



How the United States Can Effectively Implement Its New Digital Transformation With Africa Initiative

Jane Munga

Introduction

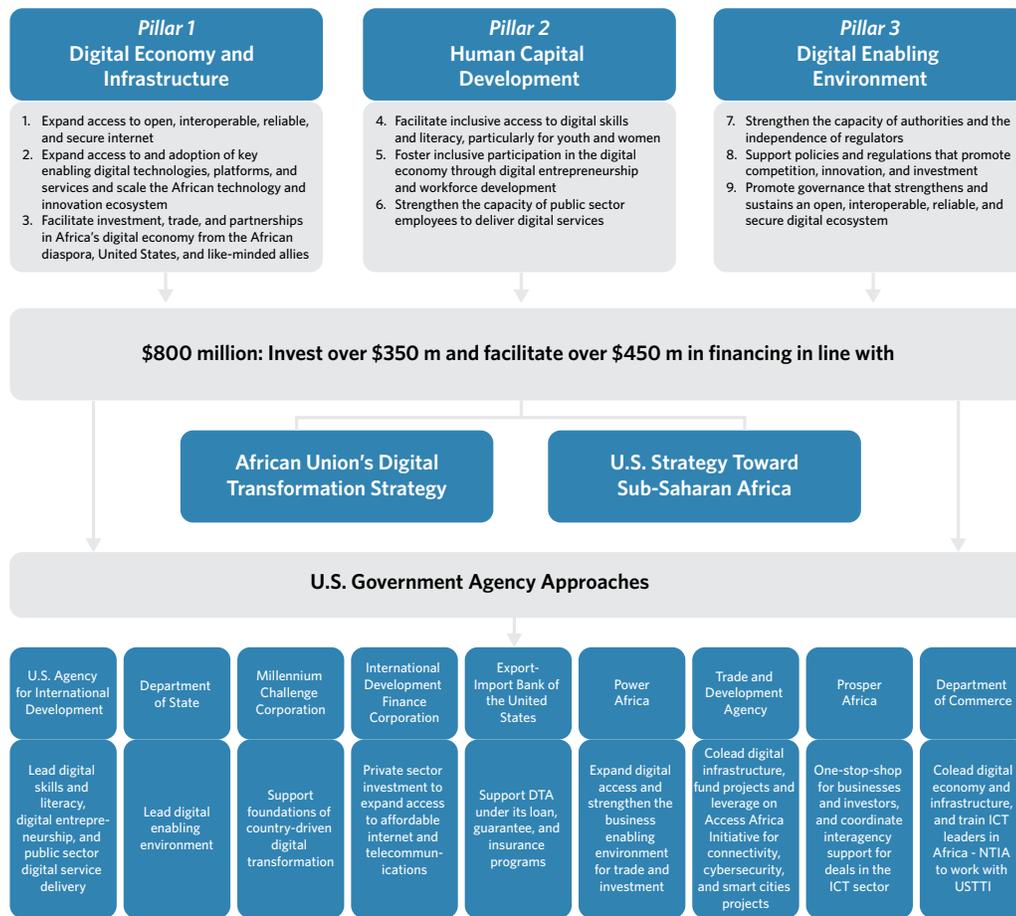
Digital technologies are set to shape African economies and unleash economic growth opportunities, including opening new markets for the United States and other partners, in the coming years. Within this context, the United States launched the Digital Transformation with Africa Initiative (DTA) in December 2022 to advance U.S.-Africa digital collaboration.¹

The DTA is one of the signature initiatives resulting from the U.S. Strategy Toward Sub-Saharan Africa, released in August 2022.² It also complements the African Union's Digital Transformation Strategy for Africa, the continent's bold agenda for digitally enabled socioeconomic development.³ The DTA seeks to boost digital collaboration in three interdependent pillars—digital economy and infrastructure, human capital development, and an enabling environment—to be delivered through a whole-of-government approach bolstered by a financial pledge of over \$800 million (see figure 1).

While the DTA is a timely and promising initiative, its vast potential will go unrealized unless its important mission is translated into targeted action. The following three proposals would help translate the DTA from a powerful idea into transformative action.

