Digital Innovations & Leapfrogging: Africa's Window of Opportunity

By Xiaolan Fu

Summary

In response to the COVID-19 pandemic, the process of decades-long digitalization was accelerated around the world. Digital technologies such as mobile applications, artificial intelligence, and big data analytics are now extensively used to increase knowledge on human immunity, track the spread of viruses, monitor economic activities, and empower small and medium enterprises (SMEs) to build resilience. In the face of accelerated digitalization and the Fourth Industrial Revolution (4IR), and to develop the global infrastructure and capabilities that are key for a resilient, post-COVID-19 recovery in lower-income countries, the global community should actively introduce global digital industrial policies to bridge the digital and production divides.

Thematic Context

Digitalization is a growing trend that may fundamentally change human society and economic activities. According to the OECD's Digital Economy Outlook 2020, telecommunication sector revenue between 2008 and 2018 in OECD countries averaged around 2.8% of GDP, and mobile broadband subscriptions increased from 31% to 85% between 2009 and 2018. Developing countries, especially in Africa, experienced a boom of more than 500 million mobile phone usages in a decade, with mobile broadband connections estimated to jump from 33% to 60% on the continent.[1]

The unfolding 4IR, characterized by a fusion of breakthroughs in physical, biological, and digital realms, brings about an unprecedented opportunity to revolutionize various industrial sectors and provide a basis for a new competitive landscape.[2] This new wave of technological revolution has transformative power. The surge of e-commerce in many developing countries, the success of M-Pesa in Kenya, the use of robots in hospitals in Rwanda, and medical drugs delivery by drones across Africa are all examples that suggest digital technologies offer a window of opportunity for leapfrogging.

Innovation's Opportunities

All these digital innovations provide new pathways of potential for the Global South. The growth of financial technology investment and startups in Africa helped marginal groups gain access to new forms of financial services. Digital innovations also provide new models of value creation and labor participation—data-driven digital platforms can enable remote work, informal employment, and the gig economy for workers in developing countries. As a result, digitalization could make a post-COVID-19 recovery more inclusive with the creation of new businesses and jobs, enhanced digital access, and greater knowledge spill-over where there is an appropriate digital infrastructure.

Leapfrogging is an opportunity for under-the-radar innovations[3] in lower income countries (LICs) to be transformed by digital technology. Digital transformation can nurture youth start-ups and entrepreneurs in different sectors, adding diversity and vibrancy to under-the-radar innovations and drawing on indigenous knowledge systems. In addition, process, marketing and management innovations can benefit from adoption and integration of digital technologies. Greater access and flow of information, goods, and services enhances interactions and linkages, thus strengthening LIC innovation systems at regional, national, and global levels.

The transformative power of digital technologies therefore places innovation at the center of the African recovery from the pandemic. It contributes to mitigating economic losses from the pandemic by generating new sectors, jobs, and services, and improving access to finance. Beyond this, digital innovations help African businesses to build more resilient production systems and supply chains in both manufacturing and service industries.[4]

However, these new windows of opportunity rely highly on a country's digital infrastructure and competencies. Unfortunately, the digital divide between developed and developing countries is significant. The mobile phone penetration ratio in developing countries is only half of that in the developed countries.[5] For example, fieldwork and survey findings from Bangladesh find that the cost and technical obstacles (such as bandwidth or availability of 4G) to adoption and use remain enormous for the marginalized and rural.[6] LICs cannot afford to bridge this capital- and skills-intensive gap themselves. The possible digital decoupling between the major countries and major digital infrastructure providers may further exacerbate this divide.

Recommendations

The challenge is that many people in many countries may be left behind. Therefore, the international community needs to build global infrastructure and capabilities through global industrial policies that bridge the digital and production divides. These policies should promote:

- **Building global digital competence in related sectors via special economic zones (SEZs).** Instead of a geographical zone, these should include sector-specific, cross-country SEZs that institutionalize collaboration across borders and provide better coordination along the supply chain. This would also improve coordination of global investment in targeted sectors.

- **Establishing a UN-led task force for digitization acceleration, with each relevant UN agency leading different areas.** For example, UNIDO could lead industrial digital transformation, in collaboration with ILO, UNCTAD, and the World Bank. Similarly, ILO and UNECSO could lead on job training, the World Bank and UN Director General's fund could support digital infrastructure, and UNCTAD and the WTO could lead digital services and trade.

- **Creating a digital governance council to enhance standards, ethics, supervision, and trust in this special global public infrastructure "zone"**. For example, Digital Council Africa is an NGO that engages stakeholders from public and private sectors to inform strategy and policy creation and develop methods to deliver digital connectivity and services. Globally, such new digital governance institutions can be led or co-led by some existing international organizations and industrial associations, such as the International Telecommunication Union or others. This proposed initiative will not only promote inclusive, sustainable, and resilient industrial development, but can also generate significant cross-cutting spill-overs to accelerate recovery and the implementation of the Sustainable Development Goals.

Xiaolan Fu *is Professor of Technology and International Development and Founding Director of the Technology and Management Centre for Development (TMCD), University of Oxford. She is appointed by the Secretary-General of the United Nations to the Governing Council of the Technology Bank of the UN and to the Ten-Member High Level Advisory Group of the UN Technology Facilitation Mechanism.*

About the Series

Policy experts and researchers from the African Center for Economic Transformation **(ACET)** and the Development and Economic Growth Research Programme **(DEGRP)**, in partnership with ODI, explore the critical role of innovation in Africa's recovery from COVID-19. Essays identify areas in which innovation can contribute to effective responses and offer high-level policy recommendations.

Endnotes

1. Killian Fox, "Africa's mobile economic revolution" (The Guardian, July 23, 2011).
2. Klaus Schwab, *The Fourth Industrial Revolution* (Crown Business and World Economic Forum, 2016).
3. Xiaolan Fu, *Innovation Under the Radar: The Nature and Sources of Innovation in Africa* (Cambridge University Press, 2020).
4. Xiaolan Fu, "Digital transformation of global value chains and sustainable post-pandemic recovery" (Transnational Corporations, Volume 27 – Number 2, 2020).
5. *Measuring digital development: Facts and figures 2020* (ITU, 2020).
6. Xiaolan Fu and Pervez N. Ghauri, "A new digital technology-assisted business model for inclusive development. Paper presented at the Inclusive Digital Model Project Conference, Jan. 2021, Oxford.

WORKING IN PARTNERSHIP WITH

UKRI Economic and Social Research Council
UKaid from the British people
Research jointly supported by the ESRC and FCDO
Growth Research Programme
ODI
ACET African Center for Economic Transformation