



AFRICA INNOVATION SUMMIT

Addressing Africa's Challenges



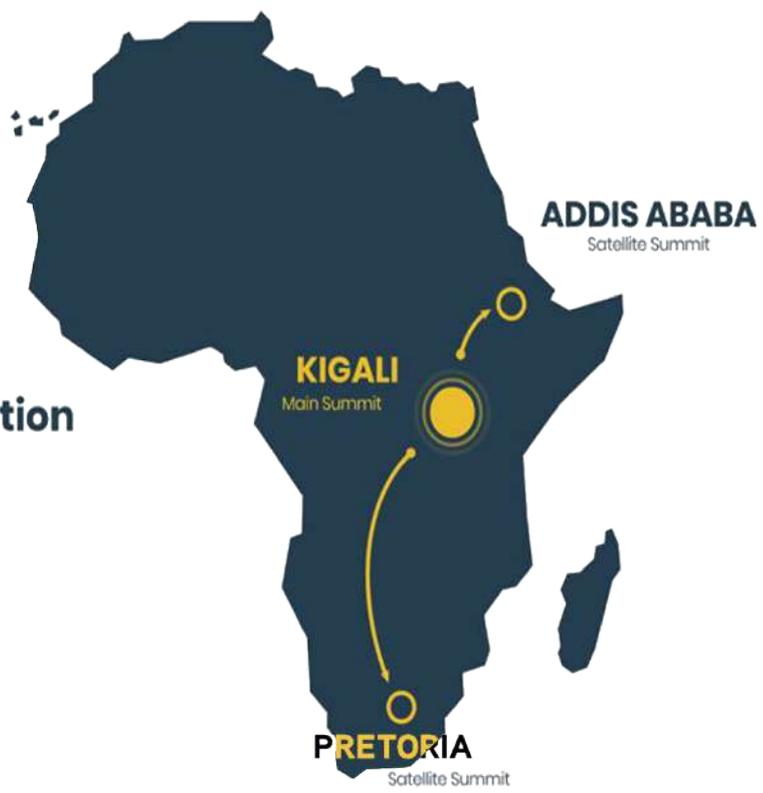
6 - 8 June 2018

Kigali Convention Center

Rwanda



Africa Innovation Summit 2018



PARTNERS & SPONSORS



Africa Innovation Summit 2018

Kigali Convention Center
Rwanda
June 6 - 8, 2018

Summit



Over 3.500 registrations
Over 2.000 participants



76 countries



11 International
Organizations



21 Universities

Media



AIS Social Media Campaign reach
2.683 Facebook followers
#AIS2018 reached 2.5 million people through 500 posts



608 online news platforms covered
AIS Top 50 Announcement,
generating 3.7 million views



AIS 'call for applications' press
release generated 6.8 million views



Live data from over 600 applicants
on State of Innovation in their
countries and their challenges

Innovations Track



+150 referral partners engaged
across the continent and abroad



607 applications from 49 countries
(5 non-African countries)



Top sectors: Agriculture, healthcare
and energy



Most submissions: Kenya, Nigeria,
South Africa, Uganda and Ghana
Over 360 innovations idea stage submitted
Over 120 innovations ready to commercialise
submitted
Over 110 innovations and ready to scale
submitted



Esteemed judging panel of 46
expert evaluators from across
continent, all leading specialists in
their respective industries

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MESSAGE FROM THE DIRECTORS

The AIS has grown to become what it is now because of the engagement of many people since the beginning. People that have given their time generously to make the AIS a success.

First, we would like to thank our Patrons, His Excellency President Paul Kagame of Rwanda and His Excellency, former President Pedro Pires of Cabo Verde and the 2011 Ibrahim Laureate. Their support has been invaluable since the beginning. We also like to thank the Government of Rwanda and the Government of Cabo Verde for their strategic support for the AIS.

Second, the AIS will not be possible without the generous support of our partners and sponsors. Our partners and sponsors included the Rwanda Development Board, Rwanda Convention Bureau, European Union Commission, the NEPAD Agency of the Africa Union, The Government of Luxembourg, The Rockefeller Foundation, The Development Bank of Southern Africa, the African Development Bank, Afreximbank, SIDA, YAS!, Usawa, BADEA, PATH, International IDEA, La Francophonie, UNESCO, OpenAir, Smart Africa, Ethiopian Airlines, Turkish Airlines, APO Group, AfricaLics and Enterpriseroom.

Third, we would like to thank the members of our Advisory Council for their support in the organization of the AIS, and they are Cristina Duarte, Geraldine Joslyn Fraser, Vera Songwe, Donald Kaberuka, Carlos Lopes, Hamadoun Toure, Obiageli Ezekwesili, Bernedict Oramah, Paul Fokam, Samba Bathily, William Asiko, and Zenaib Badawi. Fourth, we also would like thank our Scientific Council for their role in the knowledge work, including the review of submitted abstracts and papers. The members include Geci Karuri-Sebina, Erika Kraemer-Mbula, Jeff Yu-Jen Chen, Peggy Oti-Boateng, Joao Resende-Santos, Alexandre O. Vera-Cruz, Oluseye Jegede, Mwangi wa Githinji, Abdelkader Djeflat, Irie Vroh-Bi, Mammo Muchie, Diran Soumonni and Ann Kingiri.

Fifth, we will like to thank all the speakers and facilitators. Without your inputs, the Summit will not be what it was. A big thank you even though we are unable to list the names of all the speakers and facilitators here given the number. Sixth, we would like to thank our 50 innovators that showcased their innovations and actively participated in the various programs of the Summit. They brought youth, energy and eagerness to help transform the continent, and they showed us what the future could be. We also thank the many volunteers that worked tirelessly during the summit supporting the innovators and the organization of the summit.

Last but not the least, we will like to acknowledge and thank our small but highly dedicated team for the AIS 2018. We owe each of the team members a big thank you. The team included: Emily Macauley, Communication Advisor; Geci Karuri-Sebina, Advisor and Regional Coordinator Mahugnon Serge Djohy, Assistant Manager; Joseph Mutaboba, AIS Representative in Rwanda; Aidan Eyakuze, Advisor, Tracey Webster, Exhibition Track Manager, Samantha Braithwaite, Co-Track Manager and Keila Pereira, Assistant. We also would like to thank the Africa Communications Group for their work in helping to spread the AIS message.

In closing, we are grateful to all for joining us in this endeavor. The participants deserve a special mention because without them there will be no Summit. The AIS is becoming a continental movement because of you. Join us as we plan the future of the AIS. Our goal is to mobilize all Africans to build a coalition for change and a constituency to drive innovation in Africa.

This is only the beginning. All are welcome to join the AIS endeavor!

Olugbenga Adesida, PhD
José Brito

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1. INTRODUCTION

The Africa Innovation Summit (AIS) II took place in Kigali, Rwanda from 6 to 8 June 2018. The second AIS was held in collaboration with the Government of Rwanda under the esteemed patronage of His Excellences President Paul Kagame and Pedro Pires (former President of Cabo Verde and 2011 Mo Ibrahim Prize Laureate). Additionally, AIS II had the support of many partners as well as stakeholders across the continent.

The AIS is an innovation system in action. It serves as a multi-stakeholder platform for dialogue and a catalyst for building robust innovation ecosystems in Africa. The AIS II is focused on innovation as a tool to address Africa's pressing challenges such as poverty, health, food security, climate change and governance. The intention is to provide a platform for dialogue for all stakeholders, while also aiming to serve as a catalyst for the emergence of coalitions focused on creatively addressing the pressing challenges facing African countries.

Addressing the pressing challenges facing the continent will not happen through a laissez-faire agenda. The AIS aims to serve as a catalyst and a convening platform to mobilize the people with the 'power to act', those with financing, the people with ideas as well as doers, innovators, entrepreneurs, and academics into coalitions for collective actions to address the challenges hindering innovation on the continent. The goal is to mobilize as many people as possible and to begin to build constituencies with the various stakeholders in support of innovation in Africa. Innovation is crucial to addressing the various challenges facing the continent, and it is also key to Africa's socioeconomic development and transformation.

This document presents the report on the AIS II. The next section starts the main report with a synopsis of the Summit providing overview information on AIS II. The synopsis includes a presentation of the AIS II, with emphasis on the focus, the agenda, the key partners and the main highlights of the AIS 2018. Section 3 reports on the innovation track while Section 4 presents the insights and recommendations of the AIS II. Section 5 reflects on the future directions of the AIS.

2. AFRICA INNOVATION SUMMIT 2018

The AIS II focused on one critical challenge: "how can Africa innovate its way out of the myriad of developmental challenges facing the continent." The theme for the AIS II emanates from the realization that there is a need for a sense of urgency and innovation in order to address the numerous constraints and key development challenges facing the continent, including energy access, water, food insecurity, health epidemics and climate change. It is not that innovation is not taking place in Africa; Africa is innovating. The challenge, however, is the environment which is not quite conducive or enabling for innovations to scale on the continent.

The AIS II aimed to identify path-breaking ideas and disruptive solutions to be developed and scaled up in Africa to address the fundamental challenges facing the continent. AIS II also sought to build the coalitions to work on these issues. The AIS II also aimed to influence policymaking by engaging policy and decision makers to seek more innovative approaches to

addressing the development challenges facing the continent. A key aim therefore is to work towards ensuring innovation friendly policy environment.

The Agenda

The AIS II encompasses the main Summit (as well as the satellite summits in Ethiopia and South Africa), the AIS Innovation Track as well as partner side events. The Summit brought together various stakeholders over a three-day period in plenary sessions and breakout workshops. The first day focused on two critical issues: the challenges and opportunities of innovation in Africa, and building a resilient and competitive economy. Each of these major themes were the basis of dialogue in plenaries. Six simultaneous workshops were organized after each plenary session to deepen the dialogue and further explore the issues. The second day focused on two major themes. The first theme was used to explore 21st century African cities. The second was on two critical challenges for innovation in Africa: financing and scaling innovation. These themes were explored in plenaries that were followed by parallel workshops to expand and deepen the discussions started in the plenary sessions. The third day of the Summit focused on the theme of institutions and systems that drive innovation.

Partner Events

Quite a few partner side events were organized during the AIS in 2018. Among the institutions organizing side events were the NEPAD Agency of the African Union, The European Union Commission, the African Development Bank, the United Nations Development Programme, AfricaLics, IDEA and OIF.

The side events began on the eve of the Summit with:

- Innovation and Electoral Democracy in Africa by IDEA and OIF,
- NEPAD Agency's AOSTI and APET meetings, and
- AfricaLics' meetings on the 4th Industrial Revolution and Automation Technologies in the Context of Africa's Development, and
- Gender and African Innovation Systems.

On day one,

- the EU-AFRICA Partnership workshop on creating opportunities for innovation cooperation between Africa and Europe was organized, as well as the
- AfDB special event entitled Africa's Digital Revolution: The Future Is Now.

The partner events on the second day included:

- an all-day workshop by the EU Commission on funding opportunities for cooperation between Africa and Europe through Horizon 2020 program, as well as
- the AfricaLics Outreach Event on Enhancing Research Capacity on Innovation and Development in Africa.

Two partner events were held on the last day and they included:

- a workshop on Intellectual Property and Open African Innovation organized by OpenAir, and
- a UNDP briefing on its YAS! platform.

Partners

The AIS II was a collective effort bringing together many partners, including institutions and individuals. The success of AIS II was due in large part to the various stakeholders that provided support for the organization. The first group were the Patrons, His Excellences President Kagame and former President Pedro Pires. Also on the team of the AIS were the Advisory Council members that played critical role in mobilizing support for the Summit. The Scientific Council members also played a critical and supportive role in the programming of the Summit, review of the contributions as well as well production of the knowledge outputs of the AIS II.

The Summit had the support of the Governments of Rwanda and that of Cape Verde, as strategic partners. The two governments played a critical role in mobilizing support for the Summit. Other strategic partners and sponsors included the Rwanda Development Board, Rwanda Convention Bureau, European Union Commission, the NEPAD Agency of the Africa Union, The Government of Luxembourg, The Rockefeller Foundation, The Development Bank of Southern Africa, the African Development Bank, Afreximbank, SIDA, YAS!, Usawa, BADEA, PATH, International IDEA, La Francophonie, UNESCO, OpenAir, Smart Africa, Ethiopian Airlines, Turkish Airlines, APO Group, AfricaLics, EnterpriseRoom and Africa Communications Group.

Highlights

The AIS aims to bring together Africa innovation ecosystem actors in support of socioeconomic development and structural transformation. It is progressively emerging as the Pan-African forum for promoting the scaling up of disruptive innovative solutions for Africa's transformation. The AIS II in Kigali, Rwanda continued to build on what was achieved in AIS I in Praia, Cabo Verde. The AIS II strengthened the Pan-African network; it brought together more policy makers and activists pushing for change; it created space and opportunities for innovators, policy makers and investors to build alliances that will contribute to driving innovation on the continent, as well as facilitate exchange and sharing of experiences among stakeholders across the continent.

Satellite Summits

The AIS II Summit included the main Summit in Kigali, Rwanda as well as two Satellite Summits in Addis Ababa, Ethiopia and in Pretoria, South Africa. Partners for the Satellite Summits included the South Africa's Department of Science and Technology (DST) as well as Ethiopia's Ministry of Science and Technology and the Biotechnology Institute. The Satellite Summit in Addis Ababa also had support from United Nations Economic Commission for Africa (UNECA). The Satellite Summits were able to join the main Summit in Kigali during the plenary sessions, while they organized breakout sessions which are focused on regional concerns. DST in South Africa had participants from the SADCC region in its Satellite Summit, while in Ethiopia attendees included international expatriates based in Addis Ababa. As part of the Summit, DST organized an innovation competition and selected top ten innovators to showcase their innovations during the summit in Pretoria. These innovators are getting support to scale up.

