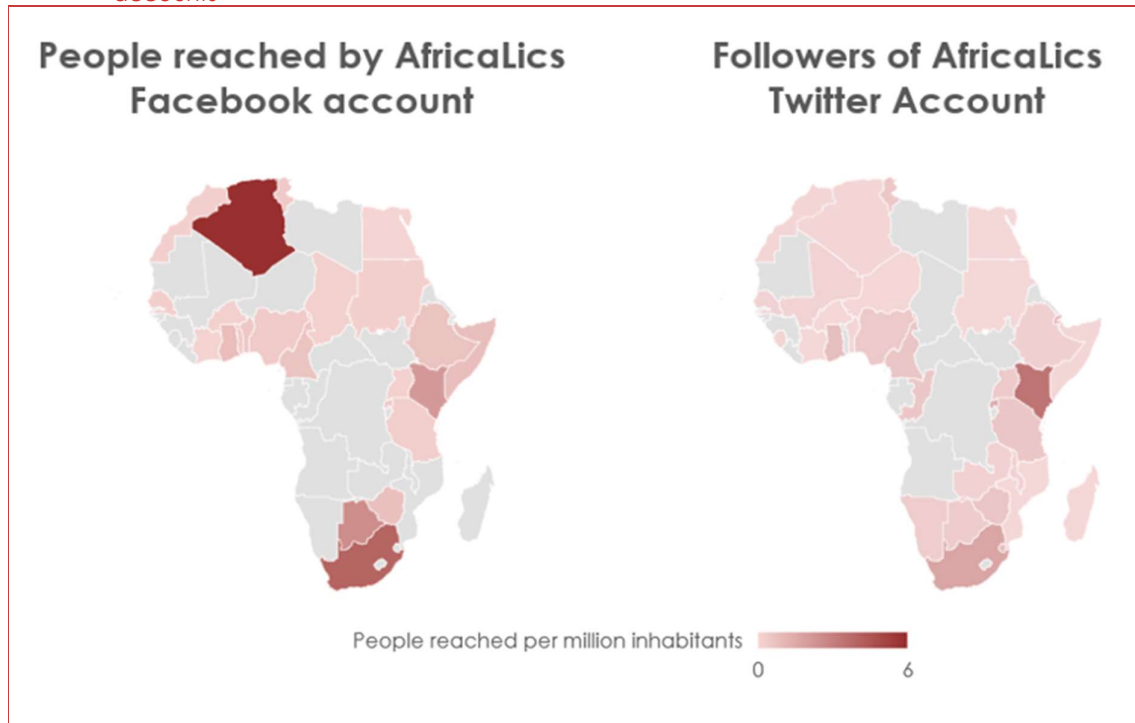
Source: Technopolis (2021), data from Facebook and Twitter analytics (2021)[40]

Impact of the AfricaLics social media

To get a more detailed understanding of the use of Social Media accounts, we need to get insight in the impact of these accounts. For this purpose, we have access to the detailed analytics statistics of the 50 tweets send by the AfricaLics twitter account over the period September 2020 till January 2021[41]. The data reported in Table 15 shows on the aggregated level several indicators that can provide insight into the impact of the AfricaLics Twitter account. The reported median is considered to be the most informative, as the minimums are biased due to reply tweets that are by default not shown to all users, while maximums can be the results of particular outliers. The outlier for impressions was caused by a retweet by "@prepaid_africa" that happens to have more than 7000 followers. Such a retweet is not necessarily translating into a big impact for the AfricaLics network, as this tweet only generated 45 engagements, which translates into an engagement rate of 0.7%.

Although there is in general a strong correlation between the number of impressions and the number of engagements (0.46), the number of impressions is negatively correlated with the engagement rate. Therefore, the quantity of impressions does not translate one to one into more engagements. This could be explained that spreading the tweets to a wider audience, the tweets might be less relevant for the users the tweets are shown to. In the context of AfricaLics, if tweets would only be shown to followers of the AfricaLics account, the tweets are

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[40] This is a stylised map which is not geographically or politically accurate as it omits non-self governing states (as defined by the UN) and island states in Africa due to the focus of the map on where the majority of AfricaLics activity can be found in Africa.

[41] This timeframe is due to data constrictions put in place by twitter for exporting the analytical data

more likely to contain relevant information as these followers signed up themselves for following the AfricaLics account. This is different that when the same tweet would be retweeted and served to for example a European audience. While there is likely to be still interest in this tweet, in relative terms it will be smaller.

