This discussion saw the stage being graced by:
Hon Prof Silas Lwakabamba – Minister of Education, Rwanda
Hon Prof Naana Jane Opoku-Agyemang – Minister of Education, Ghana
Hon Anatole Collinet Makosso – Minister of Civic Education & Youth, Republic of The Congo
Hon Maj (Rtd) Jessica Alupo – Minister of Education & Sports, Uganda
Hon Maria da Silva Martins – Secretary of State for Innovation in Higher Education, Angola

Hon Anatole Collinet Makosso
In the early 1980s, training given to Congolese teachers did not foresee the explosion of technology we experience in education today. The government now understands the gap and is designing policies to match with the trend. The demographic settings are also putting pressure on the situation. The population growth and the skills gap are not matching at the same pace of technological advancement.

The national youth policy is designed to accommodate non-classical learning settings to allow a broader dissemination of knowledge to all Congolese youths, who will eventually acquire skills to start small businesses and create jobs.

With established finance programs small projects are increasing. The government is also investing in community centres and youth clubs across the country. In the next 2 years, at least 500 schools will be equipped with computers.
In Angola, there is a disconnection between the intermediate level and the labour market. The situation has made the country seek solutions that will create a holistic transformation across all sectors.

In 2003, Angola designed and kick started an inter-ministerial coordination program which will see the country implement a plan to fully integrate ICT in all sectors by 2020. Under the plan, the Ministry of Education has managed to create new courses that did not exist before. The courses provide an entrepreneurial skills set that will help Angolans meet labour market demands in terms of quality.

Angola's job market is applying more pressure and the government has reacted to this by increasing access to computer labs with internet access and providing more content to facilitate increased skills and knowledge dissemination. By 2017, Angola plans to have a comprehensive education system. This will be supported by current investments in:

- Fibre-optics for rolling out internet connectivity
- Connection to the global network of higher institutions of learning
- Virtual library with vast content
- Incubators that will provide specialised training and mentor-ship for youths and prepare them to be skilled and qualified for specific job markets
Hon Prof Silas Lwakabamba
Africans believe they have achieved access, but children are not learning per se. We should focus on relevancy and quality that meet private sector demands. African governments need to mobilise resources and this means involving the private sector, especially in the construction of laboratories, libraries, and the creation of learning materials.

All these facilities need electricity and other supporting materials. This is where the private sector comes in. In Rwanda's case, with about 3 million students expected to be learning from smart classrooms, such a plan can only be achieved through partnerships with the private sector. For example, Rwanda's plan of implementing e-learning programs must involve the private sector to provide content and tools to deliver a quality program.

Hon Prof Naana Jane Opoku-Agyemang
In Ghana we have key words: “Efficiency” and “Targeting”. After identifying the areas where to spend and put effort in order to utilize ICT into education, Ghana has allocated about $300m for a national ICT policy that involves the private sector to manage the holistic transformation of the education sector.

Now, there are multiple directorates of which include those in charge of infrastructure (dealing with telecoms), equitable access (focusing on youths), content development, monitoring and evaluation. All this is planned with the spirit to isolate challenges hindering progress in utilization of ITC in education and development.
The implementation plan with Ghana's policy is designed in a way that focuses on three elements; Pre-Service, In-Service and Post-Service. These elements have helped Ghana improve teachers' knowledge and teaching skills and the quality of institutions too. This Policy is very sensitive to all the sectors across the board. Ghana is also putting in consideration informal education settings such as TVETs, but in partnership with the private sector.

**Hon Maj (Rtd) Jessica Alupo**

Like any other African countries, Uganda is implementing universal primary and secondary school education. Throughout the process, there are plans to complete gray areas in the education system. For example, there is an ongoing project equipping all schools with computer labs and a trainer. Right now, out of 2,000 schools, only 20% are not covered.

To ensure Uganda matches with the technological advancement and use of ICT, all maths and science teachers are motivated with a 30% increment on monthly allowances. Currently, there are incentives that encourage teacher students to take science and maths courses. Also, since 2009, with the support of the Irish and the Japanese governments, Ugandan students access extra support during holidays to study and get help to upgrade their skills and knowledge with the use of IT tools.

