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Mobile Technology and Trade in Sub-Saharan Africa

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Over the last 15 years, the expansion of mobile technology into Sub-Saharan Africa (SSA) has been unprecedented. Recent data by the International Telecommunication Union (ITU) shows that cellular telephone subscriptions are now almost eight times higher in the entire African continent than in the year 2000, reaching about 700 million subscribers. Africa is today one of the fastest growing information and communication technology (ICT) markets, with many countries 'leapfrogging' landline telephony to mobile connectivity.

The mobile technology revolution is widely regarded to have had a positive economic and social impact in many developing countries and least developed countries (LDCs). The new Sustainable Development Goals (SDGs) adopted in September 2015 now include the goal of providing universal and affordable access to the internet in LDCs by 2020 (SDG 9c). Being home to the world's most LDCs, extending such access could help to place the African continent on to a new development trajectory, including trade performance and competitiveness.

This issue of Commonwealth Trade Hot Topics examines the growth of mobile technology in SSA,

and the resultant implications and prospects for strengthening trade and regional integration. Given low levels of African exports, a key question is whether mobile technology can become an enabler or driver of improved trade performance for SSA countries in the future.

Trade and 'disruptive technologies'

Technology has historically been one of the major drivers of globalisation. Today, technological advancements and more recently 'disruptive digital technologies' – including the cloud and digitisation, electronic commerce (e-commerce), 3D printing, big data, holograms, Internet of Everything, and virtual currencies¹ – are impacting profoundly on how goods and services are produced, transacted, traded and consumed.

The ICT revolution has led to the growing fragmentation of production processes and greater trade interconnectedness through global value chains (GVCs). GVCs are fundamentally changing the traditional concept of an entire production process taking place in one country, to products now 'Made in the World'. This geographic

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- ¹ Suominen, K (2014), 'How Digital Protectionism Threatens to Derail 21st Century Businesses'. At: http://www.brinknews.com/how-digital-protectionism-threatens-to-derail-21st-century-businesses/ (accessed 25 August 2015).

separation of the various production processes from research and design to manufacturing (where data is often an important input into mechanised or automated production processes), marketing and other services presents opportunities for many countries, since it requires specialisation in a relatively limited number of tasks. Affordable and reliable access to ICTs is important for developing country enterprises to plug into these GVCs, and to reduce the costs of global business-to-business (B2B) matchmaking and transactions.

There is also a key role for ICTs in enabling global trade. In particular, the electronic 'single window' approach is seen as one way to reduce transaction costs and time by permitting traders to lodge standardised customs information and documents with a single entry point.

The rise of e-commerce as part of the broader digital trade revolution² is rapidly transforming the marketplace from mortar 'bricks' to hyperlinked 'clicks'. In one estimate, 40 per cent of worldwide internet users have bought products or services online via desktop, mobile, tablet, or other online devices. This amounts to more than one billion online buyers and is projected to continuously grow.³ The value of global B2B e-commerce in 2013 exceeded US\$15 trillion, while global business-toconsumer (B2C) e-commerce accounted for an estimated US\$1.2 trillion in the same year. However, Africa remains the region with the lowest penetration of e-commerce. Egypt consistently leads with B2C e-commerce sales of US\$3.9 billion in 2012, followed by South Africa with US\$1.2 billion and Nigeria with US\$800 million.4

Trade benefits of mobile connectivity

After decades as 'technology-takers' in the global digital divide between North and South, many African countries are today prioritising investments in science, technology, research and innovation. The African Union's 'Agenda 2063', which sets the developmental vision and pathway for Africa over the next five decades, recognises the importance of technology as a catalyst for the continent's structural transformation, economic development and social progress.

Table 1: ICT Facts and Figures

Globally 3.2 billion people will be using the internet by the end of 2015. Of them, 2 billion are from developing countries.

4 billion people from developing countries remain offline, representing two-thirds of the population residing in developing countries.

89 million people out of 940 million who live in LDCs use the internet.

3G mobile-broadband coverage is extending rapidly and into the rural areas. In 2015, the 3G rural population coverage was 29 per cent.