While engagements, likes and retweets can all contribute to the visibility of AfricaLics, the ultimate aim is to spark interest and increase event participation. A relevant metric in this context is the URL clicks, which indicates how many users clicked on the link that was shared in the tweet. These links can be broadly classified in three groups:

- Scholarships: the most URL clicks are going to tweets about scholarships, in which people click on the link to get to know more about the scholarship.

- Events: the second group by URL clicks are about events organized by AfricaLics, in which people go either to the registration page or follow a link to zoom

- Web content: the third group by URL clicks are containing links to web content such as blogposts and newsletters

Table 15 Tweet Analytics over period September 2020 till January 2021

Indicator	Meaning	Minimum	Median	Mean	Maximum
Impression	Numbers of user that have seen the tweet	19	500	701	6347
Engagement	Number of users that clicked on the tweet	0	21	29	154
Engagement rate	Engagement divided by impression	0	4.1%	4.4%	11.6%
Likes	Number of likes received by tweet	0	3.5	4.5	17
Replies	Number of replies received by tweet	0	0	0.4	2
Retweets	Number of received retweets	0	2	3	15
URL clicks	Number of clicks for URL in tweet	0	4	5.9	34

Twitter Analytics (2021)

Other AfricaLics activity and mentions on social media

While the Twitter, Facebook and LinkedIn are the official accounts on social media, there are several other ways in which AfricaLics generates attention on social media.

- AfricaLics board members and other directly involved that share posts of AfricaLics social media accounts with their private social media accounts. In other cases, posts are made about AfricaLics events.

- AfricaLics Youtube channel. Over the past 6 years 16 videos have been published. The channel hasn't received much traction with only 35 subscribers and only three videos reaching the 100 views threshold. The most watched video, with nearly 1100 views, is a video about the Africalics PhD Fellowship Programme. The high interest in the fellowships seems to be a structural element as it was also noticed that Twitter post about the Fellowship were amongst the most popular posts.

- WhatsApp groups: there have been several WhatsApp groups set up by alumni of events, from which some are quite active in terms of sharing both work related information (e.g., details of papers published, grant and job opportunities) and general social interaction.

AfricaLics website traffic data

The AfricaLics-website, accessible through africalics.org, is the central platform on which AfricaLics presents itself, communicates about upcoming events and fellowships, and hosts news and blogs. Considering the centrality of the website in the external communication strategy of AfricaLics, it is important to get a better understanding of the user experience and the performance of the website

Analytical data

Prior to the current evaluation, the standard traffic monitoring system was employed, which has some limitations in the insights that it can offer. At the start of the evaluation, we advised to install the Google Analytics plugin on the website that can provide more insights in website traffic by amongst others providing demographic data about the visitors. As this data cannot be collected retroactively, the current analysis is based on the previous used traffic monitoring system.

Traffic

The website reached in 2020 on average 2621 unique visitors per month. The number of users has grown considerable from the few hundred that reached the website on a monthly basis in 2013[42]. The growth in visitors has been characterized by ups and downs, from which some can be directly attributed to specific post or events.

Web origin of visitors[43]

Understanding how people reached the website could provide some insight in the effectiveness of outreach activities (e.g., how much website traffic is coming to the website through Twitter and Facebook). This information is collected if someone presses a hyperlink on a website (e.g., in a Twitter post), which both sends the user to the referred page, but also lets this website know from which website the user came.

The 2020 analytical data has for about 16247 visits information on how visitors reached the website, which is about 37% of the total 44.392 visits in that year[44]. Over the years there are some variations visible in the sources of web traffic. The Globelics website was an important source of the traffic in the early days of AfricaLics, as at that time also the indexation of the AfricaLics website in search engines seemed to be limited. Over the years, however, the reliance on Globelics diminished and was taken over by the Google search engine, Facebook and Twitter. For 2020 the sources of web traffic could be divided in three groups:

- Search engines: 12564 visitors came from search engines. Google is with a market share of 95% the dominant player within this group

- Social Media Accounts: 2440 visitors came from the AfricaLics social media accounts divided over Facebook is (59%), Twitter (38%) and LinkedIn (3%). These incoming links are

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[42] These visitors are not necessarily unique, as users using different IP-addresses (by using different internet connections or VPNs) might still be double counted.

[43] There are possibilities to track the geographical origin of the visitors of the AfricaLics website. Yet this poses some technical challenges as this is done based on IP-address location, which can be altered using VPN services. The geographical pattern visible in the web data seems to confirm this, in which 55% of the pages is visited by an IP-addresses from the USA. While we cannot say that much based on this data, we still see Kenya, South Africa, Nigeria feature among the top African countries by number of visitors.