The Ministry of education is also partnering with role models in the ICT industry to provide students with exposure to reality. With the community centers in every village now, students and other youths are able to upgrade their skills and informally squire more knowledge. University students are annually challenged to present and compete in innovation projects.
Innovation Africa 2014

South-South Partners Day
Hon Amb Valentine Rugwabiza
Investment in ICT infrastructure in Rwanda has helped reduce the cost of communication 20 to 30 times. The cost of 1GB has gone from $2,000 to as low as $200. With the harmonized tariff and a single area network for telecoms of Kenya, Uganda and Rwanda, facilitated with a fair regulatory system, people of these countries have benefited tremendously.

Rwanda has commercially launched 4G LTE connectivity and expects to have at least 95% coverage by 2017, but not replacing 3G. This will help Rwanda’s plan to fully implement the smart classroom which will need faster internet.

EAC countries have agreed to harmonies individual investments to maximize utilization and for Rwanda all these investments have brought down the cost of doing business and making life easier.
Hon Malama Mwimba
Zambia approved a 30% increase in budgetary allocation to infrastructure investment and has seen the country achieve the following; establishment of massive tower roll out to facilitate communication and has helped telecoms push services to the farthest rural areas.

A 10,000km fibre optic cable has been laid across the country and is expected to propel Zambia to a higher competitive level once connected to broadband. Meanwhile, the country wants to ensure 500 towers are rolled out across the country. However, we still have 80% of the population not connected to the internet, which creates opportunities to investors.

Zambia has many areas where the private sector can exploit and these include: Software market, where government needs applications and software for e-gov (agric, education, mining and so on), infrastructure (roll out of the cables) content creation, data centres for crowd computing and training.

Hon Prof Hlengiwe Mkhize
South Africa’s 2030 ambitious plan is to have all youths equipped with skills and tools to compete globally. Investment into special computer labs has helped students and teachers, with cutting edge results.

With the investment in connectivity, and consolidated coordination, rural schools have been able to access quality education. The special economic zone offers opportunities to the youths. The manufacturing of ICT tools, jobs, and experience are all benefits from these huge investments. Meanwhile, the government is waiting to see private sector's good will to ensure all these investments are spread equitably across the country.

Chair by Mr Nigel Bruin, Principal Consultant, Huawei Technologies

Innovation Africa 2014
Investing in Communications Infrastructure & Last Mile Connectivity
Mr Solomon Mhlanga
Zimbabwe's public sector is heavily investing in paper-less service delivery to ensure efficiency and the department is coordinating all ministries to implement e-services in all sectors. Investment has helped mining, local government and other ministries improving service delivery. Zimbabwe offers a wide range of investment opportunities and partnerships, especially in the area of connectivity.

The country has left the roll out of 4G for the private sector to exploit. The government has focused on 2G to allow even basic connectivity to every part of the country to close the digital divide gap.

Mr Douglas Craigie-Stevenson
Africa is Vodacom’s largest ICT market. The company is now able to get involved in different activities and offer other services apart from communication. However, despite the investment, there are still challenges with the policies that have failed to speed up the extension of services to as many people as desired. There is general good will from the private sector because ITC is seen as a facilitator and the level of innovation has to be high. The private sector however, must deliver to the shareholders and keep in mind responsibility.
Innovation Africa 2014
South-South Partners Day
Hon Francis Gatare
Rwanda's approach has been not to compete with other countries, but to collaborate in a way where Rwanda's competences have ended up making the country an easy place to do business, as has been reported by the World Bank and the world economic forum. “All this has made it easy and low cost to do business in Rwanda”. Rwanda began with investing into VISAT facilities to allow exchange of material with other institutions of learning around the world and created a virtual university.

All universities were equipped with faster internet paid by government. Then followed the One Laptop per child initiative, which is succeeding in creating businesses opportunity for content creators. Rwanda has also invested in a special campus for Carnegie Melon University, to produce students with cutting edge technology to compete in the world labour market.