Attendance

AIS II had 15 sponsor/partners. Registrations were over 3600 from 76 countries. Delegates attending the Summit in Kigali were about 2000, which was the result of an active reduction of overall registrations for local governance reasons. The Satellite Summits in Addis Ababa and Pretoria were also well attended. All countries on the mainland Africa were represented as well as Mauritius and Cabo Verde. All the plenary sessions of the main Summit as well as some workshops were streamed live for anyone, anywhere to follow the proceedings. Engagement was wide and far. Key parts of the Satellite Summits were also streamed live to allow non-attendees to follow the dialogues.

Content and papers

AIS II also engaged academics and researchers from the continent as well as elsewhere. Researchers, practitioners and professionals across the region were encouraged to submit proposals for papers on a topic of their choice relating to the use of innovation to address sectoral issues such as Water-Energy-Food nexus, Health, Education, as well as innovative solutions related to transversal issues: including Policy, Financing, Infrastructure Inclusion, Governance, Environmental Sustainability, and Climate Change. The guiding principles for prospective authors were call to action and futures-perspective. That is, authors were charged with producing papers that provides a clear intent to concretely inform policy/ action and/or to creatively think ahead about responses to future threats, transitions and possibilities for our continent. Over 122 scientific papers submitted and peer reviewed. About 42 selected authors were invited to the Summit and about half also received speaking slots. AIS is currently working with the authors to turn their papers into journal articles which is to be published in a special issue of the African Journal of Science, Technology, Innovation and Development.

Innovation Case Studies

Another set of outputs from the AIS II is a series of case studies which will be published in the second edited volume of Innovation Africa. The second volume of "Innovation Africa" will examine how innovation systems are serving to address the most basic conditions of socio-economic and institutional development required on the continent. The book will develop learning case studies to examine various sectoral exemplars and transversal dimensions which could help inform insights about how policymakers and practitioners might develop more effective and impactful innovation-driven strategies, ecosystems and enterprises.

3. THE INNOVATION TRACK

A key aspect of the vision of the AIS is helping to identify, nurture and facilitate the scaling up of disruptive innovations or solutions to the challenges facing African countries. AIS II targeted home grown innovative solutions in areas such as agriculture, water and sanitation, energy, health care and governance. Innovators were invited to make submissions; Submissions could be at the Idea stage, Minimal Viable Product (MVP) ready to commercialize and Ready to Scale Stage. In total 50 innovative solutions were selected to be showcased at AIS II in Kigali and their promoters received the following benefits:

- Sponsored flight and accommodation costs for participation in AIS 2018
- Profiled alongside the global AIS brand and with media exposure
- Access to leading thought leaders, policy makers, investors and academics relevant to their solution
- Opportunity to have innovations represented in the main event plenary sessions to address key areas of influence in order to drive innovation
- Ongoing access to the AIS high-level community of leaders that are driving a practical and real innovation agenda for Africa.

The innovation track process was designed to be cost effective, fair and objective. An online platform was designed and implemented for specially for the competition. The process included multiple reviews, so it would enable the utilization of multi sectoral expertise across the continent. The process was undertaken in 4 stages: planning and collateral design; promoting and sourcing; assessment & selection; notification and logistics. An online platform was implemented for the submission process.

Criteria for selection

This AIS Exhibition opportunity was open to solutions that were:

- African-based and operating from one or more African countries
- Founded and managed by African nationals
- Either for profit, non-profit or hybrid entities (i.e. social enterprises)
- Solving one or more challenges that directly affect Africa in the following sectors (and/or any related value chains):
 - › Food security and agriculture (SDG 2)
 - › Energy (SDG 7)
 - › Water and Sanitation (SDG 6)
 - › Healthcare (SDG 3) and
 - › Governance
- Scalable, i.e. a solution that has the capability and potential to be enlarged and replicated to extend the reach of its mandate; as well as
- Innovative. i.e. a solution that addresses a challenge in a new and different way often through a simpler and more effective means.

In addition to the above, preference was given to solutions that were:

- Existing solutions that are ready to scale for greater impact and reach
- Established solutions or ideas proved to be a minimal viable product (MVP)
- Established solutions or ideas that demonstrated evidence of tracked impact
- Existing solutions that are registered in country i.e. business registration number or NGO certification
- Established solutions that demonstrated innovation – either in terms of actual product or service or delivery model (i.e. broad-base market reach).

Sourcing the innovators

AIS relied extensively on a large network of referral institutions across Africa and abroad. The referral organizations included tech and start up hubs, incubators, accelerators, IT Labs, to

virtual networks and programmes such as Seedstars and Unleash Lab. In addition, AIS used its website, network and the network of partner institutions. Individuals were also targeted for their recommendations. Extensive desktop research exercise to identify specific innovators profiled in the media were also undertaken as well as promotion via press release which was widely distributed.

Over 150 referral partners engaged across the continent and abroad to refer innovators/innovative startups with disruptive ideas/technologies to address the basic challenges facing the continent in areas such as agriculture health, energy, governance and education. 607 applications from 49 countries (5 non-African countries) were received in just four weeks. Only 11 of the applications submitted were in French language. The top sectors represented by the applicants are agriculture, healthcare and energy, while most submissions were from Kenya, Nigeria, South Africa, Uganda and Ghana. Over 360 innovations submitted were in the idea stage; over 120 innovations ready to commercialize submitted, while over 110 innovations ready to scale innovations with active customer base were submitted. The selection process included an esteemed judging panel of 27 experts from across continent, all leading specialists in their respective industries and sectors, led the review and selection process. The evaluation process led to the selection of 50 startups to exhibit and showcase their innovations during the AIS in Kigali. Most of the top 50 Innovators came from East and West Africa regions, followed by Southern Africa. The top 50 was represented by 29 Scale Innovators and 21 MVP Innovators. The 50 winners were invited to participate in the Summit and to exhibit their innovations with all costs (travel, hotel, etc.) fully covered with funding provided by AIS partners/funders.

The innovators in the AIS

The exhibition was opened in the evening the day before the Summit started and stayed open for the duration of the Summit. The exhibition and innovators were integral part of the Summit. The innovators were integrated into the programs and many participated as speakers in the various plenaries and workshops. The integration of the innovators in the program gave the Summit a different perspective and allowed for real engagement on the challenges hindering the scaling of innovations in Africa. It also allowed the Summit to focus on the issues and to be anchored by the experiences of the young innovators working to transform the realities of African countries. Importantly, it allowed for engagement between policy makers, the private sector, academics and the innovators. The innovators were also showcased in the media; Some were interviewed on television while a few participated in press conferences. The AIS was able to shine a significant light on the innovators and their innovations. This has continued after the Summit.

Engagement with the innovators took front and center during the Summit. During the closing plenary of the Summit, the innovators were able to present their collective view of the key messages and challenges hindering innovation in Africa, as well as make recommendations on actions that should be taken. Below is the summary slide of the feedback and Call to Action from the innovators.

Table 1: Feedback from the Innovators

Key Messages	Key Challenges	Actions 2020
<p>Many definitions, assumptions and perceptions about innovation – what it is and what it is not.</p>	<ul style="list-style-type: none"> • Innovation must be inclusive - women, refugees, rural communities, accessible to all. • Innovation – do not confuse with entrepreneurship, SMEs. 	<p>Define Innovation - A clear definition of innovation and its impact will enable finance decisions, ecosystem definition and support.</p>
<p>Financing mechanisms required through innovation life stages.</p>	<ul style="list-style-type: none"> • Banks are risk averse • Lack of access to finance • Foreign exchange controls and currencies • Bureaucracy, banking regulations, • Corruption. 	<ul style="list-style-type: none"> • Clear definition of innovation, facilitates testing, scale definition and impact of solution - to enable funding decisions • Adjust risk appetite to facilitate innovation. De-risk by aggregating many innovations to provide end to end solution. • Utilise the security and facilities of blockchain • Single digital currency - UCoin (asset backed).
<p>Innovation needs business support, private sector and institutional participation.</p>	<ul style="list-style-type: none"> • Lack of mentorship - business strategy and planning • Access to market is constrained • Back office support (financial management, systems) not easily available • The formal private sector participation is limited • Need more decision makers to engage. 	<ul style="list-style-type: none"> • Establish supporting institutions • SME, entrepreneur, start up support • Mentorship and business support.

Drive African innovation ecosystem.	<ul style="list-style-type: none"> • Limited capacity to transform innovations into growing businesses • Limited capacity and Education • Cross border trade limited • Governments' support for innovation limited; little tangible evidence • Lack of effective supporting institutions. 	<ul style="list-style-type: none"> • Start Innovation Associations in each country - define opportunities, partnership, solutions, define the ecosystem • Promote innovation • Broker dialogue with Government to enable innovation • Government – hold them to account.
Technology to enable innovation.	<ul style="list-style-type: none"> • Challenges of Security & IP • Understanding blockchain • Access to Data limited • Lack of funding for research & development. 	<ul style="list-style-type: none"> • Exploit, develop security and facilities of blockchain.

The exciting news is that the innovators are building networks. Collaborations between and among the innovators began during the Summit and has continued. Many collaborative arrangements were initiated, and deals agreed among the innovators. To-date, over 30 such collaborative arrangements and deals have been made by the innovators among themselves. During the AIS, innovators also had the opportunity to interact with and discuss as well as received counsel from potential investors over the three days. While there was no formal pitching event during the Summit for investors, relationships were developed between the innovators and some potential investors.

The feedbacks of the innovators were quite positive on their experience at the AIS and it was clear that the innovators have taken on the challenge of transforming the continent. The experience also show that Africans are innovating and are actively engaged in seeking disruptive solutions to address the challenges facing African countries. Importantly, they are optimistic and committed to making a change on the continent:

"We are going conquer the world. This exposure we have gained here will help further our growth. I see this valuable network will lead to meaningful partnerships and it will help with scaling."

Bola Lawal, ScholarX, Nigeria.

"For me, there have been a number of learnings. There are alternate sources of finance [and] funders that know there is risk in start-up investment and they are still willing to invest. Funders such as Development Bank of Southern Africa."

James Makumbi, EpiTent, Uganda

"Innovation is not just about technology and IT. It is about solutions that meet the needs of the immediate community and even better when scalable across borders. Innovation requires strategic partnerships. Partnerships are not just about finance, but linkages to other resources that are key in scaling up."

Yvonne Otieno, Miyonga Fresh Greens, Kenya

The experience from the first and second innovation tracks of the AIS points to the need to further anchor the AIS on seeking and scaling disruptive solutions. Three new features will be introduced to the next AIS as a result of the experience with the innovation track. The first will be a series of learning and interactive sessions a day before the start of the Summit. The second will be an effort to help the innovators seek investment; this will include pitch event with specially invited venture capital and business angels. Third, a one on one counselling program to advise innovators on when and how to raise funds, manage their business and enter new markets will be arranged. The fourth activity will be an award of prizes that will be made based on a combination of factors, including best pitch, best innovation as voted by exhibition attendees, etc. The nature of the prizes or awards will be determined based on funds raised by AIS.

4. AIS 2018

Key Insights and Recommendations

The AIS 2018 provided a unique opportunity for focused dialogues on innovation and how Africans can innovate their way out of the perennial challenges facing the continent. The challenge is that despite the growth and the 'Africa Rising' scenario, Africa and Africans continue to face daunting challenges. The continent has become the face of global poverty, while on many metrics Africa has fallen farther behind, rather than catching up with the rest of the world. With Africa's development constrained by many factors, it is essential that governments put in place measures to support innovation to address the numerous constraints and development challenges facing the continent, including energy access, water, food insecurity, health epidemics, education, climate change, as well as governance. However, the challenge cannot be left up to the government alone. The private sector, academics, civil society and all other stakeholders must be engaged. AIS 2018 was designed and structured to facilitate dialogues on how to creatively overcome the challenges.

The dialogues during the AIS 2018 were organized in various forms, plenary sessions, workshops, innovation labs and futures lab. All included facilitators and panelists, except for the futures labs which had only one facilitator and were continuous visioning exercises. The innovation labs on the other hand included panelists and facilitators that were tasked to lead design exercises on specific challenges. They were structured to seek ways in which African countries can harness their innovation potential for socioeconomic transformation. The satellite events in Ethiopia and South Africa followed the same framework, with plenary sessions and workshops. While the satellite event in South Africa also included showcase by ten African innovators/start-ups (See Box 1 for an overview of the South Africa event and outcomes).

The main questions before Africans today are how to ensure structural transformation and sustainable development, while ending poverty. Achieving the overarching goals of ending poverty, ensuring sustainability, and facilitating structural transformation will require innovation. The good news is that Africa is innovating; what is needed is to build the ecosystem that will help drive the scaling up of innovations in African countries.

The importance of innovation for Africa: conclusions from Day 1

The first day of the Summit was devoted to the broader issues. The opening ceremony provided the opportunity to remind the participants about the mission of the AIS and why the gathering in Kigali. The participants were charged to “think Africa, by Africans, and for Africans.” It should be clear to all now that Africa’s transformation or development cannot be outsourced. It is incumbent on all Africans to engage and take part in the second liberation of the continent, with a focus on socioeconomic transformation. While the aid of friends and partners will be needed, the leadership must be internal and Africans must be the principal protagonists. This is the core of the AIS: **build a movement to address the grand challenges facing the continent by facilitating the emergence of an ecosystem that is more propitious for innovation in Africa.**

In addition to the opening ceremony, the first day included two plenary sessions. The plenary focused on “Innovation Africa: Challenges & Opportunities”, while the second explored “Africa’s Future: Building a Resilient and Competitive Economy”. Each plenary was followed by seven concurrent workshops to deepen the dialogue. They were also used to explore different aspects of the themes. The extensive dialogues in the two plenaries and fourteen workshops on first day led to some rich conclusions.

