

Digital agribusiness – For a sustainable industrialization :

The role of economic planning and capacity building towards a resilient economic recovery

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Abstract

This policy brief departs from the discussion on the topic “Digital agribusiness – For a sustainable industrialization - The role of economic planning and capacity building towards a resilient economic recovery”, held during IDEP side event at the 53rd Conference of African Ministers of Finance, Planning and Economic Development (COM) in March 2021. It takes it from there and reflected further on the opportunities for better recovery in the digital agri-business. Reflections discussed the role of an enabling environment through improved ICT infrastructure and development planning.

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Digital agribusiness – key for a sustainable and green industrialization in Africa - opportunities and challenges

Africa's sustainable industrialization and diversification has been a cross-cutting issue on the discussions over development, especially in the context of Agendas 2030 and 2063.

Agriculture is one of the main sources of livelihood in Africa: More than 60%, meaning two-thirds, of the population of Sub-Saharan Africa is smallholder farmers. Hence, agriculture is a fundamental sector to ensure that no one is left behind in Africa.

The World Bank projects that agriculture and agribusiness in Africa will grow to be a US\$1 trillion industry in Africa by 2030. This has a strong implication for Africa as 1 trillion USD is more than half of today's GDP of the whole Sub-Saharan Africa.¹

These low-hanging opportunities seem to be seizable through strategic and systematic digital agribusiness approach. Technological advancement has led to important positive changes in all the sectors of the economy. Hence, digital technologies like artificial intelligence, internet, mobile and apps are already changing agriculture and the food system today. It enables collection and access of accurate and necessary data and harnessing the information. These technologies are helpful to improving the efficiency and effectiveness of agribusiness practices. Only in 2021, estimated digital agriculture market size is 15 billion US Dollars² and expected to continue expanding.

Digital solutions can also facilitate policy making processes, which would dramatically reduce the cost of agricultural activities and return farmers higher profit. Supporting agriculture in developing countries can be an effective way to improve the lives of millions in poverty. Transforming a country's agriculture sector can create jobs, raise incomes, reduce malnutrition, and kick-start the economy on a path to middle-income growth. Economic planning has been central in agricultural development. Many African countries have developed agricultural plan as part of a country's overall economic development approach. African leaders have always been engaged in making agricultural sector key for the development of the continent. Thus, the Malabo Declaration that provides the direction for Africa's agriculture transformation for the period 2015 - 2025, within the Framework of the Comprehensive Africa Agriculture Development Programme (CAADP) falls under this perspective. In the Digital Transformation Strategy for Africa (2020-2030), it is mentioned that there is 'need for Africa to make digitally enabled socio-economic development a high priority'. The Continental Agribusiness Strategy also provides a framework for the promotion of agribusiness, including agro-industry in Africa with a focus on the necessary pillars for development.

¹<https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=ZG>

²<https://breakthrough.unglobalcompact.org/disruptive-technologies/digital-agriculture/>

Building forward better: the role of digital agribusiness

Africa has a vast agricultural potential but still it is dependent on food imports as it is a net importer of agricultural products. According to the FAO, from 1996 to 2016, imports (mostly food) increased by six percent (6%) annually, whilst exports' growth rate is four percent (4%) per year. Dependence on extra-regional imports for food makes African countries, mainly the landlocked countries and Small Island Developing States (SIDS), vulnerable to disruptions in international logistics and distribution and production problems in countries of imports' provenance. During the COVID-19 pandemic, these factors, combined with losses in consumer incomes, minimal savings and limited access to public safety nets, mean that also creates demand-side risks, particularly among the poor populations. There are direct and indirect effects of the pandemic on farm families and farm labour. One cannot say that the pandemic impacted directly the agricultural sector in terms of number of people infected. However, due to the character of agrifood production being highly labour-intensive in most African countries, shortages of workers due to the lockdowns may compromise farming activities including land preparation, planting, crop maintenance, crop growth (weeding, fencing, and applying chemicals), harvesting, post-harvest handling, and transporting and storing food. Additionally, there are impacts along different nodes of the agrifood value chains which affect supply chains for agricultural products, processing, packaging, transportation networks and distribution, importing or exporting fresh and processed food products.³

The COVID-19 crisis has provided an opportunity to strategically rethink and retool the food systems to enable widespread digitalization and data-driven transformation along the agricultural value chain and beyond, resulting in a more integrated approach to implement long-term solutions that stimulate both local economic development and that of countries and regions.

In this perspective, digital inclusion for smallholders and rural farmers seems to be one of the key solutions for building resilient agri-food system. Digital services are changing the way farmers do business. FAO in Senegal works on digital inclusion whilst at the regional level data-driven food systems is becoming a new paradigm.