- To reduce Africa's digital divide, the DTA should expand national backbone networks, upgrade and extend mobile networks, and support efforts to manufacture affordable smartphones locally.
- To propel Africa's innovation ecosystem, the DTA should support grassroots innovators and create a streamlined strategic cooperation mechanism that expands existing U.S. efforts to support innovators.
- The DTA should conduct a critical path analysis of and eliminate obstacles to the seamless geographical integration of digital services and digital commerce between the United States and African nations.

Figure 1. The Framework of the Digital Transformation With Africa



The DTA's three pillars serve as the impetus for the recommendations, summarized in figure 2. The proposals take into account the diversity of digital ecosystems found in the more than fifty countries on the African continent, which increasingly have a shared vision of technology as a catalyst for socioeconomic transformation. Thus, the recommendations provide solutions with national and regional implications.

Proposal One: Closing Africa's Digital Divide

Pillar one of the DTA centers on the digital economy and infrastructure, for good reason. The foundation for an inclusive digital transformation, according to the African Union, is affordable, accessible, and dependable infrastructure.⁴ However, according to International

Figure 2. Proposals for Executing the Digital Transformation Initiative With Africa

PROPOSAL	DTA PILLAR	PROPOSED ACTIVITY	IMPLEMENTING USG AGENCY
1. Close Africa’s Digital Divide	Pillar 1: Digital Economy and Infrastructure	i. Expand fiber connectivity	✓ U.S. Trade and Development Agency ✓ U.S. Agency for International Development
		ii. Expand and upgrade mobile networks	✓ U.S. International Development Finance Corporation
		iii. Promote the manufacture of affordable smartphones	✓ U.S. Trade and Development Agency ✓ U.S. International Development Finance Corporation
2. Support the African Innovation Ecosystem	Pillar 2: Human Capital Development	iv. Empower grassroots innovators	
		v. Provide new/different financing options	✓ U.S. Agency for International Development
		vi. Establish a coordination platform for U.S. government innovation initiatives	✓ U.S. African Development Foundation
3. Facilitate an Environment for Seamless Geographical Integration of Digital Services and Trade	Pillar 3: Digital Enabling Environment	vii. Review and remove digital trade barriers	✓ U.S. Trade Representative ✓ Prosper Africa Tech for Trade Alliance ✓ U.S. Department of Commerce

Telecommunication Union (ITU) estimates, only 40 percent of the African population was using the internet in 2022.⁵ This means that over 800 million people were still offline, resulting in the world’s largest digital divide (see figure 3). Reducing the digital divide is imperative and is the first suggestion for U.S. government officials as they develop an action plan for pillar one.

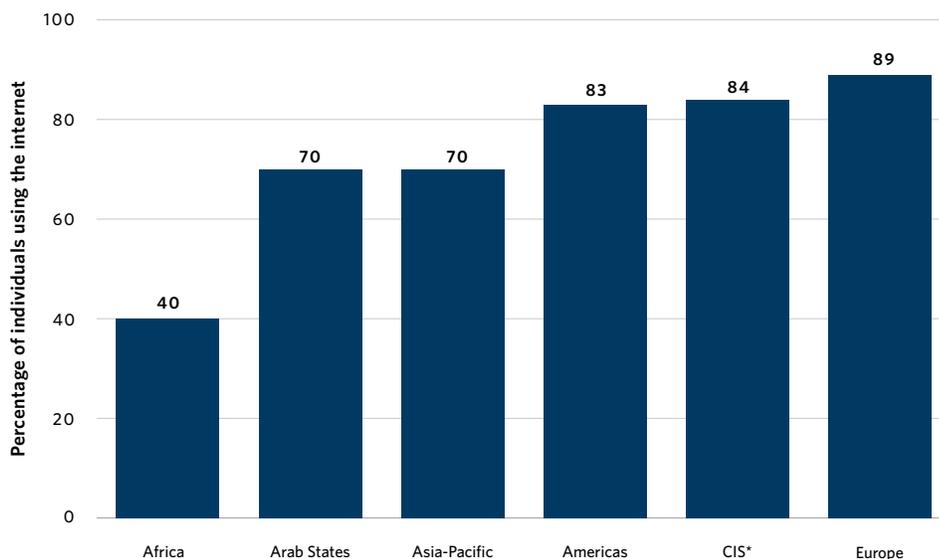
The Global System for Mobile Communications Association attributes the digital divide to a coverage gap (referring to unconnected populations who live in areas not covered by mobile broadband) and a usage gap (referring to populations who live in areas covered by mobile broadband but who are not using mobile internet services).⁶ The latter group is the greater contributor.⁷ The DTA should focus on helping bring Africa’s offline population online by addressing the coverage and usage gaps with specific interventions around building broadband infrastructure, boosting

last-mile connectivity, and providing access to affordable mobile smartphones.