In Africa, one in five people use the internet today, compared to almost two in five people in Asia and the Pacific.

In developing countries, average monthly fixedbroadband prices are three times higher than in developed countries. Mobile-broadband prices are twice as expensive.

Source: ITU (2015)

International partnerships have played a critical role in expanding available bandwidth on the eastern and southern sides of the continent. These projects include the laying of new undersea fibre optic cables along the African coast or the development of new broadband networks. According to the World Bank, investment commitments in telecommunications infrastructure projects with private participation between 2006 and 2013 exceeded US\$75 billion. This is more than three times the figure for the previous five years.

The liberalisation of the communications sector in many African countries has also enabled leading global telecoms providers to expand their brands and compete for market share. Their strategies have included partnering with smaller manufacturers to develop more affordable mobile devices. Microsoft and Huawei, for example, have released an affordable smartphone custom developed specifically for the African market and preloaded with select applications ('apps') designed for Africa, called the 'Huawei 4Afrika'.⁵

- ² Meltzer, J P (2015), A New Digital Trade Agenda. Overview Paper prepared for the E15Initiative Expert Group on the Digital Economy. Geneva: International Centre for Trade and Sustainable Development (ICTSD) and World Economic Forum.
- ³ http://www.statista.com/markets/413/e-commerce/
- 4 UNCTAD (2015), Information Economy Report 2015: Unlocking the Potential of E-commerce for Developing Countries. Geneva: UNCTAD. WTO (2013), E-commerce in developing countries: opportunities and challenges for small and medium-sized enterprises. Geneva: WTO.
- Faramawy, A (2012), 'Prioritising Africa Introducing Microsoft 4Afrika', 4 February. At: http://blogs.technet.com/b/microsoft_on_the_issues_africa/archive/2013/01/31/prioritising-africa-introducing-microsoft-4afrika.aspx (accessed 25 August 2015).

Table 2: Mobile Cellular Telephone Subscriptions by Region

Region	2005 (millions)	2015 (millions)	Percentage Increase
Africa	87	685	684.60%
Asia & Pacific	833	3,737	348.42%
Europe	550	757	37.62%
The Americas	459	1,066	132.04%

Source: ITU (2015)

Regulatory reform and liberalisation have also benefited local mobile operators, with countries such as Ghana, Nigeria or the United Republic of Tanzania having more than five local operators. Growing competition for the mobile market has also led to a drop in the price of handsets (smartphones retail for as little as US\$25) and the cost of broadband connections.

Affordable prices for handsets and cheaper and better broadband connections are the two main drivers of this transformation, which has seen African countries 'leapfrogging' landline telephony to mobile connectivity. Over the decade since 2005, the African continent has been the trailblazer in the cellular telephone market, growing by nearly 700 per cent (see Table 2). Mobile technology allows farmers, small and medium enterprises (SMEs), businesses and consumers in remote villages or cities to benefit from this technological revolution in a number of important ways.

Mobile financial services

Mobile technology has played a crucial role in promoting financial inclusion in Africa, where less than 20 per cent of households have access to formal financial services. Kenyan M-PESA has led the mobile money phenomenon to the point of becoming a global reference. Transactions through mobile banking service M-PESA exceed US\$2.1 billion each month, with almost 60 per cent of Kenyan adults using the service.⁶ By 2015, a stock of over 20 million M-PESA accounts had been registered in Kenya.⁷ One of the reasons for its success is the wide range of financial products and services offered: from cash in and out, to bill payments, savings, loans and remittances.

Innovation in the agricultural sector

With agriculture being the backbone of many African economies, the role and impact of the mobile revolution in this sector is critical. Mobile broadband coverage is extending rapidly into rural areas, with ITU reporting a 3G rural population coverage of 29 per cent in 2015.

A number of public, private, and donor-related initiatives have tried to identify how mobile technology can help African farmers to cultivate, market and trade their produce. Today, there are a number of functions that farmers can access with their mobile phones, including dedicated help-lines for specific crop-related advisory services and sharing of good farming practices; micro insurance against climate-related hazards; market information about business opportunities and the latest market news; or making mobile payments.