First, it was made clear by speakers as well as participants that Africa does have enormous **opportunities and great potential for innovation**, as well as for social transformation. The opportunities and potentials derive from the youthful population, its natural resources, traditional knowledge, and the creativity of the people. However, it was also made clear that the fast-growing youth population could be a double-edged sword.

Second, participants agreed that it is crucial for Africa, at the present stage of development, **to focus on promoting/building a culture of innovation**. Innovation, as said, must be at the center of the development process. The focus must be on knowledge creation through research, as well as knowledge acquisition via formal and informal education.

Third, Africans were charged not to be afraid of innovation and the continent should **not be afraid to imitate and to modify existing innovations**. Technological innovation is said to be agnostic, it can be both bad and good depending on how the innovation is used. It was also argued that imitation and modification are time honored aspects of innovation. It is part of building on what others have done and taking existing ideas in new directions. However, it goes without saying that in efforts to imitate or modify one has to take into considerations intellectual property rights.

Youth unemployment has emerged as one of Africa’s biggest challenges, requiring that the continent fully consider the impacts of innovations. In the context of rapidly growing population and high unemployment, technological innovation has the potential to further create large scale social imbalances, including deepening inequalities. Special attention will need to be placed on the potential of emerging fusion of technological innovations such as mechanization, artificial intelligence, machine learning, robotics and 3D printing. The potential combinations of these technological innovations and others will have transformative impact on the way we live, learn, work and socialize. The impacts on the economy and the distribution of wealth are unpredictable. What is certain is that many of the jobs today will no longer be available and

at the same time new professions will emerge. How will Africa participate in this emerging future? Will the continent be a producer, innovator, leader or will Africa remains a consumer and follower? Ensuring human capacity that is adequate to the times has become a critical issue. It is now crucial that African countries place more emphasis on human capital development. While building capacity and skills is crucial, it is also important to ensure that what the educational institution are producing are in alignment with the needs of the market.

The consensus that emerged from the dialogue is that African countries must engage strategically. The focus should not only be on the fear of how emerging innovations could lead to the end of many professions that exist today or create massive unemployment but on the opportunities that must be seized. Embracing technological innovations to seize opportunities is key to Africa's transformation. This will require, as noted earlier, building an innovation centric culture. However, African countries must learn to balance technological revolution and social development, while emphasizing technologies that are more humane and that are attuned to Africa's culture and indigenous knowledge systems. In short, it does not have to be either/or; technology as well as spiritual and indigenous African knowledge can go hand in hand. Both can evolve together. As an illustration, with technology one can build modern pharmaceutical industry using traditional knowledge of medicine and herbs. Asian examples such as Japan and South Korea are illustrative; they transformed their economies and became technological powerhouses, while remaining attuned to their cultures.

Fourth, Africans were advised to **take advantage of own resources** and exploit these as basis for participating in the global value chains. As an illustration, it was stated that Africa is a major supplier of many raw materials used to build sizeable share of global luxury products. Africa's resources have great value in the international market, and it has become urgent that the continent participate by increasing their value additions to raw materials before exports. There is a need for imaginative policies and incentives in the age of free trade to ensure that the continent begins to undertake more local beneficiation and participation in higher value chains. In addition, there will be a need for entrepreneurs that are willing and able to start small, grow while thinking internationally. Attention was also called to the importance of learning, networking and sharing in a way that firms can grow together to successfully compete in the local, regional and international markets.

Fifth, innovation in Africa must **focus on tackling or addressing the real needs of the people** and challenges facing the continent. It was made clear that innovation in Africa may not be innovation in the United States of America. The context as well as the needs of the people are widely different. It was therefore noted that innovation within the African context must first and foremost focus on addressing the needs of the people.

Sixth, participants reiterated the **importance of investing in human capital**; it was noted that human capital is the only way to achieve the aspirations of the continent, especially its Agenda 2063. Investing and reforming the education sector is seen as a top priority. The proposal is to undertake a reform that will include "the entire education architecture" in order to prepare the rapidly growing youth population for the future, not simply to participate in the job market but to be innovators, entrepreneurs and leaders. The reforms must place emphasis on access, quality and relevance.

Seventh, the need to **invest in and grow small businesses in Africa** was highlighted as key to

building a more competitive economy. The reality is that start ups with innovative ideas are emerging all around the continent; the challenge however is the lack of an ecosystem that is conducive or facilitating for scaling up and diffusing Africa innovations across the continent or to the rest of the world. The emergence of the Africa trade area is expected to play a role in the growth of African economies because it will remove trade barriers between Africans countries and facilitate trade. It is also expected that it will make it easier for innovations to cross national boundaries. The trade agreement could play a significant role. It is probably the most significant and practical instrument since the emergence of the African integration agenda with the founding of the Organization of African Unity (OAU) in 1963, which was later transformed into the Africa Union (AU). A key advantage of the free trade area is that it will allow Africans to better protect their market and jointly negotiate trade deals with other regions.

Eighth, the state is expected to play a crucial role. While it is agreed that the market is important, the state does have a critical role to play in building robust ecosystem for innovation in African countries. The examples of the developed world and newly industrialized countries have demonstrated the importance of the state in promoting innovation and facilitating transformation. The crucial fact is that all the stakeholders have critical roles to play and must be engaged. As outlined in the first AIS, innovation is simply too important to be left to engineers or scientists alone. Innovation needs to permeate the culture and requires all stakeholders from state, private sector, civil society, youth to academics to be engaged. Importantly, there is a need for the emergence of organized groups from the civil society and private sector to pressure the state and push for reforms in order to ensure innovative developmental states in Africa. This is crucial as the state cannot reform itself on its own.

Ninth, the question of time and the need for a sense of urgency permeated many of the discussions, with emphasis on **building a new economy that will work for all Africans**. The key is that 'Africans must rise to shape the future now.' It was noted that the current realities present unique opportunities for African countries to build a new economy. However, time is of the essence. Key guiding principles for the future should include collaboration, partnerships, sharing, long term, transparency, just/fair, participation, social resilience and sustainability. Building such a future economy with these attributes would require that Africans, their governments and institutions place emphasis on innovation and with the necessary supporting institutions to help drive, scale and diffuse innovation throughout the continent. There is a need to ensure the engagement of all and an emphasis on building human capital. Additionally, there is a need to elevate the African perspective and regional integration so as to bring about a united Africa to build one continental economy that works for all. Africans will have to take the leadership of the development process as well as play a more active role. Ceding leadership to partners will not work and Africans will have to invest in Africa. Illicit transfers will need to end while emphasis is placed on investing in Africa by Africans.

Tenth, while there is a need to look inward, ensure that Africa and Africans take the leadership of the development process, **there is room for collaboration with partners**. This is particularly crucial for partners with the will and the right instruments that African countries can take advantage of for their development. The key is that such instruments must offer Africans the opportunity to participate in global leading edge programs, while helping to upgrade capacity and capabilities within the continent for research and innovation. Additionally, such instruments must facilitate win-win partnerships and excellence. The European Union's (EU) Horizon 2020 was showcased as an opportunity for Africans to be part of world largest multinational

research and innovation program, which is sponsored by European Commission. The program aims to support innovation in EU countries and also those in cooperation with them. However, it is crucial that Africa participate in setting the agenda and that the research programs of the Horizon 2020 are also driven by the needs of the continent and not simply what is important for the EU.

Box 1. South Africa's AIS Satellite Event: A Summary Report

The Department of Science and Technology (DST) in collaboration with local partners hosted a satellite event of the Africa Innovation Summit (AIS) in Pretoria, South Africa, from 6 to 8 June 2018. The satellite event was an extension of the dialogues that took place at the main AIS Summit in Kigali, Rwanda, on the same dates. Stakeholders from the Southern Africa region participated in the satellite event which included plenary sessions, workshops and a showcase by innovators from various parts of the continent.

While the Summit in Kigali focused on how the continent can innovate to address its pressing developmental challenges, the DST's satellite event honed in on innovation in the southern African region. The focus was the **role of innovation as an enabler of industrialization**. The stakeholders were tasked to think innovation within a long term perspective, where today's emerging innovation transform future industries, the use of local resources to support local innovation, establishing strategic partnerships in order to increase the rate and scaling up of innovation, and the role that African youth and women can play.

The satellite event was also used to examine the Southern African Development Community's (SADC) Industrialisation Strategy and Roadmap. SADC seeks to engender economic and technological transformation at national and regional levels to enhance the competitive advantage of the region's economies in order to accelerate and sustain growth. Other topics that featured at the satellite event included the integration of trade and science, technology and innovation (STI) policies; STI parks for industrialisation; national and regional intellectual property structures; and the financing gap for innovation.

Technopreneurs, policy makers, private sector and civil society representatives, research and innovation managers, researchers, incubators, academics and technology transfer officers were among those that participated in the event. A key outcome of the satellite event was a declaratory report and position paper on issues of strategic importance that will inform key multilateral governance structures within the SADC region and the continent. The Southern African Development Community's (SADC) Industrialisation Strategy and Roadmap was discussed in this context. The strategy seeks to promote economic and technological transformation so as to enhance the competitiveness of the region's economies.

The three day satellite event made for a rich dialogue on the role of innovation in implementing the regional strategy and roadmap. The delegates made quite a few recommendations and some are briefly presented below.

First, empower women in technopreneurship in the agro processing sector. It was noted that women must be supported and empowered in the agro processing sector given their important role in the agricultural sector. They must be empowered to acquire the right skills-set required to run successful businesses.

Second, build techno parks to promote regional innovation. The crucial role of techno parks in promoting innovation is undeniable and the same applies for southern African region. The challenge is to create clusters comprising of academia, private sector and government to ensure that research results are turned into products, process and services. Virtual regional techno parks were also recommended as fit for Africa reality.

Third, promote green entrepreneurship and industrialization in southern Africa. Energy is both enabler and barrier for industrialization in SADC. There is a crucial need for regulatory reforms to ensure energy sector decentralization and increased participation, while also allowing households to produce energy to sell back to the national grid.

Fourth, promote the exploitation of intellectual property (IP). After exhaustive discussions on whether intellectual property protection is a barrier or enabler of innovation, the group agreed that IP is only useful if it is exploited. However, this will require highly skilled and trained populations to increase the absorptive capacity. It was noted that not everything is worth patenting and that African countries can focus more on exploiting IP rather than protecting IP.

Fifth, bridge the regional Innovation financing Gap. It was agreed that a critical gap in the innovation ecosystem in the region is funding. It is a challenge at the various stages of enterprise development, and it is particularly difficult for cross-border start-ups. It was noted that big firms can begin to incubate start-ups. Entrepreneurs were also encouraged to endeavor to be aware of instruments that are on offer to support start-ups and SMEs. It was recommended that the region must increase innovation funding instruments/mechanisms, as well as promoting of co-investment schemes between private sector and the public sector to allow for risk sharing and address the funding gaps.

Sixth, ensure synergy of trade and STI policies to facilitate industrialization and economic integration. Reference was made to the many policies and strategies that are meant to increase inter-Africa trade and harness STI to support innovation and industrialization. But the attempts and researches conducted are not translating into industry's increase capacity. There is a mismatch. It is important to start pushing localization and local procurements of goods instead of continuing the practice of exporting primary commodities and importing finished goods.

Seventh, promote innovation to address the challenges of the water, Energy and food Nexus. Innovation does not have to be necessarily high-tech it can also be social. It is also important to promote innovations from the grassroots and ensure that indigenous knowledge is a key part of the innovation process. The focus of innovation must be to address the challenges facing the people and in fact the challenges such as water energy and food nexus should be seen as opportunities for innovation.

Eighth, foster synergies between innovation and industrialization. It was agreed that SADC must become innovation leaders rather than innovation consumers. There will be a need to establish and fund innovation-supporting institutions able to facilitate industrialization. In addition, there is a need governments and other stakeholders to focus on reducing cost and barriers to innovations that can support industrializations. Regional collaboration and cross

border partnerships will be critical, as well as structured value chain in SADC. The key starting point must be beneficiation of the region's material wealth instead of merely exporting it to other continents. It was noted that the only way African countries can get more value for their mineral resources is by transforming them into high-value products.

Moreover, it was agreed that innovation is key to ensuring and sustaining the growth that is needed for socioeconomic transformation within the SADC region. In order to promote innovation and industrialisation within the region, the countries must address the huge policy deficits. There is a need to undertake policy reforms that will facilitate greater investment in research and development, ensure financing for innovative start-ups and creative entrepreneurs, and improve access to local and international markets by small to medium enterprises, and develop indicators that will ensure impact at every level of the innovation value chain. Training and capacity building was seen as necessary to create an enabling environment for innovation; the participants recommended that each country place emphasis on training a critical mass of knowledge entrepreneurs. In a way, there is a need to reengineer the educational system and to begin to look beyond the classroom in the countries in the region. The aim is to ensure that the educational system should begin to train entrepreneurs and not simply job seekers.

Source: Adapted from DST Report on the Satellite Event

Opportunities for and challenges for innovation in Africa: Conclusions from Day 2.

The second day of the summit explored an important opportunity for innovation in Africa: African Cities. It was also dedicated to a critical challenge that is hindering the scaling up of innovation in Africa: finance.

Building smart cities in Africa

During the first half of the day, participants were charged with exploring how Africa's urbanization can be made sense of and leveraged to present transformative opportunities for Africa's development, as well as to find practical ways to unlock some of the barriers that are preventing scaling of innovations in Africa.