[44] The missing part could be explained by several reasons. Users can for example direct themselves to the website (e.g., by typing the URL or selecting the URL from their history or bookmarks). Also is it possible that some links do not include referral information (e.g., hyperlinks in a pdf or website hiding this data on purpose) or are for technical reasons not being captured in the analytical data.

not necessarily resulting from the links posted by the AfricaLics social media accounts, but can also come from other users (e.g., AfricaLics members sharing posts with links to the AfricaLics website on their own social media accounts).

- Websites advertising PhD scholarships: about 750 users came from websites advertising PhD scholarships. This are both pages on university websites dedicated to scholarships (e.g., North-West University (South Africa)) as well as websites whose main purpose is the advertising of scholarships (e.g., www.opportunitiesforafricans.com)

User experience

The user experience is crucial for sparking the interest of visitors for AfricaLics activities and content. The overall interface of the AfricaLics website is up-to-date and scales well to mobile devices. The latter is important as the traffic data shows that 35% of the users is accessing the AfricaLics-website from a mobile device. Nevertheless, the duration of the visits suggests a high bounce rate as the share of visitors with a visit duration below the 30 seconds varies over the years between the 60%-86%. Although part of this might be attributed to how the analytical data was collected previously, it nevertheless is indicative of a high bounce rate. While in some cases a short visit might indicate that the user has found within this short time span the information it was looking, it might also point to some flaws in the user experience or failure to let visitors consume multiple pages.

An inspection of the website provides some indication of several flaws that might explain the high bounce rate:

- **Responsiveness**: The website is relatively slow as indicated by a low "Lighthouse performance score" (an index to calculate the responsiveness of websites). As responsiveness is an important factor, the current responsiveness is likely to lead to a suboptimal user experience.

- **Unsafe referrals**: The website includes some "unsafe" redirects which are flagged by most browsers as "insecure"[45]. These flags might reduce the perceived credibility of the website and can be easily fixed by changing these referrals.

- **Too much text**: Also, at other instances the visitors are likely to be overburdened with thew amount of text and how it is presented. While it is reasonable to expect from the AfricaLics audience to have a better capability to handle longer texts than the general public, at most of the pages there is still too many texts to maintain the attention of this userbase. There are several possibilities to make the content more concise and thereby improve the user experience.

- **Presentation of the content**: At some instances the content could be presented in a visually more attractive or structured way. The page africalics.org/supporting-organisations is structured as an alphabetically sorted list of organization names which is difficult to consume, while clustering these organisations by organisation type, and adding their logos will help the visitors.

- **Proofreading**: There are several posts in which more attention for proofreading could reduce grammatical errors, text structure and other quality concerns.

- **External URLs opening in same tab**: Currently external links (e.g., to journal articles hosted on the website of a publisher) are opened in the same tab, which forces the user to leave

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[45] The link on the homepage to the post-doc-visiting fellowships refers to the http-version of the website (http://www.africalics.org/post-doc-visiting-fellowships/) instead of the https-version (https://www.africalics.org/post-doc-visiting-fellowships/)

the AfricaLics domain. When opening external links in a new tab, the user can move back to the AfricaLics tab when required. Even if the user forgets when browsing through the external page that it was originally browsing the africalics.org-website, it will be reminded of this by the browser tab that is still at the AfricaLics.org domain.

Appendix F Interview guides

AfricaLics Scientific Board

- **Q1**
  - What were the needs 7 years ago in terms of research capacities and networking in the innovation & development field? Have they changed through time?
  - Did AfricaLics activities well respond to these needs? Are they still relevant one by one as such and as a whole? (prompt)
  - How relevant is the network-based approach (versus individual or institutional support)? And why?

Effectiveness & Impact

- **Q2**

  ### For research & Training activities:
  - Do you believe that AfricaLics enhanced African scholars' capacity to conduct high-quality research in I&D? How? Do you have in mind outstanding researchers who have benefited the most?
  - Do you know about some newly created innovation and development courses in African Universities? What has been the role of AfricaLics in setting up these courses?
  - Do you know about some outstanding research collaborations and publications within the AfricaLics and Globelics communities?
  - Do you believe that AfricaLics contributed to enhancing the representation of women and low-income countries in the field of I&D? How?
  - Do you believe that a diverse (in terms of gender and geography) innovation & development community is formed in Africa? Do you think it represents a critical mass? How well is this community interconnected with global Networks? Do you believe that AfricaLics contributed significantly to its formation? Why?
  - Do you think that the magnitude of rigorous research on I&D conducted within African academic institutions and African researchers is increased? Do you think that AfricaLics significantly contributed to this result? Why?