There are also a number of projects that aim to provide farmers with real-time international commodity prices by text messages. In Zambia, for instance, the UN's International Fund for Agricultural Development and the farmers union have launched a service that provides up-to-date market prices, listing buyers for 12 major commodities. Another example is mCollect, which is a data collection system that enables exporters to gather prices from rural markets. Such mobile commodity trading platforms have been successfully implemented in a number of SSA countries, including Burkina Faso, Kenya, Mozambique and Zambia. In doing so, they help link isolated small farmers with global markets. With the help of up-to-date market information, farmers reduce the risks of both under-selling and under-supplying.

⁶ Murphy, A (2015), 'The greatest innovator in mobile payments isn't Apple'. At: http://betanews.com/2015/04/27/the-greatest-innovator-in-mobile-payments-isnt-apple/ (accessed 20 November 2015).

http://www.safaricom.co.ke/images/Downloads/Resources_Downloads/Annual_Report_2015.pdf (accessed 24 November 2015).

The private sector has long recognised the potential of mobile technology and a number of private initiatives have been consolidated in recent years. The Esoko Ghana Commodity Index (EGCI) is a company that seeks to improve the profitability of smallholder farmers by offering marketing, monitoring and advisory applications. Chitsosa, a Malawian SME that trades in grain, uses Esoko apps to connect to small farmers, reportedly saving the company US\$350 a month in operational costs.8 Novus International, a multinational animal feed business that recently entered the African market, has also used Esoko's apps to educate farmers in Kenya and Uganda, providing them with tips how best to care for their animals, and increasing demand for their products.

Another example of a successful private initiative operating in SSA is Olam International, an agribusiness based in Singapore that supplies food and industrial raw materials worldwide. Olam has recently signed 30,000 farmers in Tanzania as suppliers of coffee, cotton and cocoa through a mobile phone system. The deal has taken place as part of a partnership with the Connected Farmer Alliance (CFA), a public-private partnership working for smallholder farmers across Kenya, Tanzania and Mozambique, and Vodacom Tanzania, a subsidiary of UK telecoms provider Vodafone. This initiative provides smallholder farmers with mobile technology in order to increase their productivity by offering farming advice and solutions via text message, notifications about upcoming training sessions, real-time information on changes in market prices, and a mobile money transfer service in place of cash.9

The CFA has had other successful partnerships with the private sector too. These include a collaboration with Multiflower, the leading flower seed exporter in Tanzania. Multiflower used CFA's mobile technology solutions to improve their business efficiency in areas such as communications with small farmers or payments and e-receipts, thereby reducing transport costs and improving transaction security.

Moving beyond the primary sector

One of SSA's greatest development challenges is to move off an economic growth path based on commodity exports and on to a more sustainable industrial and services path. The mobile technology revolution can support and underpin this economic diversification.

Kenya, for example, is fast moving from a technological backwater to a frontier ICT market, with the ICT sector contributing about 12 per cent of GDP.¹⁰ Nairobi has become a hub for ICT activities and start-up ventures. Safaricom, based in Nairobi, is the leading Kenyan mobile network operator with 70 per cent and 92 per cent of mobile and internet subscriptions respectively. Over the last decade, the Kenyan private sector has also developed a number of successful initiatives within the Business Process Outsourcing (BPO) operations arena. Virtual City Ltd, for example, is a leading mobile software firm that develops and delivers mobile software solutions to the supply chain and agribusiness industry in Africa. They provide industry solutions in a range of sectors, including grains, coffee, tea, dairy, horticulture, and food and beverages.¹¹ The system also allows business subscribers to generate sales transactions, place orders, collect returns, and enable mobile money payments directly from their mobile phone. Equally, KenCall, the first independent Kenyan-based company that provides a full suite of BPO services to organisations worldwide, is also located in Nairobi.12 Kenya's exports of technologyrelated services have grown from only US\$16 million in 2002 to US\$360 million by 2010.13