Expand Terrestrial Fiber Connectivity

According to the World Bank, four broad segments of the broadband network value chain—first mile, middle mile, last mile, and invisible mile—must be built to develop universal, affordable, and good-quality high-speed internet. The first mile is where the internet enters a country; this includes submarine cables, landing stations, and satellite dishes.⁸ In the past decade, African countries have seen the expansion of the first mile thanks to the arrival of new submarine cables, such as Google’s Equiano, PEACE, and 2Africa cable, the world’s longest cable linking Africa, Asia, and Europe.⁹ These cables come with the promise of faster and cheaper internet.¹⁰ However, they rely on the middle mile—terrestrial network infrastructure—to pass the internet through

Figure 3. Percentage of Individuals Using the Internet by Region, 2022



Source: International Telecommunication Union.
Note: *Commonwealth of Independent States

a country. This includes national backbone networks and intercity links, including fiber-optic cables, satellite links, and internet exchange points.

To help realize the full potential of undersea cables, the DTA should support the expansion of backbone networks, which are currently clustered around major population centers, precipitating a rural-urban digital divide.¹¹ Earlier this year, the United States Agency for International Development (USAID) announced support to Liberia’s CSquared to help expand broadband-enabling infrastructure through the establishment of a 350-kilometer open-access fiber backbone network.¹² This infrastructure will enable internet service providers and mobile network operators to provide last-mile services. The DTA should build on such efforts by mobilizing financing for fiber backbone infrastructure. This can be achieved through USAID’s Digital Invest program, which mobilizes private capital for digital connectivity infrastructure initiatives to reduce the digital divide.¹³

In addition, the DTA should facilitate connections between representatives of African countries and the United States. In this regard, the Access Africa initiative

by the U.S. Trade and Development Agency (USTDA) can organize a reverse trade mission between African and U.S. public and private sector representatives focused on fiber infrastructure and Digital Invest, a program that can provide financing options.¹⁴ Through such efforts to mobilize private finance and convene critical stakeholders, the DTA can advance efforts to extend backbone infrastructure to rural areas and help mitigate the urban-rural divide in countries that have a higher percentage of their populations (more than 70 percent) residing outside of urban areas, such as Kenya.¹⁵