As Africa's growth becomes more urban, how can the ways in which we urbanize be better leveraged through innovation to improve the prospects for increasing (rather than decreasing) our quality of life? In a world in which over half of the population now live in urban areas, improving the way we manage our cities and the way we deliver services to the urban population has become central to achieving sustainable development. Urban population is expected to rise to two-thirds of all humanity or 6.5 billion people by 2050. Sustainable development cannot be achieved without significantly transforming the way we build and manage our urban spaces.

The rapid growth of cities in the developing world, coupled with increasing rural to urban migration, has led to a boom in mega-cities. While there were ten mega-cities with 10 million inhabitants or more in 1990, the number had increased to 28 in 2014. National and municipal governments are struggling to accommodate the rising population and the concentration of

extreme poverty in urban areas. Additionally, the challenge of ensuring access to efficient public transportation, safe and affordable housing, green public spaces, as well as upgrading slum settlements and improving urban planning and management have become critical to making cities safe and sustainable.

Africa's population is growing and urbanizing rapidly. Demographers estimate that over half of the people added to the planet over the next three decades will be in Africa, and the majority will be in our primary and secondary urban centers. However, the majority of urban expansion in Africa has not been in planned areas; it has been sprawl, both informal (slums / informal settlements based on affordability) and suburban (based on cheaper land prices on urban peripheries).

The dialogue on cities in Africa focused on 21st Century African cities with the charge for participants to imagine a new African city free of the challenges and constraints of today. The debate in plenary was supplemented with five workshops focused on the challenges of meeting basic needs, smart urbanization, economic transformation, and transforming slums through innovation.

The association of urbanization with industrialization and prosperity has not played out quite the same way as it did in the 20th century urbanization in the industrialized countries. In fact, what is happening on the continent has sometimes been referred to as an “urbanization of poverty.” The consequences of the kind of unplanned-for urban growth that the continent has had raises significant challenges, including social conflict, crime, lack of access to health care, resource depletion and in general poor living conditions. Analyzing the challenges of uncontrolled growth of cities in Africa, the participants at the AIS made numerous recommendations. These are summarized below.

First, the solution to addressing the challenges of cities in Africa must **begin in the rural areas**. One of the main constraints of achieving smart cities is the massive migration of youth, mainly, from villages to the big cities because they are where the opportunities are concentrated, causing city congestion which causes many other problems. The loss of people from rural areas have impacts on outputs and development of rural areas. Other challenges created by urban migration include increased competition for limited jobs, as well as pressures on natural resources, amenities and services. The rise in slum areas in cities is also linked to increasing unhygienic conditions, crime and pollution. In order to reduce the level of migration from rural areas to big cities and reduce the pressure on cities, it is important to decentralize opportunities, invest in capacity building, infrastructure and social services, as well as facilitate economic activities in the rural areas.

Second, it is crucial to **engage all the actors**. The government, private sector and civil society all have critical roles to play in addressing the challenges of rapid urbanization and building the smart cities of the future. The government has to play a leading role in planning and organizing the stakeholders. The private sector must be part of the diversified funding solutions to the challenges facing African cities; they can help push innovation, as well as play a crucial role in organizing the resources and partners to facilitate business development. The private sector can also play a role in facilitating training, skills development and ensuring modern solutions to education and human capital development. The private sector should also collaborate with government to provide sustainable low cost housing. The challenge is beyond the government;

the private sector, academics and civil society will must engage and also lead. Academics can do applied research, aid in data collection, facilitate training, while civil society can ensure the engagement of the communities and the emergence of social enterprises focused on solving the unique challenges that are emerging with megacities and slums in African countries. In short, there is a need for collaboration.

Third, there is a need for **robust strategies and creative policies**. Africa's urbanization must be purposeful or guided by a deliberate agenda. People move to seek opportunities. Urban crime is largely a response to lack of opportunities and inclusivity, with people seeking ways to survive and sometimes simply to eat. It is important not to see cities as problems. Cities are by and large economic capitals of the world; with proper planning, they present more opportunities than challenges. In a way, urbanization is inevitable and what African countries need is to stay ahead of the curve; take a more proactive approach to plan and design the types of cities that we want to build. Importantly, the continent must take an integrated approach for socio economic development that will encompass both the cities and rural areas.

Fourth, there is a need to deal with the current challenges, through **transforming existing slums to thriving communities**. It is crucial that strategy takes two thronged approach: first is to address the issues that led to the creation of the slums, and second put in place strategies and programs to transform existing slums into thriving communities. We can prevent and reverse slum decay, and this can be done partly by learning from nature and mimicking nature to make informed decisions. It will be crucial to engage with people in the slums, as well as to take an inclusive and participatory approach to create localized economic opportunities. This will require not only a vision of building vibrant and balanced cities but also the need to ensure integrated development that place significant emphasis on rural development.

The negligence of governments in maintaining existing infrastructure are a key part of the problem. Slums were not built overnight, and it must be addressed through better urban planning based on inclusive data collections and assessment of the needs of slum communities. There is also the need to build innovation programs in slum communities, with some targeting of women. Also social enterprise programs in slums areas need to be encouraged and supported to find solutions within the communities for the challenges that they face. The private sector could be an important partner in this, using corporate social responsibility budget. Also, the business community can also build a bridge of communication with the surrounding slums, engage and work with local actors to design and implement programs to create sustainable opportunities aimed at enhancing the community's capacity to participate in the economy, raise their productivities, create sustainable employment as well as to improve the quality of life in slum communities.

Fifth, the necessity to aim for building smart cities able to **respond to the needs and aspirations of the African populace in the 21st century**. It is important that we define what smart city is within the African Context and how we would be able to achieve the goal of having smart cities through smart urbanization, while also addressing the challenges of growing population in urban areas. The key principle agreed was that African cities must cater to the people and must be designed with citizens in mind. Key questions that could be asked, include does the city make the people, or the people make the city? Does technology alone make smart cities? In addition, the voices of the people and inclusivity are critical in pursuing a new African cities agenda. What use is a smart city if it does not benefit the people. Cities must be citizen centric, not technical or bureaucratic. In short, African smart cities must be able to solve African problems. Therefore, in

building Africa's smart cities, emphasis must be placed on people, the system, structures and technology; they together determine "how smart the City is?". African cities must project and narrate realities and experience of the people in African context.

However, there is a big push to acquire technologies and to equate smart city with acquisition of technological tools. But this is not enough to reach the status of smart city. The human aspect must be at the center. The systems and structures are also crucial. Building smart cities in Africa demands capital, people, leaders, mechanization or automation that are purposely driven by the desire of what city is imagined by its people. E-governance based on facilitating approximation between the state and the citizens is crucial; it must provide new ways for citizens to obtain government services and relate to government easily and efficiently.

Smart cities are driven by smart people. It is crucial to invest in educational programs that enables economic participation as well as facilitate technical capabilities. It is crucial to addressing the challenge of unemployment especially among the youth in the urban areas. E-learning platforms with digitalized learning materials with emphasis on and possibilities for continuous learning will be necessary. A key part must be to empower the people through technology and vocational education to build skills needed for the new economy. Efforts must also be made to empower, stimulate and encourage innovation.

Smart cities must also be intelligent, and this will require the use of data. Governments and municipalities must invest in data collection. Having enough data starting from the bottom of the pyramid (municipality level) is crucial to facilitate planning, programing, proper distribution of resources and the provision of services. Providing energy, managing waste, ensuring food security, facilitating ease of access of the population to water, health care, schools, and sanitation are crucial. There must be a collective effort to promote green development. Governments and other stakeholders must be open to change. One critical area is developing and building partnerships across African states; this must include knowledge sharing and collaboration.

Building smart cities in Africa must however begin with creating smart villages. Otherwise, effort to build smart cities will simply fuel more urbanization and growth of megacities and their accompanying slums. It is therefore crucial that the government and the actors take a holistic and integrative approach which includes the development of the rural areas to ensure that there are opportunities for dwellers in the villages, as well as enhancing their capacity to participate in the economy and to raise their productivity.

Addressing the challenge of finance and scale up

The second part of the day focused on scaling up innovations and the special role financing plays in this process. Africa's development and structural transformation over the long term is highly dependent on the continent's ability to develop its human and physical capacity, innovate, build great companies and scale to compete in the global marketplace.

The good news which is yet to become a common knowledge is that Africans are innovating and actively seeking ways to overcome the challenges facing the continent by inventing and creating new solutions. The challenge however is that ecosystem for innovation which remains underdeveloped. Key among the constraints is financing. Assess to finance is a critical bottleneck for innovators and start-ups aiming to scale up on the continent.

For most of the countries in Africa, the innovation ecosystem is only just emerging, and lacks well developed financial markets and financing mechanisms for start-ups as well as enterprises. Failure is at various levels: the governments, industry/private sector, academia and the civil society/informal sector. Although African countries have pledged to spend at least 1 percent of their GDP on research and development (R&D) none has reached this magic number. Industry has also not stepped up nor has the financial sector. In fact, the banking sector which is what constitutes the entire financial sector in many African countries are not designed to make risky investments.

A McKinsey and Company Report provides insights into the growing demand for entrepreneurship to drive the global economy. Despite the fact that the outlook for entrepreneurship looks positive, statistics reveal that 90% of start-up entrepreneurs fail within the first two to three years of business mainly due to a poor mind-set, as well as lack of effective business and funding models. The GEM report states that in Africa the reason for failure include, lack of access to finance and credit, poor infrastructure, low levels of R&D, onerous compliance, unskilled workforce, unrest and crime, lack of access to markets. The 21st century belongs to the entrepreneur if underpinned by three pillars of success i.e. their ecosystem (or market environment), financing and culture. Countries that outperform their peers in these three areas collectively will succeed in entrepreneurship and go on to scale.

AIS conducted research with all the innovators who applied to compete for a place in the top 50 innovators exhibiting at AIS. The objective was to find out from innovators what they require to go to scale. Applications were received from 44 African countries who are innovating in the following sectors, Health, Governance, Energy, Agriculture, Water and Sanitation, and Education. The below feedback provides insights from over 600 innovators who applied, and sets the scene for the sessions in this track. Access to finance was stated as an enabler to scale. In particular, the innovators express needs in the following areas: Financing operational efficiencies, such as resourcing, salaries, premises, land, storage facilities, manufacturing equipment, vehicles, and machinery. The costs of equipment and machinery were seen as quite prohibitive as they are mostly imported.

The dialogue highlighted the fact that governments, institutions and people are afraid of taking risks and uncertainties. This results in doing only what is perceived to be safe. Consequently, they are becoming trapped in systems, procedures, and policies that gives one stability and certainty but it makes them reactive and irresponsible; it also kills innovations and good ideas. Finding solutions to the factors hindering the scaling of innovations in Africa will require innovativeness and creativity. One area to begin is education. The educational system in Africa must be refocused on producing skilled graduates as well as innovators able to power the new economy that the continent needs. The current economy does not fit with the old model of education. The subject students learn in their first year of science, technology and engineering degrees by the time the same students reach third or fourth year the knowledge is outdated and irrelevant. Therefore, it is urgent and crucial to look into new approaches that will favor learning how to unlearn and learn, as well as empowering people to be creative, risk takers and master of uncertainties.

Other key conclusions include **the need for “crazy types and visionaries”**. Essentially, it was agreed that governments in Africa needs people who are not scared to think big and are willing try new things. In order to create an innovative ecosystem, the policy markers ought to also be

innovators themselves. In the case of Cape Verde, for example, the government had to adopt innovative policies and approaches to managing revenues and expenditures; one key effort was the production of public finance information system (known by its Portuguese acronym, SIGOF). The platform which was 100% made in Cabo Verde and which has won international awards and accolades allowed the computerization of the budget and expenditure process, enables transparency and facilitates checks and balances. The result is that the platform ensures that there are no leakages in government finances. The government of Cabo Verde also invested heavily in e-governance to deliver services to businesses and citizens while also facilitating approximation between the state and the people. The e-governance tools generated lots of benefits for the population.

Another specific example that was provided with respect to financing and scaling up innovation is the Bank of Kigali which through its BK Techouse is incubating and scaling technology firms in Rwanda. The philosophy of Bank of Kigali is to help the young and the small guys because they can become big; the young will have the seeds planted in their minds and when they grow up they can change the world. As such, the Bank of Kigali invests in young entrepreneurs providing them not only monetary support, but also training, as well as technical capacities to build and manage their businesses. One of their main focus now is transforming traditional farmers to knowledge workers by helping to modernize the way farmers farm. The Bank has now developed a platform where farmers are linked to the buyer, seller, financial institutions, insurance companies, as well as others in the private sector, building a new ecosystem to help transform agriculture, and increase the value add from the sector. The vision is to make agriculture cashless and raise its contribution to Rwanda's GDP.

These examples highlight the roles of the people, government and the private sector. Addressing the issues of financing and scaling up of innovations in Africa requires the engagement of all. What is clear from the dialogue was a consensus on the need for an African strategy to promote and drive innovation that emphasizes access to funding, mentorship, as well as the engagement of the government, private sector and civil society. Importantly, there was a call for a change in approach and the need to be more strategic, given the implications of innovations for socioeconomic development and transformation.

The challenge of access to finance on the continent in general was seen as a paradox. Africa is said to be a rich continent, yet it does not have resources to finance its development or start-ups. Africa by and large continues to rely heavily on donor funding, while it loses over 50 billion US dollars annually to illicit flows. This is about 6% of Africa's GDP. The illicit flows between 2004 and 2014 was greater than the grants coming into the continent. While we invest significant time and resources seeking aid, Africa's funds are siphoned off the continent. Beyond the illicit flows, many of our pension funds and national reserves are invested in the West rather in the development of our countries. The case of the CFA Franc Zones is particularly egregious, with member countries "de facto" obliged to keep their national reserves with the French central bank. In addition, many African elites and high net worth individuals will rather invest outside of the continent. The reality is that Africa's liquidity is outside Africa, while the continent faces huge gaps in development financing. Addressing the challenge of lack of access to financing by African start-ups and firms would require **reversing the current practice of funds flowing out of the continent.**

Coupled with the above is the need for **new and creative forms of financing for African start-ups.** The main challenge is not the initial financing but the funds to scale up and to facilitate growth.