The Government of Kenya aims to complete construction of what has been called 'Silicon Savannah' by the end of 2019. A new and modern techno-city with investments worth US\$14.5 billion is planned for Konza, about 60 kilometres from Nairobi. Konza Techno City aims to become an international hub for outsourcing of BPO operations and General IT support, generating around 100,000 jobs by 2030. The project is part of the government's 'Vision 2030' development plan, in which ICT is a key pillar.¹⁴

- 8 https://esoko.com
- 9 http://olamgroup.com
- ¹⁰ 'Innovation in Africa: Upwardly mobile'. *The Economist*, 25 August 2012. At: http://www.economist.com/node/21560912 (accessed 20 October 2015).
- 11 http://www.virtualcity.co.ke
- 12 http://www.kencall.com
- ${\tt 13}~{\tt 'Innovation\,in\,Africa:}~{\tt Upwardly\,mobile',\,http://www.economist.com/node/21560912\,(accessed\,2\,September\,2015).}$
- 14 The Economist, op. cit.

Despite the vast scale of global e-commerce transactions, it was earlier noted that SSA countries lag in this league. There are a number of challenges to the growth of e-commerce. As with most other developing countries, these include economic barriers (for example, inadequate ICT infrastructure and use, unreliable and costly power supply, and the lack of electronic payment systems and postal addresses); socio-political barriers (such as weak legal and regulatory frameworks, cultural preferences for face-to-face interaction and reliance on cash in society); and cognitive obstacles, especially low levels of ICT literacy. ¹⁵

There is, however, considerable e-commerce potential in SSA's larger and more sophisticated markets. A recent study shows that 90 per cent of Nigerians who own a smartphone or feature phone have used them to shop online. This has led Amazon, the global online shopping leader, to start shipping directly to Nigeria. The same study shows a positive effect of e-commerce on intra-African trade, with more than one-third of Nigerians having purchased goods from other African countries. South Africa is the main destination, with 30 per cent of Nigerian cross-border shoppers buying from the country compared to Kenya with 2 per cent, Egypt with 1 per cent, and the rest of the continent with 3 per cent.

E-entrepreneurship and innovation in SSA's largest markets is also flourishing. Jumia is Nigeria's largest online retail store delivering to all 36 states in Nigeria. Today, Jumia operates in Kenya, Morocco, Ivory Coast, Uganda, Ghana, Cameroon, Egypt and South Africa. The company also established the first e-commerce academy in Nigeria, the Jumia Academy. In South Africa, platforms such as Bid or Buy, OLX and Property24 provide opportunities for B2C and consumer-toconsumer (C2C) e-commerce transactions. In addition to 'Pay Pal', co-founded by South African Elon Musk, South African entrepreneurs have pioneered 'SnapScan', which is a free app that

allows small businesses and even street vendors to process mobile payments by using a mobile phone readable bar code (or so-called Quick Response (QR) Code). SnapScan has been adopted by about 12,000 small and medium businesses in more than 17,000 outlets across South Africa.¹⁸

Harnessing mobile technology for informal trade

Although mobile technology offers numerous B2B, B2C and C2C opportunities in the formal economy, a considerable part of intra-regional African trade is characterised by the prevalence of informal crossborder trading and by the strong role of women in this. Women are responsible for more than 70 per cent of cross-border trade. This informal trade is hugely important, both in sustaining livelihoods and household incomes and in contributing to wider economic growth, regional integration and development.¹⁹ The gender pattern of trade is also interesting: women barter or sell largely low value or low profit goods (mainly foods), while men sell a wider range of higher value products, including second-hand clothing, beer, household items, and other fast-moving consumer goods.²⁰

Mobile technology offers potential solutions to many of the challenges that vulnerable cross-border traders, especially women, confront on a daily basis. The latter are reported to include harassment and intimidation by border security agencies; lack of information on regional trade agreements, including applied tariffs, and immigration protocols; transport constraints; high customs fees and other illegal payments; lack of financial services, including savings, credits, and loans; inadequate security; lack of business management skills; limited market information; and lack of gender-friendly border posts.²¹

Mobile devices are, first and foremost, a means of communication with family, friends or authorities. This may offer a first line of defence against physical harassment, intimidation and extortion by border