  ### For Policy outreach and stakeholders' engagement activities
  - Are you engaged in policy outreach activities aiming at promoting AfricaLics activities and vision widely? If yes, which ones?
  - Do you think that key stakeholders (academics, governments, etc.) are aware of AfricaLics activities? Are there more and more policymakers interested in AfricaLics?
  - Are you regularly consulted to provide support and advice to policymakers?
  - Do you believe that AfricaLics scholars are the driving force in policy advice in the field of I&D in Africa? Why? Do you have in mind outstanding policy documents that reference research from AfricaLics members?
  - Do you know other research and capacity-building networks AfricaLics collaborates with?

  ### For organisational & institutional strengthening activities

- Do you think that ACTS functions as a key node in AfricaLics? Do you believe that ACTS effectively provides advice and guidance to AfricaLics members? Why?
- Do you use the networking tools developed for the AfricaLics Scientific Board? Do you think that the AfricaLics website and social media are an effective way to diffuse knowledge and research on I&D? Why?
- How is the process of the transformation of AfricaLics into a legal entity going?
- Do you believe that AfricaLics activities contributed to the emergence of nationaLics/regionaLics all across Africa? Why?

Efficiency

- **Q3**
  - Do you believe that AfricaLics has a strong and effective governance structure? Do you believe that the current division of responsibility between the Secretariat, the Scientific Board, and the Network's members is appropriate?
  - How well do you think the RCB (Phase I & II) project was managed?
  - Do you think that the monitoring established by AfricaLics is adequate? How well does it support decision-making/adjustments of activities? Has monitoring and follow-up by Sida been appropriate and useful for the achievement of objectives? Why?

Sustainability

- **Q5.**
  - Do you believe that AfricaLics organisational and funding model is sustainable? Do you think that the results will last at the end of the SIDA support (RCB project)? Do you think that the Network will continue to benefit from pro bono contributions? What incites pro bono contributions? Do you think that AfricaLics have the capacity and the governance structure to attract additional donors?
  - Do you think that Network's members are willing to contribute financially or in-kind to AfricaLics activities? If yes, which modalities can be explored (membership fees, payment of fees for conferences…)?
  - Do you think that African governments might be interested in funding AfricaLics activities? If yes, how to incite them?
  - Do you have in mind other sources of financing?

Lessons learned & recommendations

- **Q6.**
  - Can you please share from your perspective what has worked well and not so well at AfricaLics?
  - What could be improved to increase efficiency and effectiveness (in the goals and activities, set-up, governance and management, communication)? How do you think AfricaLics can better make visible research done by its members?

AfricaLics Secretariat

Relevance

- **Q1**
  - What were the needs 7 years ago in terms of research capacities and networking in the innovation & development field? Have they changed through time?
  - Did AfricaLics activities well respond to these needs? Are they still relevant one by one as such and as a whole? (prompt)
  - How relevant is the network-based approach (versus individual or institutional support)? And why?

Effectiveness & Impact

- **Q2**

  #### For research & Training activities:
  - Do you believe that AfricaLics enhanced African scholars' capacity to conduct high-quality research in I&D? How? Do you have in mind outstanding researchers who have benefited the most?
  - Do you know about some newly created innovation and development courses in African Universities? What has been the role of AfricaLics in setting up these courses?
  - Do you know about some outstanding research collaborations and publications within the AfricaLics and Globelics communities?
  - Do you believe that AfricaLics contributed to enhancing the representation of women and low-income countries in the field of I&D? How?
  - Do you believe that a diverse (in terms of gender and geography) innovation & development community is formed in Africa? Do you think it represents a critical mass? How well is this community interconnected with global Networks? Do you believe that AfricaLics contributed significantly to its formation? Why?
  - Do you think that the magnitude of rigorous research on I&D conducted within African academic institutions and African researchers is increased? Do you think that AfricaLics significantly contributed to this result? Why?

  #### For Policy outreach and stakeholders' engagement activities
  - Are you engaged in policy outreach activities aiming at promoting AfricaLics activities and vision widely? If yes, which ones?
  - Do you think that key stakeholders (academics, governments, etc.) are aware of AfricaLics activities? Are there more and more policymakers interested in AfricaLics?
  - Are you regularly consulted to provide support and advice to policymakers?
  - Do you believe that AfricaLics scholars are the driving force in policy advice in the field of I&D in Africa? Why? Do you have in mind outstanding policy documents that reference research from AfricaLics members?
  - Do you know other research and capacity-building networks AfricaLics collaborates with?