Hon Prof Paul Mavima
Zimbabwe's infrastructure and education systems were not designed to match with emerging ICTs. Slowly, private sector investments into ICT created a situation to which the government had to respond but eventually there has been a demand for a clear government strategy. For example all the 8,500 primary and secondary schools are expected to have computers installed. Plans are to have internet aided teaching with specialized content.
Hon Esther Ndirangu
Traditional learning methods have failed to deliver the best quality and appropriate education. Early child education is essential and now the focus is to provide access to quality education.

Kenya is responding to the situation by investing in computers for every student so as to facilitate their studying. Of course the idea of the one laptop per child has received a mixed reaction. People were asking how the Kenya government could give computers to people who have no classrooms and unqualified teachers.

But Kenya insisted computers did not need a roof to be used. The most important element is ensuring these gadgets have access to the internet, content and electricity. Kenya has also identified the need to emphasize teaching mathematics and English as main enablers of learning other skills.

Dr Elizabeth Vukeh Tamajong
Cameroon is creating a competitive trend even among the youth. To encourage innovation, an annual competition awarding $40,000 has accelerated competitiveness in seeking skills and knowledge and job creation.

We in Cameroon are slow in responding to gender equality by promoting women. Through this we have been able to increase impact on society with women applying their skills.
We have a plan to move from an agricultural based society to a knowledge based one by 2020. We also aim to become a 100% paperless government. This transformation has multiple components alongside it, and can be traced in three forms.

1. Creation of the ecosystem, the infrastructure, connectivity and accessibility, of which this phase has almost been completed. This is supported by leadership and the right strategies.
2. Innovation, where we find creation of innovative concepts such as what is at the technopole or the ICT Park. Content, Data Centres, software Multimedia centers and so on.
3. Transformation; this is the last phase where Rwanda will experience the results of the chain of vision.
Hon Prof Luis Augusto Pelembe
In 2005, the government separated the ministry of technology and education to give way for the expansion of the ICT sector. Now the ICT ministry has grown stronger and wider with various institutions attached to it. It has since achieved several goals, such as investment into the sea cable, community tele-centers, research and centres of excellence and infrastructure and tools that support other sectors especially education.

Mr Aboubacar Coulibaly
Cote d’Ivoire investment into the ICT sector is not very significant yet, compared with the potential the industry has. We are at an early stage of integrating ICT into education. Yes, there are robust investments in transforming public service delivery, but we are generally open for partnerships in many areas such as investment into computers for schools, internet accessibility, and content creation.

Cote d’Ivoire has begun a project to roll out e-government like other countries, and we have put a lot of emphasis on e-education where we want to create content for consumption but we are still at an early stage of integrating ICT into education. We still have over 1,500 schools which need computers, internet and then the content to consume. Obviously we are looking for partners to help us implement some of our projects.
Chaired by Mr Paul Alexander, Strategic Partnerships Manager, Google for Education

This discussion saw the stage being graced by:-

Hon Liteboho Joyce Kompi – Deputy Minister of Education & Training, Lesotho
Mr Isaiah Nyaribo – Senior Deputy Secretary for Education, Science & Technology, Kenya
Dr Jonathan Mbwambwo – Deputy Director of Higher Education, Ministry of Education & Vocational Training, Tanzania
Mr Lucky Moahi – Head of Botswana Education Hub
Mr Nkubito Bakuramutsa – Senior ICT Advisor, Ministry of Education, Rwanda

Hon Liteboho Joyce Kompi
We have 124 primary schools and 378 secondary schools. Since 2000, we have been providing free meals to students which has improved the health and academic performance. In terms of infrastructure, Lesotho has already invested in some infrastructure.

We have invested in a 4G network and have taken the opportunity to use it. More than half of our secondary schools are already connected to the network. We don’t have enough resources yet, and we are looking for partners to assist us to roll it out to all schools. Meanwhile we are training all teachers to be able to utilize these resources as well.

