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African Innovation Ecosystem Roundtables

Exploring and understanding the African Innovation Ecosystem and its needs

Prepared by AfriLabs

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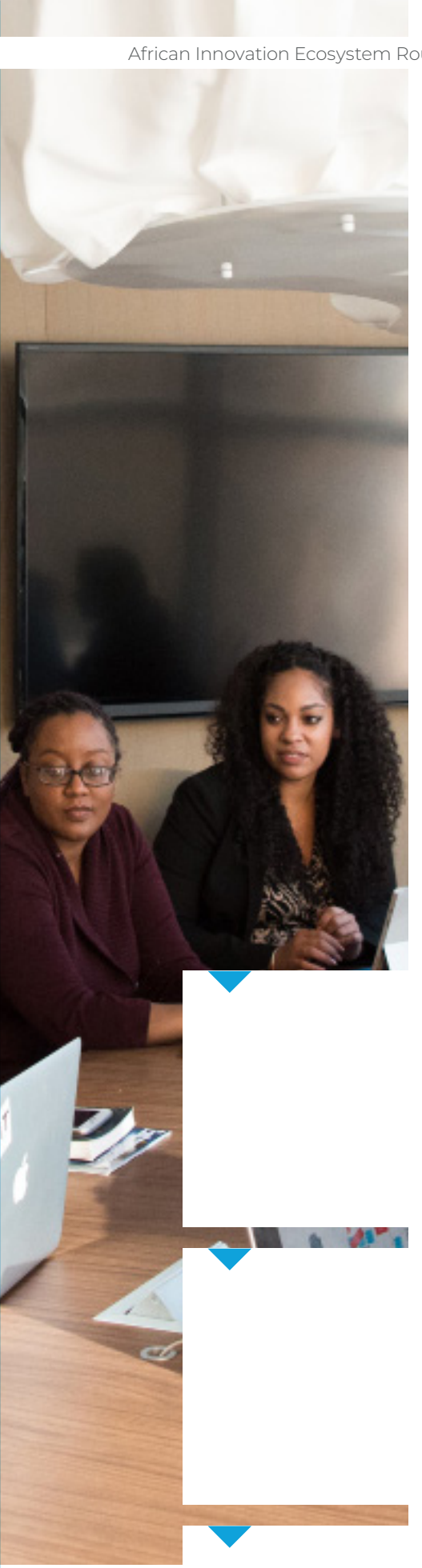


List of **Acronyms**

COVID-19	2019 Novel Coronavirus Disease
Govt.	Government
NGO	Non-Governmental Organisation
SA	South Africa
SADC	Southern African Development Community
SMEs	Small and Medium-sized Enterprises
SMS	Short Message Service
USSD	Unstructured Supplementary Service Data
USD	U.S. Dollar

Executive **Summary**

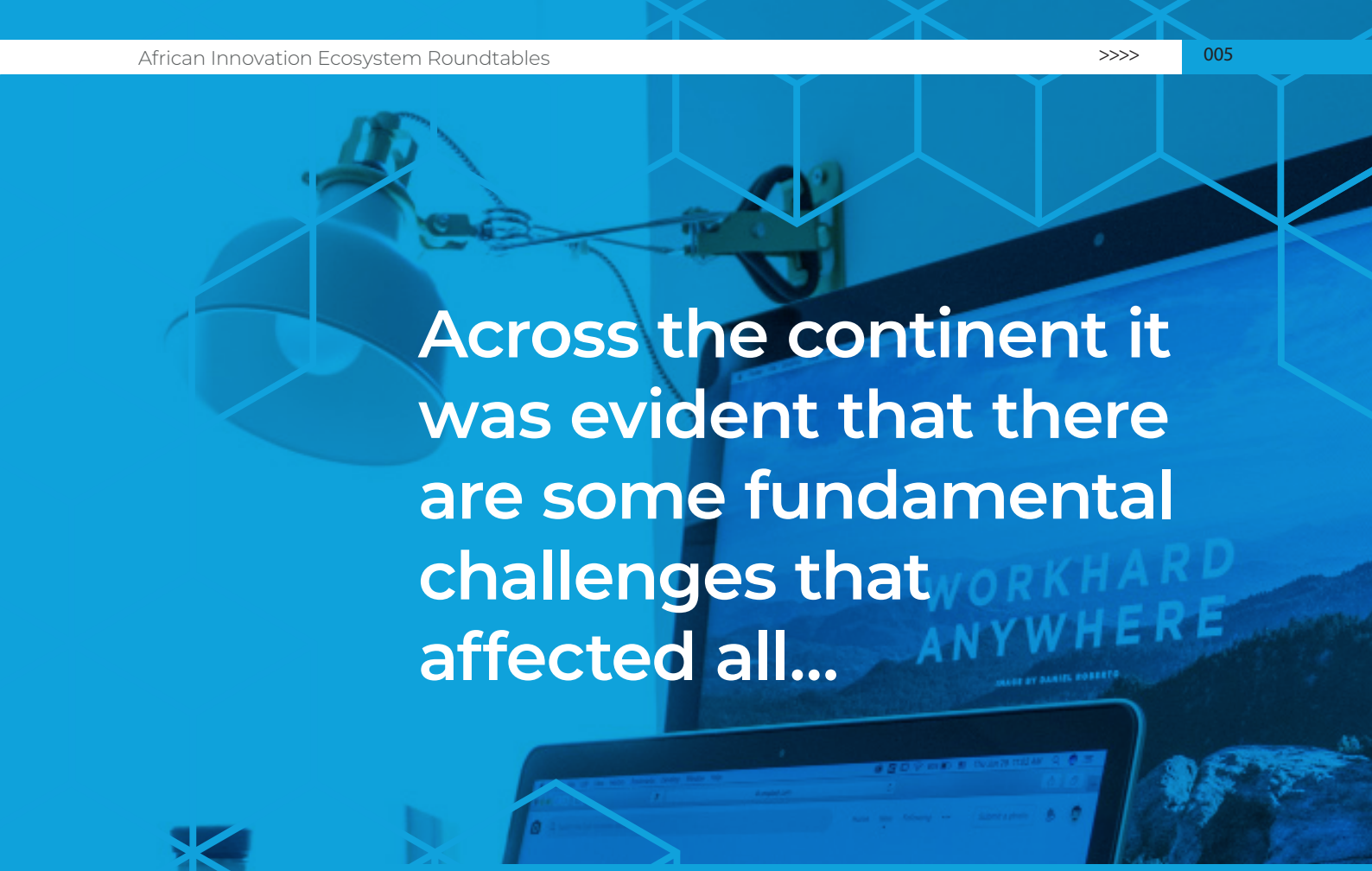
Afrilabs and Mozilla felt that the time was right to embark on a journey to explore the innovation landscape, its challenges and its opportunities as ecosystems form and grow across Africa. It was decided to do this in the form of four regional roundtable discussions with those at the heart of the innovation ecosystems, the innovators.

