



THE AFRICAN CAPACITY  
BUILDING FOUNDATION

FONDATION POUR LE RENFORCEMENT  
DES CAPACITES EN AFRIQUE

# Development Drivers in Africa: Role of Innovation

*Kobena T. Hanson and Frannie A. Léautier*



ACBF

OCCASIONAL PAPER No. 14, 2011

THE AFRICAN CAPACITY BUILDING FOUNDATION

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7th Floor, ZB Life Towers, Harare, Zimbabwe

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The African Capacity Building Foundation  
First printing September 2011  
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This Occasional Paper argues that innovation in development is an additional factor underpinning Africa's development and that it is important to see how pro-poor innovation can further contribute to resolving the remaining challenges. The paper interrogates what is needed to spur innovation and concludes that policies to support innovation need to be viewed from a short, medium and long-term perspective. In so doing the paper emphasizes the role of regional integration and the need for a coordinated and collaborated approach.

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**ISBN:** 978-177937-030-3

# Development Drivers in Africa: Role of Innovation<sup>1</sup>

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<sup>1</sup> An earlier version of this paper was presented at the Annual Meeting of the African Development Bank in Lisbon, Portugal on June 7<sup>th</sup>, 2011.

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# THE AFRICAN CAPACITY BUILDING FOUNDATION

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The Foundation is present in some 44 sub-Saharan African countries and has committed more than US\$350 million to interventions in capacity development since its inception.

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## ABSTRACT

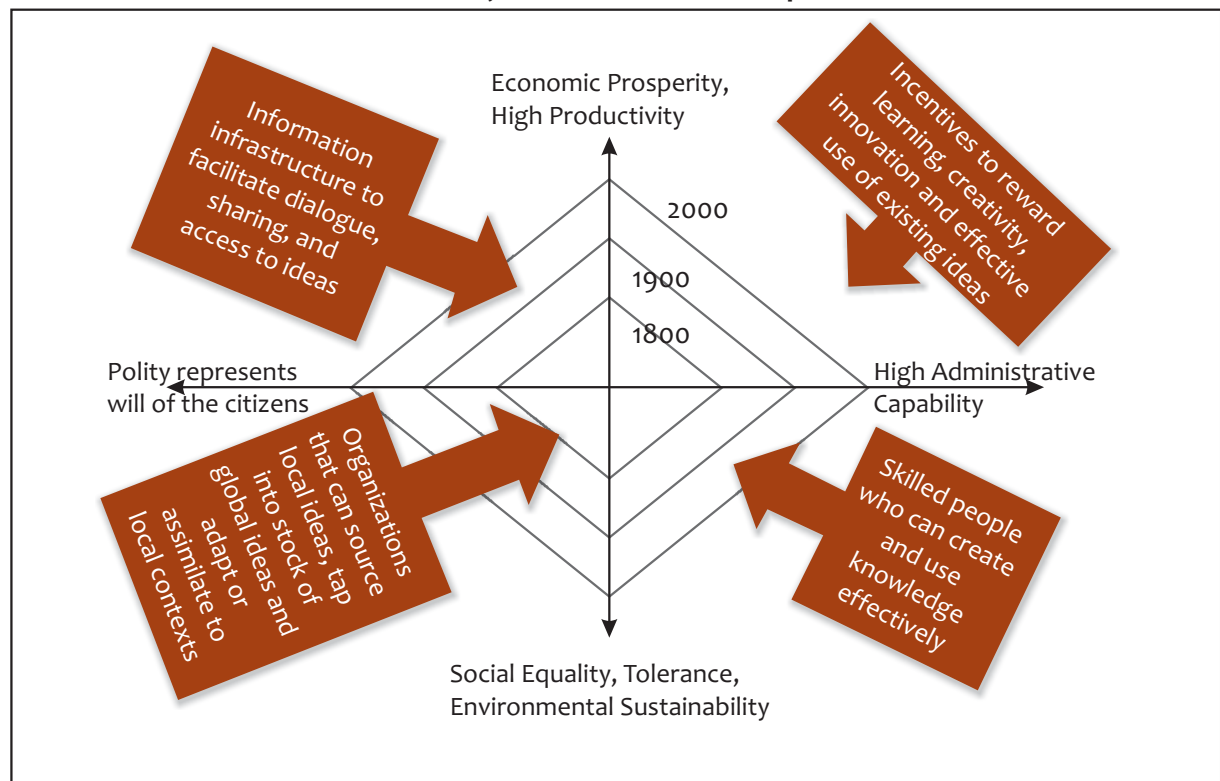
Africa has recovered from the 2008-2009 financial crisis and posted high growth levels as seen before the crisis. The region has also been able to generate a sizable middle class of over 300 million people, who are educated, connected, and aware. Such success was possible partly because of the discipline in putting in place the right macroeconomic policies and managing to stick with difficult reforms despite the crisis. The key issue now is how to speed up development that reduces poverty and creates jobs in a sustainable manner. This paper argues that innovation in development is an additional factor underpinning Africa's development and that it is important to see how pro-poor innovation can further contribute to resolving the remaining challenges. We interrogate the work that is needed to spur innovation and conclude with the role of capacity development institutions such as the African Capacity Building Foundation to support innovation systems.

**Key words:** Africa, capacity building, development, knowledge flows, innovation systems

## I. INNOVATION AND DEVELOPMENT

History has shown that it took developed countries hundreds of years to arrive at the fast-paced modern economies we see today. Economies in developed countries are generally highly productive and deliver prosperity to their people. Such countries are able to deliver complex services because they have evolved high administrative capability. Developed states are often also characterized by high social equality, tolerance for diversity and environmental sustainability. The way developed states are governed is also a distinguishing feature as these states have a polity that represents the will of the citizens. Pritchett (2010; Pritchett et al., 2010; Pritchett and de Weijer, 2010) argues that without a fundamentally different way of looking at development, it would take least developed countries, most of which are in Africa, thousands of years to reach the development levels of Denmark if they follow the trajectory pursued by advanced economies. For Africa to leapfrog development and achieve results in a shorter amount of time, it will require a set of innovations in policies, implementation arrangements, and institutions aimed at speeding up the achievement of development results (Fig. 1).

**Figure 1. How can Innovation Contribute to Africa’s Development as Viewed by the Pritchett Four-Fold Transformation Trajectories in Functional Space?**



Source: Adapted from Lant Pritchett, 2010 and Carl Dahlman, 2007

We argue that there are four key ingredients that need to be in place for Africa to uncover innovations for development results and poverty eradication. These include: (1) a critical mass of skilled and creative youth in an open and inclusive space where they can tinker and experiment with a

variety of ideas; (2) a set of organizations that can source ideas from the populace, embed them in incentives for action, and adapt strategy and implementation to changing conditions; (3) an information infrastructure that can facilitate dialogue and learning, speed up the sharing of ideas and knowledge, and enhance access to ideas and approaches; and (4) incentives to reward learning, innovation, and creativity.

### **Creative Youth in an Inclusive Space**

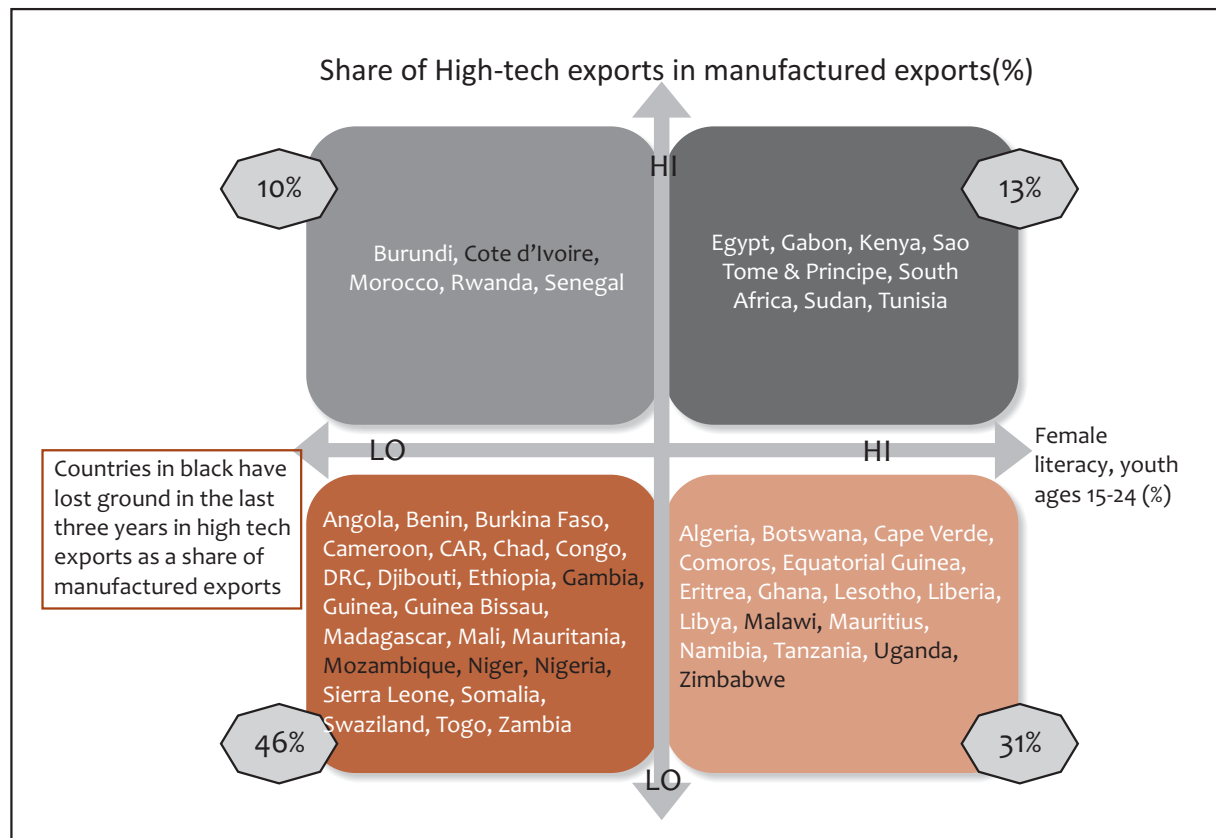
Africa already has many of the key ingredients for speeding up development results in place. The region has a critical mass of 200 million Africans aged between 15 and 24 years old, making up 20% of the total population of Africa. Africa's population growth of 2.2% per year and the fertility rate of 5.2 children per woman is the highest in the world, contributing to adding about 10 million youth into the labor force each year. So there is a critical mass of young people in the region. But countries differ in how prepared these youth are and how they are using their skills in a creative manner.

Consider the correlation between educational attainment and innovation, which can be measured through proxies. We represent educational attainment by the female literacy rate among youth ages 15 to 24, as educating girls is a combined measure of access and equality. We represent innovation by the share of high-tech exports in manufactures. Only 13% of countries in Africa have reached a high state of female youth literacy and are also making headway in high tech exports. Such countries seem to be poised for rapid innovation. A few countries (10%) are able to generate high-tech exports at low levels of female youth literacy. In these countries there is a missed opportunity due to the lack of inclusion of the ideas of women which could help speed up innovation if properly utilized. A third of the countries (31%) have high female youth literacy--indicating that they have invested in inclusive education--but have not been able to tap the high exports market. Such patterns are common as many countries have increased the number of educated youth but have not provided them with the requisite competence levels in science and technology. The majority of countries (46%) however are lagging in both the literacy of young women and high tech exports.