Mr Isaiah Nyaribo
We are a 40 million population and we face the same challenge of using ICT especially in Education. We have trained over 14,000 teachers in ICT and managed to connect 10,000 schools to the national power grid and 800 others in remote areas have been installed with solar panels. We believe by July 2015 we will have all schools connected with power. By the time we roll out computers in schools, they will be able to be utilised. ICT is very much appreciated and to a great extent is already integrated into education. Parents are our good partners and are helping in the process.
Innovation Africa 2014

Cloud Connectivity to Empower Teachers & Students

Chaired by Mr Paul Alexander, Strategic Partnerships Manager, Google for Education

Dr Jonathan Mbwambwo

Tanzania has a big ambition of rolling out connectivity across the country, despite the challenge of its large size. Now all schools are connected to national fibre optics, which is a great step. We are also guided by our ICT policy which intends to help Tanzania become a middle income economy. We are taking advantage of Mobile phones in many ways, for example students can register using their phones or apply for student loans with them. And we intend to expand more ways with many applications in other areas.

Mr Lucky Moahi

We are still limited in terms of connectivity, and we need more capacity in this area. However, we have a problem establishing a packaged network of ICT in education. We have issued a tender to find a partner who can connect schools to the network. With the existing connectivity, we are trying to provide between 5mbs and 10mbs. AT least 90% of schools are connected to the power grid.

Mr Nkubito Bakuramutsa

Rwanda has invested in the distribution of computers (About 300,000 computers under the OLPC) for students to be able to improve their learning and so they can access more content outside the classic learning model.

We have a fibre optic network laid across the country with 4G connectivity. Our schools, each with a local area network, students and teachers can access content on a server. The same has happened for students with impairments. For example there are schools with facilities for the deaf who are now learning through using special gadgets that have helped them become the most creative and innovative programmers. Because they are not distracted by a noisy environment, the students have been able to perfect programming skills.
Hon Serge Zoniaba – Minister of Technical Education, Professional Skills & Employment, Republic of The Congo

Mr Liboire Bigirimana – Permanent Secretary for Basic, Secondary Education & TVET, Burundi

Prof Innocent Mugisha – Director General, Higher Education Council, Rwanda

Prof Jilani Lamloumi – President, Tunis Virtual University, Ministry of Higher Education, Tunisia

Mrs Balimbi Julie Etombi – Inspector General, Ministry of Employment & Vocational Training, Cameroon

Hon Serge Zoniaba

The Congo has designed a $32m 5 year technical education program targeting about 8 million youths between 18 and 30 years old. The project, with 120 programs at international standard, intends to provide skills to produce micro-entrepreneurs with skills in various technical abilities.

The challenge with the program is finding trainers to train the youths. However, the government is engaging the military to help implement the project. The army has more resources, tools and engineers and many others skills, which they will transfer to as many students as possible in some areas of concern. The Congolese government is currently offering scholarships to girls who take science courses to encourage more girls to take science subjects. Meanwhile, Congo has set up an observatory committee to study and assess the needs of the job market in order for the government to adjust the curriculum that responds to their needs.
Mr Liboire Bigirimana
Burundi is facing a challenge of changing the mentality of parents who wish to take their children to technical schools. This is because the system is historically known to be an option for students who were seen as academic underachievers.

However, the government has designed programs that were absolute in the education curriculum, such as agri-processing, hospitality, and automobile repair. There is a special fund that has been put in place which is supplemented by incubation centers to ensure the production of highly skilled students. The government is seeking partners in this project and to be able to roll it out to as many youths as possible, improving our country's productivity.

Prof Innocent Mugisha
Faculty members were not born yesterday, and we are products of those members. We should capitalize on the experience they have; knowledge, wisdom and experience. With ICT coming, we are making sure that the faculty members we are targeting, do recognize the paradigm shift and appreciate that ICT is coming to help make their work better and not a replacement.

Some still see it as ICT making their work relevant. We in Rwanda are making our policies coherent. Even the person in the lecture room is aware of everything happening from top to bottom. Even institutional policies have to bench their program based on the national policy. Even the private sector is in the line with program.

That is why we have the continuous assessment performance based approach. We recognize what happens every day in developing student competencies. This is happening all along, from primary level to higher education.
To address high unemployment, since 2002, the government has invested in transforming 20% of useful models into electronic material and has created a virtual university for many youths to voluntarily acquire knowledge. The same has been done to allow students in school to expand their learning efforts. This has relieved pressure on teachers because students find themselves voluntarily teaching themselves.

