THE DIGITAL SPRINTERS: THE CASE OF KENYA

> " KENYA COULD UNLOCK AN ADDITIONAL USD74 BILLION OF ECONOMIC IMPACT FOR 2030 THROUGH SUPPORTIVE POLICIES THAT ENABLE FULL UTILIZATION OF DIGITAL TECHNOLOGIES. "

Globally, there has been a large increase in policy focus on the digital transformation of economy, society and government. This has led to significant uptakes in internet penetration (as evidenced by rising internet use). For example, from 2010 until 2017 Kenya has successfully brought an additional 10 percent of its population online, increasing its penetration rate from 7.2 percent to 17.8 percent.[1] Initiatives likely to have contributed to this include the Kenyan government's "National ICT Masterplan" initiative launched in 2014 which involved expanding the geographical coverage of broadband infrastructure into households, schools and rural areas.[2] Going forward however, more than providing access to the internet may likely be required to fully leverage digital technologies for economic development. Kenya could reach a potential annual (year-on-year) economic impact of up to **USD74 billion in 2030** through supportive policies that enable full utilization of digital technologies.[3]

Given the need to rebuild economies following the impact of COVID-19, the importance of capturing this potential digital dividend becomes ever more crucial. This research by economic strategy firm AlphaBeta (commissioned by Google) aims to understand how emerging economies can fully take advantage of digital technologies to achieve gains in economic development. The report focuses on 16 important emerging economies (which we dub the "Digital Sprinters"). These economies are Argentina, Brazil, Chile, Colombia, Egypt, Israel, Kenya, Mexico, Nigeria, Peru, Saudi Arabia, South Africa, Russia, Turkey, the United Arab Emirates and Ukraine. Together, these "Digital Sprinters" account for 13 percent of GDP, 16 percent of population and 19 percent of internet users globally.

Based on this research, a number of insights across the Digital Sprinters emerged, that are of relevance to Kenya and are summarized in this document.[4]

1. Based on World Bank, World Development Indicators.
2. Information and Communication Technology Authority (2014), "The National ICT Masterplan".
Available at: http://icta.go.ke/pdf/THE%20NATIONAL%20ICT%20MASTERPLAN%202017.pdf
3. These estimates refer to the value generated by 39 technology applications across 10 sectors in 2030, quantified based on a "Full adoption" scenario (i.e. 100 percent adoption). This implies that these ten sectors will become "Digital leaders" with significant leap-frogging. A "Full adoption" scenario is unlikely to be realistic but useful as a thought experiment and to frame the total opportunity.
Estimates do not represent GDP or market size (revenue), but rather a combination of economic impacts such as productivity gains, increased revenues and cost savings. The relevant technology applications by sector and their sources of value (e.g. reduced wastage in production, enhanced consumer offerings) were identified based on a detailed review of the academic literature. The exact sizing methodology is unique to each of the 39 technology applications, but estimates use a series of international and country-specific case studies for each technology application to quantify estimates. Across the 39 estimations economic indicators sourced from international organizations such as the World Bank, International Labor Organization, OECD and national statistics offices were used.
Detailed data sources and estimation methodologies for each of the 39 applications are listed in the Appendix to the main report, linked here https://alphabeta.com/our-research/the-digital-sprinters-capturing-a-us34-trillion-through-innovative-public-policy/
4. This research was prepared by AlphaBeta for Google. All information in this summary and the main report was derived from AlphaBeta analysis using both proprietary and publicly available research, data and information. Google does not endorse any estimates. The full report can be found here https://alphabeta.com/our-research/the-digital-sprinters-capturing-a-us34-trillion-through-innovative-public-policy/

In Kenya, as in most of the Digital Sprinters, fast growth in internet penetration has not translated into a faster pace of economic growth.

Historically, economic growth in Kenya has not kept pace with internet adoption. For example, since 2013, Kenya's internet population has grown by 10.9 percent annually, but real GDP has only increased by 5.6 percent annually.[5] Labor productivity has also only risen by 2.2 percent annually during this same period.

If the transition from digital penetration to economic growth could be fully leveraged, digital technologies could transform economic development in Kenya.