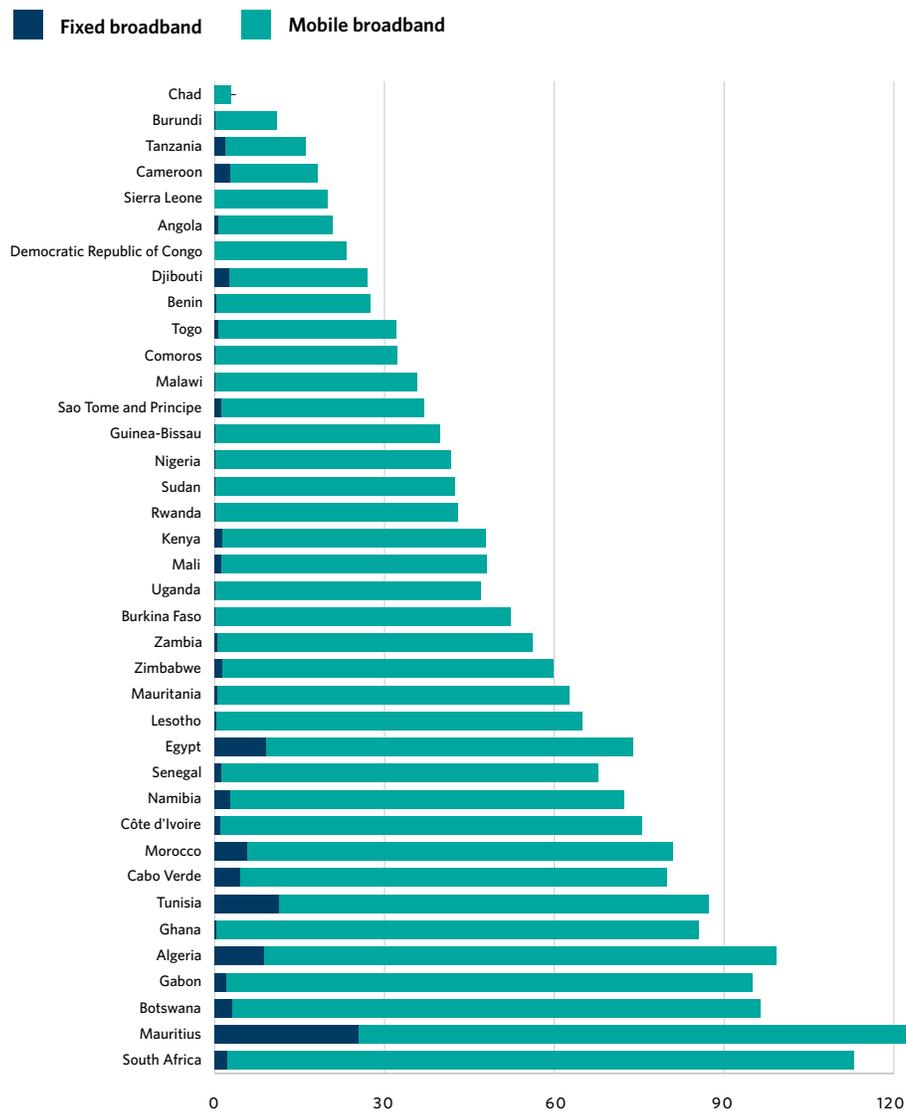
Expand and Upgrade Mobile Networks to Achieve Last-Mile Connectivity

The last mile is where the internet reaches the end user and, in Africa, is mostly delivered by mobile network operators (see figure 4). The African continent is one of the last remaining regions that still heavily relies on 2G and 3G networks, while other regions are retiring these older networks.¹⁶ This delay in transitioning to newer generations (4G, LTE, and 5G) exacerbates the digital divide as it limits the digital dividends available through e-services such as online education and health—which became even more vital in a post-pandemic world—

and hinders handset and network interoperability with telecommunication systems in geographic regions that have migrated to newer generations.¹⁷ This lack of interoperability becomes critical as consumers lose service when they roam in countries that have migrated and, in an interconnected world of e-alerts, emails on the go, and ride-hailing services, is an inconvenience that can have real-world economic and social implications.¹⁸

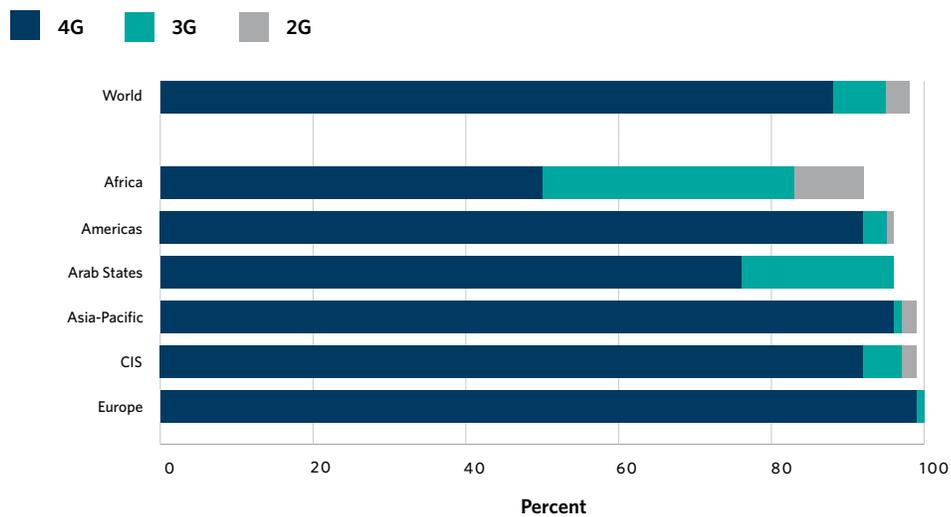
In recognition of the vital role mobile networks have in Africa, the U.S. International Development Finance Corporation has provided mobile network operator Africell with \$100 million in financing to expand and upgrade mobile networks in The Gambia, Sierra Leone, Uganda, and the Democratic Republic of Congo.¹⁹ The Africell initiative can be a vital complement to the DTA as it also includes the upgrading of networks, which is crucial due to the continent's large share of 2G