Four regional roundtables were held to discuss the different ecosystems in each country, the level of collaboration across each region, the products developed and the need for support to improve the ecosystem and grow resilience. The discussions were led by facilitators from the respective regions and participants were active members of the local ecosystems.

The discussions provided evidence of a minority of stronger ecosystems as a contrast to the majority of fairly young, still maturing, ecosystems.

Across the continent it was evident that there are some fundamental challenges that affected all such as access to funding/finance, local policies to protect and enable the ecosystem(s), lack of access to affordable connectivity/internet and a general need to collaborate across the regions.

The report highlights some of the discussions and key insights and makes some recommendations towards future involvement of the Afrilabs/Mozilla partnership in the African innovation ecosystem.



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1. Introduction

The African Innovation Ecosystem has evolved over the years with different levels of success across the regions on the continent. Each region has its unique, yet often also similar, challenges and opportunities resulting in differing levels of maturity in specific regions and countries. Mozilla and Afrilabs set out on an exploration in the form of roundtable discussions to better understand this innovation ecosystem, and to explore and identify new product ideas that can solve real-life issues. The discussions were hosted as part of Mozilla's efforts to reinvest within the African innovation ecosystem and support local innovators with scalable ideas that have the potential to make an impact across the continent.

Afrilab's partnership with Mozilla brings together two organisations committed to supporting communities of technologists and innovators by putting people first. The partnership will help develop more relevant, sustainable support for African innovators to build scalable resilient products, leveraging honest and candid discussions to identify areas of common interest.

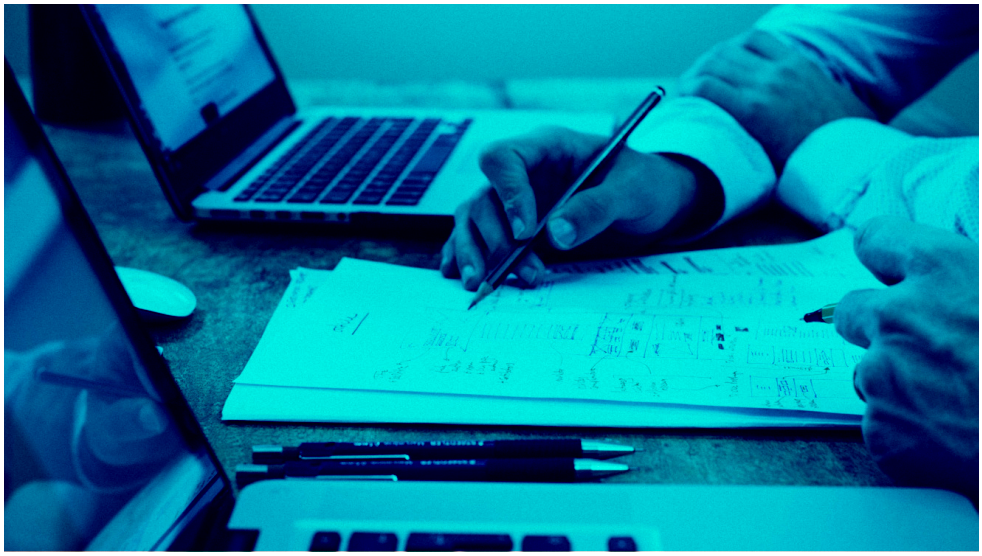
1.1. Background

Afrilabs and Mozilla felt that the time was right to embark on a journey to explore the innovation landscape, its challenges and its opportunities as they form and grow across Africa. It was decided to do this in the form of four regional roundtable discussions withthose at the heart of the ecosystem. The discussions held included representation from innovation hubs/clusters, entrepreneurs on the ground, and various other key informants representing their respective countries and regions. A standard set of questions was formulated to provide some structure to the discussions whilst acknowledging that these initial, exploratory discussions would be allowed to deviate into the key areas of concern and opportunities for each region.