  #### For organisational & institutional strengthening activities

–   Do you think that ACTS functions as a key node in AfricaLics? Do you believe that ACTS effectively provides advice and guidance to AfricaLics members? Why?

–   Do you use the networking tools developed for the AfricaLics Scientific Board? Do you think that the AfricaLics website and social media are an effective way to diffuse knowledge and research on I&D? Why?

–   How is the process of the transformation of AfricaLics into a legal entity going?

–   Do you believe that AfricaLics activities contributed to the emergence of nationaLics/regionaLics all across Africa? Why?

Efficiency

- **Q3**

  –   Do you believe that AfricaLics has a strong and effective governance structure? Do you believe that the current division of responsibility between the Secretariat, the Scientific Board, and the Network's members is appropriate?

  –   How well do you think the RCB (Phase I & II) project was managed?

  –   Do you think that the monitoring established by AfricaLics is adequate? How well does it support decision-making/adjustments of activities? Has monitoring and follow-up by Sida been appropriate and useful for the achievement of objectives? Why?

Sustainability

- **Q5.**

  –   Do you believe that AfricaLics organisational and funding model is sustainable? Do you think that the results will last at the end of the SIDA support (RCB project)? Do you think that the Network will continue to benefit from pro bono contributions? What incites pro bono contributions?   Do you think that AfricaLics have the capacity and the governance structure to attract additional donors?

  –   Do you think that Network's members are willing to contribute financially or in-kind to AfricaLics activities? If yes, which modalities can be explored (membership fees, payment of fees for conferences…)?

  –   Do you think that African governments might be interested in funding AfricaLics activities? If yes, how to incite them?

  –   Do you have in mind other sources of financing?

Lessons learned & recommendations

- **Q6.**

  –   Can you please share from your perspective what has worked well and not so well at AfricaLics?

  –   What could be improved to increase efficiency and effectiveness (in the goals and activities, set-up, governance and management, communication)? How do you think AfricaLics can better make visible research done by its members?

AfricaLics Nodes

Relevance

- **Q1**
  - What were the needs 7 years ago in terms of research capacities and networking in the innovation & development field? Have they changed through time?
  - Did AfricaLics activities well respond to these needs? Are they still relevant one by one as such and as a whole? (prompt)
  - How relevant is the network-based approach (versus individual or institutional support)? And why?

Effectiveness & Impact

- **Q2**

  For research & Training activities:
  - Do you believe that AfricaLics enhanced African scholars' capacity to conduct high-quality research in I&D? How? Do you have in mind outstanding researchers who have benefited the most?
  - Do you know about some newly created innovation and development courses in African Universities? What has been the role of AfricaLics in setting up these courses?
  - Do you know about some outstanding research collaborations and publications within the AfricaLics and Globelics communities?
  - Do you believe that AfricaLics contributed to enhancing the representation of women and low-income countries in the field of I&D? How?
  - Do you believe that a diverse (in terms of gender and geography) innovation & development community is formed in Africa? Do you think it represents a critical mass? How well is this community interconnected with global Networks? Do you believe that AfricaLics contributed significantly to its formation? Why?
  - Do you think that the magnitude of rigorous research on I&D conducted within African academic institutions and African researchers is increased? Do you think that AfricaLics significantly contributed to this result? Why?

  For Policy outreach and stakeholders' engagement activities
  - Are you engaged in policy outreach activities aiming at promoting AfricaLics activities and vision widely? If yes, which ones?
  - Do you think that key stakeholders (academics, governments, etc.) are aware of AfricaLics activities? Are there more and more policymakers interested in AfricaLics?
  - Are you regularly consulted to provide support and advice to policymakers?
  - Do you believe that AfricaLics scholars are the driving force in policy advice in the field of I&D in Africa? Why? Do you have in mind outstanding policy documents that reference research from AfricaLics members?
  - Do you know other research and capacity-building networks AfricaLics collaborates with?

For organisational & institutional strengthening activities

- Do you think that ACTS functions as a key node in AfricaLics? Do you believe that ACTS effectively provides advice and guidance to AfricaLics members? Why?
- Do you think that the AfricaLics website and social media are an effective way to diffuse knowledge and research on I&D? Why?
- How is the process of the transformation of AfricaLics into a legal entity going?
- Do you believe that AfricaLics activities contributed to the emergence of nationaLics/regionaLics all across Africa? Why?

Efficiency

- **Q3**
  - Do you believe that AfricaLics has a strong and effective governance structure? Do you believe that the current division of responsibility between the Secretariat, the Scientific Board, and the Network's members is appropriate?