- 15 UNCTAD (2015), op. cit.
- 16 http://innovation-village.com/nigerian-consumers-a-booming-ecommerce-force-in-africa-paypal/ (accessed 25 August 2015).
- 17 https://www.jumia.com.ng/about_us/
- 18 'Why One South African Startup Wants You to Pay with Your Phone'. Time, 13 November 2015. At: http://time.com/4071272/south-africas-new-painless-payment-app/ (accessed 18 November 2015).
- 19 TradeMark East Africa (2015), 'Lack Of Knowledge Hinders Cross-Border Trade-TWCC', 21 September 2015. At: https://www.trademarkea.com/news/lack-of-knowledge-hinders-cross-border-trade-twcc/ (accessed 25 October 2015).
- ²⁰ TradeMark East Africa (2015), 'Why informal cross border trade remains important', 29 January. At: https://www.trademarkea.com/news/why-informal-cross-border-trade-remains-important/ (accessed 25 August 2015).
- 21 NFNV (2015), 'Raising Voices for Women Cross Border Traders in West Africa', April. At: http://www.tralac.org/images/News/Reports/Raising%0Voices%0for%0Women%0Cross%0Border%0Traders%0in%0West %20Africa%0Project%0April%02015%0updated%026082015.pdf (accessed 25 August 2015).

authorities. Mobile banking such as M-PESA and other forms of branchless banking provide access to financial services, while mobile money transfers – rather than cash – provide greater personal security to informal traders that travel long distances and traverse borders. Mobile technology may also empower cross-border traders through better access to and sharing of information – including market prices, tariffs and non-tariff barriers, immigration protocols, transport services, and real-time circumstances and conditions at border posts. Mobile technology clearly has considerable potential to facilitate and enable greater – and critically, more secure – informal intra-African trade for cross-border traders.

Conclusion: Towards ICT-enabled trade?

Africa is widely regarded as the 'rising continent' with ambitious plans for regional and continental integration. There is a strong formal commitment by African leaders to advance this pan-African vision, reflected in recent African Union plans and policies to boost intra-African trade, fast-track the Continental Free Trade Area (FTA) by 2017, and diversify production to place the continent on to a more sustainable industrial development path. Mobile technology and ICTs more generally can play an instrumental role in supporting these objectives.

ICT-based customs systems are already being implemented by many African countries, while some national and regional trade facilitation strategies envisage 'single windows' in the future. The prospects for greater e-commerce and digital entrepreneurship and innovation in Africa's larger and more sophisticated markets are promising and epitomised by the likes of M-PESA, online

shopping platforms, and BPO services provided to the world market. Real-time information on market prices and conditions and the sharing of best practices from farming to services could help improve productivity and competitiveness, both essential for regional and global trade success. Mobile technology can also make an indispensable contribution to enabling safer and more secure conditions for cross-border traders, especially women.

Today, there is no doubt that mobile technology is connecting producers, traders, investors and consumers in unprecedented ways. Despite being one of the most rapidly growing technology markets in the world, a number of constraints to the sector's potential growth and development remain. Working with the private sector, international organisations and the global development community, SSA governments should prioritise policies and reforms to further develop, expand and improve the 'e-commerce ecosystem'. The latter could include reducing the cost of access for mobile and broadband services; strengthening privatepublic sector ICT collaboration; improving the ecommerce environment (including regulatory policies around data and electronic security and intellectual property); improving ICT worker skills levels; establishing ICT parks in countries that meet infrastructure requirements; and supporting ICT entrepreneurs.²² There have even been proposals for an 'Aid for eTrade' initiative²³, which, if carefully designed and funded to address Sub-Saharan Africa's specific priorities, could help overcome many of these challenges and accelerate the continent's transition to the digital era and e-commerce.

International Trade Policy Section at the Commonwealth Secretariat

This Trade Hot Topic is brought out by the International Trade Policy (ITP) Section of the Trade Division of the Commonwealth Secretariat, which is the main intergovernmental agency of the Commonwealth – an association of 53 independent states, comprising large and small, developed and developing, landlocked and island economies – facilitating consultation and co-operation among member governments and countries in the common interest of their peoples and in the promotion of international consensus-building.