1.2. Overview of Roundtables conducted

The four regional roundtables were each led by a local facilitator that actively participated in the region's innovation ecosystem, together with four to five key informants representing their views on behalf of their respective countries.

The four regions were Western Africa, Southern Africa, Eastern Africa and Central Africa and all the roundtables were conducted in the second half of September 2020 in the form of digital roundtable sessions.



1.3. Study Objectives

The overall study objective was to gain some insight into:

1. Ecosystems

The aim here was to understand the ecosystem per country (and the region collectively) by discussing the number of innovation hubs, their key markets (i.e. those that they reached), and the demographics of some of the beneficiaries of their services.

Furthermore regarding the way forward for these ecosystems, the study was interested in understanding what each region believed they should stop, start or continue doing with special reference to governments and technology corporates in their region.

2. Products

Considering the rich cultures and unique conditions in Africa, the products portion aimed at gaining insights into the products that could be scalable and the challenges experienced, support received and assistance required to roll out such scalable products/services. Furthermore, the study set out to understand the emerging issues for innovators to address, the key considerations in building resilient, scalable, human-centric solutions and the regions understanding of, and utilisation of open source software.

3. Support

The last segment intended to understand the support needs of the ecosystem. The focus here was on determining the most pressing support needs ranging from exposure to challenges and access to markets, to financial, technical skills, tools and expertise.

1.4. Significance of the study

This study sheds light on the current situation in Africa as far as innovation ecosystems andstakeholders are concerned, with a focus on four regions (Western, Southern, Eastern and Central Africa). It ensured a basic understanding of the continents needs and accomplishments and established the foundation from where more specific, focussed conversations and engagements can be launched in future. It also contributed to knowledge sharing in bringing role players from different countries together to discuss their differences and similarities as they drive innovation in their countries, their regions and ultimately the continent.

1.5. Limitation of the Study

The analysis was limited to the information gathered from the four regional discussions and to the knowledge and insights from those in attendance. No additional research (desktop study) was conducted as the focus of this study was to hear from the informants in each region and to understand their opinions, concerns, solutions and plans.

2. Presentation of the Findings

The findings of this study are presented per each of the four regions according to the specific study objectives.

2.1 Western Region

Participating countries

The Western region roundtable was held on the 17 th of September 2020 with participants representing the following countries:

- Gambia,
- Burkina Faso,
- Senegal,
- Ghana, and
- Sierra Leone.

Ecosystem

Sierra Leone has a young ecosystem consisting of one Tech Hub and one Innovation Hub, both still at a micro level and mainly limited to focussing on ideation. They currently showcase a lot of creativity and innovation but lack the financial and business acumen to grow effectively.

In Gambia , the focus is on growth and an openness towards technology in the logistics and deliveries environment. Gambia has seen an increase in online presence and mobile payments but the overall growth of innovation is still hampered by the lack of training in, and awareness of technology. Furthermore, innovators do not seem to put systems in place that can advance their solutions. This is mostly as a result of a lack of accessible finance for such systems with available finance options being costly in Africa. Gambia has also experienced minimum support from the public and private sector and would value far greater support from the government in their innovation efforts. They do however see a shift in mind-sets towards “Africa buying from Africa” which is the opposite of what they traditionally experienced. In order to achieve this new drive, synergy is required as they need networks to take their local brands across the region and ultimately across the continent.

Ghana expressed a similar need for trade across regions whilst acknowledging that the Africa free trade area initiative will assist in achieving this. Concerns were raised around Africa’s “systemic, habitual problem to implement” that should be overcome to proceed with the implementation of the initiative. In order to achieve their goals in Ghana (and the region), the ecosystem stakeholders (each with their different interests) need to come together and collaborate by moving beyond governments and also involving other stakeholders. The shift must be from government led to people led initiatives.

Considering the involvement of women in the ecosystem, it became evident that in Ghana there are a lot of women in technology especially in government and in the design and development of policies. The challenge was however the lack of women in technical and engineering disciplines where the numbers are quite low and it was important to change this as it is believed that women are extremely effective in problem solving and hence need to participate in these areas.

The Covid-19 pandemic impacted the African continent strongly but it also tested the ecosystem and revealed both strengths and weaknesses. The land-locked country of Burkina Faso was the first country in West Africa to record cases of Convid-19. The country responded by making their own, locally produced face masks showcasing their innovators’ ability to respond quickly. The country has a couple of very active innovation hubs which set up their own digital channels and came up with many solutions, utilising what they had available internally whilst the incoming cargo was halted nationwide. It was especially the delivery sector that exploded and improved their services immensely. The main challenges to the ecosystem in Burkina Faso are however the lack of access to connectivity and the high price thereof (even though mobile operators did introduce bonuses and more data to its customers during the pandemic).

