ICTs sector:
a driver for rural and agricultural development in Ghana?

In 2017, Ghana was ranked first in West Africa in terms of Information Communication Technology. When it comes to the cocoa sector, ICTs appear as a solution to improve earnings to farmers, to reduce child labour and to prevent deforestation.

A robust regulatory framework is critical for revolutionising the Information and communication technologies (ICTs) markets to have the potential to contribute to rapid socio-economic development in Africa. In Ghana, the two key policies driving ICT developments are the ICT for Accelerated Development (ICT4AD) Policy and the National Telecom Policy (NTP). The legal regime continues to see some rigorous developments with recent news laws adopted to support the implementation of the ICT policies and improve the regulation of the sector (at least 5 for the only year 2008). Since 1994, the introduction of key policies and programs has jumpstarted a tremendous transformation of the country's Information and Communication Technology (ICT) landscape. In 2015, ICTs alone contributed 2.2% to total GDP and was expected to grow exponentially. By 2017 Ghana was ranked first in West Africa in the International Telecommunication Union (ITU) Global ICT for Development Index. This transformation came about as a result of the liberalization of the telecommunications sector.

Some key developments characterize the sector as a high growth in mobile penetration which currently stands at 139% with 41 million mobile lines in 2018, 126% in Côte d'Ivoire (against 83% for Burkina Faso); the deployment of mobile money interoperability and digital addressing systems, an increasing availability of, and falling prices for international bandwidth; growth of entrepreneurship among youth through accelerators and incubators; and donors and government policies promoting private sector and human skills development.

Driving towards the 4th industrial revolution

In Ghana, agriculture serves as a potent driver of national economic development (p. 8-9). However, lack of access to informa-

GHANA DRIVE TOWARDS A DIGITAL ECONOMY TO POWER ITS 4TH INDUSTRIAL REVOLUTION

tion is hampering agricultural productivity, resilience to Climate Change and farmers fair income generation of an ever-increasing population. New technologies are then delivering more services that are essential to people, from allowing remote diagnosis of illness to helping farmers increase crop yields and gain better prices for inputs.

As Ghana drives towards a digital economy to power its 4th industrial revolution, the dependence on advances in ICTs has become more

than necessity, particularly in agriculture. An entrepreneurial ecosystem is fueling young people to start businesses looking into smart innovations to digitize agriculture. However, Ghana has a lot to learn from tech start-up ecosystems in Kenya, Nigeria, South Africa, Egypt and Morocco where 50% of Africa's tech hubs are concentrated. Many tech start-ups in Ghana are disrupting products & service delivery in agricultural sector using mobile platforms to provide farmers and agricultural firms with up-to-date information.
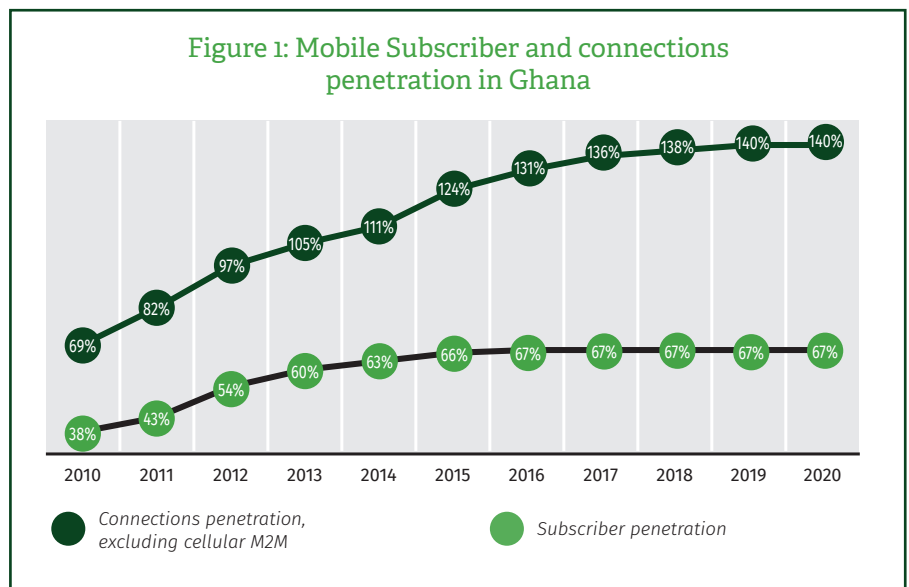
Farmerline: Helping cocoa farmers attain a living wage

One of the companies which has sprung forth from this moment is Farmerline, a Ghana based agritech-company. Officially launched in 2013, Farmerline has built a software platform currently supporting over 340,000 farmers across 24 countries offering digital solution for farmer profiling, mapping, certification, traceability, messaging and digital payments. It is used by over 71 organizations to provide farmers with resources to increase productivity and profit.

Farmerline works mainly with cocoa farmers. The most pressing issues to address in the journey towards creating a sustainable cocoa industry is (i) helping farmers attain a sustainable living wage (ii) child labour reduction and (iii) reduction of land abuse. ITCs can help on the three.

ICT: a provider of information and resources

The constitution of the Cocoa Industry has for the most part recognized that helping cocoa farmers attain a living wage is a matter of complexity. It has therefore employed

Figure 1: Mobile Subscriber and connections penetration in Ghana

Connections penetration, excluding cellular M2M: 69%, 82%, 97%, 105%, 111%, 124%, 131%, 136%, 138%, 140%, 140%

Subscriber penetration: 38%, 43%, 54%, 60%, 63%, 66%, 67%, 67%, 67%, 67%, 67%

2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020

Source: GSMA Intelligence, 2017

a multi-faceted solution, including steering farmers toward diversification and increases in yield, providing training on the use of agrochemicals and rejuvenation, facilitating access to inputs at better prices and credit terms.