Figure 4. Fixed and Mobile Broadband Penetration Rates in African Countries, 2020



Source: International Telecommunication Union.
 Note: *Commonwealth of Independent States

Figure 5. Population Coverage by Type of Mobile Network, 2022



Source: International Telecommunication Union.

Note: The values for 2G and 3G networks show the incremental percentage of the population that is not covered by a more advanced technology network for example, 95 percent of the world’s population is covered by a 3G network or higher; that is, 7 percent plus 88 percent).

and 3G coverage (see figure 5). A recent World Bank study, “Digital Africa,” shows that access to high-speed mobile internet for at least three years has a positive impact on jobs and economic transformation.²⁰ The DTA can encourage Africell to expand to other African countries, especially those with low mobile broadband penetration, such as Burundi, Chad, and Tanzania, and enable them to transition to higher generation networks and catch up with the rest of the world.

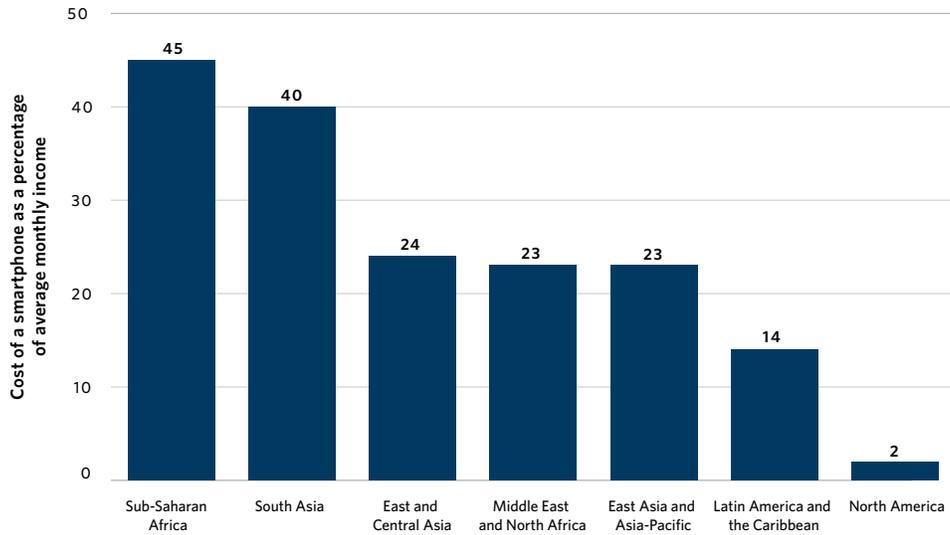
Promote the Manufacture of Affordable Smartphones

The usage gap remains a persistent and growing contributor to Africa’s digital divide, and this requires initiatives that expand access to affordable devices.²¹ According to the ITU, the percentage of people who own mobile phones is lowest in Africa (61 percent) compared with the rest of the world. Meanwhile, the high cost of smartphones has exacerbated the growth of feature phones—basic mobile phones to make calls and send texts—as an alternative (see figure 6).²² The affordability of smartphones is a priority for digital transformation.