Senegal , has seen a lot of innovation in data modelling and is involved in providing data for policy decisions and policy implementation across the continent. Again the impact of the pandemic has been felt but the main fear is that the health crisis might be moving into a food crisis with the country seeing a potential lack of access to seeds and wilful farm labour. Further to this, the

country has experienced excessive rains increasing the challenges to produce food. They do however believe that making the invisible visible through the application of Artificial Intelligence can change things for the better as they utilise satellite imagery to record data in innovative ways. In doing so, they can merge knowledge with technology to improve their decision-making.

Considering the involvement of stakeholders in Senegal, it became evident that at a governmental level (ministers and officials) there is an awareness of the need to improve data but no one is doing what it takes to solve the challenges. In order to achieve their artificial intelligence goals they require the data (currently lacking) to be incorporated into the computing power (available) and the already developed algorithms. A greater need for discussions and accountability amongst officials was expressed strongly.

Products

Considering the products and services it became evident that in a country such as Sierra Leone, people are still very disconnected but still need the last mile solutions. Online sales and payments are still very low as only 11% of the country has access to the Internet. Retail trade is done on Whatsapp and various sms solutions

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One success story in Sierra Leone is that of Unimax, a courier service that has expanded a lot during the Covid-19 pandemic. They are now in need of a mobile app to expand their business from phone and whatsapp based interaction to a mobile app driven solution.

In countries with a greater internet penetration such as Burkina Faso (with 55% internet penetration), the products/services that were doing well were those linked to the product delivery process. One such example is that of Ugopop that enables anybody to deliver products. Again, as in the case of Unimax in Sierra Leone, the need is now for a stronger application to drive their growth.

Given the greater internet penetration, Burkina Faso now has more than 40% of its people making use of mobile payment solutions whilst they are also utilising whatsapp (and in this case specifically the voice notes feature) for business.

Support

The need for support across the region differs somewhat per country. In Gambia , the emphasis would be on gaining access to markets financial support whilst in Senegal , the focus would be on access to markets and access to tools including software, hardware and hub management or entrepreneur training. Tech skills and access to mentorship was also highlighted as there is a strong need for experts to assist with the drive towards artificial intelligence and for mentorship from knowledgeable businesses (or countries). Furthermore, the need for governments' involvement and support are also regarded as fundamental to future success.

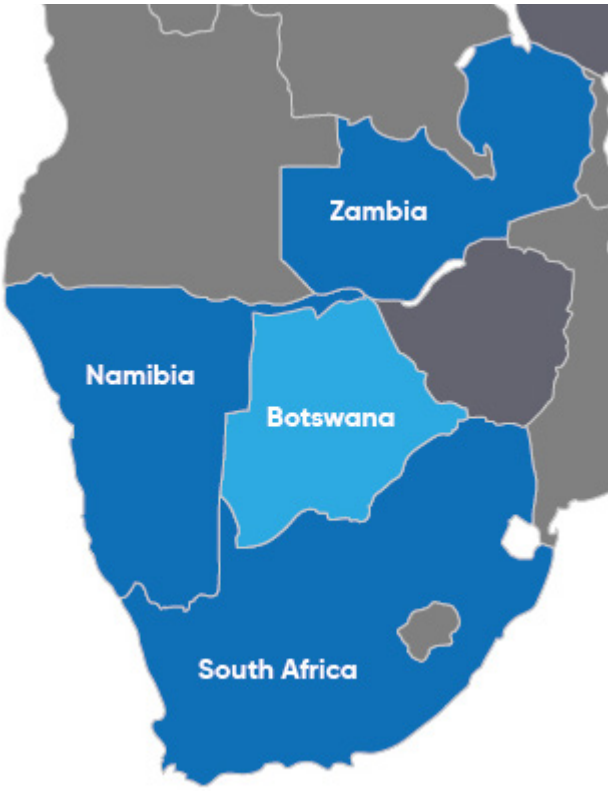
In Burkina Faso , the greatest needs are mentorship (guidance for entrepreneurs) and tools. Broadly

there seems to be lack of, or limited accountability for funding received through the innovation ecosystem. Mentorship will guide these entrepreneurs to ultimately develop and implement real, innovative solutions.

Collaboration and partnerships with other entrepreneurs are key support needs in Sierra Leone followed by access to funding as the current model of funding is mainly through family and savings which are often limited. Many businesses find themselves in a funding void as they are not large enough to attract funding or too small to be considered a viable opportunity.

Although Ghana regards all the support options as important, the country needs investment in capacity building (including business acumen) and networking. This is closely followed by the need for micro-financing as this form of access to financing has been reduced drastically due to policy restructuring.

2.2 Southern Region



Participating countries

The Southern region roundtable was held on the 21 st of September 2020 with participants representing the following countries:

- Zambia,
- Botswana,
- Namibia, and
- South Africa.

Ecosystem

South Africa has numerous hubs with the one represented in the roundtable assisting and supporting 147 entrepreneurs over the last 2 years focussing on Web and app development and a women's program with 12 women owned ventures. The key value for them is their real involvement and interest in the entrepreneurs business as opposed to some corporate programs, which they feel act mainly as a marketing campaign for the corporate stakeholders involved.

The recognition of the importance of innovation spaces has only recently come to the forefront and that is regarded as some improvement. The South African National innovation system is however still unorganised and uncoordinated resulting in a fairly broken system in which roles are unclear.