The research identifies eight groups of digital technologies with significant potential to enhance economic development. In the hypothetical scenario where applications based on the eight digital technologies in ten sectors are fully adopted, the combined annual economic impact in Kenya could reach up to *USD74 billion in 2030*, which is about 43 percent of the country's estimated GDP in 2030 (see Exhibit 1). About 48 percent of the *potential benefits of digital technologies accrue to traditional sectors, namely resources, infrastructure, and agriculture.*

12 policy levers linked to four strategic imperatives are crucial to go beyond digital penetration and capture the digital benefits linked to economic development.

A review of impactful, innovative and practical digital policies identified a number of important levers for capturing the digital-led economic development opportunity (see Exhibit 2).

While it is unlikely that all 12 policy levers will be applicable to the Kenyan context, a number of innovative policy levers could be considered.

POLICY LEVER 1:

ENCOURAGE A SHARING ECONOMY FOR NON-SERVICES SECTORS

Sharing of fixed assets (e.g. equipment, warehouses) that reduces fixed costs by transforming them into ongoing variable costs is enabled by digital technologies such as the Internet of Things. However, much of the innovation to date has been in service sectors (e.g. car sharing, home sharing), with limited traction in traditional sectors such as manufacturing and agriculture. An example is Hello Tractor which works with smallholder farmers in Africa by aggregating smallholder farmers' requests for tractor service on behalf of tractor owners, while providing enhanced security through remote asset tracking and virtual monitoring.[6]

POLICY LEVER 2:

ESTABLISH PLATFORMS TO INTERACT AND CROWD-SOURCE INNOVATION

Innovations to improve government services can come from anyone and anywhere; governments should engage and empower citizens to participate in this process. One such example is Bangladesh's "Innovation for All (a2i)" fund. The fund provides financing for low-cost, user-centric, home-grown innovations to leverage digital innovation to solve policy problems.[7] Projects have included initiatives to improve livestock information in real-time, a mobile app to promote good agricultural practices, and digitizing government services (e.g. driving license).

POLICY LEVER 3:

INTEGRATING DIGITAL TRANSFORMATION INTO TRADE NEGOTIATIONS

Countries should work with their trading partners to mutually support their digital transformation. They should incorporate key concerns such as cross-border data flows, non-taxation of electronic transmissions and intermediate liability issues into trade negotiations to support digital trade. A novel approach could include participating in multilateral digital trade agreements, like the digital Economy Partnership Agreement (DEPA), a deal inked between Chile, New Zealand and Singapore.[8]

POLICY LEVER 4:

LEVERAGE DIGITAL SERVICES FOR ACCESS TO ECONOMIC

Providing a tangible service (such as access to energy) that requires customers to sign up for and start using a digital platform (for example e-money, i.e. mobile money and prepaid cards) can demonstratively drive digital inclusion. Nigeria's pay-as-you-go solar scheme provides one such example, where government-led pilots tested innovative mobile payment solutions to include rural customers. Digital technologies can also help to transform the efficiency of government delivery of services and spending. In Kenya, the World Food Program found that the use of electronic transfers to support food insecure households, rather than in-kind payments, lowered delivery costs by 15 percent.[9]