The patterns match with the conclusions made by the World Bank (2011) that many countries in Africa still lack the skills and competence in science and technology that underpin rapid innovation and development of technology needed to transform their economies and societies. Analysis indicates that some countries have been able to develop both the education system and the innovation space, creating highly competent people, but due to political instability, they have not been able to sustain these high levels of innovation. These include countries like Cote d'Ivoire which has lost ground over the years after having achieved high levels of education achievement and high tech exports (Fig. 2).



**Figure 2. Critical Mass in a Creative Space: Patterns of Female Literacy and High-Tech Exports in Manufactures**



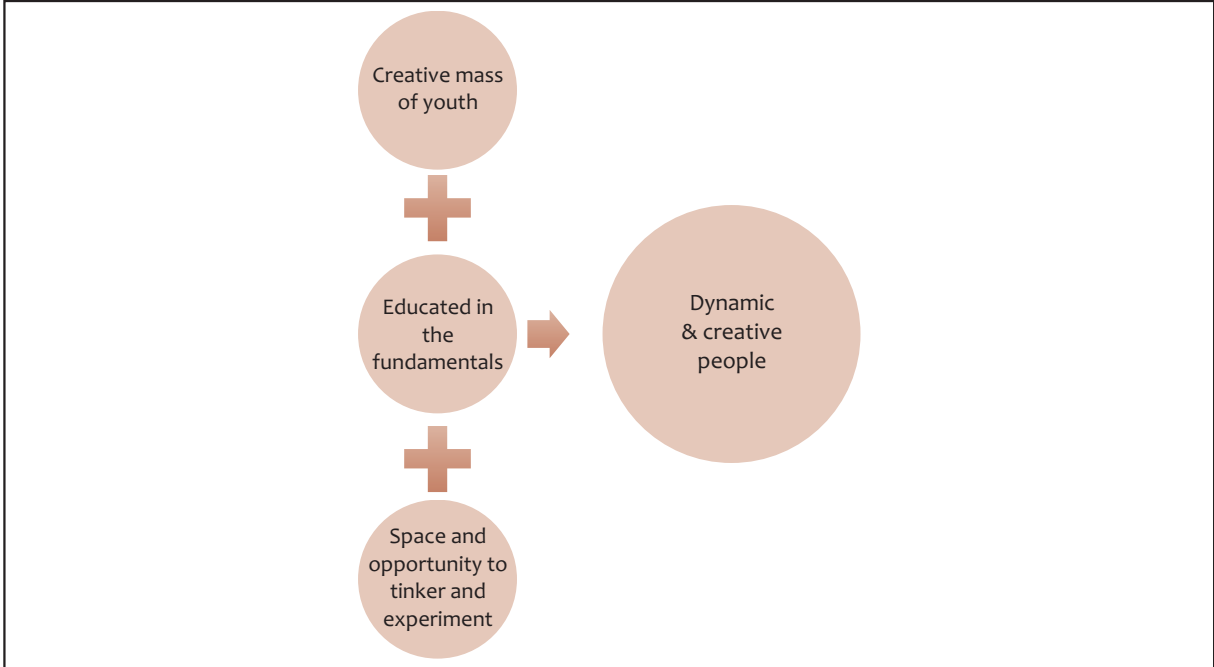
Source: Produced using data from WDI 2010

### Adaptable Organizations

Capable organizations with high administrative capability to develop and engage the population on strategy are needed in order to source ideas from a wide space. Countries with such organizations would be able to forge ahead in implementation as their development strategies would be broadly legitimate and owned by the majority of the populace. Capable organizations are also characterized by their ability to build in incentives for results and compliance with intended objectives and are flexible in adapting to changing situations and contexts.

A survey of bottlenecks to development in Africa indicated that progress has been made by a number of countries in ensuring development strategy is broadly owned. However, very few countries can boast of having organizations that can embed incentives for delivery on development strategy and even fewer have systems that are flexible enough to adapt to change. Furthermore, not a single country surveyed has a very high or even high level of capacity to implement strategy and policy. For Africa to achieve the high growth rates needed for eradicating poverty it has to focus on capacity to get things done. This requires innovation in process and systems that relate to how priorities are selected, how performance is measured and rewarded, and how results are tracked and evaluated.

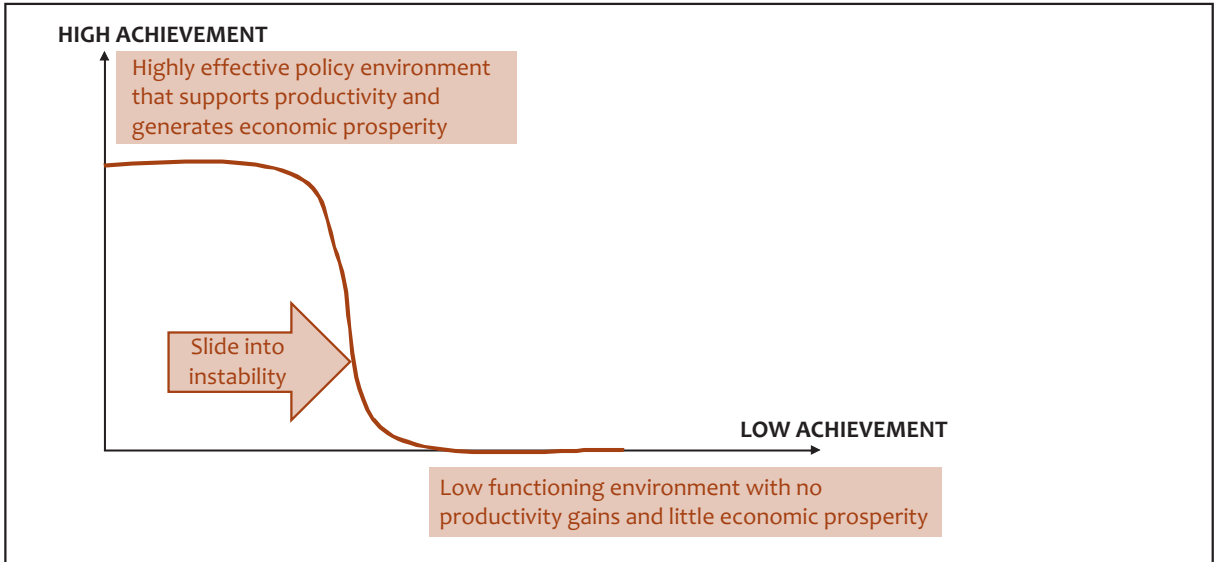
**Figure 3. The first ingredient in the soup: creative youth in an inclusive space**



Source: Author, 2011

For countries to succeed in developing rapidly, they also need to have a highly effective policy environment that supports productivity and generates economic prosperity, and to do so successfully over time. Countries with low functioning environments would post no productivity gains and would see little economic prosperity. There is also a risk that countries slide into instability if the changes in policy needed are not implemented and if efforts to implement development programs cannot be sustained (see Fig. 4). Observations by development experts indicate that the slide into instability can be quite sudden if development results are not achieved (Pritchett, 2010; Pritchett and de Weijer, 2010; ACL, 2011).

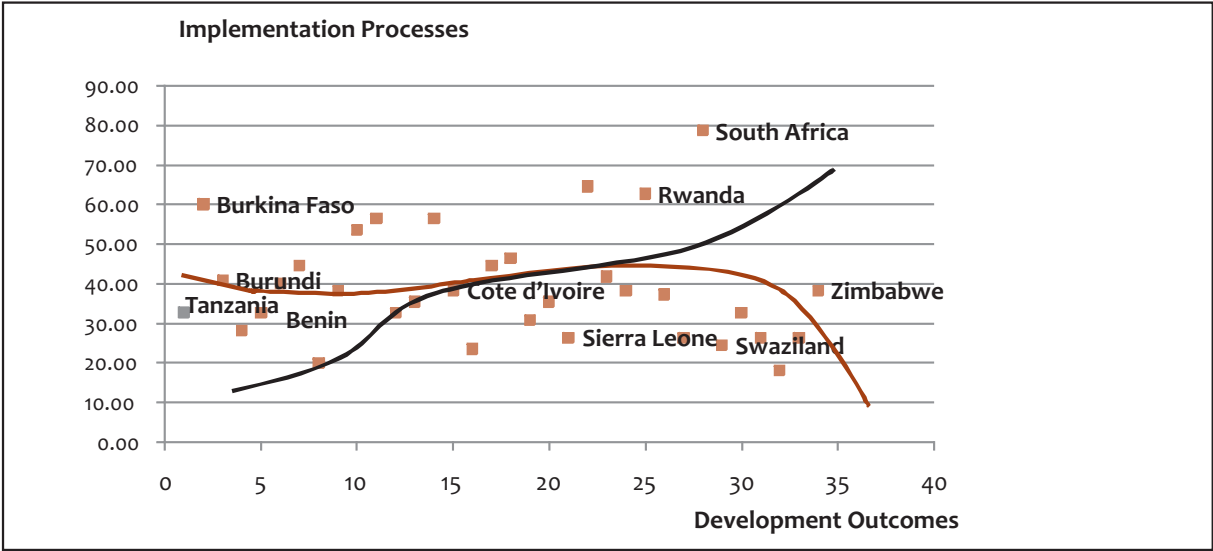
**Figure 4 Pattern of Change in Creating an Enabling Environment: Stability with sudden drop-off**



Source: Author, 2011

An analysis of achievement in implementing development programs as measured by the effectiveness of implementation processes against achievement of development outcomes shows that most countries in Africa follow the pattern hypothesized by Pritchett (2010; also Pritchett and de Weijer, 2010). However, there is an interesting set of countries that seem to be breaking away from the pattern of sliding into low functioning environments. Such countries like Burkina Faso, Rwanda, South Africa and Tanzania have succeeded in building in flexibility and adapting their approaches for better results (Fig. 5).

**Figure 5. Some countries seem to be breaking away from basic pattern but stable countries risk falling into fragility due to lack of results**



The high economic growth rates in Africa have been driven by a huge expansion in the non-manufacturing sectors like mining and other extractive industries. This trend has been good for generating high levels of GDP but did not create many jobs, partly because of the high capital to labor ratio.

Innovation is much needed to help Africa transform itself in areas where it has expanded its activities in sectors like mining, to create more value before export and more opportunities for utilization of science skills and development of technologies.

Countries in Africa have developed differentially by stage of transformation. Rwanda depends more on primary products, which were responsible for 69% of its exports in 2009. A priority assessment done for the country indicates that there is a shortage of scientific and engineering skills to transform the mining products into first stage intermediary exports. Investment in energy is also identified as a critical gap holding back the speedy development of the country into middle income status. Rwanda needs capacity to further grow its high tech industry, which at a level of 4.8% of exports, is higher than that of South Africa at 2.1%, but has the capacity to expand and serve the development needs of the landlocked country.

Burkina Faso has shown some success in developing intermediary products in key sectors, including first stage processing of products like cotton into textiles and Shea nuts into base products for lotions and shampoos. With intermediate products commanding a share of 54.1% of exports, the country is doing almost as well as South Africa. Tanzania, for example, has tried to seek innovations in consumer products and has used its tourism industry to drive exports in a number of areas. Consumer products at 5.5% of exports are at a rate higher than that of South Africa and Rwanda (Fig. 6). South Africa has diversified its economy and introduced innovation in production dependent on high capital investments as well as the consumer products sector much aided by having hosted the World Cup in 2010. The country has a diversified economy with growing shares of exports in areas other than primary products.