ICT offers cost effective channels to deliver information and resources to assist farmers. E-Extension Services allows farmers access agronomic information in voice / SMS or smart application. Farmerline also provides farmers with input credits. This project is only at its genesis, but it is the bloom of a much-needed credit system for farmers in the industry.

ICT and reduction of child labour: the CLMRS

In 2001, members of the Cocoa Industry signed an agreement - the Harkin Engel framework - to work toward ending child Labour in the cocoa industry by 2005. The signatories were unsuccessful and have re-engineered deadlines and goals, presently aiming for a 70% reduction in child Labour on cocoa farms by 2020. The cocoa industry facilitates this goal through A Child Labour Monitoring and Remediation System (CLMRS).
The Cocoa Barometer defines CLMRS as "a community-based instrument to identify and remediate child labour. [...] A local liaison regularly visits every family and speaks to both parents and children. When child labour is spotted or self-declared by the child, this is flagged in a central database, analysed, and suitable remediation is then implemented." A farmer who does not engage in child labour- alongside other markers - he/she becomes qualified to command premium prices per bag of cocoa.
Farmerline's software makes use of a certification feature, alongside trained field agents to assist companies and organizations in fulfilling this pillar of sustainability and in doing so help farmers to get the premium companies commit to pay.

Preventing Land Abuse & Encouraging Restoration of forest

The quest for increasing farmers' revenue has often resulted in the use of protected forest areas being used for farming, or farmers allowing use of their land for mining and other detrimental activities (p. 26). For instance, The cocoa sector has identified a number of ways to help curb this specific issue, chief of them being helping farmers to increase crop yield per acre. All of these solutions require the use of ICTs platforms to ensure effective implementation. Through mapping technology land restoration efforts are provided with visibility of land to be restored.

Remaining challenges of ICTs for rural development

Before realising the potential of mobile to support socio-economic development, the key challenge is to connect farmers with an appropriate message and quality information: and so to produce this knowledge and to adapt it to the ICT. Many of these require collaboration between the public and private sectors. As start-ups and tech entrepreneurs are looking to build viable businesses the challenge of working with bureaucratic institutions often frustrates or even kills such innovative businesses whose survival very much requires favorable environment for partnership and collaboration. It is worth it: it could help to improve a new kind of training and agricultural education. The second is the infrastructure and business module required to ensure sustainable delivery of services that impacts farmers productivity and income. For example, the quality of mobile

Farmers using mobile phone services from Farmerline in a cocoa plantation
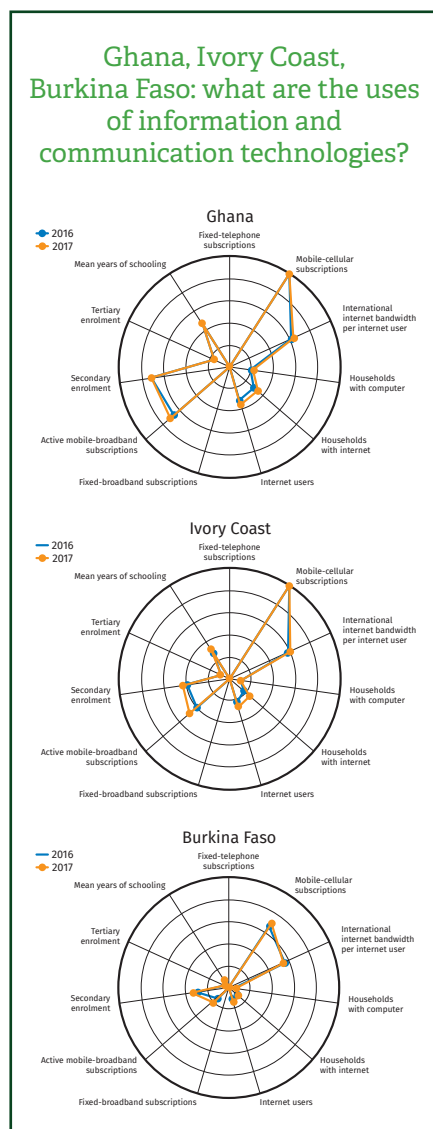
Farmerline

network connectivity in rural areas has much to be desired and for applications requiring internet, this present greater challenge.

A multifaceted approach with various stakeholders

With technological advances, especially in mobiles, the delivery of economic and social benefits will become even more evident. They will empower farmers to be more resilient, increase crop yields, provide safe, swift and secure financial services.

The efforts require a multifaceted approach with various stakeholders playing their expected roles. Government's role is a key enabler for ICTs to take a right role in socio-economic development through forward thinking policy directives, creating political and economic stability needed for investments into infrastructure and skills.

There are many lessons to learn from sister countries on what has worked and not, as such the opportunity for countries like Burkina Faso, Togo, Benin, Niger and others who are now adopting ICTs into their mainstream development agenda to leapfrog and advance much more quickly and better than their peers who took the lead. ■

Worlali Senyo

Worlali Senyo leads the Partnership Development Unit at Farmerline, a Ghanaian social enterprise creating lasting profits for small-scale farmers everywhere by leveraging advances in mobile phones, machine learning & remote sensing to empower a network of field agents to deliver quality and affordable farm inputs bundled with intensive training to farmers in remote areas.

Ghana, Ivory Coast, Burkina Faso: what are the uses of information and communication technologies?

Ghana

- 2016
- 2017

Ivory Coast

- 2016
- 2017

Burkina Faso

- 2016
- 2017

Source: https://www.itu.int/net4/ITU-D/idi/2017/index.html