In order to fix this, the stakeholders must stop serving their individual interests and consider the bigger picture where the entire ecosystem works collaboratively. Stakeholders also need to automate and finetune processes for example, hubs need to improve the efficiency of their succession planning while governments need to enhance processes to procure from startups and SMEs.

From an innovation policy/framework perspective there is much room for improvement. Some governments currently focus on engaging with select few hubs resulting in the uncoordinated and fragmented greater ecosystem.

From the entrepreneurial side it has been noted that there is generally a lack of commitment (and even sometimes a level of arrogance) amongst entrepreneurs. Ideas are often not fundable due to some foundational issues that are not addressed.

In Botswana there is only 1 innovation hub, which has delivered few successful and scaled solutions because of a lack of technology support structures and the absence of innovation policies.

At grassroots level they have developed a co-creative design process with MIT for grassroots entrepreneurs to help them build businesses to mainly sustain their livelihood. In doing so, they have developed 38 prototypes with 16 being ready for the market and another 6 in the process of IP trademarking. Their approach is that they are open to donors (even those with a marketing drive) as long as they can ensure that the money is spent with the entrepreneurs whilst balancing it with the goals of the donors. This can be challenging where goals, expectations and success markers differ between donors and the grassroot entrepreneurs.

Some examples of the grassroots innovations include:

- Popcorn machines that allow them to produce in their area as opposed to having to travel to another area to access.
- A manually powered photocopying machine.
- Watering solution that enables drip irrigation for gardens.

Some of the challenges in Botswana include low internet access and restrictions to social bundles allowing access to Twitter, Facebook and other social platforms only. Further to this, the mobile payment space has seen low penetration levels .

There is a great need to develop an ecosystem for training and a need for funding for testing and scaling of ideas. It is also believed that such funding will provide a financial runway for solutions and allow for resilience of entrepreneurs and the ability to scale. Further to this, there is a need for cross border collaboration and networking as Africa lowers its borders to enable free movement and implementation of the continental free trade area.

On the issue of foreign investment into local ecosystems and entrepreneurs, it was highlighted that Africa is now part of a global village and needs to work with other countries to build its own system.

In Namibia , the innovation ecosystem is still fairly young but it gained some momentum in 2011 when some private sector players came on board. They now run programs that work with early stage ideas, crafting of business plans and support to grow, and research and development focussed on practical innovation research.

Furthermore, their mobile lab has built up a community of over 400-500 developers whilst they have also developed a SADC wide Edutech ecosystem and trained 36 entrepreneurs (of which 40% of attendees have gone on to set up companies).

Some of the challenges experienced include the fact that there have been no innovation policies and a general lack of understanding of innovation. However, a ministry of innovation was recently established which might assist in this. Further challenges include the fact that they are limited to international funding as there is a local lack of understanding when it comes to innovation and subsequently a lack of financial support. This landscape is however changing as some telecommunication companies are now starting to fund some technology ideas locally.

Namibia has also indicated the need for a proper incubation system that is further supported by science parks similar to what Finland used to transform their landscape.

Zambia started a new hub in 2011 that originally focused on where the tech people would meet but it did not resolve any real problems. It progressed to a space for tech developers that now solve problems. A number of hubs have been added with the majority located in the capital and some hubs focussing on specific demographic groups such as women.

Innovations resulted in SmartZambia which has enabled features such as paying tax through technology, voting online and some Edutech solutions. Edutech specifically has seen immense growth catalysed by the Covid-19 pandemic growing from 1,000 users to over 30,000 users.

The current ecosystem has a focus on Fintech and Edutech but still finds it difficult to attract women to the technical fields even though general innovation sees 80% women participation.

Zambia has a number of ecosystem challenges that includes a lack of fresh/new ideas, a lot of imitations and a lack of focus on startups post their launch stage. There has also been an overly focus on getting funding as opposed to developing manageable ideas and getting them tested. Many are romanticising starting a business but not willing to do the hard work. Ultimately the resilience of the business will be up to the entrepreneurs will to succeed.

Products

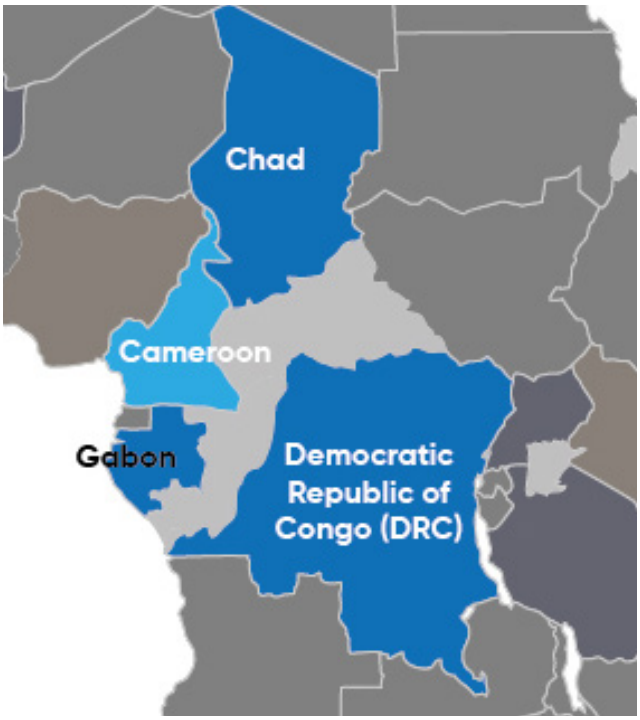
Considering open source software, it was indicated that Botswana uses such open data and repositories and found the APIs helpful in its ecosystem. Prototyping by means of open source software also proved to be very effective as it was key in taking the first step in testing your proof of concept and de-risking the solution.