**Figure 6. Economic Prosperity and Productivity: Countries looking beyond natural resources and learning from the BRICS**

Share of exports in 2009 by Stage of Transformation in US\$

Country	High Tech Products	Primary Products	Intermediate Products	Capital (Equipment)	Consumer Products
Burkina Faso	0.0%	43.6%	54.1%	1.0%	1.2%
Rwanda	4.8%	69.0%	16.3%	7.5%	3.1%
South Africa	2.1%	29.1%	58.3%	9.7%	2.9%
Tanzania	0.6%	42.6%	45.2%	3.4%	5.5%
Country	High Tech Products	Primary Products	Intermediate Products	Capital (Equipment)	Consumer Products
Brazil	5.2%	31.0%	55.6%	7.8%	3.8%
Russia	1.4%	49.8%	36.6%	2.5%	0.9%
India	5.9%	8.8%	54.4%	9.5%	22.8%
China	14.8%	1.9%	29.3%	41.6%	27.0%
South Africa	2.1%	29.1%	58.3%	9.7%	2.9%

Source: Calculated from World Bank Datafinder

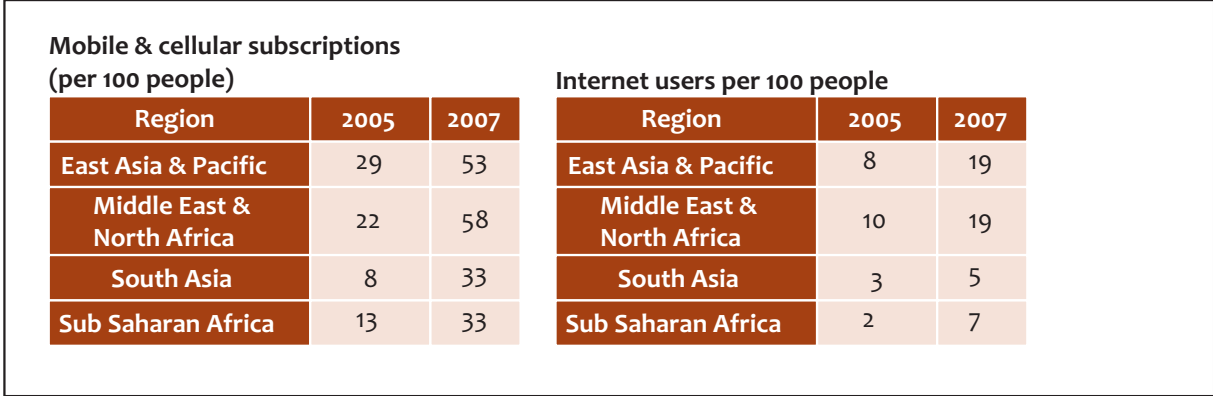
Africa has a lot it can learn from the BRICS (Brazil, Russia, India, China and South Africa) in how to innovate in all stages of transformation. It can learn how to use research and innovation to transform the agricultural sector from Brazil. From Russia, lessons on exploiting science and technology for extraction would be very valuable for Africa. India can provide lessons on dealing with food security and growing high tech exports using innovation. This includes investment in education systems that generate the skilled and competent people needed in science and engineering. From China lessons on how to innovate in implementation would be extremely relevant to bridge the capacity gaps currently present in Africa. Other countries in Africa can learn from South Africa in speeding up the development of intermediate exports and their supporting logistics systems which are so critical now in global manufacturing chains.

**Effective Information and Knowledge Flows**

An effective information infrastructure is equally critical to support innovation at all stages of transformation. Africa has done very well in connecting people to mobile information and communications technologies (Fig.7).

The number of people with mobile and cellular connections at 33 per 100 is the same as in South Asia and there are more internet users (7 per 100 people) in sub-Saharan Africa than there are in South Asia (5 per 100).

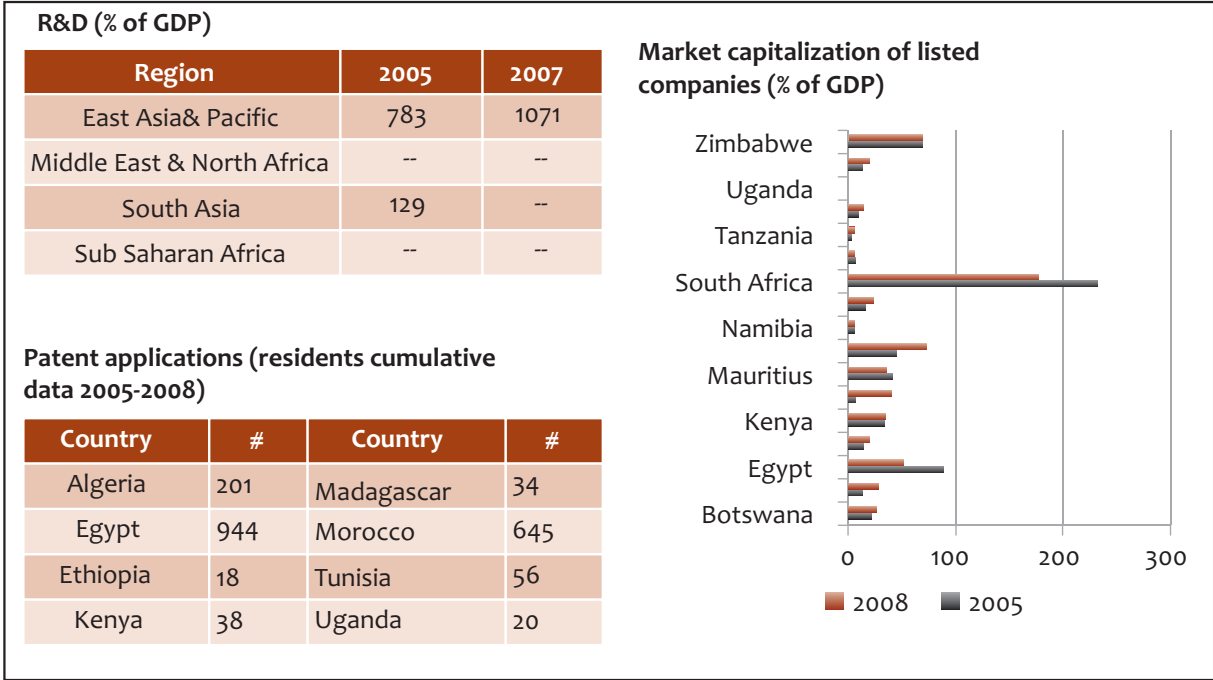
**Figure 7. Connected people: access to mobile and internet services across regions shows Africa doing well**



Source: Calculated from World Bank Datafinder

The next step is to ensure that there is more research and development done in the region such that the investment in information and communications infrastructure leads to higher development results. Innovators with access to capital should be able to use such technology platforms to innovate as we see in the case of the mobile banking solutions such as M-PESA in Kenya. To this end, developing domestic capital markets is key. Countries need to provide the foundation for consumers to be better linked to entrepreneurs and provide opportunities for good ideas to find capital and markets (Fig. 8).

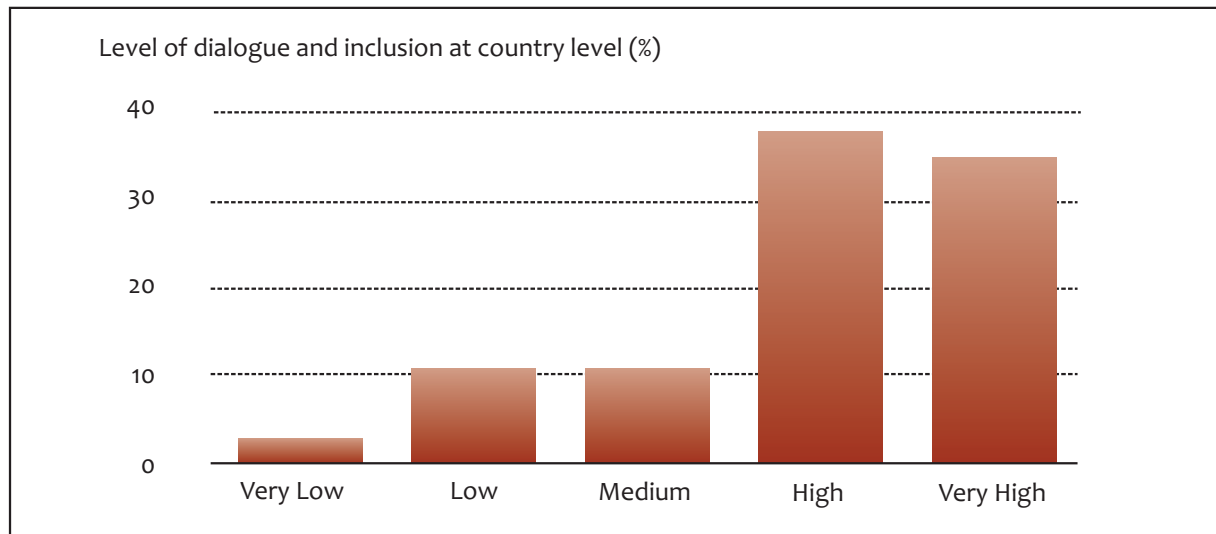
**Figure 8. Consumers linked to research, capital and entrepreneurs can drive innovation**



Source: Calculated from World Bank Datafinder

How Africa translates the investment it has made in citizen engagement into innovations for development is also important. There has been tremendous progress in Africa in the use of social media. Citizen engagement has also progressed even though few countries have reached high levels of engagement in decision-making (Fig. 9). The level of dialogue and inclusion at the country level, while much improved, still leaves the majority of countries with less than stellar performance.

**Figure 9. Citizens engaged in decision-making: Progress in the search of citizens views by the polity in terms of level of dialogue and inclusion in Africa**



Source: ACI, 2011

### **Incentives, Innovation and Creativity**

An effective learning environment where people come to the labor market with the requisite attitude and skills, continue to learn on the job, and are able to innovate in the workplace is important for Africa to achieve high levels of growth. There are many opportunities for Africa to leapfrog the development process. However, this requires effective use of its institutions of higher learning and the transformative nature of leadership in the public sector, civil society and the private sector.

Institutions of higher learning in Africa are not quite ready for the demand from the growing number of youth. Only a few universities are able to generate people who can create their own jobs or even generate jobs for others. Most institutions of higher learning are weak and are generating young people not quite ready for the challenging needs for innovation and performance in the work place. As a result, despite progress in reducing poverty in Africa, 71% of young people in Sub-Saharan Africa subsist on under \$2 per day (Ouerghi, 2010; 2009).

The high urbanization of Africa bodes well for the future. Many young people have moved to cities as a way to escape rural poverty. Even though some migrating youth have found employment, the vast majority have not, resulting in more unemployed youth in cities than in rural areas. Cities present a great opportunity for a critical mass of young people to cluster around activities that support innovation systems. However, many cities have been very slow to create such spaces, losing out on the opportunity to create the jobs needed by their burgeoning populations. Many young people

have resorted to working in the informal sector, bringing in much needed innovation in this sector, as can be seen in the very active zones in cities such as Nairobi and Lagos.

## II. WHAT AFRICA NEEDS TO SPUR INNOVATION

Africa can leapfrog the development process if it takes advantage of the Triple-Helix Concept. First, African governments have to lead and create an environment for discovery that comes from effective **research capacity**. Governments need to provide support and demonstrate commitment to achieve high development results, as well as put in place a set of policies and an environment for engagement that unleashes the potential of the private sector. A set of incentives and leadership in the system of education that can generate innovative thinkers, coupled with continuous research and learning in the work place, is also important to have in place. Such efforts which make up the first component of the helix would grow the innovative capacity of countries. Leadership at the political level as well as at the organizational level is very important for this component to emerge. The role of universities is very critical. University leaders need to be dynamic, innovative, politically astute, economical savvy, and business aware (Hanson and Léautier, 2010).