The financial markets in most of our countries on the continent are dominated by commercial banks. Unfortunately, commercial banks are not best positioned to fund risk capital for start-ups or small and medium size enterprises (SMEs) seeking funds to grow and to scale across markets. The regulatory environment is a major handicap while most of our commercial banks are simply not innovative enough to devise new products or instruments to fund start-ups and SMEs. Linked to this challenge is the underdevelopment of our financial markets. Venture capital is only just emerging and it barely exists in most of our countries. Business angels are also scarce. Additionally, the foreign investment coming into the continent basically goes to Nigeria, South Africa and Kenya and to a limited number of start-ups.

African countries will have to **look inward** to address the problem of financing for start-ups and SMEs. It will be crucial for each country to formulate action plan towards committing African industries and governments to fund innovation and to assist with the scaling start-ups. There is a need to build new platforms and new approaches that engages the community as a whole. There is a need to apply crowd funding/investment approaches to resolving the problems of access to finance; surely, there will be a need for adaptation to the realities of the continent. Also, they need to be seen as investment and not simply gifts. Also, it might be useful to aggregate firms into groups for funding to reduce risks. African industries and large firms can also play a critical role in helping to grow creative and innovative start-ups on the continent. They could provide mentoring, assist with providing resources as well as funding. In European countries such as France and Germany for example the telecoms play critical role in promoting innovation through supporting and funding start-ups. Some African firms in the telecommunication and banking sectors have already started also promoting and investing in start-ups. But there is a need for more.

The government also have a crucial role to play in ensuring access to financing. The innovators and civil society will need to form pressure groups to get the government off the fence into the arena and to engage. The financing and scaling problems will not be solved by the market alone. There is a need to develop policies that turn these challenges into opportunities for the civil society and private sector. One proposal is for governments to provide tax breaks and fiscal incentives for investing in start-ups and SMEs in African countries. In addition to the incentives, governments can also actively promote policies to encourage investment in start-ups and SMEs, including for example tax holidays for start-ups in the first five years or linked to the level of revenue and/or staff.

The governments in African countries control a sizeable share of the GDP. Participants strongly encourage government entities across the continent to set up funds to promote innovation through providing funding for research and development as well as entrepreneurs. An example which participants urged African governments to emulate is that of Rwanda which created a fund in 2018 to support innovation, including funding start-ups and SMEs in the technology space. The creation of innovation funds can also be supported by market-supporting institutions that are able to provide entrepreneurs and innovators access to services that are typically unaffordable to start-ups, such as legal, tax advisory, and accounting. These services could contribute to legitimizing and formalizing the SMEs and start-ups, while increasing their chances to access funding from the financial institutions.

The **Africa free trade agreement** could play an important role in facilitating the scaling up of start-ups across countries. However, it is important that each government move beyond simply

signing and ratifying the continental agreement; it is crucial that they do what is necessary to make it easy for firms to operate across countries on the continent. Making governments across the continent innovation activists will require pressure and engagement by all stakeholders. There will be a need to create synergies between innovators and policy makers. Also, there will be a need for innovators to understand policy and processes of governments. Innovators need to take it upon themselves to learn the language of policy makers in order to build coalitions with the civil society to better impact the actions of governments and ensure impactful relationships.

There is a **need for platforms where innovators can network**, receive mentoring and to seek opportunities to collaborate and to share ideas. Participants recommend the development of platforms to promote innovation by allowing for partnerships and collaborative environments, as well as promoting physical meet ups such as the AIS. Such a platform/forum could provide a place where innovations can be showcased and new partnerships sought. Additionally, the platform could provide a forum for matching of entrepreneurs, funders and mentors in a cost-effective way. Importantly, it can be a basis for building trust which is critical for business relationships.

Such a platform should be open to all including entrepreneurs, innovators, funders, private sector and governments. It could also be used as cheap and easy way to facilitate mentoring. Mentorship is integral to growing start-ups in a world in which most fail by the third year. There is a need for experience hands that can help guide and mentor founders to enhance their chances of success. This is a role that existing large firms can play. The platform could also help contribute to building the ecosystem that innovators need by providing a way for innovators to discuss issues, learn and when necessary come together to address certain challenges, including mobilizing to lobby governments. A platform to promote innovation on the continent could facilitate access to valuable and meaningful networks for innovators and start-ups. On the issue of networking, it was noted that there is a need to learn from the Somalians and the Ethiopians in the ways they work together and leverage networks. The experience of these networks could be useful for other countries.

Learning is crucial and an online platform could provide a cheap way to facilitate learning and knowledge sharing among African start-ups and SMEs. By also allowing all stakeholders—government policy makers, entrepreneurs and business leaders, academics, civil society activists as well as innovators and investors on the same platform, it could facilitate inclusion and at the same time encourage co-creation through knowledge sharing among the actors. It will also promote trust, facilitate understanding and possibly enhance the participation of the various actors in building of robust ecosystems for innovation in Africa.

African philanthropists were also called upon to stop attempting to imitate western donors and foundations. While it is important to support those in need, Africa's philanthropists can do better by investing their resources in transformative agenda rather than hand outs. One such transformative agenda is promoting and scaling up innovation that addresses the fundamental challenges facing the continent. As the old adage says, "Give a man a fish, and you feed him for a day. Teach a man to fish, and you feed him for a lifetime." African philanthropists can do a lot of good if they can pool resources and create impact funds to invest in start-ups and SMEs to scale up and grow transformative enterprises in Africa. Although, it might not provide the immediate gratification, or have the appeal of helping the most vulnerable which do need support, it is important to understand that unless we build our economies, innovate to address

the challenges facing the continent, and create the innovations that will drive the future, we will continue to increase the number of people in poverty and in need of handouts. As such, the emerging African philanthropists can learn from the failures of aid and western philanthropists, in order to play a transformative role in Africa.

On the issue of financing and scaling of innovations, it was also agreed that the academics do have a role to play in helping to uncover knowledge for the various stakeholders through studies. For example, it was deemed important for the “African Risk” to be quantified and contextualized to address the perceived high-risk environment of the continent. It was recommended that African academics undertake case studies to draw lessons for the various stakeholders as well as to showcase what is working and what does not in order to promote learning.

Institutions and systems that drive innovation: conclusions from day 3.

The third day focused on understanding the institutions and systems that drive innovation, while the afternoon focused on the concluding plenary sessions. These included conversations between the audience and the innovators, summary report on conclusions from the dialogues during the Summit, as well as the launch of the reports of the high-level panel of the Africa Union on science and technology. This sub-section provides a summary of the discussion with emphasis on the recommendations of the participants on the role of government and other supporting institutions.

Building robust ecosystems for innovation in African countries will require the engagement of the state, various supporting institutions and the all stakeholders. This was a key conclusion from the first AIS in 2014. The quadruple helix model, as suggested in the Africa Innovation Summit in 2014 and developed in subsequent report, maintains that there are critical roles for the government, industry, academia and communities within the national innovation system. Within each of the groups, however, there is an imperative to have ‘creative entrepreneurs’ that forge the relationships and promote the necessary disruptions to stimulate innovation. These change agents are critical to the innovation system. They must be identified, supported and given the platform plus tools to lead, innovate and to serve as connectors, intermediaries and organizers within the national innovation systems. In this, the government, private sector and civil society have critical roles (p.443, Adesida et al, Innovation Africa, 2016).

Innovative institutions will be required if African countries are to achieve economic transformation, sustainable development and inclusive growth. None of the issues discussed at the Summit are likely to be achieved at scale without institutional enablers. However, the institutional context in Africa is often cited for its malaise, challenges and constraints. The dialogue therefore centered on the role of institutions in innovation and what needs to be done to ensure that they truly become driving force for innovation on the continent.

It is a settled matter that governments are important in driving innovation. In fact, the government, as an actor within the innovation ecosystem, was deemed the best positioned among the stakeholders to drive innovation in Africa. While the governments do have important roles to play, it was recognized that partnerships between governments, private sector, academia and civil society are needed. It is also important that the state formulate a national agenda for

innovation. This is important as the drive to innovate creates conflicts between those pushing for change and those that would want to protect the status quo. The conflict between the drive to innovate and the need for stability implies a need for change management.

African governments do have fundamental roles to play in creating a conducive environment that is needed for robust innovation ecosystems to emerge. Human capital development is one of the critical requirements. African countries need to invest in education and health care to enhance productivity and train the workers to ensure they have the skills to drive innovation. Additionally, education plays a wider role. Human capital is critical for building a fertile ground for innovation.

Also, governments have critical role to play in facilitating funding. Governments can create a conducive funding climate for innovation. African governments can fund research and development; they can create innovation funds, as well as provide the incentives to attract local and international investors. The availability of risk capital which is critical for scaling innovation can be encouraged through the government policies. In a way, African governments can play a critical role in ensuring that the ecosystem has a conducive climate for funding.

Governments can also play a role through establishing and enabling innovation-supporting institutions. Many African countries have now created variety of institutions to support innovation. The types and numbers vary from country to country. For some, there are simply too many institutions with overlapping roles and without the necessary financial support to pursue their mandates. In some others, however, the institutions are at their infancy and without the necessary tools or clear mandate. For a few, there are too many institutions competing for limited resources and without the capability to drive the innovation agenda.

The good news is that countries are beginning to realize that innovation-supporting institutions have a critical role to play and we are now seeing the emergence of support institutions for research and development, funding, as well as entities to support start-ups in the technology sectors. We now have many technology hubs on the continent either founded by government, private sector civil society and/or by international partners. These institutions will be critical for the emergence of robust innovation ecosystems in Africa. It is crucial that they have clear cut mandate, are supported to become more effective, and are allocated the necessary funding to be able to afford prolonged periods of support and investment in the business of promoting innovation. One key suggestion by delegates was the need for the establishment through public/private partnerships of local level and national level innovation councils along with co-creation hubs.

Government can also play a role by investing as well as putting in place policies to ensure that there is the necessary technology infrastructure and that there is affordable access. It is especially important to ensure affordable access to computers and internet. Connectivity needs to be a right for every citizen. Not only is it important for the individuals it is an essential aspect of participating in the digital economies. African firms are disadvantaged given the high costs and unreliability in many of our countries.

African governments must also facilitate collaboration. While we live in a hypercompetitive world, it is important to note that competitors do collaborate. Even private sector firms do collaborate when necessary before markets. The need for collaboration is even more so on the continent, given the unique challenges facing African countries. The issue of size, resource limitations

and to need to gain economies of scale. Cutting edge science and technology, requires funding which many of our countries cannot afford; Working together is not new. There are continental and regional bodies for research such as West African Rice Development Association (WARDA). The issue though is that the institutions need to be fully funded and supported by African governments to have the intended impacts.

Supporting institutions vary and there are many examples. The state is a key. In addition, there are the science and technology institutes, research foundations, national innovation funds, universities and technical colleges, as well as venture capital organizations. Technology incubators, hubs and parks have also emerged and have spread to across the continent. Today, there are quite a few mega techno park/city projects like the one proposed in Kenya and Ghana. Also important is the private sector. But these are not the only innovation-supporting institutions. As it was made clear and reported in the report of AIS 2014 and the subsequent AIS book in 2016, the civil society has a role to play. While there is a lot more to do to better understand the role that civil society and NGOs can play as enablers for innovation, it is clear that they can and do play active role in the innovation ecosystem in Africa.

First, the NGOs, as a representative of civil society organizations, are in the trenches working with communities to address the development challenges. They, in the process, serve an important function. They provide an unparalleled understanding of the communities they serve and can play a critical role in driving demand driven innovation. Innovations that are matter of necessity to address problems facing the communities. **NGOs can influence demand-driven innovation** because they understand community issues more, compared to governments and businesses.

Second, a key challenge facing innovators and startups on the continent is **lack of funding**. The NGOs are used to fundraising and are in regular contacts with private sector and governments to obtain funding. They are well positioned to serve as brokers, raising money to support and fund start-ups innovating to address the challenges facing their communities. Also, NGOs can enable communities to support innovators in a strategic way as they are seen to be better positioned to understand the grassroots. They could deploy crowd investment/funding approaches. However, having NGOs engage in fundraising to invest in start-ups or SMEs to scale up, will require new policies.

Third, the **NGOs could play the role of advocates**. They must find ways to integrate themselves into the wider ecosystem and dialogue on innovation. Their capacity for advocacy is indeed necessary, as they know the realities on the ground, including the challenges and needs. Civil society organizations can influence government policy, through advocacy and knowledge production and dissemination in support of building robust ecosystems for innovation in African countries.

The NGOs are and could play an even more important role going forward. However, there is a need for change. In the first place, NGOs can adopt a new philosophy and approach. In addition to their traditional roles, NGOs can take a proactive approach to seek and invest resources in sustainable initiatives. NGOs will need to adopt new business models in order to intensify their roles in the Innovation ecosystems. Simply put, NGOs need to transition from been perceived purely as charity organizations and rather position themselves as a viable institution for development. In closing, NGOs need to be independent and self sustainable; they also need to

collaborate more and adopt new business models, while taking on an increasing role in driving the building of robust innovation ecosystems in African countries.

As part of the solution, communication between NGOs, private sector and the public sector should be established in order to create a cohesive platform to support innovation and African entrepreneurs. Given their roles in the innovation ecosystem, the private sector can play a more important role. They can invest more in research and development. They could fund and organize business incubators. They could serve as an ally with the public sector in providing a healthy environment to grow new enterprises. Essentially, established private sector firms can serve as mentors and coaches for emerging entrepreneurs and start-ups/SMEs.