Zambia has utilised such software solutions to help its developers to progress faster. One such developer developed a point of sale system, which later on secured some funding successfully. They acknowledge the importance of open source software and also try to contribute to it.

Support

Access to mentors seemed to be key across the region with Zambia, Namibia and Botswana scoring it as a main support need. Further to this, South Africa indicated the need for technical skills (and access to talent in general) and access to markets as key needs. Zambia also highlighted the need for skills (only second to the need for mentors) whilst both Namibia and Botswana placed a large emphasis on access to markets. Access to tools seemed to be a low need across the region.

2.3 Central Region



Participating countries

The Central region roundtable was held on the 25th of September 2020 with participants representing the following countries:

- Cameroon,
- Gabon,
- Democratic Republic of Congo (DRC), and
- Chad.

Ecosystem

Cameroon has one of the more advanced ecosystems in the region. There have been some big engagements with public sponsors and donations in excess of 80,000 USD. They also run around 75 to 80 women focused programs in the country. There is currently no innovation policy in place in Cameroon.

Gabon's ecosystem is still in a very early stage having only really taken off around 4-months1 ago with a limited number of female participants (as low as 5% of participants are women). There is currently no innovation policy in place in Gabon.

Chad has a slightly bigger ecosystem than Gabon and a community of close to 2,000 participants. Again there is currently no innovation policy in place.

The Democratic Republic of Congo (DRC) has a number of key actors in their ecosystem which includes 10 Hubs (with 6 located in Kinshasa reaching close to 2,000 people) and some in the south of the country (with close to 300 innovators per year). The DRC ecosystem attracts more than USD 1million per year.

DRC has recently sent through their innovation proposal to parliament and received big support form a political party. Even though there is still a lack of understanding of the tech industry, they have been making progress. The current need is for a policy framework to support the innovators and protect them from larger players in the market.

There is a big trust gap when it comes to governments involvement across the region and it is found to be very time consuming to the point of being unsustainable to involve them.

Products

DRC has delivered some key products in the EduTech space with a current product (SchoolLab) reaching more than 15,000 kids with learning content. This has been backed by the presidency in DRC. The main challenge around scaling the product further is the large dependence on the telecommunication infrastructure.

None of the other countries mentioned any really key products in their ecosystem however it was mentioned that across the region, the key challenges that innovators are looking at is the digital transformation of public services as there is currently little to no access to digital services in this space.

As far as building resilient tools and the adoption of customer centric design is concerned it became evident that Cameroon and the DRC have made some progress indicating that the specific success depends on the maturity of the ecosystem. It was indicated that there are currently gaps in communication between incubators and global ecosystems that reduced the impact of some of the efforts both ways. The design thinking methodology has been adopted in parts of the region but they are yet to find evidence of success and sustainability once adopted.

There have been some signs of good potential in DRC whilst Chad and Gabon have not yet adopted these methodologies.

Considering open source software, the region indicated that it uses the software to cut on its costs for transitioning from stage 1 to stage 2 innovations. They do not contribute much to open source as the innovators cannot find ways to monetise such contributions.

Support

The region indicated that their priorities around support would be access to finance, access to tools and exposure to opportunities.

Mentorships and technical skills were not seen as a priority as these were available online/digitally.

2.4 Eastern Region

Participating countries

The Eastern region roundtable was held on the 30 th of September 2020 with participants representing the following countries:

- Uganda,
- Tanzania,
- Rwanda, and
- Kenya.

Ecosystem

The Tanzanian ecosystem has been evolving since its inception with 2 Hubs to now having more than 40 hubs in the country. They have been doing well in a number of key areas including their

successful involvement of academic institutions with many starting their own hubs over the last couple of years. The ecosystem has generally also been successful in collaborating well and coming up with new innovations as well as the formation of strategic partnerships. There are also a number of events and marketplaces running.

Some of the challenges in Tanzania would be the limited access to seed financing and the raising of funding as there is no real investment landscape. Further to this, there is a lack of understanding of start-ups amongst the government and hence there is no clear exit path for investors, resulting in uncertainty and thus less interested investors. There is also a need for better data on start-ups.

Despite these challenges, Tanzania has seen more start-ups being sold successfully with a recent example of a business sold for around USD 25million.

In Kenya there has been similar growth with a lot of stakeholders now coming together to contribute to the ecosystem. Since the formalisation of Hubs in 2009, more than 70 hubs have been added to the ecosystem together with more than 100 other enablers all assisting with entrepreneur development and support. There are also a number of associations in place, all contributing to the success of the ecosystem.

Kenya is unique in that it is a regional hub for business with many people from different nations travelling through Nairobi daily and a lot of multinational businesses running their headquarters in Kenya. This has contributed to globalisation and a strong innovation presence as the multi-nationals act as a catalyst for new ideas. The environment also allows for excellent exploration and collaboration.