The factors that underpin the second component of the helix--**transformative capacity**-- also need attention. How learning is rewarded and failure treated distinguishes successful environments for innovation from unsuccessful ones. Who is engaged and how information is generated and shared separates slow from fast moving change and the depth at which new ideas can be embedded in practice. The third component of the helix is **implementation capacity** which is the ability to get opportunities into ideas for innovation, ideas into actions, and actions into results. In general it is the capacity to get things done. Strategic partnerships with the diaspora and their ideas, skills and knowledge can unlock potential for new ways of implementing or supplement local or domestic capacity. Tapping into the home organizations and institutions of the diaspora can build partnerships that bring in needed financing.

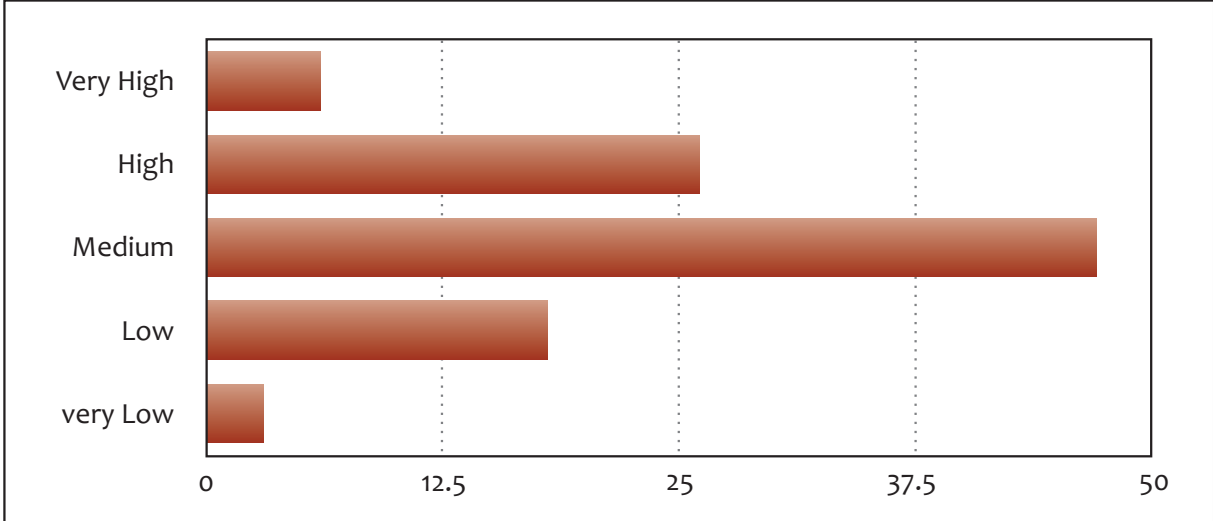
Of the three components in the helix, transformative leadership is the one most needed in Africa. How does one proactively translate competence into strategic assets? Countries need to have the capacity for strategic scanning and have leaders who can harness existing intellectual capital from wherever it resides in society. Universities and Learning Centers need to evolve to become at the forefront of new pedagogical tools and have the desire to transcend the current "modern" system to have a "post-modern" perspective. Leaders in tertiary education need to be able to recognize context, negotiate creative partnerships, and reward learning and risk taking.

Developing strategic collaboration with the private sector in addition to the diaspora would also help address weaknesses in creative content and bring in knowledge and valued skills into the education sector. Africa has the unhappy coincidence in its labor markets spotting a three to one ratio of the educated unemployed (Ouerghi, 2010; 2009). This means the education system is not generating youth that are ready for the labor market or the labor market is not ready to absorb educated youth.

Leaders in the public and private sector need to be able to function in environments with low predictability and be prepared to handle diverse potential futures. Capacity to generate and work with strategic maps of pressure points and change points is also critical, as is the ability to map potential opportunity and risk scenarios. The values of leaders and their ethics and behaviors are critical elements needed to guide their teams or citizens in making choices under challenging circumstances. Leaders need to identify patterns of change or important shifts and extract relevant relationships and interactions. How leaders select a set of priorities from a variety of approaches for handling challenges is also very important.

Agriculture is an important case to consider. The large majority of youth in Africa (70%) live in rural areas and are engaged in agriculture, which employs 65% of rural youth (Ouerghi, 2010; 2009). Youth currently employed in agriculture are in low value adding jobs with low productivity. Transforming agriculture is crucial to creating jobs for youth as well as for the whole economy. Countries have difficulty implementing the kind of policies that are needed to transform the agricultural sector, with very few of them having the required capacity to go from policy design to implementation (see Fig. 10).

**Figure 10. Sectoral Policy: need to support agricultural transformation (%)**

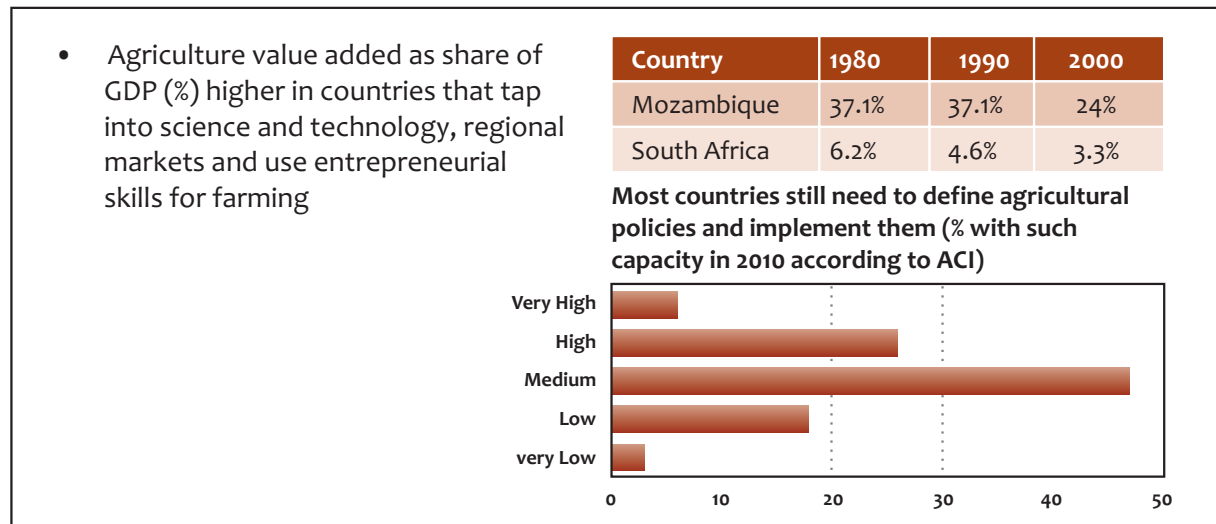


Source: Calculated from ACI, 2011

There is tremendous opportunity for innovation in rural areas, especially in the non-farm sector in rural towns, which employs 20% of young people. Innovations that transform agriculture throughout the value chain, from farm to fork, are critical for Africa to solve its food security problems. This includes not only seeds and planting techniques, but agro-processing and preservation techniques (see Fig. 11 overleaf). Agriculture value added is higher in countries that can tap into scientific innovations and those that have regional markets they can tap into. Use of entrepreneurial skills in farming is a critical gap to be filled. Being able to define and implement agricultural policies is a capacity still lacking in many countries.



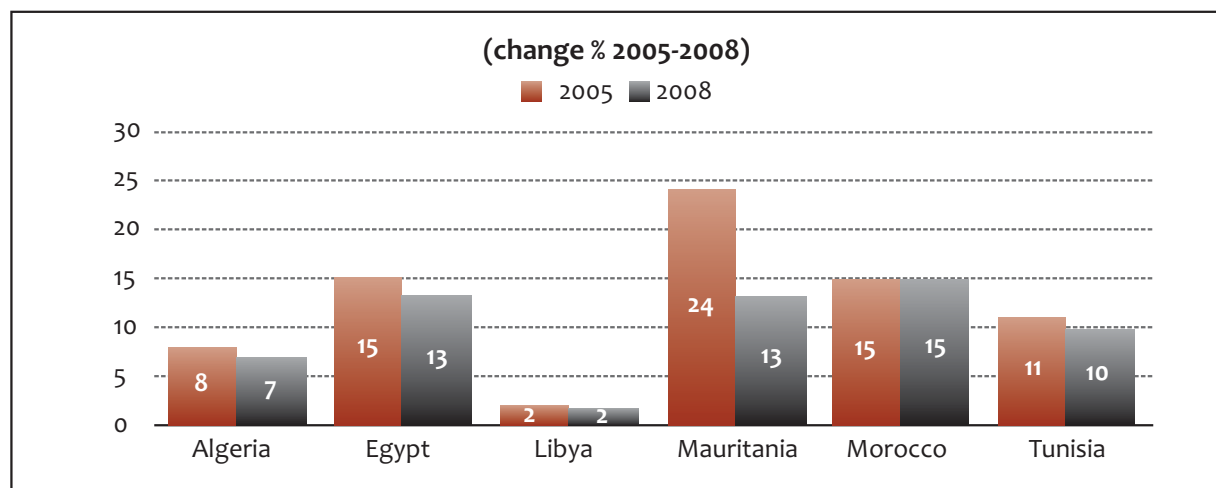
**Figure 11. Innovations that transform agriculture: From farm to fork**



Source: ACI, 2011

Africa has a long way to go in transforming agriculture. Value added in agriculture is flat or declining in many countries, and particularly in North Africa. Yet agriculture remains the sector with the highest potential for the employment generation, especially for countries like Central African Republic, Democratic Republic of Congo, Ethiopia, Guinea Bissau, Liberia, Sierra Leone, Tanzania, and Togo which have high dependency on agriculture (Figs. 12 & 13).

**Figure 12. Agriculture value added flat or declining in all countries compared**



Source: Calculated using data from World Bank Data Finder

Most young people are employed in the informal sector which is a dynamic sector and the hotbed for innovation thus boding well for the future of innovations in Africa. Young people in Africa are not sitting and waiting for a handout from the government. They are increasingly creating their own jobs.