ITP is entrusted with the responsibilities of undertaking policy-oriented research and advocacy on trade and development issues and providing informed inputs into the related discourses involving Commonwealth members. The ITP approach is to scan the trade and development landscape for areas where orthodox approaches are ineffective or where there are public policy failures or gaps, and to seek heterodox approaches to address those. Its work plan is flexible to enable quick response to emerging issues in the international trading environment that impact particularly on highly vulnerable Commonwealth constituencies – least developed countries (LDCs), small states and sub-Saharan Africa.

Scope of ITP Work

ITP undertakes activities principally in three broad areas:

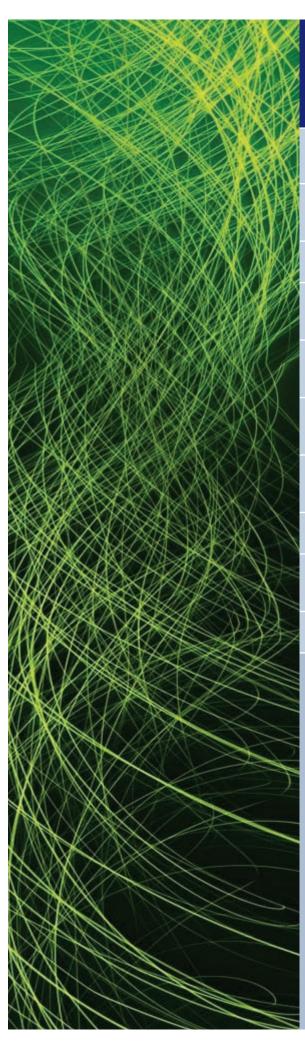
- It supports Commonwealth developing members in their negotiation of multilateral and regional trade agreements that promote development friendly outcomes, notably their economic growth through expanded trade.
- It conducts policy research, consultations and advocacy to increase understanding of the changing international trading environment and of policy options for successful adaptation.
- It contributes to the processes involving the multilateral and bilateral trade regimes that advance more beneficial participation of Commonwealth developing country members, particularly, small states and LDCs and sub-Saharan Africa.

ITP Recent Activities

ITPs most recent activities focus on assisting member states in their negotiations under the WTO's Doha Round and various regional trading arrangements, undertaking analytical research on a range of trade policy, emerging trade-related development issues, and supporting workshops/dialogues for facilitating exchange of ideas, disseminating informed inputs, and consensusbuilding on issues of interest to Commonwealth members.

Selected Recent Meetings/Workshops Supported by ITP

- 12 -13 November 2015: Emerging Global and Regional Trade Issues for the Commonwealth Pacific Region, held in Tonga.
- 15 16 October 2015: Meeting for Commonwealth Caribbean Countries in Preparation for the 10th WTO Ministerial Conference, held in Bridgetown, Barbados
- 29 September 1 October 2015: Expert Group Meeting on Trade in Sustainable Fisheries, held in Geneva, Switzerland.
- 23 24 June 2015: Commonwealth Trade Symposium: 'Shaping a Global Trade Agenda for Development', held in Johannesburg, South Africa.
- 18 19 June 2015: Workshop for Commonwealth African Countries in Preparation for the 10th WTO Ministerial Conference, held in Kigali, Rwanda.
- 18 May 2015: Workshop on Post-Bali Issues and Preparation for the 10th WTO Ministerial Conference: A South Asia Perspective, held in Colombo, Sri Lanka.
- 25 26 March 2015: Consultative Meeting of Commonwealth Expert Group on Trade, held in Malta.
- 3 March 2015: Meeting of Market Access and Other Issues relevant to Small States in Geneva: Options in the Post-Bali Context, held in Geneva, Switzerland.
- 15-16 December 2014: International Conference on 'Mega Trading Blocs: Implications for Developing Countries' held in New Delhi, India
- 5-7 November 2014: 7th South Asia Economic Summit (SAES VII): Towards South Asia Economic Union and the Launch of the Publication on Regional Integration in South Asia: Trends, Prospects and Challenges, held in New Delhi, India



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