The World’s Most Innovative Countries, 2017

By Bruno Lanvin , Executive Director for Global Indices at INSEAD and co-editor of the Global Innovation Index report

Innovation in agriculture is vital. One key to feeding the world is releasing pressure on the use of scarce natural resources through innovation.

Around one in nine people in the world currently suffers from hunger. One in three is malnourished in one form or another. Moreover, global food demand is expected to increase by at least 60 percent by 2050. To nourish a population of 10 billion, innovation in agriculture is imperative. The good news is that historically, agricultural innovation has proven both feasible and incredibly successful. Advances such as pasteurisation, refrigeration, mechanisation and the so-called ‘green revolution’ have boosted the world’s food supply and triggered socio-economic development.

The U.N.’s Sustainable Development Goals (SDGs) under the 2030 Agenda for Sustainable Development all rely to some extent on innovation. **Goal 2** is “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”. But while drones, satellite-based sensors, field robotics and virtual reality are increasingly used in farming in all parts of the

world, there is still a lack of globally-spread innovation in improved processes and services that occur along the agricultural value chain, from seed selection to conditioning, transportation and distribution. This is where significant bottlenecks currently exist, in the form of poor infrastructure, liquidity constraints, lack of information and awareness, especially in developing countries. In India, for example, 40 percent of all fresh food perishes before it can get to consumers. Effective linkages and improved delivery are just as critical, if not more so, than new technology. In other words, we need to move from ‘digital agriculture’ to ‘smart agriculture’.

Public authorities have a crucial role to play in overcoming market failures, investing in research and development (R&D), education and eliminating obstacles and distortions to global trade in agricultural and food supplies. They must also reduce the lag between R&D breakthroughs and widespread adoption of technology and methods. Sub-Saharan Africa, in particular, has yet to benefit from earlier waves of agricultural innovations. But the business sector also has to take the lead in spreading such innovations worldwide, and gearing them towards the needs of the poorest.

Learning from the leaders

The findings of this year’s tenth anniversary edition of the **Global Innovation Index (GII)**, a collaboration between INSEAD, Cornell University and the World Intellectual Property Organisation (WIPO), provide insights into the recipes that the leaders in global innovation use to promote sustainable growth. The leading countries don’t make it easy for technology to just proliferate. They actively foster innovative ecosystems that allow it to flourish.

Switzerland leads the rankings for the seventh consecutive year, followed by Sweden and the Netherlands. In the top 25, China (which entered that group last year) moves up another three places, becoming the 22nd most innovative economy in the world.

The GII measures a country’s innovation performance based both on its innovation inputs (such as regulatory environment, education, R&D and infrastructure) and its innovation outputs (such as patents filed and knowledge diffusion). Switzerland leads because it performs in all pillars of the GII model, especially in terms of business environment and ability to transform available resources into innovative outputs.

Recently, China has shown the strongest improvements in patent applications, university rankings and gross R&D expenditure. It also scores strongly in companies doing R&D and research talent.

GII 2017 Top 10	
1	Switzerland
2	Sweden
3	Netherlands
4	United States
5	United Kingdom
6	Denmark
7	Singapore
8	Finland
9	Germany
10	Ireland

New innovation players emerging

Although the top 25 is relatively stable, there have been interesting changes in the next segment of the rankings which tells us that the global picture of innovation is still moving. There are some positive developments from emerging markets. Some countries, termed “innovation achievers”, have performed better on innovation than their level of economic development

would suggest. Viet Nam (jumping 12 ranks this year, to rank 47), Kenya (80) and India (60) continue as innovation achievers, joined this year by Bulgaria (36) and Tanzania (96), amongst others.