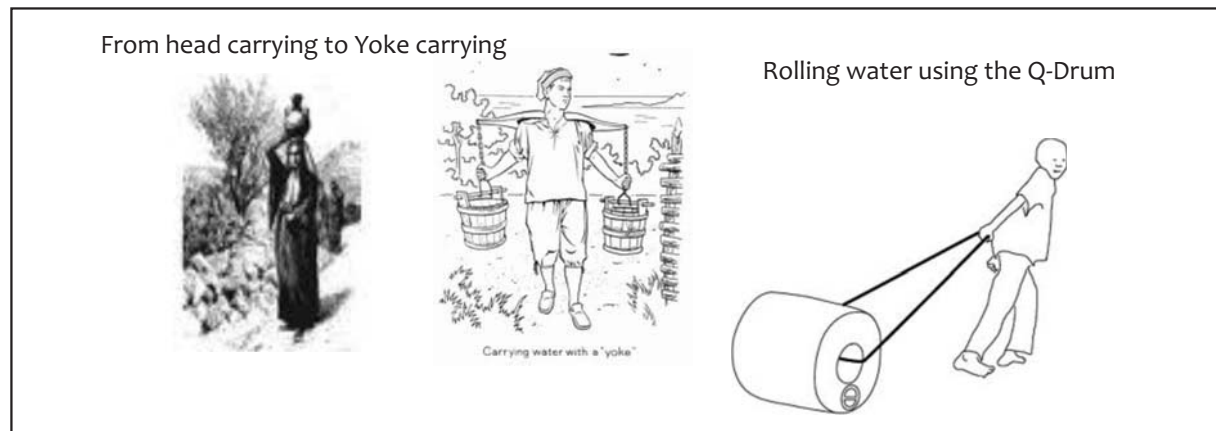
**Figure 13. Employment opportunities in agriculture**

Agriculture value added (% GDP)	Countries	Job creation opportunity
0-5	Botswana, Congo, R, Djibouti, Equatorial Guinea, Gabon, Libya, Mauritius, South Africa	Very Low
6-20	Algeria, Angola, Cameroon, Cape Verde, Chad, Egypt, Lesotho, Mauritania, Morocco, Sao Tome & Principe, Senegal, Swaziland, Tunisia, Zimbabwe	Low
21-40	Benin, Burkina Faso, Burundi, Eritrea, Gambia, Ghana, Guinea, Kenya, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Sudan, Uganda, Zambia	Medium
41-60	CAR, DRC, Ethiopia, Guinea Bissau, Sierra Leone, Tanzania, Togo	High
>60	Liberia	Very High

Source: Calculated using data from World Bank Data Finder

Among the key types of innovation needed are those that can unlock potential and raise productivity. Carrying water takes up large chunks of time and effort particularly for rural women and girls. Innovations that can reduce the burden or time for water fetching have the potential to transform rural lives. Consider the change from head carrying to yoke carrying and to the Q-drum which can be rolled home (Fig. 14). Boys can be excited to fetch water releasing the time for girls to do much needed school work.

**Figure 14. Innovations that unlock potential and raise productivity: Case of Water**



Source: Author, 2011

Young people from the diaspora are going back to their home countries to start businesses in the service sector. This sector is a key opportunity for jobs including self-employed, family owned and small scale enterprises (see Fig. 15 overleaf). Examples of new types of activities lead by youth include activities like running crèches, developing cosmetic companies specialized to African needs, investing in apparel and clothing companies using local materials and talent, creating consulting firms, and innovating in the use of technology such as through online shopping companies and so on.

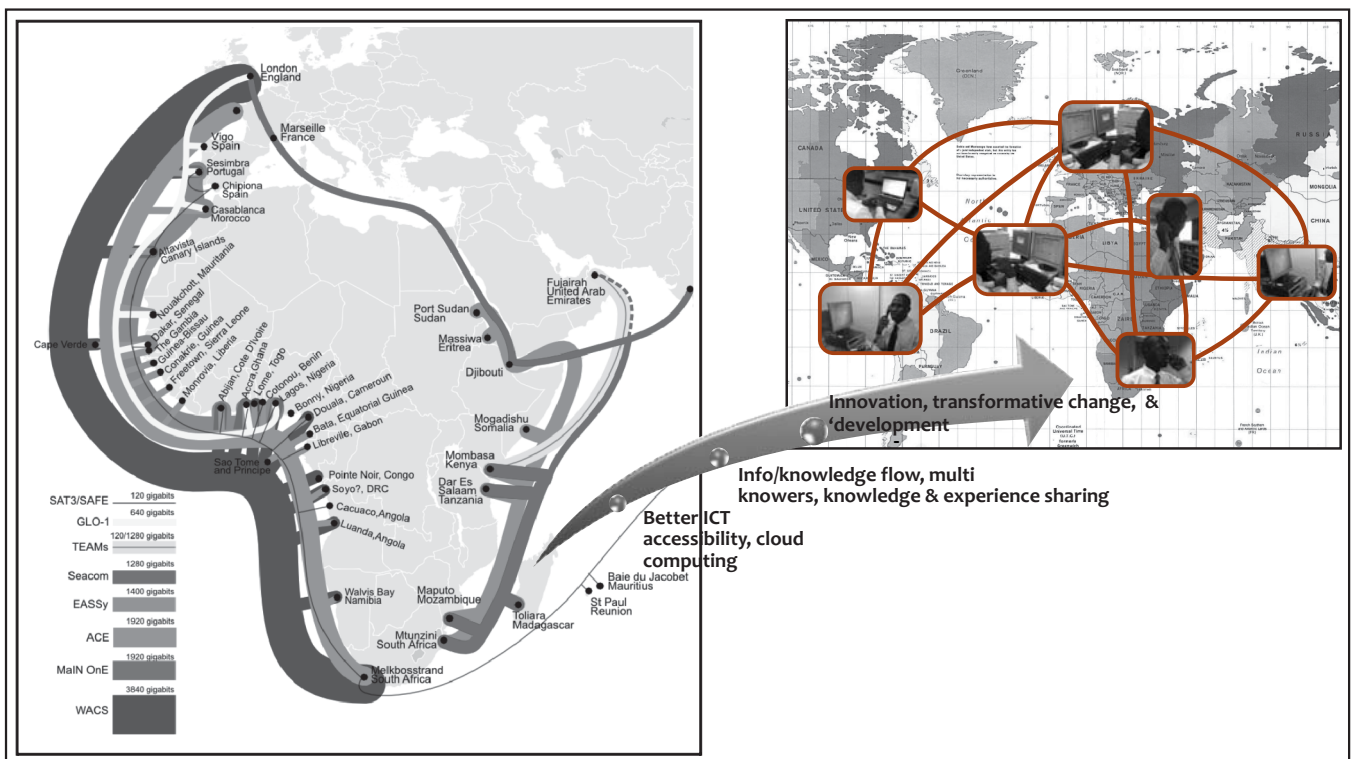
**Figure 15. Opportunities in the service economy**

Varied performance across countries in trade in services (% of GDP)				Service exports in BoP generally growing across countries		
Country	2005	2008	Change (%)	Countries	US\$ (m in 2008)	Change 2005 - 2008 (%)
Algeria	23	26	+8%	Algeria	329.5	+46%
Chad	--	--	--	Chad	--	--
Egypt	28	26	-8%	Egypt	24,911.9	41%
Libya	7	5	-40%	Libya	207.7	-157%
Mauritania	--	--	--	Mauritania	--	--
Morocco	20	23	+13%	Morocco	13,416.4	40%
Tunisia	21	23	+9%	Tunisia	6013.6	+33%

Source: Calculated using data from World Bank Data Finder

Despite examples cited above, where the diaspora have been able to create jobs in the service sector, countries have had varied performance in trade in services despite growing service exports. The capacity to tap into innovative ways of creating jobs by the youth and the diaspora is thus a priority. The diaspora can also help countries bring in a diversity of knowers and doers together and can be the critical link to speed up innovation (Fig. 16).

**Figure 16. Diversity of knowers & knowledge**



Source: Courtesy of Sub-Saharan Undersea cables (2011) <http://manypossibilities.net/african-undersea-cables>

Scientific and technical skills are much needed on the continent for transforming energy and water (Fig. 17). Countries have been slow in developing alternative sources of energy despite the potential for use of biomass, solar and wind sources. Opportunities to innovate in the efficient use of freshwater sources and reuse of water are also largely untapped (Fig. 18). This is despite the fact that Africa faces shortages and scarcity of water which will get more pressure with climate change and increased population pressure.

**Figure 17. Scientific and technical skills needed to transform the use of energy and water**

Countries have been slow in developing alternative sources of energy		Opportunities to innovate in the efficient use of freshwater sources and reuse of water largely untapped	
Country	Alternative energy in 2008 (change % total energy use since 2005)	Country	Alternative energy in 2008 (change % total energy use since 2005)
Algeria	0 (0%)	Algeria	0 (0%)
Chad	--	Chad	--
Egypt	2 (0%)	Egypt	2 (0%)
Libya	0 (0%)	Libya	0 (0%)
Mauritania	--	Mauritania	--
Morocco	1 (0%)	Morocco	1 (0%)
Tunisia	0 (0%)	Tunisia	0 (0%)

Source: Calculated using data from World Bank Data Finder

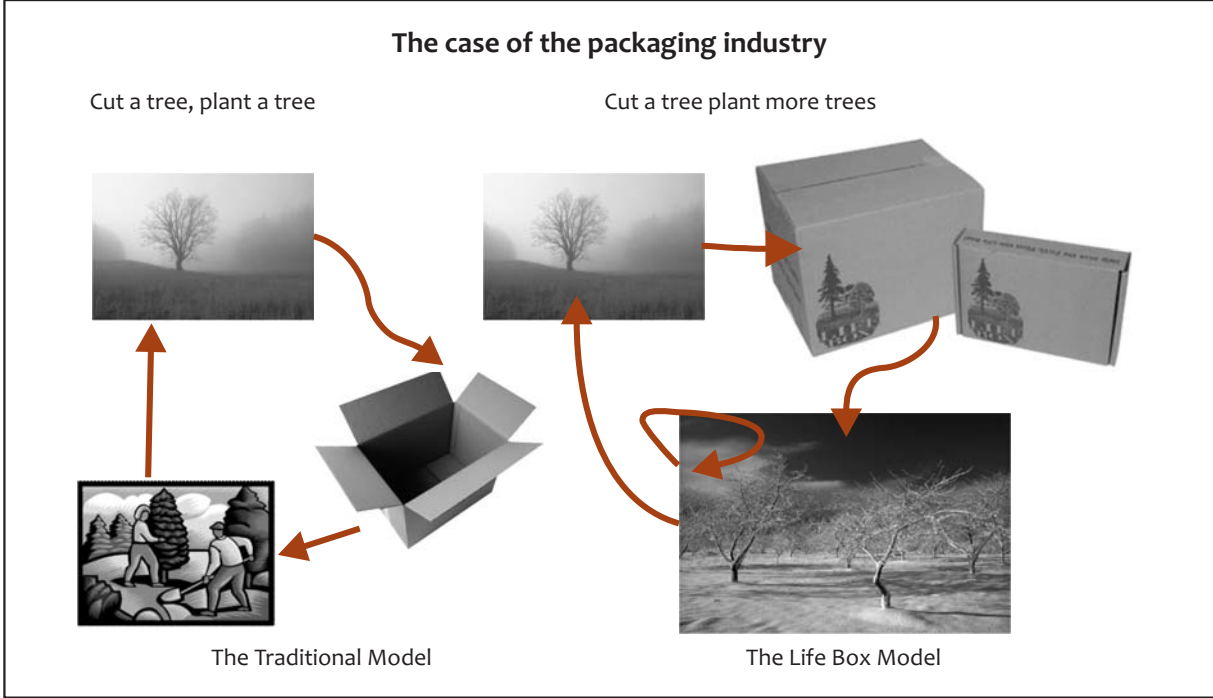
**Figure 18. Annual freshwater withdrawals by sector: big opportunities for innovation**

Country	Annual freshwater withdrawal (% of total freshwater withdrawal)		
	Agriculture	Industry	Domestic
Algeria	65	13	22
Chad	83	0	17
Egypt	86	6	8
Libya	83	3	14
Mauritania	88	3	9
Morocco	87	3	10
Tunisia	82	4	14

Source: Calculated using data from World Bank Data Finder

Africa can also lead by developing completely different models of industrialization and manufacturing. Innovations that are based on one time extraction from the earth or those that can use materials that go back to their original form are good opportunities to look into. For example, instead of cutting trees to make cartons to package food, where the cartons are thrown into dumps could be replaced with reusable cartons. South Africa is experimenting with cartons that can be replanted in what is known as the Life Box Model (Fig. 19). The Life Box is a packaging box made out of paper which has seeds embedded in it. After its use for packaging, it can be thrown back in the earth and the seeds take root generating trees that can be left in place or sold for replanting elsewhere. As noted by UNEP, the life box “...builds upon the synergy of fungi and by infusing spores and tree seeds together inside of packaging materials that can be planted. ...[And] provides an easy and affordable way for people to plant trees by utilizing packaging that would normally end up in the landfill or recycling plant.” UNEP further submits the life-box as a ‘shovel ready’ solution to climate change and deforestation.”<sup>1</sup>