Considering the legislative environment, Kenya is at the forefront with a start-up bill recently being read in the Senate (on 29 September 2020), as well as the provision of a de-risking fund for start-ups. There is however a lot of room for further improvement in policies and greater levels of engagement with government.

One challenge that does however still remain is the lack of investment instruments to enable local funding. Yet, in the absence of this, the Kenyan government took out a loan from the World Bank to invest into the local ecosystem showing its deliberate intent to grow the landscape. They have also been setting up a national innovation agency whilst the ecosystem has also seen similar investments from international incubators and accelerators who are also setting up operations in Kenya.

Rwanda has a far younger ecosystem, which was only established in 2012. It has however seen some growth in maturity as it has evolved from mainly duplicating other examples towards now starting to really innovate. They have also established a couple of hubs with a number of academic institutions also considering opening their own hubs. There is also a current drive to train hub managers as the need for such skills is growing.

The Rwanda government has also renamed a ministry to the Ministry of ICT and Innovation, which is a strong indication of their intent to drive innovation in the country. They are also currently working on a start-up act to further support the ecosystem. To date, the main support

came from the private sector and there has been a strong drive towards innovation in the private sector with even a number of NGOs running their own innovation departments.

Funding has remained difficult to access and it is believed that some incentives are required to attract investors to the ecosystem. It is especially at the early stage of innovation (ideation phase) that a lot of support is needed.

Similarly in Uganda there has been some growth over the last 3 years with a number of new hubs opening up. The formulation of Start-up Uganda was a strong step in the right direction that led to some of the growth experienced.

Currently there are not many policies in place but some good, provoking discussions have been taking place. This is further backed by a big push from Mastercard Uganda and the fact that a number of stakeholders are starting to recognise successes in the ecosystem. The government also took a big leap in formulating and launching an initiative for funding and local innovation support.

Products

Tanzania has acknowledged the importance of open source solutions, especially where equipping African youth with skills. Further focus is also placed on Artificial Intelligence as a key skill for the future.

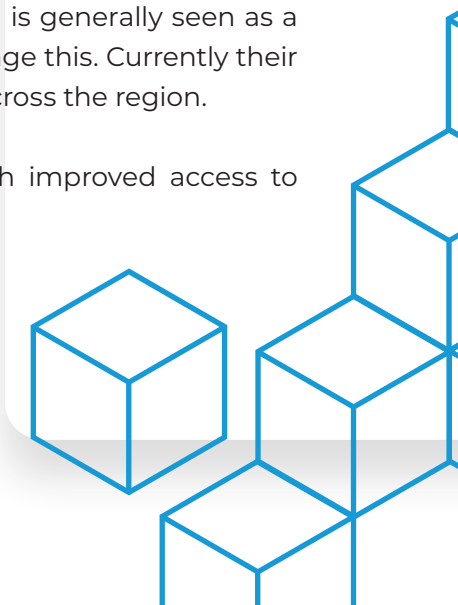
Rwanda has not adopted the use of open source to the same level as Tanzania and a lot of training is required to up skill people on the use thereof. There is also some fear of data protection when it comes to open source solutions.

Support

In Tanzania there has been a lack of digital skills and it has been noted as a key challenge that requires attention. Furthermore there is a great need for improved policies and frameworks for innovation.

In Rwanda people would rather invest in land than in innovation (which is generally seen as a riskier investment) and a lot of support and education is required to change this. Currently their greatest need would however be for access to markets and customers across the region.

Uganda indicated that capacity building, resourcing and funding (with improved access to innovation networks) were some of their main support needs.



3. Key insights derived from roundtables

Following the four highly insightful roundtable discussions, the following key insights were derived.

3.1 Ecosystem

The African ecosystem is one that is highly fragmented with different levels of maturity across the regions and participating countries. There is a significant difference between the larger, more structured ecosystems such as Kenya, Ghana and South Africa and some of the smaller systems such as Sierra Leone, Gambia and Namibia.

However, across these ecosystems a number of uniform challenges came to light:

1. Policy needs

Across the continent there is a lack of innovation policies and frameworks to encourage entrepreneurship and innovation, protect the participants and attract investment. This was prevalent across all the regions and even though some countries have started the process, far more needs to be done.

It was mentioned that the time has come for the private sector and corporates to get (more) involved in the formulation of policies and the drive towards enabling the ecosystem through governance. African governments are bogged down by many challenges resulting in a cumbersome process, which does not currently prioritise innovation policies (with the exception of a select few countries). A coordinated effort from the private sector is required to lead/guide governments in this. Involvement of the private sector will make it more likely that startup voices are amplified and considered.

2. Lack of connectivity (and digital fluency in general)

Access to the internet is fairly low across the majority of the continent which further excludes innovators, entrepreneurs and the general public from the connected world. In order to advance at a rapid pace, greater connectivity (coupled with an increased awareness of the digital space) is required in all regions.

3. Lack of access to finance

The African ecosystem has been deprived of funding and access to finance (compared to the developed world) and much more needs to be done to enable innovation, prototyping and testing through greater access to funds. This is further hampered by the lack of policies around investors and the uncertainties around how an investor can exit from a venture.