Box 2: Reclaiming African Narrative: A Celebration of Creativity and Culture in Innovation

For the AIS, innovation is not just about science and technology. It is also about culture and identity. Who we are and where we will get to are conjoined. Our conscious 'creatives' inspire as well as challenge us, ground and expand us.

Based upon this conviction, AIS 2018 hosted an inaugural pan-African evening where the Summit foregrounded some top cultural innovators from the African diaspora, creating the space for them to share and interact with AIS delegates in conversation about the arts, creativity and innovation by Africans and in Africa.

The session posited that we cannot be innovative without being creative. Africa's future demands a radical imagination about who we are, who we are becoming, and how. This was the beginning of the special session's conversation.

Key messages from the Panel of diverse artists and creators were:

- **David Wilson, Co-founder of TheGrio:** moderated the session, indicating that innovation and creativity walk hand in hand; it is through this realization that the African Narrative can be reclaimed and reshaped.
- **Ayana Jackson, motion photographer:** the process of creating narratives, and interrogating the ways we have been taught to see others and ourselves, play a crucial role in evolving positive images of back bodies
- **Philippe Nyirimihigo, photographer:** Africans must be the ones creating their own narratives; they must be the ones presenting their cultures, ways, truths, and realities, seen through our own eyes.
- **Judith Kaine, public artist:** once created, art makes generations open their eyes and see and envision reality even before its real; it makes learning not only beautiful but leaves strong and rooted impressions for posterity to come.
- **Mokena Makeka, architect and designer:** "We have to be bold enough to tap into our own culture and heritage to actually create brands and ideas". The way to help Africa is not through aid, but by trading with Africans.
- **Christian Benimana, architect:** reshaping the African narratives is possible by reshaping the physical world through architecture, changing it for the better, giving the citizens what they deserve, and reinforcing the values that are already there.
- **Gloria Kamanzi, textile designer:** take advantage of our unique African resources and add value. We have to think: "How can we evolve our communities? How can we involve young people? How can you use our African heritage to promote the image of Africa?"
- **Matthew Rugamba, fashion designer:** use your unique experience to build home-grown brands, and

use that brand to make a statement, to tell your stories

- **Makeda Mahadeo, DJ and media personality:** use your platform to share your culture and ways to let people the world over know about it
- **Bayo Akomolafe, poet / writer / scholar:** losing our own history, nobility and sense of worthiness "all due to the old narrative of what whiteness is and blackness is a big misfortune... there are other places of power, other ways of being in the world, other ways of performing reality"
- **Ingrid la Fleur, Afro-futurist and politician:** healing back bodies from their traumas based on principles such as grounding, co-creation, cooperation, experimentation, pleasure and transformation

These reflections were infused back into the AIS plenary, and the resounding request was to continue this culture - innovation consideration in future Summits, and in fact to integrate it more strongly into the main AIS deliberations rather than separating it out as an optional extra. Our Culture and Creativity are, after all, core to our innovation journey and development narrative.

This session was hosted by **Drs Geci Karuri-Sebina (Kenya/SA)** and **Baz Dreisinger (US/Global fellow)**, and made possible by generous sponsorships from **Turkish Airlines** and the **AIS**, and additional support from global fashion entrepreneur **Ayaan Mohallim**.

5. MAIN MESSAGES AND REFLECTIONS ON THE WAY FORWARD

This concluding section of the Summit report covers the conversations between the innovators and the public and the feedback sessions at the end of the Summit. It is clear from the discussions that there is a need for a rethink of innovation within the African context. Importantly, we will need to place emphasis on innovating and scaling up solutions to address the main developmental challenges facing the continent, which despite the 'Africa Rising' scenario, are not getting better; in fact, in some ways the situation is worsening. Poverty and inequality for example are on the rise; unemployment and under-unemployment are also on the rise, while key challenges such as access to potable water, sanitation or energy are not necessarily getting better.

This is why the Summit concluded on main messages asking for a greater sense of urgency around Africa's transformation, a bolder imagination about the future, an inclusive future, greater collaboration among the actors, big changes may start from small initiatives, leadership, greater self-reliance, and AIS as an ongoing platform. The remainder of the presents an overview of the main messages which were distilled from the dialogues during the Summit. Some of these are presented in tables for various stakeholders. The section also summarizes the plan for the future of AIS.

Table 2: Messages for Innovators

Key Messages	Key Challenges	Actions 2020
<ol style="list-style-type: none"> 1. Many definitions, assumptions and perceptions about innovation - what it is and what is not. 2. Financial mechanisms required through innovation life stages. 3. Innovation needs business support, private sector and institutional participation. 4. Drive African innovation ecosystem. 5. Technology to enable innovation. 	<ol style="list-style-type: none"> 1. Innovation must be inclusive - women, refugees, rural communities, accessible to all. 2. Innovation - do not confuse with entrepreneurship, SMEs. 3. Banks are risk averse. 4. Access to finance. 5. Foreign exchange controls and currencies. 6. Bureaucracy, banking regulations, corruption. 7. Mentorship - business strategy and planning. 8. Access to market. 9. Back Office support (financial management, systems). 10. Private sector participation at AIS - not only Government. 11. Need decision makers at AIS. 12. Transform innovations into feasible business. 13. Education. 14. Cross border trade. 15. Governments support innovation - little tangible evidence. 16. Security, IP. 17. Understanding Blockchain and advantages. 18. Data, research. 	<ol style="list-style-type: none"> 1. Define Innovation - a clear definition of innovation and its impact will enable finance decisions, ecosystem definition and support. 2. Clear definition of innovation, facilitate testing, scale definition and impact of solution - to enable funding decisions. 3. Adjust risk appetite to facilitate innovation. De-risk by aggregating many innovations to provide end to end solution. 4. Utilize the security and facilities of blockchain. 5. Single digital currency - Ucoin (asset backed) 6. Establish supporting institutions. 7. SME, entrepreneur, start up support. 8. Mentorship and business support. 9. Start FB Innovation Associations in each country - define opportunities, partnership, solutions, define the ecosystem. 10. Promote Innovation. 11. Broker dialogue with Government to enable innovation. 12. Government - hold them to account. 13. Exploit, develop security and facilities of blockchain.

#1: A Greater Sense of Urgency Around Africa's Transformation

Africa's population growth is now the fastest growing in the world. By 2050, the global population is expected to increase by 2.2 billion people and, of this number, 1.3 billion will be added on the African continent. Africa's contribution will be over 50%. At the same time, the challenges facing the continent such as increasing number of people in poverty and increasing unemployment persist, while technological change continues to advance rapidly globally.

The challenges are daunting and calls for a greater sense of urgency among all the stakeholders around the issue of Africa's transformation. The alternative could be dire. Currently, just to keep from increasing the unemployment rate, Africa must create 15 million new jobs annually. Unless something happens and does urgently to usher in change, the unemployment and underemployment rates will continue to rise. Poverty will continue to increase. The reality now is that Africa is significantly underperforming in the creation of new jobs. If this continues unabated, the consequences could be unimaginable. Business as usual cannot continue. Change must come fast.

#2: Africa's transformation needs bolder imagination about the future

A greater sense of urgency around Africa's transformation must be accompanied with a bolder imagination about the future. Africa needs a new vision and a new agenda that is not only imaginative but transformative. An agenda capable of rallying all the population around core ideals and principles of what is meant to develop, transform and build a new society that not simply continues the status quo. Africa need a monumental vision to lift people out of poverty and provide everyone a decent life. However, the challenge is vision only is not enough. There is a need for strategy and action plans, as well as a commitment by all to do their part in bringing about change that is needed urgently on the continent. Additionally, the vision, strategy and action plans must be backed up by political will and there must be unity of all stakeholders behind the implementation. Innovation will be key to ensuring such a transformative change. The continent must 'break out of the box' with focus on ensuring dignity, freedom and decent livelihood for all.

Table 3: Messages for Research and Educational Institutions

Key Messages	Key Challenges	Actions 2020
<ol style="list-style-type: none"> 1. Education and research systems need to adopt a proactive approach towards the future. 2. We need to move from education systems to learning systems. 3. African challenges are -interdisciplinary. We need to generate inter-disciplinary and trans-disciplinary thinkers. 4. We need all our brains to solve African challenges innovatively. 	<ol style="list-style-type: none"> 1. The way we measure and explore alternatives, is based on looking at the past - replication of the same unsustainable and unequal routes. 2. Create an interface between scientific and other types of knowledge. 3. M o n o d i s c i p l i n a r y approaches predominate in education and research. 4. Orthodox teaching predominates in university curriculum. 5. Women remain under-represented in ST&I. 	<ol style="list-style-type: none"> 1. Integrate futures thinking in education and research, release the imagination. 2. Make clear steps towards changing curricula to become more practical oriented. 3. Establishment of trans-disciplinary, and inter-disciplinary platforms: connect experts, future thinkers, creatives and policy-makers on real topics. 4. Target, encourage support women in education and research.

#3: Greater Collaboration Among Actors

The AIS sees innovation as a social activity. While the allure of the lone inventor is appealing, the reality is that innovation is seldom the work of a loner. Innovation tend to be progressive and comes from building on what others have done. It also tends to be a result of cross fertilization of ideas and sharing. Among the hallmarks of major innovation centers are the opportunities for meet ups, sharing and collaboration. It will be important to ensure that the emerging hubs on the continent provides opportunities for meet ups, sharing ideas, learning and collaboration.

All the actors must engage, including the state. The development of innovation systems in Africa, as such, must be collaborative as all actors have important roles to play. It is crucial to bring together innovators, entrepreneurs, investors, civil society activists, academics, and the decision makers with the 'power to act' to direct resources of the continent to drive innovation in Africa.

Table 4: Messages for the Public Sector (and Development Partners)

Key Messages	Key Challenges	Actions 2020
<ol style="list-style-type: none"> 1. Innovations in governance institutions and also institutional rationalization. 2. More engagement with National Assemblies as they are the ones who make laws. 3. Investment in data collection and also make data available on open data platforms. 4. They need to create incentives to persuade investors to invest heavily in SMEs and startups in general. 5. Innovation is not neutral, it can drive inequality. 	<ol style="list-style-type: none"> 1. Plethora of regulatory agencies that are not coordinated and no cohesion. 2. Too much information e.g. social media, reports, etc. make it hard to make decision. 3. Need to manage tension between stability (status quo) and disruption. 4. Lack of data collection and dissemination infrastructure. 5. Secrecy of Governments with. 6. Difficult to engage private sectors as the motive is profit so unless they see profit it's hard to engage. 7. Getting the right balance between competition and collaboration. 8. How to incentive and tax policy so that innovations can be incentivized. 	<ol style="list-style-type: none"> 1. Institutional rationalization. 2. National Innovation Bank. 3. Create trusted information brokers e.g. science academies. 4. Greater effort to create awareness and manage expectations. 5. Main stream e-government. 6. Open science / Open data platforms. 7. Make innovation inclusive with particular focus on rural-urban divide and gender.

#4: The Future Must Be Inclusive

Inclusiveness however is not just about the innovation systems in African countries. It is not enough to ensure that all actors are playing their respective roles within the innovation systems. Inclusiveness must be a fundamental *raison d'être* and focus of the development agenda. The broader development agenda must aim to be as inclusive as possible and ensure that no one is left behind. The focus must be centered on the persons, aiming to enhance their quality of life, as well as ensuring that they are free from poverty.

Table 5: Messages for the Civil Society

Key Messages	Key Challenges	Actions 2020
<ol style="list-style-type: none"> 1. Civil Society has always been innovative. 2. Stop thinking big and starting small. But also stop only thinking big, sometimes small and responsive is what is needed. 3. Infuse innovation in society in many responsive and dynamic ways. Not only SET. 4. Promote indigenous knowledge and languages. 5. Promote voice of the people in the issues that affect them. 6. Hold government to account and shift government mentality. 7. Work with (strategically), but don't depend on government. 	<ol style="list-style-type: none"> 1. Sector faces many internal role and sustainability challenges of its own. 2. Funding dependencies. 3. Weak systems of learning about what works or doesn't work. 	<ol style="list-style-type: none"> 1. Demand accountability from other actors for their commitments and roles (watchdog role). 2. Innovate civil society funding in Africa to enable sustainability - considering collective approaches (collaboration, pooling) and mobilising domestic sources. 3. Be the champions of inclusion - people's voice, indigenous issues, informal sectors, displaced people, fringe issues. 4. Programme roles in bridging between knowledge production (formal and informal) and society (users) - in both directions.

#5: Big changes may start from small initiatives

While there is a need for bolder imagination and ambitious agenda, it is important to know that often times big changes may start from small initiatives. The challenges facing the continent are daunting and what needs to be done to effect transformative change seems overwhelming. But small calculated and consistent initiatives could make huge difference. The key is consistency and a focus on the vision. Rather than feel overwhelmed or wait for the magic bullet solution, it is important to act strategically, take small steps, but ensure sustained focus.

Table 6: Messages for the Private sector

Key Messages	Key Challenges	Actions 2020
<ol style="list-style-type: none"> Partnerships and collaborations between actors are critical - can be active or passive, or informal versus organic. National/Societal pride as an important driver for innovative private sector firms to restore their societies, in the creative arts, for instance. Entrepreneurship education as from high school important for developing entrepreneurial mindset and entrepreneurial orientation. Role modelling by entrepreneurs who are only a few steps ahead. Heritage as a resource and a purpose of innovation, e.g. innovation for "Ubuntu". 	<ol style="list-style-type: none"> Investment in IP protection, though sometimes necessary, difficult to protect and requires entrepreneurial capacity to be commercialized. Terms like "creative sector", for instance restrict artists to purely monetary concerns rather than their inspirational role. Innovation support for small entrepreneurs versus anti-competitive behavior of dominant private firms. Parasitic relationships between certain private firms and governmental actors, which can be counterproductive. Private sector players seeking to alleviate slum living conditions, for instance, should go to root causes as well as aspirations of dwellers. 	<ol style="list-style-type: none"> Selected firms should report contribution to human development in terms of jobs created, water, sanitation, healthcare, energy problems alleviated, etc. Develop compendium of training programmes from the secondary to tertiary to postgraduate that are geared towards building entrepreneurial capacity for successful enterprises.