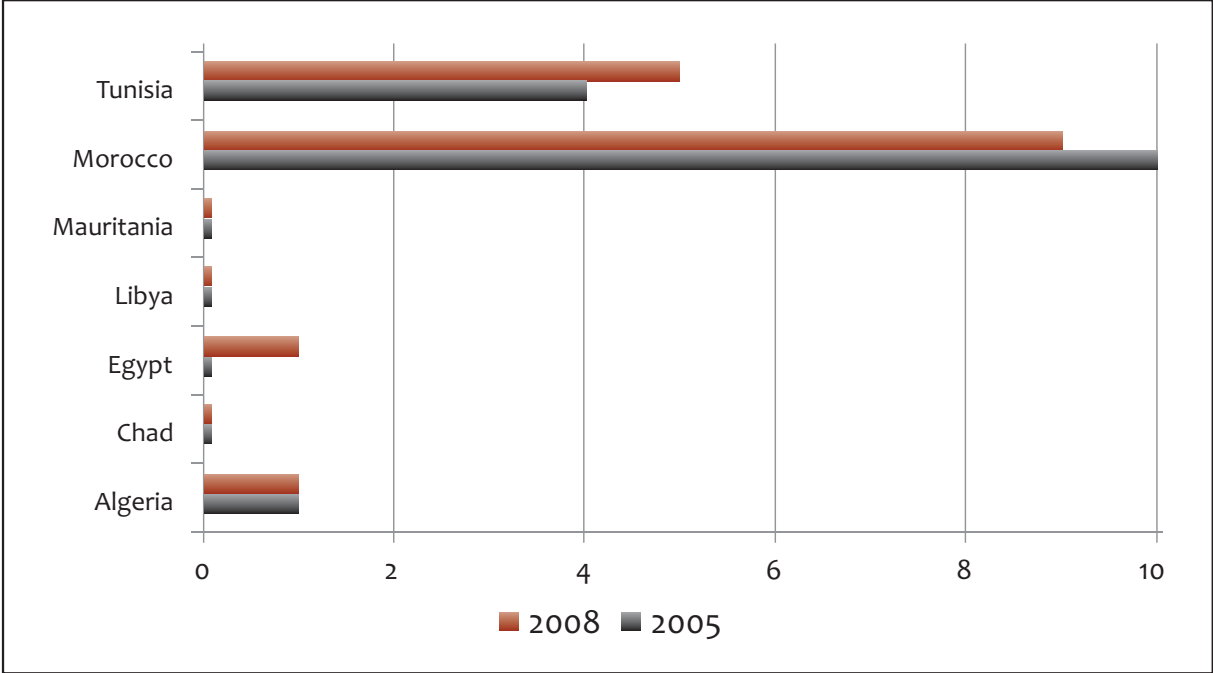
**Fig. 19. Innovations that resurrect dead matter**



Innovation can also be a driver for employment if countries succeed in combining science with manufacturing. Few countries have been able to use innovation to speed up and grow high tech exports, a good source of revenue and jobs for the burgeoning youth who are highly attracted to the high tech sector (see Fig. 20 overleaf).

<sup>1</sup>UNEP (2011) “News from the Campaign - Climate Change, Trees and the Life Box.” UNEP Website - <http://www.unep.org/billiontreecampaign/campaignNews/Lifebox.asp> (accessed on September 26,2011)

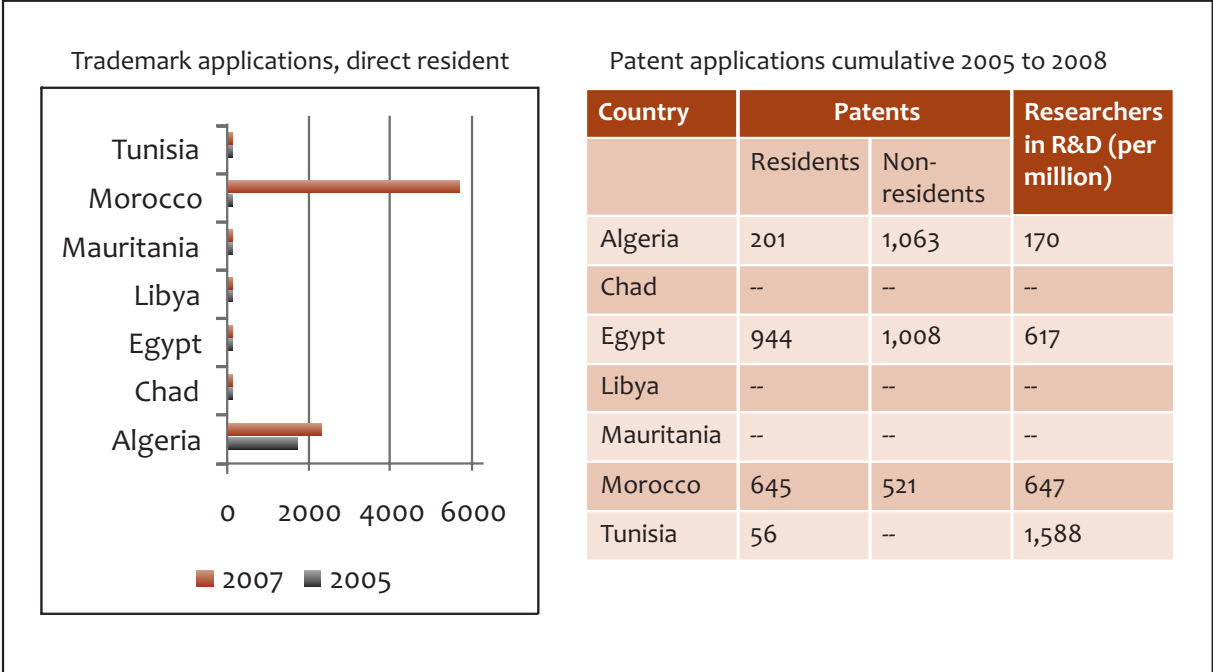
**Figure 20. Innovation as a driver for employment: high tech exports (% manufactured exports)**



Source: Calculated using data from World Bank Data Finder

Africa is woefully behind in using innovation as a driver for employment, as can be seen from how poorly countries perform in trademark and patent applications (Fig. 20 and 21). Key to generating new ideas in technology is the number of people engaged in research and development where there is highly variable performance across countries.

**Figure 21. Innovation as a driver for employment: trademark and patent applications**



Source: Calculated using data from World Bank Data Finder

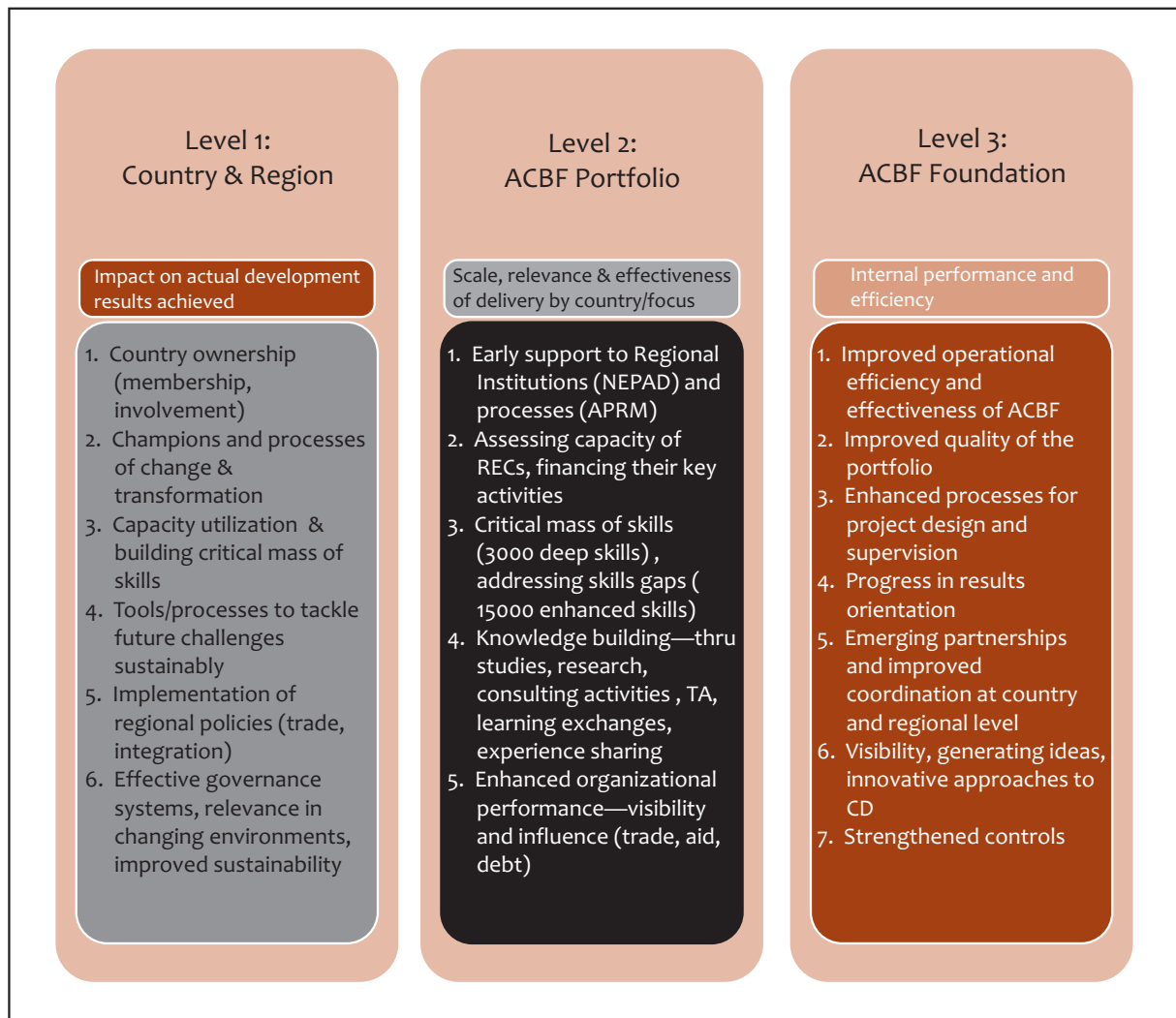
### III. SUPPORT TO ENGENDER INNOVATION

The African Capacity Building Foundation (ACBF) can support countries to better perform in the area of innovation. The Foundation was created in 1992 to build sustainable indigenous capacity in Africa in response to the severity of capacity and the challenge to invest in indigenous human capital and appropriate institutions for Africa's problems. It was founded by the African Development Bank, the UNDP and the World Bank as a membership-based organization which includes the three founding institutions, African governments, and bilateral donors. Its vision as an independent international organization is for Africa to be respected by its global partners for its socio-political and economic capabilities and endowed with effective institutions and policies acquired through sustained investment in people and institutions to deliver development results for poverty eradication. The mission of the Foundation is to build sustainable human and institutional capacity for poverty eradication in Africa.