4. National silos

There is a growing need for African countries to open up their networks and opportunities to one another. The individual ecosystems are longing to learn from each other and to provide their innovators and entrepreneurs with access to other markets and regions. This can be kicked-off with focussing on regional collaboration to be evolved into a African wide collaboration.

As mentioned during one of the discussions: “Africa needs to buy from Africa” (especially mentioned by both Gambia and Ghana) and in doing so, grow the regions and the continent.

Leading Products in 2020

1. Product Category A here
2. Product Category B here
3. Product Category C here
4. Product Category D here

3.2 Products

The most recent notable advancement in products came about as a response to the Covid-19 challenges and resulted in innovations in two main areas being:

- Supply chain/home deliveries mainly around improved deliveries for online or telephonically purchased goods, and
- Edutech mainly in expanding some existing online learning systems to a greater community of school children.

In both these areas, connectivity and access to affordable data has been the stumbling block resulting in sub-optimal growth and expansion.

Africa has also started using some open source software especially for prototyping and proof of concept testing but for the majority of the continent, developers have not been contributing much to open software. This comes as a result of an inability to monetize such efforts and a fear of data breaches. This can be overcome by more training and educating of users in Africa.

3.3 Support

In order to ensure a resilient African ecosystem, some vitally needed support is required. These include the following main needs:

1. Access to funding and affordable finance
2. Access to markets and customers across the continent
3. Access to mentorship

3.4 Recommendations / Way forward

In order for the Afrilabs/Mozilla partnership to have the greatest impact on the African innovation ecosystem, the following is proposed:

1. Coordination of, and guidance on policy development

African governments are slow to develop and/or adopt policies that will:

- Protect entrepreneurs and innovators (especially start-ups)
- Grow the ecosystem
- Attract investments to start-ups.

Mozilla can assist these efforts by involving some of the multinationals that they interact with regularly but also to assist in accelerating and contributing to drafting of policies that can be further refined for each country. Further to this, Mozilla can also use their goodwill to drive the process at governmental level and to foster opportunities for innovators to interact directly with policy makers. It is noted that Mozilla has supported the work of i4policy which is an AfriLabs partner and lawyers Hub which is an AfriLabs member. A deliberate tripartite or quadripartite partnership may help accelerate the policy making process across the continent.

2. One Africa (Establishment of cross country and cross regional forums/discussions and markets)

Here the first step would be to continue the discussions that started at the roundtable sessions. African innovators rarely get together to share information in such forums and all attendees found it refreshing and valuable.

There is an opportunity for Mozilla and AfriLabs to co-curate sessions that bring different innovators together for conversations relevant to both partners. The next steps would be:

- To add more countries to the different regional discussions
- To structure discussions around specific themes
- To ensure that decisions are made and implementation of regional solutions can commence (and in doing so, move beyond discussions towards action)
- Regional startup policy framework discussions

3. Assistance in the drive towards digital literacy and access to affordable internet

Education and awareness is key to understanding the digital world that we live in. It is therefore vital that we prioritise digital literacy for Africa's innovators and product users. In doing so, it will enable the continent to come up with improved, scalable, digital solutions whilst also opening up opportunities to export some solutions to the world.

This educational drive would however need access to digital connectivity and tools which will require some innovative thinking to get in place.

Further to this, educating the ecosystems on the power and benefits of open source software and building resilient solutions with customer-centric methodologies would further strengthen the innovation and entrepreneurial efforts.

There is an opportunity for Mozilla to leverage the AfriLabs network to amplify the work it is doing with the Africa Telecommunications Union. There is also an opportunity to co-curate curriculums for digital literacy, safe internet use and cyber security training to be added to the AfriLabs capacity building program for hubs and entrepreneurs.

4. Access to international mentorship

Africa has the potential to be the next big growth area but requires some assistance to achieve this. While Africans must take the lead on building Africa, it is important that the continent's ecosystem gains access to the international network of experts/mentors. These mentors would bring valuable insights into the ecosystem leaving African innovators and entrepreneurs to utilise such knowledge to build a truly African version of innovation.

There is an opportunity for Mozilla team members and other innovators across the globe to join hub mentorship networks across the African continent. This would improve entrepreneurs business acumen and support internationalisation of products and services.

5. Early stage funding: Innovators across the continent are in desperate need of early stage funding to support product development and testing.

There is an opportunity for Mozilla to support early stage product development and amplify the call for more investors to support innovations early on to ensure that more market relevant innovations see the light of day. Mozilla could also plug into Catalyst, which is an African Business Angel Network and AfriLabs partnership that aims to increase the pool of capital available to promising African growth-stage entrepreneurs, as well as support the startup ecosystem including hubs and angel network. Catalyst operates as a co-investment fund that will match investments from qualifying angel investors into African growth-stage companies. This initiative is supported by the French Development Agency.

4. Conclusion

An African proverb says:

"If you want to go quickly, go alone. If you want to go far, go together."

Africa has not been able to go quickly and has fallen behind on innovation and entrepreneurship (compared to some western countries). Although the continent is making good progress, it is only in its quest to work together (across regions as One Africa) that it will be able to create a sustainable ecosystem. This will require far greater collaboration and improved policies to enable sustainability. The Afrilabs/ Mozilla partnership has a key role to play in ensuring that Africa will rise as an innovation giant.

African Innovation Ecosystem Roundtables