5. Based on World Bank, World Development Indicators.
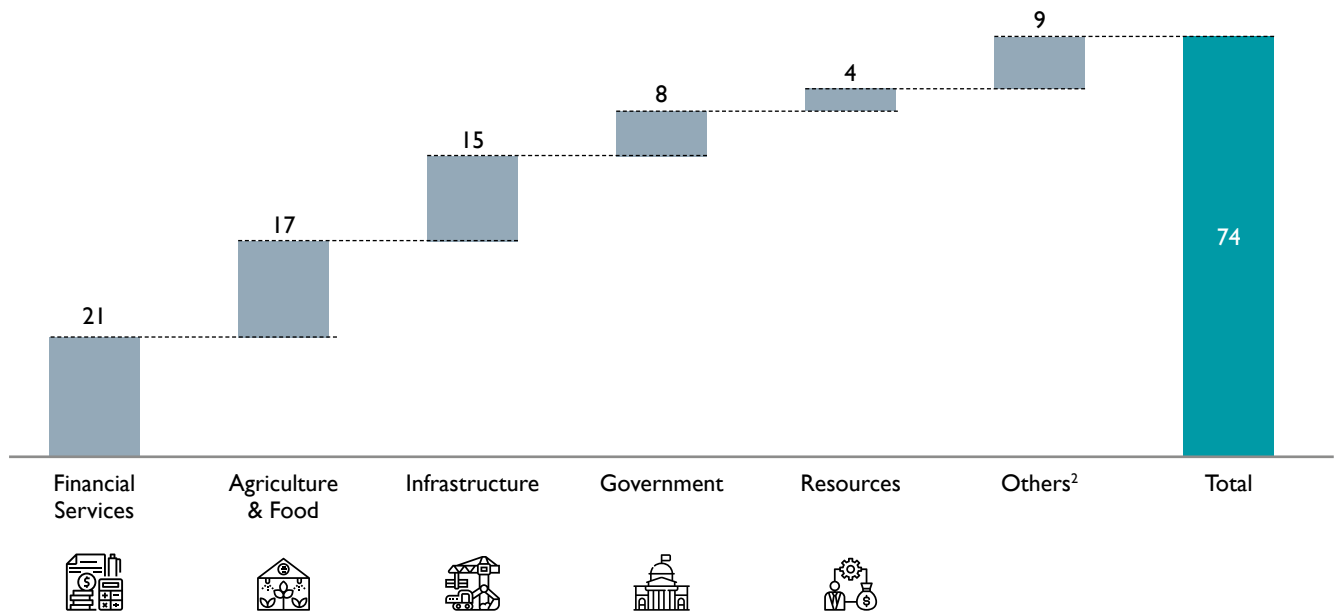6. Hello Tractor, Available at: (https://www.hellotractor.com/about-us/
7. A2i "Innovation Lab is changing the scenario,", Available at:, https://a2i.gov.bd/innovation-lab/
8. Asian Trade Center, "Unpacking the Digital Economy Partnership Agreement (DEPA)". Available at: http://asiantradecentre.org/talkingtrade/unpacking-the-digital-economy-partnership-agreement-depa
9. CGAP (2013). World Food Programme's exploration of the in-kind to e-payments shift for food assistance in Kenya.