Over the last twenty years the Foundation has learned important lessons that can be brought to bear in its support to countries (Léautier, et al., 2010). These include the need to have champions for change at the country and regional level, to have countries undertake their own diagnostics so they can better define their problems and own the solutions. Other lessons include supporting processes that can lead to prioritization of capacity needs and definition of strategies and actions for implementation. Early support to innovation at different levels is also an area the Foundation has excelled in. Through university partnerships ACBF has supported countries to generate a critical mass of people with the needed skills and competence to manage and lead in an increasingly complex world (Hanson and Léautier, 2010). Support to enhance organizational performance has also been an area the Foundation has seen results including in creating the kind of policies that lead to regional integration and enhanced trade. Generating ideas for innovation in capacity building has also been an area where the Foundation has had results (Fig. 22 overleaf). This includes the important area of monitoring and evaluation which is so critical to underpin learning and experimentation.

ACBF is also committed to supporting higher education and has done so since 1992 when other players pulled out of tertiary education to support primary education. Since 1992 the Foundation has committed US\$140 million in technical and financial support to Africa's tertiary education institutions. Support was geared towards training professionals in economic policy management, public sector management, financial management and accountability. ACBF also provides institutional support to revive infrastructure, strengthen human resources, and enhance institutional leadership in the participating universities. In operationalizing its capacity development support to African universities, ACBF has uncovered a number of unique models that yield results; partnerships for learning and patient capital for success (Hanson and Léautier, 2010). These models come from a long-term practice of the Foundation of working with "strategic nodes of entry" for its activities.

**Figure 22. Lessons Learned from Implementation**

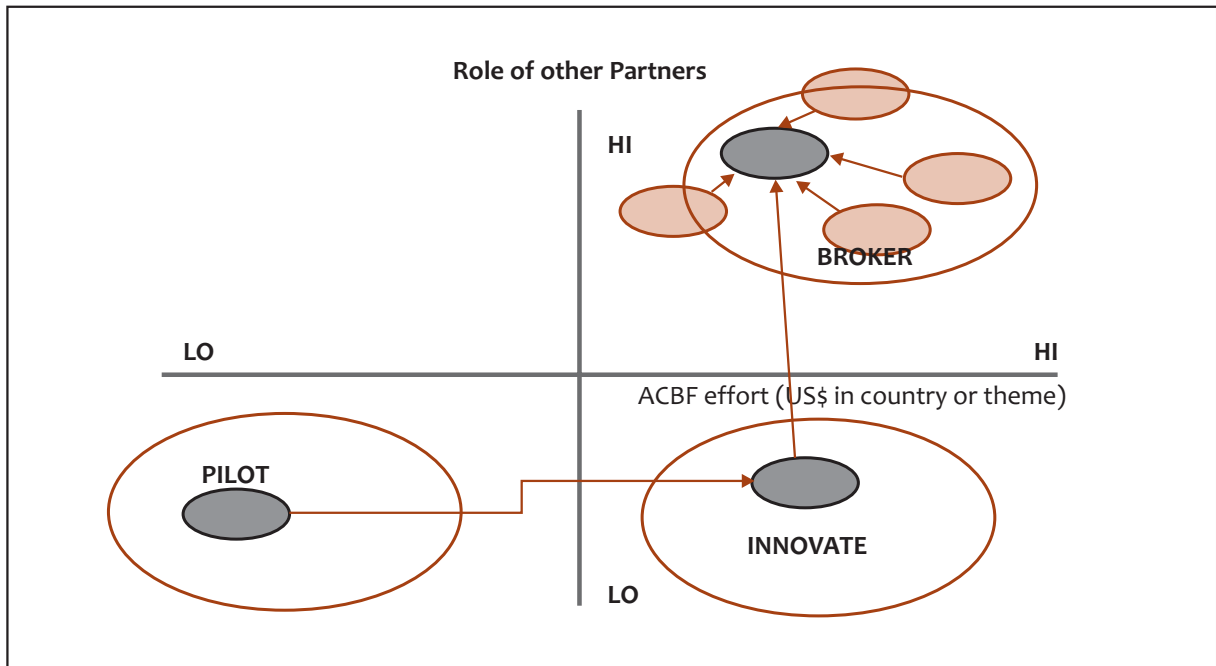


Partnerships for learning include support to autonomous policy units and think tanks that are so critical for countries as they can develop long term research and thinking and be the places where ideas are born (Fig. 23). The Foundation has supported the creation of 29 policy units and think tanks in Africa. Many of them are working at a regional level and have been able to innovate in policy and implementation ideas at the country level.

The Foundation has been one of the few entities that has provided patient support to countries and organizations, allowing them to uncover the innovations needed for success (see Fig. 24). In this regard, ACBF has supported development of individual skills and competences for nearly 20 years, allowing partner universities and training institutions to experiment and uncover successful models for developing effective leaders and competent public servants. Support has also gone for nearly 20 years to research networks, such as the African Economic Research Consortium (AERC) which has generated skilled researchers who now are ministers, central bank governors, and professors in universities.

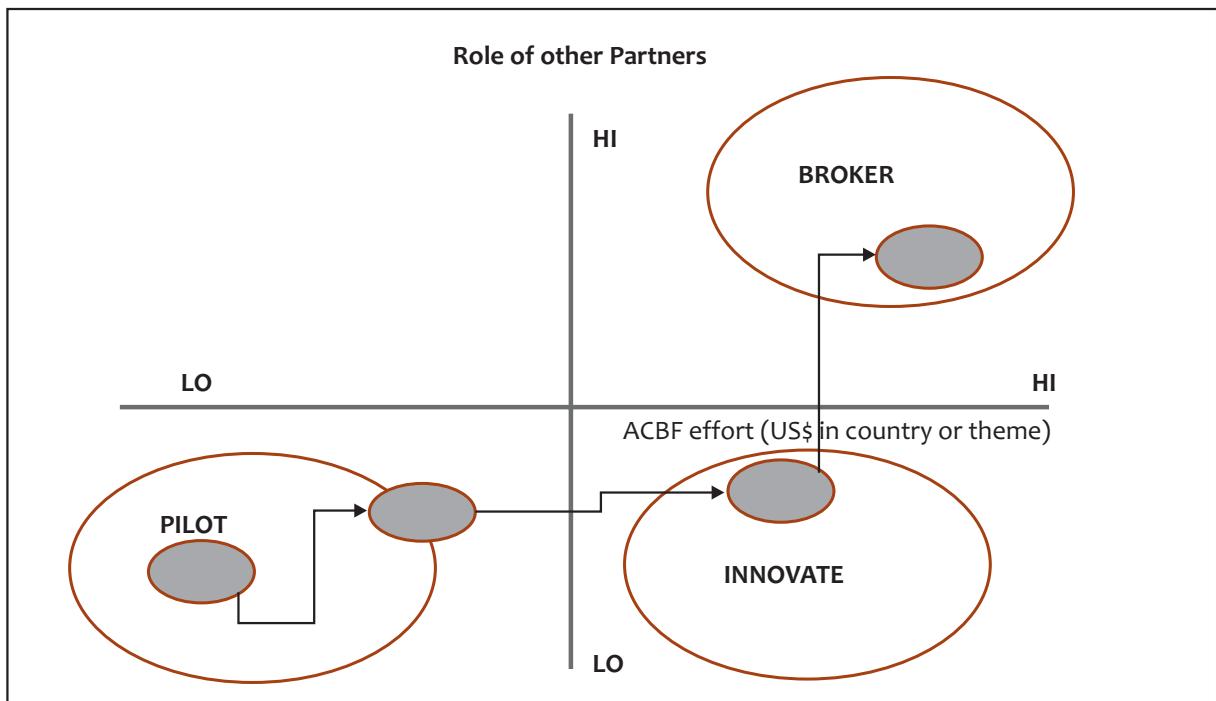


Figure 23. Partnerships for Learning



Source: Adapted from Hanson and Léautier, 2010

Fig. 24. Patient Capital for Success



Source: Adapted from Hanson and Léautier, 2010

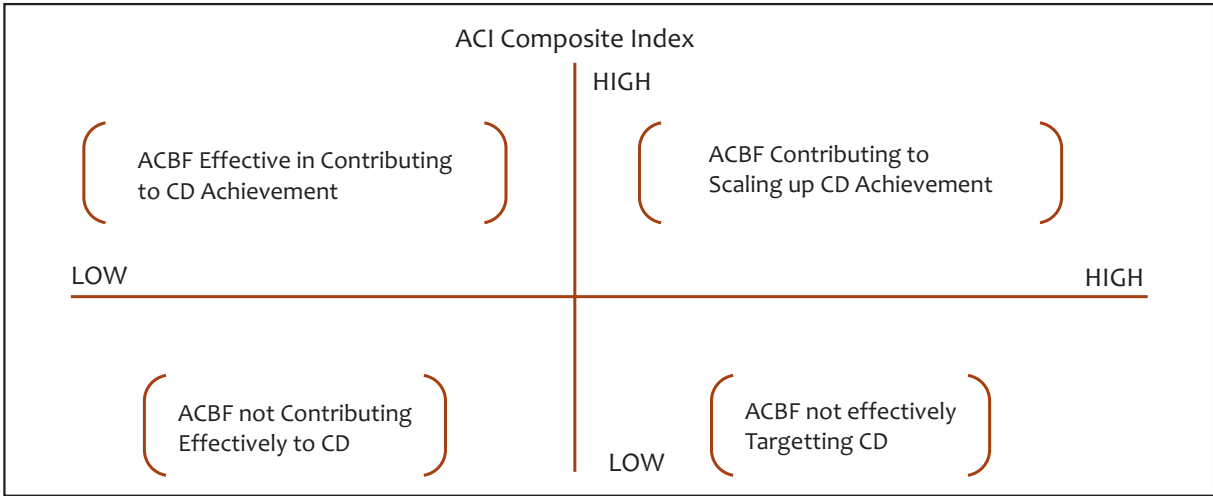
**Opportunities and possibilities for Africa**

A number of changes have taken place in Africa which opens up opportunities and possibilities for the future. There has been a rise in partnerships which have transformed production, utilization and creation of knowledge in Africa. The dual structure where universities are supplemented by centers of excellence engaged in knowledge applications within countries and globally have allowed Africa to gain much needed ideas quickly than waiting to reform the tertiary education sector.

Integration of various perspectives from the plethora of disciplines and approaches have allowed the adoption and utilization of technologies in an effective manner. Examples include centers for educating engineers like 2iE in Ouagadougou which trains students in theory but also allows them to tinker in a laboratory environment and uncover new technologies. There are also many self-directed learners tapping into the MIT Open Course Ware (MITOCW) to improve their skills in physics and math and use them to generate ideas and products in the movie and music industry. Other innovations include the use of e-learning such as being used by the Ghana Institute for Management and Public Administration (GIMPA). The wide acceptance of e-learning provides flexible access to tertiary education and allows pedagogical innovation at decreased cost. Learners now have proactive and self-driven access to information and knowledge that is not constrained to country boundaries or by training design and delivery modes. There is today a potential to deliver high quality instructional services to all learners regardless of location, family or cultural background, or disability.

