

## HOW TO STIMULATE INNOVATION BY AFRICA'S PRIVATE SECTOR

*Governments in advanced economies have historically helped spur commercial innovation, particularly as a result of spillovers from defense related research and development. In many emerging markets, however, government lacks the resources or capabilities to do so. In Africa, as in other emerging markets, this has created an opening for private firms to drive innovation. By applying advances in technologies, businesses are enhancing productivity and growth across the continent.*

In recent decades, government policy has played a significant role in the development of new technologies in advanced countries. Governments in these countries have invested heavily in basic research and development, especially in defense spending. That investment has led to the creation of commercial products and services, driving overall economic growth.<sup>1</sup>

In 2011, government was the second largest source of basic research funding after the private sector in five of the seven top research and development spending nations—the United States, Japan, Germany, France, and the United Kingdom. In the United States, for example, federal spending on research and development increased every year from the late 1990s through 2010, with defense accounting for more than half of U.S. annual federal research and development spending.<sup>2</sup>

In addition to funding, governments in advanced countries have created strong incentives for innovation through policies such as the legal protection of intellectual property. Such protections, which include patents and product standards, are critical for technology development at firms of all sizes.

By comparison, governments in most emerging markets lack the technical and administrative capabilities, as well as the human and financial resources, to play such a significant role in spurring innovation. While some emerging-market governments are starting to establish pro-business policies such as patent protections, they aren't yet widespread or deep enough to foster economic growth. The result is greater economic space for domestic and foreign companies to take the lead in financing new businesses and driving innovation.

In particular, businesses in Africa have become a major catalyst for innovation-led growth and economic development. Companies across the continent are developing inventions or new applications of technical knowledge, adopting existing technologies from other countries wholesale or modifying existing technologies to make them commercially viable in African markets. These innovations are not just commercially viable, but in many countries also meet development needs across the continent, addressing both private and social objectives.

Looking at the continent's success stories, several areas emerge where innovation in Africa can meet both commercial objectives and development goals, including enhancing labor productivity, boosting economic growth, and reducing poverty.

### CREATING ECONOMIES OF SCALE

Africa is composed of numerous small, separate, yet contiguous, markets. Historically, individual governments have integrated neighboring markets by negotiating trade agreements to create regional economic communities. Even without regional trade areas, however, businesses can combine operations across borders under a common corporate structure. A transnational structure can allow a company to create its own economies of scale and can foster regional exchanges that might normally be a challenge in Africa because of weak regional integration.

These economies of scale can be created by technology development initiatives: in manufacturing, for example, with the production of portable solar powered electric chargers; in infrastructure, using drones to enable remote medical testing; or

in the provision of services, with pay-per-view, customizable educational curricula tablets or multi-lingual call centers.

### HARNESSING ECONOMIES OF SCOPE

Co-locating businesses in complementary sectors has enabled a number of emerging markets to grow through economies of scope. In Thailand, for example, a cluster of automotive companies has significantly contributed to the country's gross domestic product earning it the moniker "the Detroit of the East."<sup>3</sup>

While such clusters are usually in manufacturing, it is also possible to establish services clusters. In Africa, where manufacturing is still in nascent stages, service industries initially seem to be the best candidates for business hubs.

Some business hubs in Africa are starting to emerge, but they are largely still sector-specific, rather than bringing together businesses across sectors. For example, health-related knowledge clusters are emerging in South Africa and mobile technology-related services clusters have emerged in Kenya and Rwanda.

Whether in services or in manufacturing, innovations that propel cross-sector clustering in Africa will be important both in terms of economic development and social progress. They will not only help businesses achieve commercial success, but will have the potential to deliver social change by spurring economic growth and job creation. The growing 'pay-as-you-go' solar energy industry, for example, has created prosperous businesses while helping people in Africa gain access to reliable energy supplies.<sup>4</sup>

### TECHNOLOGIES THAT BOOST PRODUCTIVITY

Throughout much of the world, investments in innovation tend to focus on labor-saving technologies to lower labor costs and raise productivity. Conditions throughout much of Africa are starkly different—not only is there a tremendous excess of labor, but many workers are also largely untrained, under-trained, or ill-trained. The high unemployment rates that result from excess labor pose a potential security threat to the quality and stability of the continent's business environment.

However, because of Africa's relatively low labor costs, especially when compared with China, businesses across the continent can use new innovations to employ and train these workers. The manufacturing of multilayered crop and seed protection storage bags, for example, has employed workers in Zambia and Tanzania. Such innovations help boost agricultural productivity, while creating new manufacturing jobs.

<sup>1</sup> Ben S. Bernanke, "Promoting Research and Development: The Government's Role," *Federal Reserve*, May 2011.

<sup>2</sup> National Science Board, "Science and Engineering Indicators 2014," February 2014.

### PURSUING PUBLIC-PRIVATE PARTNERSHIPS

Commercial investments in Africa and other emerging markets that bring together private and public objectives increasingly offer an opportunity for businesses to rebalance and reduce risk exposure to their proposed undertakings. And firms have effectively used these partnerships to cut costs and boost revenue.

Partnerships between public and private players can lower input costs, improve supply chain management, and generate economic and social multiplier effects in local markets. They can help businesses grow, raising incomes of people in the region where they are based, and promote economic development.

PPPs can also experiment with new forms of finance, such as the use of advance payments, vouchers, output-based aid, and blended finance. Businesses operating or seeking to operate in Africa that utilize such innovative forms of partnering and financing are likely to reap private gains that otherwise would be elusive. The 'pay-as-you-go' solar panel distributed energy service industry in Africa is an example of an industry that is experimenting with different financing models.

### CONCLUSION

Africa has a number of specific attributes that create openings for private enterprises of all types to advance technology and drive growth, including a deficit of skilled workers, geographically fragmented national markets, a growing consumer class with increasingly discerning purchasing habits, and a large endowment of underdeveloped or poorly developed natural resources.

While private firms in Africa and other emerging markets have a major role to play in boosting innovation, governments need to support the sector with business friendly policies. They can promote innovation, for example, by developing and enforcing a rules-based institutional framework that protects property rights and sets standards and incentives for risk taking. By promoting private sector growth, countries can also meet social objectives that improve the living conditions of all of their residents. ■

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<sup>3</sup> "Thailand's booming car industry: The Detroit of the East," *The Economist*, April 4, 2013.

<sup>4</sup> Omar Mohammed, "Pay-as-you-go solar power is bringing electricity to more people in rural East Africa," *Quartz*, January 8, 2016.

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