EXHIBIT 1: THE VALUE OF DIGITAL TECHNOLOGIES

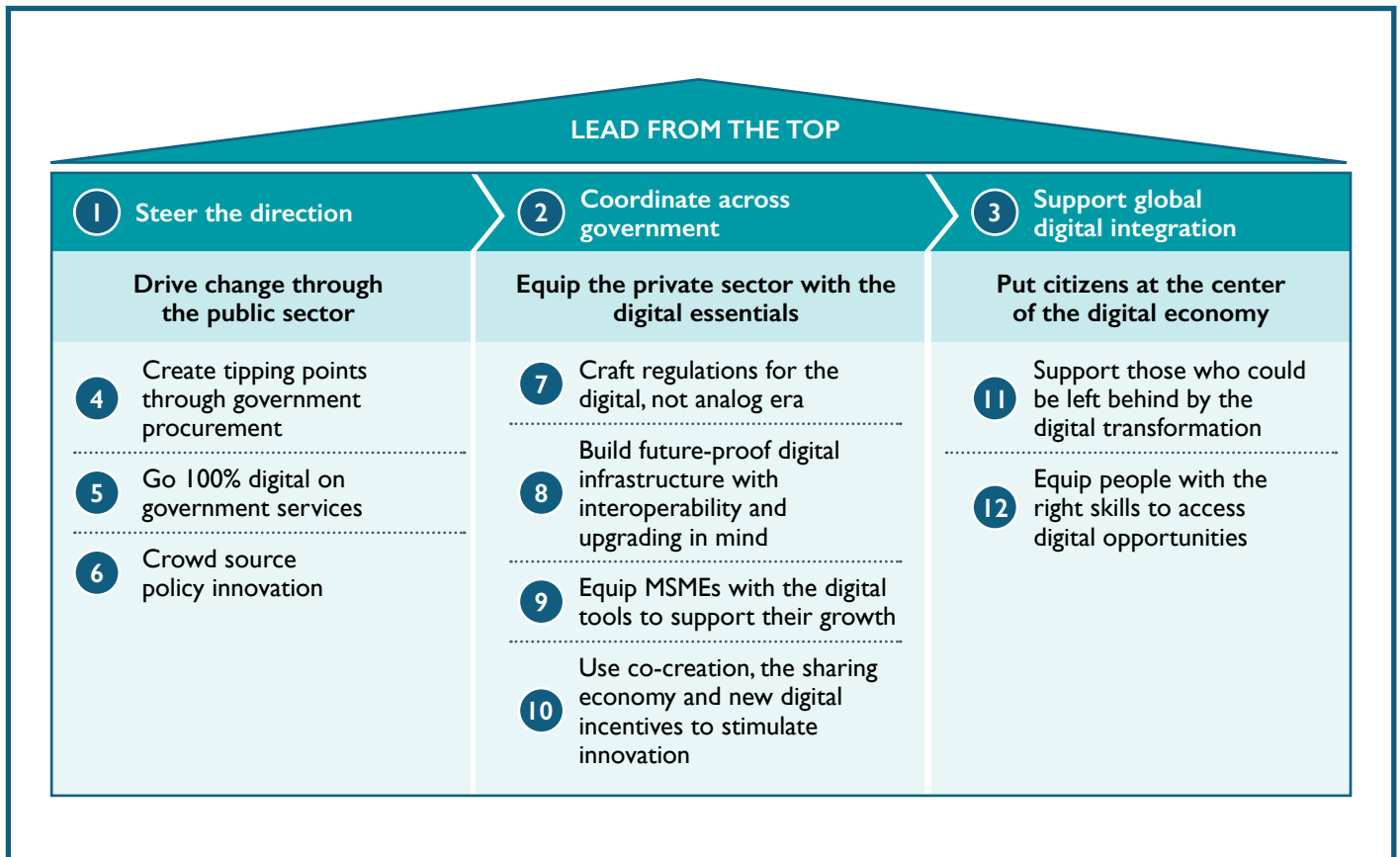**POTENTIAL ANNUAL ECONOMIC IMPACT IN THE FULL ADOPTION SCENARIO**

USD BILLION, 2030 (HIGH-END ESTIMATES)[1]

21	17	15	8	4	9	74
Financial Services	Agriculture & Food	Infrastructure	Government	Resources	Others[2]	Total

1. These estimates do not represent GDP or market size (revenue), but rather economic impact, including GDP increments, productivity gains, cost savings, time savings, increased revenues, increased wages and increased tax collection.
2. Others include Consumer, Retail & Hospitality; Education & Training; Health; Manufacturing, and Mobility.

SOURCE: AlphaBeta analysis

EXHIBIT 2: POLICIES TO CAPTURE THE VALUE OF DIGITAL TECHNOLOGIES

LEAD FROM THE TOP

1 Steer the direction

2 Coordinate across government

3 Support global digital integration

Drive change through the public sector

Equip the private sector with the digital essentials

Put citizens at the center of the digital economy

4 Create tipping points through government procurement

5 Go 100% digital on government services

6 Crowd source policy innovation

7 Craft regulations for the digital, not analog era

8 Build future-proof digital infrastructure with interoperability and upgrading in mind

9 Equip MSMEs with the digital tools to support their growth

10 Use co-creation, the sharing economy and new digital incentives to stimulate innovation

11 Support those who could be left behind by the digital transformation

12 Equip people with the right skills to access digital opportunities

While it is unlikely that all 12 policy levers will be applicable to the Kenyan context, a number of innovative policy levers could be considered.