Sustainability

- **Q5.**
  - Do you believe that AfricaLics organisational and funding model is sustainable? Do you think that the Network will continue to benefit from pro bono contributions? What incites pro bono contributions? Do you think that AfricaLics have the capacity and the governance structure to attract additional donors?
  - Do you think that Network's members are willing to contribute financially or in-kind to AfricaLics activities? If yes, which modalities can be explored (membership fees, payment of fees for conferences…)?
  - Do you think that African governments might be interested in funding AfricaLics activities? If yes, how to incite them?
  - Do you have in mind other sources of financing?

Lessons learned & recommendations

- **Q6.**
  - Can you please share from your perspective what has worked well and not so well at AfricaLics?
  - What could be improved to increase efficiency and effectiveness (in the goals and activities, set-up, governance and management, communication)? How do you think AfricaLics can better make visible research done by its members?

SIDA

Relevance

- **Q1**
  - What were the needs 7 years ago in terms of research capacities and networking in the innovation & development field? Have they changed through time?
  - Did AfricaLics activities well respond to these needs? Are they still relevant one by one as such and as a whole? (prompt)
  - How relevant is the network-based approach (versus individual or institutional support)? And why?

Efficiency

- **Q3**
  - Do you believe that AfricaLics has a strong and effective governance structure? Do you believe that the current division of responsibility between the Secretariat, the Scientific Board, and the Network's members is appropriate?
  - How well do you think the RCB (Phase I & II) project was managed?
  - Do you think that the monitoring established by AfricaLics is adequate? How well does it support decision-making/adjustments of activities? Has monitoring and follow-up by Sida been appropriate and useful for the achievement of objectives? Why?

Sustainability

- **Q5.**
  - Do you believe that AfricaLics organisational and funding model is sustainable? Do you think that the results will last at the end of the SIDA support (RCB project)? Do you think that AfricaLics has the capacity and the governance structure to attract additional donors?

Lessons learned & recommendations

- **Q6.**
  - Can you please share from your perspective what has worked well and not so well at AfricaLics?
  - What could be improved to increase efficiency and effectiveness (in the goals and activities, set-up, governance and management, communication)?

Members of the Network

PhD Academies & Visiting Fellowship Programme participants

Effectiveness & Impact

- **Q2**

  For research & Training activities:

  – Why did you apply to the PhD Academy and Visiting Fellowship Programme? What were your needs?

  – How well do you think the training addressed them? Do you believe that AfricaLics enhanced your capacity to conduct high-quality research in I&D? How?

  – Have you been able to publish after the Academy, VFP? How soon after the Academy, VFP? Did your research attract credible journals?

  – Did you get sufficient support from your home institutions in conducting your research?

  – Have you been involved in research collaborations and publications within the AfricaLics and Globelics communities?

  – Do you believe that AfricaLics activities programme is designed to enable the formation of research teams that address themes that are important for I&D in Africa?

  – Do you believe that AfricaLics contributed to enhancing the representation of women and low-income countries in the field of I&D? How?

  – Do you believe that participating in AfricaLics activities had a positive impact on your career path? How?

  For Policy outreach and stakeholders' engagement activities

  – Do you think that key stakeholders (academics, governments, etc.) are aware of AfricaLics activities? Are there more and more policymakers interested in AfricaLics?

  – Are you regularly consulted to provide support and advice to policymakers?

  – Do you believe that AfricaLics scholars are the driving force in policy advice in the field of I&D in Africa? Why? Do you have in mind outstanding policy documents that reference research from AfricaLics members?

  – Have you initiated outreach activities to promote AfricaLics activities in your country? What challenges did you encounter? Did you receive support from your affiliated institutions to participate in stakeholders' activities? Are you willing to be more involved in the Network development? How?

  For organisational & institutional strengthening activities

  – Do you believe that AfricaLics activities contributed to the emergence of nationaLics/regionaLics all across Africa? How? Have you been involved in this?

Sustainability

- **Q5.**

  – Are you willing to contribute financially or in-kind to AfricaLics activities? If yes, which modalities can be explored (membership fees, payment of fees for conferences...)?

- **Q6.**

    - Can you please share from your perspective what has worked well and not so well at AfricaLics?

    - What could be improved to increase the efficiency and effectiveness of the PhD Academies, VFP and Conferences? How do you think AfricaLics can better make visible research done by its members?

PhD Supervisors

Effectiveness & Impact

- **Q2**

    For research & Training activities:

    - What were your needs when participating to the PhD Supervisors seminar?