Cameroon has historically from the 1950s had artisan centers. The centers were traditionally meant to accommodate school drop outs and academic underachievers and served a purpose until the 1990s.

When Cameroon experienced a depression, there was no employment through the country. The centers, which had been dilapidated and obsolete, turned out to be the ideal place to start creating skills to improve productivity and eventually create employment.

As time went on, with reform within the education sector and matching with the current trend of the need for technical skills, centers have since been rehabilitated and equipped with modern equipment and offering professional skills. Out of the 106, ten have been completed and by 2015 all will be equipped with proper facilities and training courses.

The government has sent teachers to South Korea for training to come back home and train in the centers with 14 priority sectors including automobile, IT, and many more. More girls are taking science and IT courses. This has been a result of government scholarships attracting more girls resulting in them taking more technical courses.
This discussion saw the stage being graced by:-
Hon Leda Florinda Hugo – Deputy Minister of Education, Mozambique
Hon Vincent Wystone Ghambi – Deputy Minister of Education, Science & Technology, Malawi
Mr Seliki Tlabane – Chief Director of Basic Education, South Africa
Mr Ato Theodros Shewarget Belew – Director General for Education, Ethiopia
Dr John Rutayisire – Director General, Rwanda Education Board

Hon Leda Florinda Hugo
Mozambique has initiated a strategic education program in line with MDGs, targeting increased enrollment and training of more teachers to improve the quality of education. The government expects to have 108 teachers coming every year by 2016. The government plan is to increase budget allocation to the sector to 19% by 2018. Out of that, 51% goes to secondary school and 33% to primary school.

There is a plan to increase teachers' salaries to ensure the profession remains competitive in order to produce quality students. The government has also introduced new courses that never existed before such as robotics and other courses that produce graduates that impact gross national productivity.
Hon Vincent Winstone Ghambi
Malawi has invested in vocational training schools, and is targeting to increase the number of youths with hands-on skills that are employable and for those who can create jobs. Also, the government has made computer literacy a compulsory course and teachers are taking short computer training courses.

Our ICT policy is being reviewed so as to match with technological needs. Malawi is inviting different partners to use these policies so as to facilitate our desired output.

Mr Seliki Tlhabane
South Africa is a rapid growing economy and critically needs to produce graduates who can support our desired growth trend. The government has given financial support to achieve this goal and 50% of graduates are now coming from STEM fields, which is close to ¼ million youths. The government is not yet happy with the extent of its achievements with regards to STEMs and is inviting partners to help push further.

To spread this impact, South Africa has initiated the policy of increasing pay for teachers going to the rural areas so that students in the villages get the same quality of education as those in urban areas.
Mr Ato Theodros Shewarget Belew  
Ethiopia has over 23 million students, with 500,000 undergraduates every year. In regard to curriculum development, we have a set 6 components that strengthen the education sector;  
Using ICT as a main driver in education, we have planned to connect all colleges to a single data center to share resources and maximize knowledge sharing.

We have invested in over 8 million textbooks supported with Digital content. After connecting all schools to the internet and Satellite TV with 12 channels, each with content, we have managed to deliver education in an interactive teaching approach in classrooms.

Dr John Rutayisire  
Curriculum is much more important than what is written in the books. Curriculum is the method. In Rwanda we reformed the curriculum in 1996. We have also managed to integrate the innovation and ICT tools available to make our curriculum competence based. We have looked at all our government development polices, such as the labour demands of the future.
Innovation Africa 2014

The Economic Payback of Smarter Education

Chaired by Mr Miguel Stief, Chief Executive Officer, Positivo BGH

This discussion saw the stage being graced by:-
Hon Prof Silas Lwakabamba – Minister of Education, Rwanda
Mr John Davies – Vice President, Intel World Ahead Program
Mr David Fairbairn-Day – Head of Education Strategy, Promethean
Mr Augustin Nsabiyumva – Advisor to the Minister of Higher Education and Scientific Research, Burundi

Hon Prof Silas Lwakabamba
We realise we don't have minerals in Rwanda. Our resources are the people. And the only way out is to build their skills, which involves a lot of work. Meanwhile, we want in the next 3 years to have Rwanda connected to the Internet.