POLICY LEVER 5:

IMPLEMENT TARGETED TRAININGS, SOCIALIZATION AND BEHAVIORAL LEVERS FOR TECHNOLOGY ADOPTION

Targeted training initiatives can be effective at exposing MSMEs to new sector-relevant digital technologies, as well as developing their skills, and driving adoption. Trainings can be developed in partnership with solution providers. Google's Digital Skills Africa is an example of how digital skills training, specifically designed with entrepreneurs, MSMEs and youth in mind, can be very effective. The program was initially rolled out across Nigeria, Kenya and South Africa in 2016 but has been expanded to 29 countries across Africa. According to Google, over 60 percent of Digital Skills for Africa trainees have confirmed recording business growth, starting new businesses, finding jobs or growing in their current jobs.[10]

POLICY LEVER 6:

LEVERAGE CLOUD COMPUTING FOR EFFICIENCY GAINS ACROSS THE GOVERNMENT

Cloud technology, in particular cloud storage and cloud computing power, is an enabling technology that could be utilized for different applications. Cloud computing technologies across government could lead to significant efficiency gains and cost savings for governments' ICT budgets. Cloud computing has also been leveraged in the planning and running of cities, often referred to as Smart Cities[11] For example, Rio de Janeiro has begun to implement smart solutions to improve urban planning and operations such as using data applications and technology to help improve transport flows and allow fleet vehicles to communicate with headquarters when it is time for maintenance checks.

POLICY LEVER 7:

DIGITIZE PAYMENTS TO CREATE INCENTIVES FOR ADOPTION AND PLUG LEAKAGES

Governments around the world are increasingly allowing for online and mobile payment methods for government services and distributions. Doing so can drive top-down adoption of FinTech products in the population which can reduce the cost of handling and carrying cash. In many regions, in particular in Africa, digital financial services, such as mobile wallets, are often the first type of accounts individuals hold meaning it is a direct channel for financial inclusion. When Sierra Leone faced severe pressure to pay healthcare workers on time during the Ebola crisis in 2014 the government decided to test digital payment through mobile wallets of salaries to healthcare workers. The government reported savings of USD10.7 million in avoided payroll leakages.

POLICY LEVER 8:

BUILD FUTURE-PROOF DIGITAL INFRASTRUCTURE WITH INTEROPERABILITY AND UPGRADING IN MIND

In the fast-evolving technology landscape, challenges arise when digital infrastructure is created with a specific technology in mind that could potentially end up obsolete in the future. Similarly, if infrastructure is built with providers in mind, it could lead to interoperability issues that can drive fragmentation, transaction costs and give rise to competition issues. India has had great success with the development of its Unified Payments Interface (UPI) that facilitates inter-bank transactions. The payment gateway allows customers of different banks to transfer funds between each other in a seamless fashion.

POLICY LEVER 9:

REPURPOSE EXISTING PUBLIC INFRASTRUCTURE TO PROVIDE DIGITAL ACCESS

Public infrastructure can be repurposed to provide access to the internet for underserved communities. This requires a network of public infrastructure (e.g. public buildings, transport, utilities or ICT infrastructure) that can be leveraged for people to access the internet. One example is Biblionet which is a national program that tackled Romania's "broadband divide" between urban and rural areas by providing hardware, software and IT support for 2280 public libraries which had well established infrastructure and geographical coverage.[12]

POLICY LEVER 10:

COOPERATE ON STANDARDS

Standards are crucial to not only ensure some minimum safeguards for safety and security, but also to ease the ability to transact. For example, adopting international legal security standards not only assists governments in the development of their own security frameworks, but also provides comfort and reassurance to organizations. Further, it decreases the barriers for domestic firms to export their operations abroad, as their security standards are likely to already comply with international markets. For example, Australia's Information Security Registered Assessors Program (IRAP) has set up security frameworks for the public cloud that follow international best practice frameworks such as the ISO 27000 series.[13]

10. Malinga (2020), "Google to train 20 000 women across Africa this year", ITweb. Available at: https://www.itweb.co.za/content/o1Jr5Mx9mYKqKdWL
11. IDB (2018), Cloud Computing: Opportunities and Challenges for Sustainable Economic Development in Latin America and the Caribbean. Available at https://publications.iadb.org/en/cloud-computing-opportunities-and-challenges-sustainable-economic-development-latin-america-and
12. European Union (2018) "Biblionet", Shaping Europe's digital future – Projects. Available at: https://ec.europa.eu/digital-single-market/en/content/biblionet
13. BCG (2019), Ascent to the cloud – How six key APAC economies can lift-off. Available at: http://image-src.bcg.com/Images/Ascent_to_the_Cloud_Report_21Oct_tcm9-231826.pdf

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