    - How well do you think the training addressed them? Do you believe that AfricaLics enhanced your capacity to supervise high-quality research in I&D? How?

    - Have you been involved in research collaborations and publications within the AfricaLics and Globelics communities?

    - Do you believe that AfricaLics activities programme is designed to enable the formation of research teams that address themes that are important for I&D in Africa?

    For Policy outreach and stakeholders' engagement activities

    - Do you think that key stakeholders (academics, governments, etc.) are aware of AfricaLics activities?

    - Are you regularly consulted to provide support and advice to policymakers?

    - Do you believe that AfricaLics scholars are the driving force in policy advice in the field of I&D in Africa? Why? Do you have in mind outstanding policy documents that reference research from AfricaLics members?

    - Have you initiated outreach activities to promote AfricaLics activities in your country? What challenges did you encounter? Did you receive support from your affiliated institutions to participate in stakeholders' activities? Are you willing to be more involved in the Network development? How?

    For organisational & institutional strengthening activities

    - Do you believe that AfricaLics activities contributed to the emergence of nationaLics/regionaLics all across Africa? How? Have you been involved in this?

Sustainability

- **Q5.**

    - Are you willing to contribute financially or in-kind to AfricaLics activities? If yes, which modalities can be explored (membership fees, payment of fees for conferences…)?

Lessons learned & recommendations

- **Q6.**

- Can you please share from your perspective what has worked well and not so well at AfricaLics?

- What could be improved to increase the efficiency and effectiveness of the PhD Academies, VFP and Conferences? How do you think AfricaLics can better make visible research done by its members?

Non-academic members

Effectiveness & Impact

- **Q2**

  For Policy outreach and stakeholders' engagement activities

  - What were your needs when participating to AfricaLics activities? How well do you think the Network addressed them?

  - Do you think that key stakeholders (academics, governments, etc.) are aware of AfricaLics activities?

  - Do you believe that AfricaLics scholars are the driving force in policy advice in the field of I&D in Africa? Why? Do you have in mind outstanding policy documents that reference research from AfricaLics members? Do you consult AfricaLics scholars to provide support and advice in policymaking?

  - Have you initiated outreach activities to promote AfricaLics activities in your country? What challenges did you encounter? Are you willing to be more involved in the Network development? How?

  For organisational & institutional strengthening activities

  - Do you believe that AfricaLics activities contributed to the emergence of nationaLics/regionaLics all across Africa? How? Have you been involved in this?

Sustainability

- **Q5.**

  - Are you willing to contribute financially or in-kind to AfricaLics activities? If yes, which modalities can be explored (membership fees, payment of fees for conferences…)?

Lessons learned & recommendations

- **Q6.**

  - Can you please share from your perspective what has worked well and not so well at AfricaLics?

  - What could be improved to increase the efficiency and effectiveness of AfricaLics activities? How do you think AfricaLics can better make visible research done by its members?

Collaborating universities

- **Q2**

  For research & Training activities:

  – Do you believe that AfricaLics enhanced African scholars' capacity to conduct high-quality research in I&D? How? Do you have in mind outstanding researchers who have benefited the most?

  – Did your university launch innovation and development courses? What has been the role of AfricaLics in setting up these courses? Are these courses attracting many students?

  – Do you know about some outstanding research collaborations and publications within the AfricaLics and Globelics communities?

  – Do you believe that AfricaLics contributed to enhancing the representation of women and low-income countries in the field of I&D? How?

  – Do you believe that a diverse (in terms of gender and geography) innovation & development community is formed in Africa? Do you think it represents a critical mass? How well is this community interconnected with global Networks? Do you believe that AfricaLics contributed significantly to its formation? Why?

  – Do you think that the magnitude of rigorous research on I&D conducted within African academic institutions and African researchers is increased? Do you think that AfricaLics significantly contributed to this result? Why?

  For Policy outreach and stakeholders' engagement activities

  – Do you think that key stakeholders (academics, governments, etc.) are aware of AfricaLics activities? Are there more and more policymakers interested in AfricaLics?

  – Are you regularly consulted to provide support and advice to policymakers?

  – Do you believe that AfricaLics scholars are the driving force in policy advice in the field of I&D in Africa? Why? Do you have in mind outstanding policy documents that reference research from AfricaLics members?

  For organisational & institutional strengthening activities

  – Do you believe that AfricaLics activities contributed to the emergence of nationaLics/regionaLics all across Africa? Why?

Sustainability

- **Q5.**

  – Do you think that your university might be interested in funding AfricaLics activities? If yes, what would be the incentives?