We have initiated several programs apart from the infrastructure for example by providing tools, such as laptops (One Laptop Per Child) that help roll out skills. We will have smart classrooms soon and we have partnered with POSITIVO to provide 150,000 laptops per year beginning in 2015. Also, by end of 2020, the education system will have changed where the country seeks to have 60% of students going to technical schools. Schools in rural areas that are not connected to the electricity grid, have been installed with solar panels to ensure there equal access to e-books and more computers will be distributed to both primary and secondary schools.

All this comes at a time while Rwanda is focusing on connectivity. In 1995, 10mbs was costing about $10,000 and now with more investments and expansion, it has gone down to $150. By then schools could only afford about 1mb and only about 15 students could use it.
Mr John Davies
Total cost in investing in broadband has been an issue of discussion. We have to look at the cost of the Internet, devices, and maintenance, all as a package. We need to work with broadband companies in Africa to be able to deliver prepaid broadband to people at less than a dollar.

Basically, when everyone has had their input, be it the government lowering taxes, telecoms companies selling at lower prices and more affordable devices, in the end, it’s the students who benefit and thus will impact positively on the education sector.

Mr David Fairbairn-Day
We have realized that ITC in education is very important and we have been carrying out small scale prototype research. We believe in the next few years more research will help understand what the future holds. It will help in the area of cost effectiveness, usability by teachers, especially those who have experience in teaching, but not from an ICT era against those who are from the current ICT era. All this will help you find out what we get out of it as a society and as an economy at the end of it all.
The Economic Payback of Smarter Education

Breakdown of 398 attendees by Country

- Angola - 6
- Argentina - 4
- Belgium - 1
- Botswana - 5
- Burundi - 5
- Cameroon - 6
- Cote d'Ivoire - 2
- China - 2
- Egypt - 1
- Denmark - 1
- France - 4
- Ethiopia - 3
- Ghana - 2
- Germany - 7
- India - 6
- Hungary - 1
- Italy - 1
- Ireland - 3
- Jordan - 3
- Kenya - 34
- Lesotho - 2
- Malawi - 4
- Morocco - 2
- Mozambique - 5
- Namibia - 2
- Nicaragua - 1
- Nigeria - 12
- Portugal - 5
- Republic of the Congo - 5
- Rwanda - 122
- Senegal - 1
- Singapore - 1
- South Africa - 52
- Swaziland - 2
- Switzerland - 1
- Tanzania - 5
- Taiwan - 1
- Turkey - 1
- Tunisia - 1
- Uganda - 9
- United Arab Emirates - 21
- United Kingdom - 24
- USA - 6
- Zambia - 6
- Zimbabwe - 10
Over 400 influential decision makers took part in Innovation Africa 2014. This included over 150 ministers and officials representing education, higher education and ICT from 26 African countries. Over 250 investors and corporate delegates participated in the forum as industry partners and delegates who were able to maximise their time in Rwanda through the unique AfricanBrains pre-scheduled meeting system. The meeting sessions included 40 roundtables hosted by various ministries, culminating in over 760 pre-scheduled meetings taking place during the event. These meetings were preceded by the panel discussions that tackled the key issues of the day – national education strategies, last mile connectivity, investment in ICT for education, skills development, curriculum, training and the use of technology to empower teachers and students.

This was the fourth edition of Innovation Africa and each year results in deals being brokered and investment being made into education in Africa. Industry partners can now boast to signing agreements which include investing in the construction of a factory for laptops and mobile devices in Rwanda, training programs in Botswana, software applications in Kenya and South Africa. As well as curriculum development in Rwanda, Tunisia, Tanzania and the Republic of Congo, ICT for education in the classroom in Mozambique, Zimbabwe and Cote d’Ivoire, investment in connectivity in Zambia, Namibia, Uganda and Angola plus overall education infrastructure investment in Ghana, Nigeria and Liberia.

Innovation Africa is aimed at producing genuine output through developing public-private partnerships in education. As each year goes by we see such output snowballing across Africa and we are delighted that Innovation Africa 2015 is confirmed to take place in Uganda, 30 Sept – 2 Oct with Mozambique already requesting to host Innovation Africa 2016.