³Understanding the impact of the COVID-19 pandemic on food security in Africa.
<http://www.fao.org/3/cb0720en/CB0720EN.pdf>

BOX 1 : Initiatives towards Data-driven Food systems and Digital inclusion in Africa

- Strategic rethink: the COVID Action for Food Systems – Africa multistakeholder efforts launched in 2020 by the African Union Development Agency (AUDA-NEPAD) in collaboration with the International Fund for Agricultural Development (IFAD) and the World Economic Forum allowed a reflexion that articulates and advances actionable understanding on an emerging set of approaches for data-driven food systems across stakeholders.
- Agricultural Services and Digital Inclusion in Africa (SAIDA in French) launched in 2017 in Senegal and Rwanda: The main objective is to bring agricultural services closer to farmers, using 5 apps that provide real-time information on weather forecast, agricultural best practices, livestock care, market prices, health and nutrition directly on their mobile phone. In Senegal, the e-strategy of the National extension Agency (ANCAR) is being supported through SAIDA, with over 1000 extensionists trained. SAIDA is being extended to other African countries.
- An e-commerce platform (senlouma.org) was also built in 2020 during COVID-19 to help Senegalese small farmers sell their production
- 120,000 Senegalese farmers are receiving these agricultural advisory services in their local language (April 2022)

Source : <https://digital.apps.fao.org>

Digital agribusiness for sustainable agro-industry: The role of ICT infrastructure

As stated earlier, Africa's demand for food will be growing. Africa's agriculture needs structural transformation to meet the most important part of this demand. It was published in the Africa Renewal Magazine of the United Nations that 'Between 2010 and 2030, the total worth of its food industry is projected to hit the \$1 trillion mark'.⁴ To meet this demand, capacity for farmers and policy makers will need to be improved along with the upgrading of the existing tools towards more digitalisation.

More than 60 percent of the population of sub-Saharan Africa is smallholder farmers, and about 20 percent of sub-Saharan Africa's GDP comes from agriculture. Yet, Africa's full agricultural potential remains untapped. In a recent analysis, we determined that Africa could produce two to three times more cereals and grains (Exhibit 1), which would add 20 percent more cereals and grains to the current worldwide 2.6 billion tons of output. Similar increases could be seen in the production of horticulture crops and livestock.⁵

⁴<https://www.un.org/africarenewal/web-features/africa-leapfrogging-digital-agriculture>

⁵<https://www.mckinsey.com/industries/agriculture/our-insights/winning-in-africas-agricultural-marke>

Table: Basic agriculture indicators (World Bank WDI database)

Indicators	2009	2021
Agriculture, value added (% of GDP)	17.0	17.2
Agricultural land (% of land area)	41.7	42.5 * (2020)
Rural population (% of total population)	64.5	58.0
Employment in agriculture (% of total employment)	58.0	53.0 * (2019)
Employment in agriculture, female (% of female employment)	60.2	52

Source: World Bank, 2022 (<https://data.worldbank.org/indicator>)

Digital transformation is seen as a light of hope for agriculture growth in Africa and to recover better from the COVID-19. Some milestones have been achieved on the continent regarding digital technologies through services related to market linkages and crop-based advice for farmers. Mobile telephony use across the continent has grown unprecedentedly, according to GSMA Report on The Mobile Economy in Sub-Saharan Africa 2020, at the end of 2019, 477 million people in the region subscribed to mobile services, accounting for 45% of the population. In 2019, 93% of the global population was covered by a mobile broadband signal. In Sub-Saharan Africa, 3G coverage expanded to 75% compared to 63% in 2017, while 4G doubled to nearly 50% compared to 2017.⁶ Whilst the price for mobile internet dropping by 30% since 2015. According to a mobile broadband model run for 34 countries in Africa, an increase of 10 per cent in mobile broadband penetration yields an increase in 2.5 per cent in GDP per capita. According to the model, an increase of 10 per cent in the Digital Ecosystem Development Index⁷ results in a 1.9 per cent growth in GDP per capita.

Digital access is being available for smallholder farmers in rural areas and thus this can only be welcomed for empowering youth and women. Sustainability in the agro-industry can be achieved through improved tools for smart forecasts on climate and natural disasters to better inform small farmers to optimise arable land utilisation and farm production. With the Big data and analytics, digital technologies can move mountains in the agribusiness sector, mainly for the smallholders.

In Kenya for example, through DigiFarm - a FREE service of Safaricom, farmers are provided a better understanding of the topography of the land, and help them keep track of the best time to spray fields for pests or to fertilise their crops. This platform uses drones to perform aerial surveys of smallholder farms. It also provides inclusive services for 1.4 million smallholders (48% women) with financial support, access to improved data inputs, training, and market access.

⁶https://www.gsma.com/mobileeconomy/wp-content/uploads/2020/09/GSMA_MobileEconomy2020_SSA_Eng.pdf

⁷CAF et al. (2020), Las oportunidades de la digitalización en América Latina frente al Covid-19, CAF 2020, UN ECLAC 2020, https://repositorio.cepal.org/bitstream/handle/11362/45360/4/OportDigitalizaCovid-19_es.pdf

The implications of economic planning: strategy, policy, laws, and capacity building

According to Mr. Qu Dongyu, the Director-General of the Food and Agriculture Organization of the United Nations (FAO)⁸, 281 million people in Africa do not have enough food to eat each day, nearly three-quarters of the African population cannot afford nutritious food, and drought threatens lives and livelihoods in the Horn of Africa. Meanwhile, countries are still grappling with the economic effects of the COVID-19 pandemic.