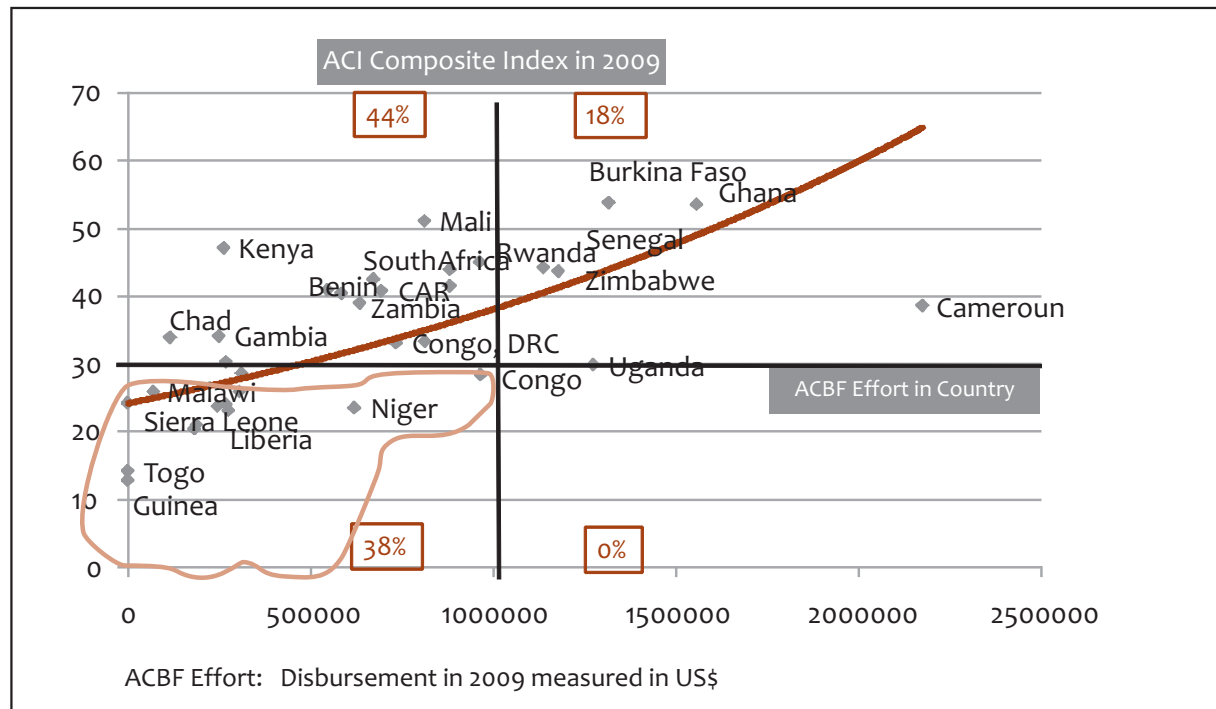
The Foundation has had success in its varied support to countries and organizations but has also learned from failures. An assessment of how the Foundation has done in innovation indicates that it has achieved an 18% success rate in areas where it has invested at scale and a 44% success rate where it has been selected and piloted or experimented first (Fig. 25 and 26). However, capacity development is a complex process and 38% of the experiments and trials did not achieve high results, indicating that there is still room for improvement in capturing lessons learned and designing better trials.

**Figure 25. Lessons Learned from Implementation**



Source: ACI, 2011

**Figure 26. Pattern of ACBF Support to Countries: Higher ACBF effort leads to better results but results can be obtained with less effort**



Source: ACI, 2011

## IV. CONCLUSIONS AND WAY FORWARD

### Policies to support Innovation

There are a number of policies that can be put in place to support innovation and employment creation. Supporting creation of jobs for young people needs to be looked at in the long term and in the short term. In the long term countries need to generate sufficient economic growth that creates jobs in large numbers to absorb the growing number of youth. This requires stable countries where the domestic and foreign private sector can invest. It also means creating a strong and well structured education system which prepares youth for the market place for jobs.

In the short term innovative approaches can support immediate job creation. Activities such as partnering young people with skilled experts in large scale public works and infrastructure programs can speed up innovation and learning in the construction sector. Bringing in skilled and competent people to mentor and develop young people in the service sector can generate jobs and innovative approaches to tap into the tourism market. For example tourist guides who understand ecosystems and animal behavior from traditional practice can be paired up with youth who have been trained in biology and anthropology to bring in excitement and innovation in the tourism guide sector. Innovations in using local produce in the kitchens can help add value to agricultural produce while bringing in needed jobs in the hotel and restaurant business. Development of decorative arts can bring in innovation in the artisanal activities and create jobs for women and young girls in rural areas,

linking them to the urban demand centers. Highly skilled experts who can support interns and create apprenticeships could speed up learning. In addition, self-employment in off-farm jobs like small scale agricultural processing, marketing and trade are great sources for innovation and job creation.

Building capacity to transform production in the medium term through vocational and technical training is also critical. Microcredit and financial support to small scale business ideas could help entrepreneurs make value out of their innovations allowing them to go to scale.

Information Communication Technology (ICT), equally provides a unique opportunity for jobs and innovation and countries need to create an enabling environment in terms of private investment and enterprise creation including support to technology parks and incubators.

### **Role for regional integration**

Policies for regional integration would be very relevant in supporting faster creation of jobs, better access to opportunities, and more stability in the labor market. These include policies that support regional infrastructure development which has a direct effect on job creation in the short run but also in the long run by increasing competitiveness of companies and countries due to lower logistics costs, allowing them to afford more labor.

Investments in energy and transport could speed up export sectors and create export oriented jobs. Support to ICT could enhance connectivity and provide a platform for even deeper job creation especially for landlocked countries. Regional investment in a network of universities and centers of excellence could also allow better specialization and improve the technical and vocational as well as science and technology skills across multiple countries at a lower cost, thus freeing up public resources for use in other areas of the economy.

### **ACBF's Position**

ACBF, views itself as a strategic capacity development partner for Africa, and has inimitable position to cultivate & strengthen an integrated continental approach to innovation. To this end, the Foundation and like-minded institutions that support capacity development such as NEPAD can support countries in putting in place the policies required to generate the type of employment levels needed to meet the challenges laid out above. Support can also go towards skills building and competence refining in order for countries to be creative in their approach to employment creation (Léautier, et al., 2010).

In acknowledging that Africa's capability in terms of finance, industrial knowledge and IT infrastructure is significantly low to ensure effective knowledge-sharing, the Foundation seeks to promote effective knowledge sharing through its thematic networks as well as networks of projects and policy institutes. The Foundation also notes the need to address the rather low level of integrated continental policy making (e-Strategies), mainly due to inadequate awareness; lack of expertise and institutional knowledge; lack of research and development from African context; and, lack of harmonized policy frameworks. The aforementioned coupled with the core areas of ACBF interventions deal with policy and program development to improve Africa's self capabilities in

public service which mainly encompasses the adoption of best practices and technologies. ACBF is thus well positioned to facilitate the development of policies, frameworks and systems in line with innovation for growth.

ACBF is, again, well positioned to facilitate the promotion of transformative leadership across Africa's public institutions, academia and democratic societies; foster continental and international cooperation; and cultivate a culture of harnessing knowledge. In line with the recommendations of the United Nations (UN) and African Union (AU), the Foundation, in collaboration with other institutional stakeholders and African governments, can develop training programs, fora and continental Resource Hub for the exchange of knowledge, expertise and resources to promote and foster innovation.

Also as a way of supporting innovations, ACBF has recently been involved in a number of initiatives:

- Supporting skills buildings through training (as the proposed project under preparation for African Institute of Science & Technology - a Nelson Mandela Institution (NMI AIST) in Abuja, Arusha and Ouagadougou to train engineers and scientists at the regional level and our programs in the area of agricultural policy with universities like Ghana Institute of Management and Public Administration (GIMPA);
- Supporting leadership development (as cases are with the Africa University (AUU Cadre), GIMPA and the four university partnership between Sciences Po, Makerere, GIMPA and zIE where leadership development courses are being supported by ACBF); and, supporting policy reform in the enabling environment for private sector activity in our professionalization of the voices of non-state actors programs and in getting voices of civil society, all of which are critical inputs to support innovation systems.

## **Going Forward**

Africa needs a coordinated and collaborative effort to address innovation. Other steps necessary include, but are not limited to:

- An effective legal framework for innovation;
- Capacity to address the human dimension of innovation/intellectual property rights/patents, etc.;
- Enhanced private/public partnerships – this cannot be overstressed; and
- A more holistic view of knowledge management, including indigenous knowledge.

Awareness and training efforts in all sections of Africa's society must be continuous if the continent is to transform itself into an innovation hub. Even though there have been areas of notable success in socio-economic transformation, there is need for follow through on measuring effectiveness and training efforts should focus on emerging challenges. It is important to note that no country or society/organization can “go at it alone” thus the need to enhance regional integration and synergy amongst the continents communities of practices (CoPs). Africa needs to exchange know-how as better knowledge sharing will continue to be a powerful tool for tackling individual and our collective knowledge deficit and development constraints (Hanson and Kararach, 2011). Equally, Africa needs to foster transformative leaders who can make sound/evidence based choices and

coordinate a collaborative effort – leaders conversant with complex adaptive systems and able to make effective decisions under different strategic and risk scenarios. It also requires that we reposition Africa's institutions of higher education/think-tanks/research centers to become the repositories of new ideas. Drawing on the triple-helix concept, the continent can creatively utilize the tools of knowledge management, strengthened Public-Private Partnership (PPP) and advances in ICT to inspire innovation.

## REFERENCES

- ACBF (2011) –Africa Capacity Indicators 2011 Capacity Development in Fragile States. The African Capacity Building Foundation, Harare, Zimbabwe (February)
- Dahlman, C. (2007) “Technology, Globalization and Competitiveness: Challenges for Developing Countries,” in David O'Connor (Ed). *Industrial Development in the 21st Century: Sustainable Development Perspectives* (United Nations, 2007).
- Hanson, K.T. and Kararach, G. (2011) “The Challenges of Knowledge Harvesting and the Promotion of Sustainable Development for the Achievement of the MDGs in Africa.” *ACBF Occasional Paper No. 12*. African Capacity Building Foundation, Harare (February)
- Hanson, K.T. and Léautier, F.A. (2010) “Enhancing Institutional Leadership in African Universities: Lessons from ACBF's Interventions.” *ACBF Working Paper No.17*. African Capacity Building Foundation, Harare (March)
- Léautier, F.A., Kararach, G., Guvheya, G. and Hanson, K. (2010) “Capacity Building and Skills Development as Prime Mechanisms for Africa's Socio-Economic Transformation: Lessons from ACBF's Interventions.” *ACBF Working Paper No.18*. African Capacity Building Foundation, Harare (April)
- Ouerghi, A. (2009) “Youth Employment in Africa - Framework for Engagement.” Paper delivered in Tripoli, Libya (December 13-15). The World Bank.
- Ouerghi, A. (2010) “Youth Employment in Africa – Towards the development of a Framework for Engagement.” Human Development, Africa Region (RMT - April 7). The World Bank. (Adapted)
- Pritchett, L. (2010) “The Problem with Paper Tigers: Development Lessons from the Financial Crisis of 2008”, in Nancy Birdsall and Francis Fukuyama (eds.) *New Ideas in Development after the Financial Crisis*. Baltimore: Johns Hopkins.
- Pritchett, L. and de Weijer, F. (2010) *Fragile States: Stuck in a Capacity Trap?* World Development Report 2011 – Background Paper. Washington, DC. The World Bank. (September)
- Pritchett, L., Woolcock, M. and Andrews, M. (2010) “Capability Traps? The Mechanisms of Persistent Implementation Failure.” *CGD Working Paper 234*. Center for Global Development, Washington, DC. (December)
- UNEP (2011) “News from the Campaign - Climate Change, Trees and the Life Box.” UNEP Website - <http://www.unep.org/billiontreecampaign/campaignNews/Lifebox.asp> (accessed on September 26, 2011)
- World Bank (2011) *World Development Report 2011 – Conflict, Security, and Development*. Washington, DC. World Bank Group.





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ISBN 978-177937-030-3

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