#6: Leadership is key

There is a need for distributed leadership across the various sectors and institutions. The continent will need leaders in every sector, every area and at every institution that are willing and able to facilitate the necessary change in order to drive innovation. Africa needs innovative leaders that can create the space for innovators to innovate, launch start-ups and scale their businesses. These leaders are the "creative entrepreneurs" who can serve as the bridge, facilitate linkages among stakeholders and make things happen. As aptly noted during the Summit, these are leaders or creative entrepreneurs who can help Africans not simply to think out of the box but help Africans "throw out the boxes that have caged them".

#7: Greater Self Reliance

We must find the resources from within to drive and scale innovation. African countries must find the solution to the challenge of financing which continues to be a binding constraint to scaling innovation on the continent. African countries must seek new ways to fund innovation; there is need to put in place policies to reduce illicit flows as well as incentivize the stakeholders to participate in funding innovation. This could be in form of fiscal policies and incentives. The state could also introduce dedicated innovation tax, for example, to raise funds to support research and development, create innovation funds, and provide funding for innovation-supporting institutions, as well as build the necessary infrastructure. Additionally, there is a need to build awareness within African countries on the need for investing in start-ups, promoting innovation and mentoring.

#8: Embracing Our Culture, Identity and Creativity

Even in a globalized world, we have to celebrate and leverage what is uniquely African if we are to succeed. The session on 'creatives' emphasized this point, as self-awareness and clarified, common purpose are essential to the de-colonization project which should enable and be enabled by innovation. Culture is a source of creative inspiration and has a critical influence on how individuals understand and value creativity. The cultural richness of the continent derives partly from Africa's diversity. This is a unique and important asset for building innovation driven societies in Africa. Culture can be a major source of inspiration for creativity and innovation in African countries. Beyond serving as inspiration for innovation, culture in Africa could also serve as a basis for developing new industries that could help fuel structural transformation. Nollywood, the Nigerian film industry, which has grown to become one of the largest employers in Nigeria and one of the top film industries in the world is an example of culture serving as inspiration for creativity and innovation. The use of culture as a driver of the creative economy sector is not new and the call now is for Africa to seize its culture to fuel creativity and innovation as well as new industries.

#9: AIS as an ongoing Platform

The consensus is to build the AIS into an ongoing, Africa-wide platform focused on promoting innovation. The AIS platform must provide the opportunities to facilitate linkages, promote the emergence of networks, support learning, mentoring and collaboration, as well as facilitate access to financing to fund and scale up innovations. Going forward therefore, the AIS will be oriented to fill the main gaps to ensure the emergence of robust innovation ecosystems in African countries. This will involve creating platforms to find and scale up solutions to key developmental challenges; the platforms will bring together innovators, entrepreneurs, investors and people with the 'power to act' to direct resources and seek answers to the fundamental challenges facing the African continent.

Table 7: Messages for the AIS

Key Messages	Key Challenges	Actions 2020
<ol style="list-style-type: none"> 1. We need a network and collaboration among emerging centres of excellence in Africa. 2. It is important to "move the dial" - shows progress on issues over time. 3. Don't separate creativity and the arts from innovation and entrepreneurship. 	<ol style="list-style-type: none"> 1. Funding as one of the biggest challenge facing startups and SMEs. 2. Support for scalling up innovation. 3. I n f o r m a t i o n , C o o r d i n a t i o n , I n t e g r a t i o n between numerous actors and initiatives. 	<ol style="list-style-type: none"> 1. Building a virtual platform. 2. Connect Hubs. 3. Establish a network of mentors and coaches to support innovators, startups and SMEs. 4. Develop "The Big Africa Start-up & Growth Fund". 5. Establish a network of investors, facilitating links between investors and innovators. 6. A robust M&E system - metrics, but also capturing experience, failures and learnings.

The AIS will be a centralized, Pan-African platform. It will engage in reflection, build the knowledge base, provide hands-on support for transformative African start-ups and SMEs, provide advisory support for policy makers, and undertake advocacy in support of building robust innovation ecosystems in Africa. Specifically, the AIS will serve as:

- Network: Pan-African network able to bring together actors (innovators, investors, policy makers, mentors, academics, etc.) to drive innovation on the continent
- Activist: Advocate for reforms, right policies and robust strategies in support of innovation and structural transformation
- Marketplace: Matchmaking transformative start-ups with investors, coaches, mentors, suppliers & buyers to facilitate scaling up
- Exchange: Share experiences across the continent, facilitate partnerships among start-ups, and linking start-ups & SMEs with mature companies and markets
- Coordinator: Coordinate innovation initiatives across the continent
- A Monitor: Track and measure the progress year-on-year

The AIS will therefore make three types of interventions: Marketplace, Ecosystems, and Dialogues. At the core of the AIS will be its marketplace. While the Summits served as the take-off engine, going forward the 'heart' of the AIS will be the marketplace with emphasis on supporting innovative entrepreneurs with overcoming critical challenges such as access to funding, mentoring, advisory support, market access, scale up, etc. The Ecosystem intervention will aim to assist in building robust innovation ecosystems in Africa with activities including knowledge, policy and advocacy. Dialogue remains critical and will focus on facilitating dialogues among stakeholders to build relationships, share experiences, learn, as well as set milestones and take stock.

AIS Interventions

The goal over the long-term is to have AIS established as an institution able to drive innovation on the continent. A not-for-profit AIS Foundation will be established to lead the activities set out for the institution, including leading the planning and implementation of the AIS agenda aimed at building robust innovation ecosystems in African countries. The Foundation will establish a subsidiary, AIS Marketplace, to manage the marketplace program. The subsidiary will provide the AIS the flexibility and agility to enter into partnership agreements, implement programs and take ownership stakes in supported start-ups. The income obtained through the Marketplace will be reinvested in the work of the foundation and to create an endowment for the AIS.

AIS' current Secretariat under Ihaba, a Cape Verdean firm, will continue to lead the AIS activity in collaboration with a select number of high level individuals that will form a revamped Advisory Council and Scientific Council. This arrangement is expected to continue over a three-year period, 2019 to 2021. This period will be used to plan the institutionalization of the AIS, search for a host country, negotiate a host country agreement, and establish the AIS Foundation as well as its subsidiary, AIS Marketplace.

During the three-year period, AIS will work with partners, including firms that will:

- support the Secretariat in the planning, design and implementation of the AIS Marketplace as well as assistance with the organization of the AIS Summits and other elements of its programs
- provide strategic communication support to help raise awareness, communicate and build the AIS brand,
- deliver advisory services to vetted firms on the AIS marketplace,
- design, build and manage web and mobile platforms for use by AIS, and
- assist in the planning of the institutionalization of the AIS.

The AIS is an innovation system in action. It has the potential to become the African platform to drive innovation on the continent and could play a catalyst role in scaling up innovations and African start-ups across Africa and the world. The goals now are to build the partnerships across the continent to plan, design and institutionalize the AIS, as well as to plan and manage the AIS as an institution.

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H.E. President Paul Kagame

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of Massachusetts, USA



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Professor,
University of Lille, France



Prof. Mammo Muchie
Professor, Tshwane University
of Technology, South Africa



Dr. Geci Karuri-Sebina
Research Fellow, University of
Witwatersrand, South Africa

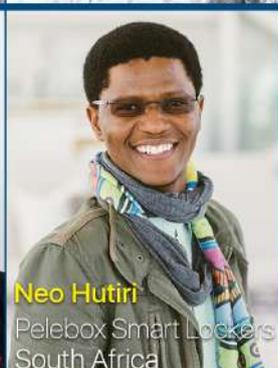
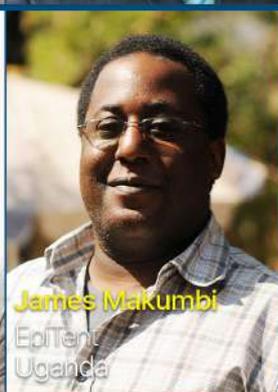
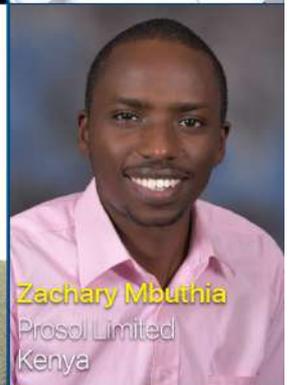
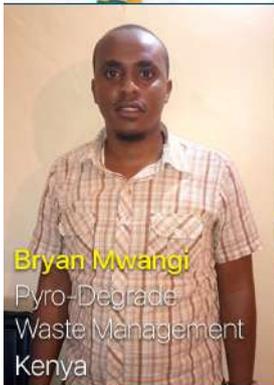
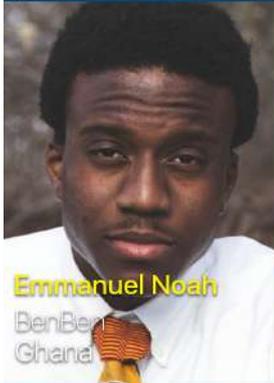
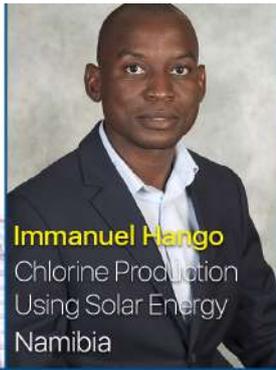


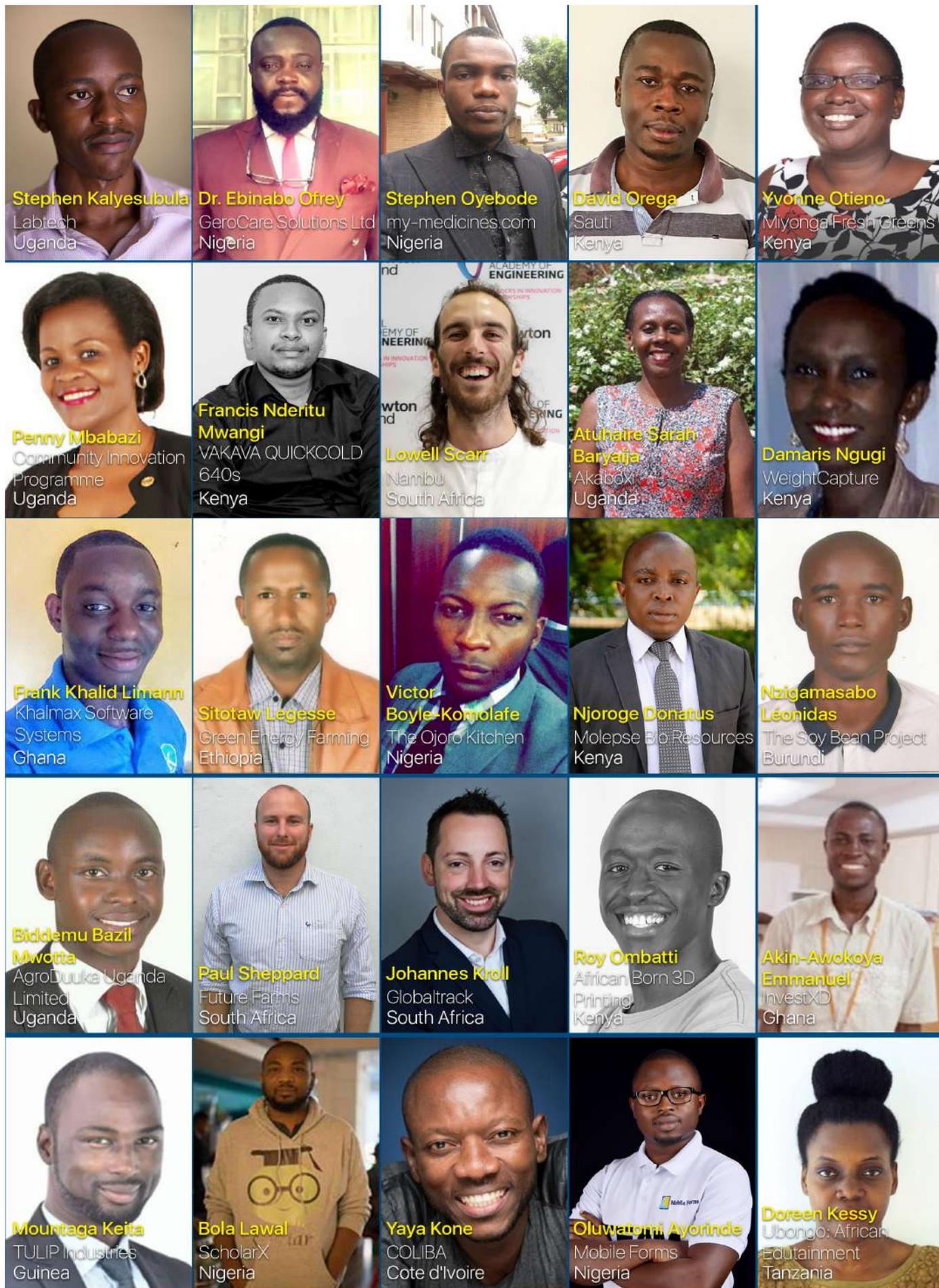
Dr. Ann Kingiri
Senior Research Fellow,
African Centre for Technology
Studies (ACTS), Kenya