In terms of ambitioning a bright future for African agriculture, harnessing the potential of digitalization and African Continental Free Trade Area (AfCFTA) can change the game. The AfCFTA market is estimated about 1.3 billion people across Africa, combined with a gross domestic product (GDP) of \$3.4 trillion, and a potential to rise up-to 30 million Africans out of extreme poverty (World Bank, 2022)⁹.

Rwanda is an example of country that has adopted governmental strategies that embraced an ambitious 20-year digital agenda to achieve a full digital economy by 2020. Agricultural digitalisation promises to bring structural transformation to the economy of the country whilst agriculture accounts for around four-fifths of Rwanda's employment and a third of its GDP. Agriculture remains a crucial sector contributing 31 percent to GDP and employing 62.3 percent of the total population. At the same time, ICT is therefore considered a potential enabler in the process of addressing some of these challenges related to land distribution, low productivity and limited capacity in order to drive rural development and reduce poverty, considering its increasing contribution to Rwanda's economy with an annual average growth of 21.1 percent. Rwanda is moving towards self-sustainability with improved seed for major crops.

National digital agriculture strategies should be derived from national agricultural transformation plans. To unlock the potential of digital agribusiness, governments need to adapt planning approaches to consider the benefits of digital solutions not only for smallholder farmers but also for private companies. Facilitation of private sector investments, including the IT companies, on areas of direct impact as production and postharvest handling and indirect impact as supply chain management, market access, finance will be needed.

Rwanda is just one illustration of how the continent is preparing itself to leapfrog into modern agricultural practices, by ensuring the right enabling environment is in place. In the rest of the continents both governments and private initiatives are put in place to facilitate digital access to farmers.

⁸The 32nd Session of the FAO Regional Conference for Africa being held in Malabo, Equatorial Guinea, April 2022 (in Africa Renewal, April 2022: <https://www.un.org/africarenewal/magazine/april-2022/africa%E2%80%99s-new-harvest-transform-agriculture-we-must-speed-innovations-and>).

⁹World Bank. The African Continental Free Trade Area: Economic and Distributional Effects. Washington, DC: World Bank. doi:10.1596/978-1-4648-1559-1. License: Creative Commons Attribution CC BY 3.0 IGO

In June 2021, the Kenyan government made revisions on the legislation governing the tea sector. Small-scale farmers in the sector get improved revenues for their crops, are better represented and are being paid without many delays after their crops are sold.

The Nigerian government has also introduced the eWallet program to reform its input subsidy program. The eWallet program manages the delivery of fertilizer and seeds farmers are entitled to; the location of the agro-dealers supplying inputs; and the amount of out-of-pocket contribution. The program introduced transparency and traceability of transactions, besides offering an avenue to deliver additional benefits to farmers, such as vouchers for nutritional supplement. By 2017, the eWallet system was benefiting 17 million farmers (many of them women), 2,500 agribusinesses, 800 e-extension workers, and over 2,500 service points in Nigeria.

Also in Nigeria, an online platform called Nigeria-based FarmCrowdy offers farmers extension advice and enables them to access credit directly from an investor, who in return earns a share of the post-harvest profit.

In Ghana, e-Soko is a start-up that provides overall farm management support, helping farmers monitor and analyse their farming records via its data collection tool. The application is accessed via a smartphone app or e-Soko's website, the tool links farmers to advisory services, markets, market prices and secure payments.

Governments embracing digitalisation for the agricultural sector, through an enabling environment, can be in a path of tackling hunger and poverty and ensure food security by harnessing the power of digital solutions - new innovations and breakthroughs made feasible by the progressive digitalisation - will ensure no one is left behind. This can take advantage of the innovative processes of digitisation that facilitate the transition from analog to digital, and it is critical for big data and analytics.

There are practical policy options for other African governments that can be boost to a path of unlocking the potential of digital agri-business.

Some policy recommendations

In the area of risk management

- Monitor crisis and disaster risks, coupled with early warning – mainly regarding meteorological issues this can help reduce community vulnerabilities to crises and disasters
- Invest strategically to strengthen the resilience of countries and the population to better prepare for and respond to crisis and disaster over the longer term

In the area of ICT infrastructure

- Utilize emerging data-driven solutions for food and agriculture as part of a broader economic enabling framework to leverage and scale partnerships
- Further refine innovative digital solutions that bring agricultural services close to rural small-holders guaranteeing real-time access to climate information and forecasts, best agricultural practices, information on livestock management and feeding areas, market prices, and health and nutrition advice directly on their mobile devices
- Upgrade the value chain by using data from across satellite and geospatial operators, ICT and telecommunications providers, e-commerce and logistics companies, and finance providers could all be brought to bear, alongside data from other actors who intersect the food production and trade space.

In the area of planning and building capacities

- Redesign the national agricultural development plans to promote agribusiness and agro-industrialisation
- Invest in capacity development of decision-makers and economic actors on negative impacts of GHGE and the comparative advantages of transitioning to digitalisation
- Support partnerships and actions towards accelerated investment for sustainable and inclusive industrialisation by putting in place a conducive enabling environment in the domains of digital technologies

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