Lessons learned & recommendations

- **Q6.**

  – Can you please share from your perspective what has worked well and not so well at AfricaLics?

- What could be improved to increase efficiency and effectiveness (in the goals and activities, set-up, governance and management, communication)? How do you think AfricaLics can better make visible research done by its members?

Globelics

Relevance

- **Q1**
    - What were the needs 7 years ago in terms of research capacities and networking in the the innovation & development field? Have they changed through time?
    - Did AfricaLics activities well respond to these needs? Are they still relevant one by one as such and as a whole? (prompt)
    - How relevant is the network-based approach (versus individual or institutional support)? And why?

Effectiveness & Impact

- **Q2**

For research & Training activities:

    - Do you believe that AfricaLics enhanced African scholars' capacity to conduct high-quality research in I&D? How? Do you have in mind outstanding researchers who have benefited the most?
    - Do you know about some newly created innovation and development courses in African Universities? What has been the role of AfricaLics in setting up these courses?
    - Do you know about some outstanding research collaborations and publications within the AfricaLics and Globelics communities?
    - Do you believe that AfricaLics contributed to enhancing the representation of women and low-income countries in the field of I&D? How?
    - Do you believe that a diverse (in terms of gender and geography) innovation & development community is formed in Africa? Do you think it represents a critical mass? How well is this community interconnected with global Networks? Do you believe that AfricaLics contributed significantly to its formation? Why?
    - Do you think that the magnitude of rigorous research on I&D conducted within African academic institutions and African researchers is increased? Do you think that AfricaLics significantly contributed to this result? Why?

For Policy outreach and stakeholders' engagement activities

    - Do you think that key stakeholders (academics, governments, etc.) are aware of AfricaLics activities? Are there more and more policymakers interested in AfricaLics?
    - Do you believe that AfricaLics scholars are the driving force in policy advice in the field of I&D in Africa? Why? Do you have in mind outstanding policy documents that reference research from AfricaLics members?

For organisational & institutional strengthening activities

    - Do you think that ACTS functions as a key node in AfricaLics? Do you believe that ACTS effectively provides advice and guidance to AfricaLics members? Why?
    - Do you think that AfricaLics has a robust M&E framework? Why?

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- – Do you believe that AfricaLics activities contributed to the emergence of nationaLics/regionaLics all across Africa? Why?

- **Q3**
  - – Do you believe that AfricaLics has a strong and effective governance structure? Do you believe that the current division of responsibility between the Secretariat, the Scientific Board, and the Network's members is appropriate?
  - – How well do you think the RCB (Phase I & II) project was managed?
  - – Do you think that the monitoring established by AfricaLics is adequate? How well does it support decision-making/adjustments of activities? Has monitoring and follow-up by Sida been appropriate and useful for the achievement of objectives? Why?

- **Q5.**
  - – Do you believe that AfricaLics organisational and funding model is sustainable? Do you think that the results will last at the end of the SIDA support (RCB project)? Do you think that the Network will continue to benefit from pro bono contributions? What incites pro bono contributions?
  - – Do you think that Network's members are willing to contribute financially or in-kind to AfricaLics activities? If yes, which modalities can be explored (membership fees, payment of fees for conferences…)?
  - – Do you think that African governments might be interested in funding AfricaLics activities? If yes, how to incite them?
  - – Do you have in mind other sources of financing?

- **Q6.**
  - – Can you please share from your perspective, what has worked well and not so well at AfricaLics?
  - – What could be improved to increase efficiency and effectiveness (in the goals and activities, set-up, governance and management, communication)? How do you think AfricaLics cand better make visible research done by its members?

9.1

Government

- **Q1**
  - – How do you see the role of innovation in solving development issues in your country? Does your country have a strategy (policy document) that highlights this vision?
  - – What are the needs in terms of research capacities in the innovation & development field? Are you implementing activities to fill the gaps?

– Do you know AfricaLics? If yes, which AfricaLics activities are you aware of? Do you think that the network-based approach is relevant (versus individual or institutional support)? And why?

Effectiveness & Impact

- **Q2**

  – Do you believe that a diverse (in terms of gender and geography) innovation & development community is formed in your country? Do you think it represents a critical mass?

  – Do you think that the magnitude of rigorous research on I&D conducted within African academic institutions and African researchers increased?

  – Do you solicit scholars in the innovation & development field to provide support and advice?

Sustainability

- **Q5.**

  – Do you think that your government might be interested in funding AfricaLics activities? Why? What could be the incentives?

Lessons learned & recommendations

- **Q6.**

  – How do you think AfricaLics can better make visible research done by its members?

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