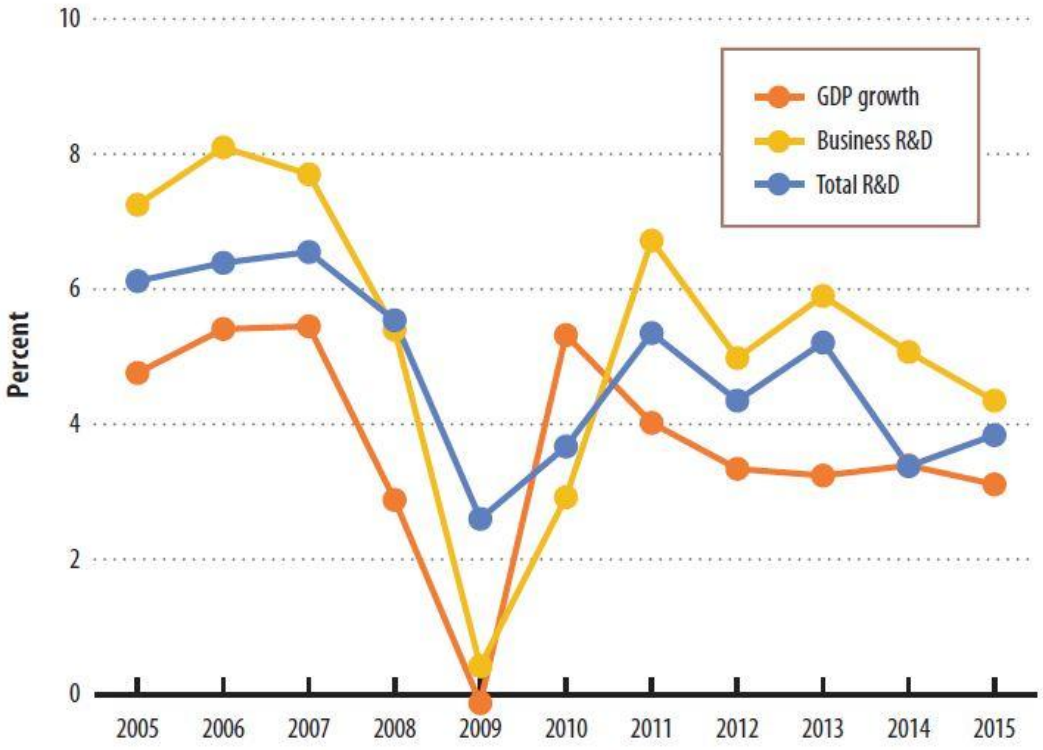
Kenya is the chief innovation achiever in the African region, performing very well in the information and communications technology (ICT) arena. **M-Pesa** is a firm example of Kenya's innovation wherewithal, widely hailed as a solution to Africa's vast unbanked consumer base and informal economy. It is a blend of local achievement with foreign investment, the concept originating from a British NGO and the U.K.'s Department for International Development and realised by a student at Moi University.

In the MENA region, the progression of the United Arab Emirates (gaining six ranks to 35) is remarkable.

Not all about tech

While innovation is typically equated with high-technology sectors, the agriculture and food sector is an important source of innovative development. Borrowing from some of the ingredients of the innovation leaders, our report makes the following recommendations to enhance the efficiency of the food and agriculture ecosystem.

First, provide adequate information to farmers, ensuring workers along the value chain have the latest skills and adopt the best available processes. Second, provide access to digital technologies and platforms that positively impact agriculture. Third, help boost entrepreneurship and venture capital within the sector. Fourth, infuse the sector with ICT tools. Fifth, streamline regulations and reduce bureaucracy, particularly when rolling out advanced farming technologies.



Source: 1a. World Bank World Development Indicators database, March 2017; 1b. Authors' estimate based on the UNESCO Institute for Statistics (UIS) database and the IMF World Economic Outlook database, March 2017.

Note: 'Investment' refers to real gross fixed capital formation.

Last year's GII sounded an alarm about the lack of public investment in innovation amid a low-growth global economy. Although some positive signs are emerging about a possible resumption of growth in some parts of the world, it is now private investment that displays signs of shying away from innovation financing, according to recent data. As shown in the figure above, investment, particularly in emerging markets, has still not recovered to pre-crisis levels. Global labour productivity meanwhile was as low in 2016 as it was in 2015. To maximise chances that positive signs coalesce into a sustainable economic recovery this year, both public and private investment in R&D must grow.

Investment must rebound and continue to meet the growing need for innovation. Agricultural innovation requires good institutions, out-of-the-box thinking and funding for adaptation in the food value chain. Progress in reducing global malnutrition can and must be a priority for all nations, not only the hungry ones.

*The GII is created by INSEAD, the **World Intellectual Property Organisation** (WIPO) and **Cornell University**. It covers 127 economies around the world and uses 81 indicators across a range of themes. The full report can be downloaded for free **here**.*

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