Dr. Diran Soumonni
Executive Director
of Grow Africa

EXHIBITORS





KIGALI PROGRAMME

Pre-Summit – June 5, 2018

8:00 – 9:00	Arrivals, Registrations & Exhibition Setup
9:00 – 16:00	Self Organized Local Tours
9:00 – 16:00	Partner Side Events: Innovation and Electoral Democracy in Africa
9:00 – 16:00	Partner Side Events: NEPAD APET Meeting
9:00 – 16:00	Partner Side Events: NEPAD AOSTI Meeting
13:00 – 15:30	Partner Side Events: AfricaLics Event – 4th Industrial Revolution and Automation Technologies in the Context of Africa's Development
16:00 – 18:30	Partner Side Events: AfricaLics Event – Gender and African Innovation Systems
18:00 – 19:00	Exhibition Opening
19:00 – 20:30	Welcome Reception

Day 1 – June 6, 2018

8:00 – 9:00	Coffee & Networking
9:00 – 9:30	Special Plenary 1. Opening Session
9:45 – 11:15	Plenary A. Innovation Africa: Challenges & Opportunities
11:30 – 13:00	Workshop A1. Meeting the Basics: Water-Energy-Food Nexus
11:30 – 13:00	Workshop A2. Ensuring Resilience: Technological & Planetary Shifts
11:30 – 13:00	Workshop A3. Innovation Lab: The Future of Health Care & Societal Wellbeing
11:30 – 13:00	Workshop A4. Building Skills & Human Capability for the 21st Century
11:30 – 13:00	Workshop A5. Transforming African Agriculture
11:30 – 13:00	Workshop A6. Innovation Lab: The Future of Peace & Justice
11:30 – 13:00	Workshop A7. Creating opportunities for innovation cooperation between Africa and Europe
11:30 – 13:00	Parallel Workshops: Workshop A7. EU-AFRICA Partnership
13:30 – 14:30	Lunch Panel I. Blockchain: Applications to Development Finance
14:45 – 16:15	Plenary B. Africa's Future: Building a Resilient and Competitive Economy
16:30 – 18:30	Workshop B1. Transforming Resource-Dependent Economies
16:30 – 18:30	Workshop B2. "Jobs and Value" in the age of automation & demographic shifts
16:30 – 18:30	Workshop B3. Entrepreneurship & Innovation
16:30 – 18:30	Workshop B4. Innovation Lab: Designing Future Economies

16:30 – 18:30	Workshop B5. Innovation Lab: Innovating into a low(er) carbon African future
16:30 – 18:30	Workshop B6. Futures Lab
16:30 – 18:30	Workshop B.7 Africa's Digital Revolution: The Future Is Now. AFDB Event
19:30 – 21:00	Multi-Creative-Media Events
Day 2 - June 7, 2018	
8:00 – 9:00	Coffee & Networking
8:00 – 17:30	Workshop C7. Funding opportunities for cooperation between Africa and Europe through Horizon 2020 (All Day event)
9:00 – 10:30	Plenary C. 21st Century African Cities
10:45 – 12:15	Parallel Workshops
10:45 – 12:15	Workshop C1. African Cities: Meeting Basic Needs and Ensuring Balance
10:45 – 12:15	Workshop C2. African Cities: Smart Urbanization
10:45 – 12:15	Workshop C3. African Cities: Economic Transformation
10:45 – 12:15	Workshop C4. African Cities: Transforming Slums Through Innovation
10:45 – 12:15	Workshop C5. Rural - Urban interdependencies and opportunities
10:45 – 12:15	Workshop C6. Innovation Lab: Designing the future African City
12:30 – 13:30	Lunch
13:45 – 15:15	Plenary D. Financing & Scaling up Innovation
15:30 – 17:00	Workshop D1. Developing Venture Capital in Africa
15:30 – 17:00	Workshop D2. Alternative Financing - Philanthropy
15:30 – 17:00	Workshop D3: Enterprises: Start-ups & SMEs
15:30 – 17:00	Workshop D4. Innovation Lab: Scaling up Innovation
15:30 – 17:00	Workshop D5. Innovation Lab: Mobilizing Domestic Resources to Fund Innovation
15:30 – 17:00	Workshop D6. Funding opportunities for cooperation between Africa and Europe through Horizon 2020 (Continuation from Morning event)
15:30 – 17:00	Workshop D7. AfricaLics Outreach Event - Enhancing Research Capacity on Innovation and Development in Africa
17:15 – 18:30	Special Plenary 2: Clips & Conversations - Reclaiming the African Narrative

Day 3 - June 8, 2018

8:00 – 9:00 Coffee & Networking

09:00 – 10:30 Plenary E. Institutions and systems that drive innovation

10:45 – 12:15 Parallel Workshops

10:45 – 12:15 Workshop E1. African universities and innovation

10:45 – 12:15 Workshop E2. African Enterprises/Businesses and innovation

10:45 – 12:15 Workshop E3. Governments (national & provincial) and Innovation

10:45 – 12:15 Workshop E5. Indigenous & Non-Formal Knowledge Systems, Culture and Innovation

10:45 – 12:15 Workshop E6. Futures Lab

10:45 – 12:15 Workshop E7 Accenture Launch event

10:45 – 12:15 Workshop E8. Intellectual Property and Open African Innovation

10:45 – 12:15 Workshop E4. Civil Society & NGOs and Innovation

11:00 – 12:00 YAS! Briefing

12:30 – 14:00 Lunch Panel 2: Gender and Innovation Studies

14:30 – 14:45 Special Plenary 4. Launch: AU High Panel Reports

14:30 – 17:30 Special Plenary with Presidents

14:45 – 16:15 Special Plenary 5. Conversations with Presidents

16:15 – 16:45 Special Plenary 3. Futures Lab & Creatives Feedback

16:45 – 17:15 Special Plenary 6. Call to Action

17:15 – 17:30 Special Plenary 7. Closing Remarks

Post-Summit - June 8, 2018

9:00 – 11:00 Innovation Africa Book Authors Meeting

9:00 – 17:00 UNESCO: Imagining African Futures Literacy Lab

11:30 – 13:30 AIS Advisory / Scientific Committee Meeting

PRETORIA PROGRAMME

Day 1 – June 6, 2018

8:00 – 8:30 Registration and Arrival

Plenary Session

8:30 – 9:00 Opening session

Facilitator: Ms Mmampei Chaba
Department of Science and Technology,
South Africa

Welcome address: Dr Thomas Auf Der Heyde
Department of Science and Technology, South Africa

Opening session

Dr Stergomina Tax
SADC Secretariat, Botswana

9:00 – 11:15

Streamed Live from AIS Kigali
Panel Discussion: 21st Century Africa: The Innovation Challenge and Opportunities

11:15 – 11:30

Tea break

Parallel Workshops

11:30 – 13:00

The Role of Techno Parks in Promoting
Regional Innovation Value Chains

Facilitator: Mr Cecil Masoka
Department of Science and Technology,
South Africa

Speakers:

Mr Mclean Sibanda
Innovation Hub, South Africa

Ms Lovisa Kambonde
Science and Technology, Namibia

Ms Sunita Kalan
Department of Science and Technology, South Africa

Rapporteur: Mr Sigfried Tivana, DST

Women Technopreneurs in the Agro-
Processing Sector

Facilitator: Dr Maneshree Jugmohan-Naidu
Department of Science and Technology,
South Africa

Panelists:

Ms Lilitha Mahlali
Ivili Loboya Wool Processing Hub, South Africa

Dr Unathi Speirs
AgriConsult Investment Holdings, South Africa

Ms Fannie Gondwe
Perisha Agro and Packaging Enterprise, Malawi

Rapporteur: Ms Obakeng Pitsoane, DST

13:00 – 14:00

Networking Lunch

Parallel Workshops

14:00 – 15:30

Green Entrepreneurship and
Industrialisation in Southern Africa

Facilitator: Dr Henry Roman
Department of Science and Technology,
South Africa

Panelists:

Mr Kudakwashe Ndhulukula
SADC Centre for Renewable Energy and
Energy Efficiency, Namibia

Ms Zamanzima Mazibuko
Mapungubwe Institute for Strategic Reflection,
South Africa

Rapporteur: Ms Tinyiko Ntshongwana, DST

Ms Sumbi Mukumba Shimwambwa
Umwenge Green Electricity Supply Corporation
Limited, Zambia

Dr Rethabile Melamu
Green Economy Innovation Hub, South Africa

	<p>Regional Integration in Context: Intellectual Property and Technology Transfer</p> <p>Panelists:</p> <p>Dr Saudin Mwakaje University of Dar-Es-Salaam, Commission for Science and Technology (COSTECH), Tanzania</p> <p>Mr Malesela Lekoto Technology and Innovation Agency, South Africa</p>	<p>Facilitator: Ms Lungelwa Kula National Intellectual Property Management Office, South Africa</p> <p>Dr Brian Mphahlele South African Nuclear Energy Corporation, South Africa</p> <p>Rapporteur: Ms Refilwe Mashigo, DST</p>
15:30 – 16:00	Key messages of the day and wrap-up	Ms Mmampei Chaba Department of Science and Technology, South Africa
17:30 – 20:00	<p>Cocktail Presentation Session: Perspectives on Innovation in the SADC Region</p> <p>Facilitator: Ms Refilwe Mashigo Department of Science and Technology, South Africa</p> <p>Mr Letsogile Kennedy Eco-Hub, Botswana</p> <p>Mr Kaveto Tjatjara World View Technology, Namibia</p>	<p>Mr Stella Gonye Chengi Advanced Deflouridation Technology, Zimbabwe</p> <p>Ms Palesa Mahlangu Tech Savvy Kids, South Africa</p> <p>Cocktail dinner will be served from 18:30</p>
Day 2 - June 7, 2018		
8:30 – 9:00	Registration and Arrival	
9:00 – 10:30	Streamed Live from AIS Kigali 21st Century African Cities	
10:30 – 11:15	<p>Bridging the Regional Innovation Financing Gap</p> <p>Facilitator: Dr Vincent Nowaseb Science and Technology, Namibia</p> <p>Panelists:</p> <p>Ms Bongiwe Beja Silulo Business Incubator, South Africa</p> <p>Mr Ilary Lindy Southern Africa Innovation Support Programme, Namibia</p> <p>Mr Tendai Mazhude mLab - Southern Africa, South Africa</p>	<p>Ms Tanya van Lil Southern African Venture Capital and Private Equity Association, South Africa</p> <p>Mr York Zucchi SME Movement, South Africa</p> <p>Rapporteur: Ms Tinyiko Ntshongwana, DST</p>
11:15 – 11:30	Tea break	
Parallel Workshops		
11:30 – 13:00	<p>Synergising Trade and STI Policy for Industrialisation and Economic Integration</p> <p>Facilitator: Mr Joseph Senona Department of Science and Technology, South Africa</p> <p>Panelists:</p> <p>Mr Thabang Mamaru Department of Trade and Industry, South Africa</p> <p>Mr Thembelani Nhlabatsi Ministry of Information Communication and Technology, Swaziland</p>	<p>Prof Amos Saurombe University of South Africa, South Africa</p> <p>Rapporteur: Mr Sigfried Tivana, DST</p>

	<p>Opportunities for Industrialisation in the Water, Energy and Food Nexus</p> <p>Panelists:</p> <p>Prof Muthoni Masinde Central University of Technology, South Africa</p> <p>Dr Mamohloding Tihagale Water Research Commission, South Africa</p>	<p>Facilitator: Dr Rebecca Maserumule Department of Science and Technology, South Africa</p> <p>Dr Ereck Chakauya Southern Africa Network for Biosciences (SANBio), South Africa</p> <p>Rapporteur: Ms Zamanzima Mazibuko, MISTRA</p>
13:00 – 14:00	Networking Lunch	
Parallel Workshops		
14:00 – 16:00	<p>Innovation Tours:</p> <ol style="list-style-type: none"> 1. Innovation Hub (Pretoria) 2. CSIR: Bio-Manufacturing Industry Development Centre (Pretoria) 3. Tshimologong Precinct (Johannesburg) 	
Day 3 – June 8, 2018		
7:30 – 8:00	Registration and Arrival	
8:00 – 9:30	Streamed Live from AIS Kigali Institutions and Systems that Drive Innovation	
9:30 – 10:45	<p>Panel Discussion: Fostering Synergies between Innovation and Industrialisation: Institutional Mechanisms and Capacities</p> <p>Facilitator: Dr Chamunorwa Togo Sectors and Industry Development Innovation Hub, South Africa</p> <p>Panelists:</p> <p>Mr Patrick Krappie Technology and Innovation Agency, South Africa</p> <p>Prof Fiona Tregenna University of Johannesburg, South Africa</p> <p>Rapporteur: Ms Tinyiko Ntshongwana, DST</p> <p>Mr Nokwazi Moyo United Nations Industrial Development Organisation, South Africa</p> <p>Ms Rachel Sibande MHub, Malawi</p>	
10:45– 11:00	Tea break	
Plenary Session		
11:00 – 12:00	<p>Pitching Session Technopreneur</p>	
12:00 – 13:00	Networking Lunch	
Closing Plenary Session: TIA Seminar		
13:00	Welcome	
13:05	New Hybrid Instruments to Finance Innovation	Mr William Respondovesk Finep, Brazil
14:00	Private Sector Investment in Sub-Saharan African Electricity Infrastructure	Mr Julian Gregory University of Sussex, UK
14:55	The Relationship between Foresight and Policy-Making	Mr Garth Williams Technology Innovation Agency, South Africa
15:30	Closing Session	Mr Daan du Toit Department of Science and Technology, South Africa