Currently, the continent’s large demand for mobile phones is met through imports, most of which do not come from the United States (see figure 7). There have been several attempts by African countries, such as Rwanda and South Africa, to manufacture smartphones, but large-scale success has yet to be achieved.²³ However, new endeavors continue to launch; for example, Kenya has declared its intent to manufacture smartphones this year.²⁴

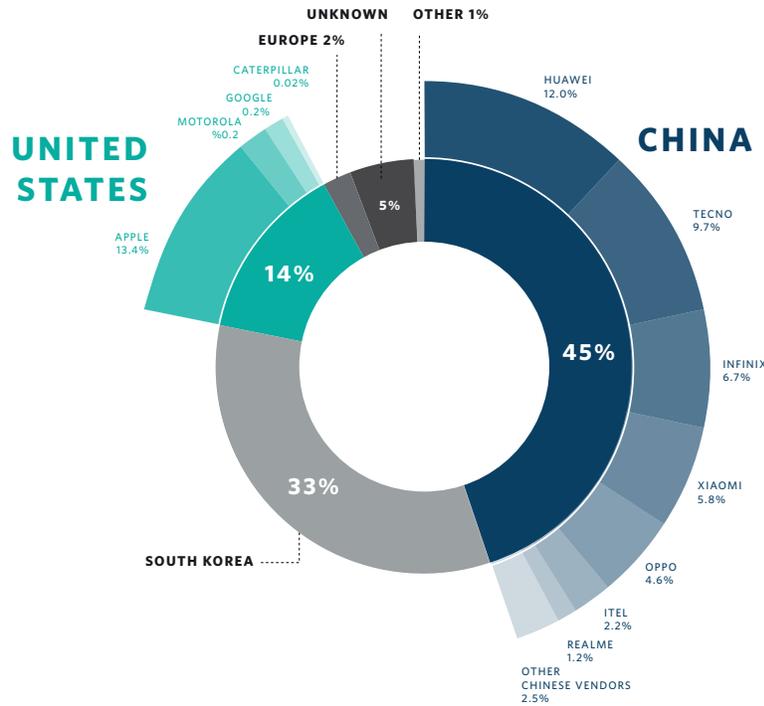
The DTA can help address this gap in access to affordable devices in African countries. One way to do so is for the USTDA to fund feasibility studies on smartphone manufacturing that would enable African communities to effectively engage in the smartphone-manufacturing industry. These feasibility studies would provide better understanding of the economics of manufacturing affordable smartphones in the continent, and they should include lessons from past initiatives, such as Mara Phone, and provide recommendations that could invoke further action by the DTA and African actors. Already, the USTDA is undertaking various studies aimed at expanding digital access in Africa. In Kenya, for instance, the agency is undertaking a market access

Figure 6. Smartphones Cost More on Average in Africa



Source: Calculations by the author and Ebele Monye using data from Statista.com.

Figure 7. Mobile Device Market Share in Africa by Vendor Country



Source: Carnegie calculations of mobile vendor market share data. See Statcounter, "Mobile Vendor Market Share Africa," August 2022, <https://gs.statcounter.com/vendor-market-share/mobile/africa>.

Note: Percentages are rounded to the nearest tenth.



study for Nairobi-based internet service provider Poa Internet that would support the delivery of affordable, fixed wireless internet access across the continent, and in Malawi, there is a feasibility study to support the expansion of fixed wireless and fiber access networks.²⁵

Efforts to kickstart smartphone manufacturing in Africa should seek to build regional value chains. A memorandum of understanding signed in December 2022 between the Office of the U.S. Trade Representative and the African Continental Free Trade Agreement includes the “advancement of industrial and regional value chain development” as a cooperation area.²⁶ The DTA could help advance this value chain development by utilizing the capabilities of the U.S. International Development Finance Corporation and the USTDA.²⁷ Recent research by the African Union—“Made by Africa, Creating Value Through Integration”—examines the vast potential of multicountry integrated value chains in sectors such as pharmaceuticals, apparel, and automobiles for economic diversification and job creation in Africa.²⁸ Thus, the manufacturing of affordable smartphones can similarly aim to build regional value chains. The USTDA’s feasibility studies should include a value chain diagnostic, offer recommendations on how governments and businesses can participate in the smartphone manufacturing process at national and regional levels, and examine ways of leveraging the African Continental Free Trade Agreement to advance the continent’s industrialization process.

Proposal Two: Support the African Innovation Ecosystem

The African innovation ecosystem has been recognized as holding tremendous promise for both the African continent and the United States in terms of digital entrepreneurship, and it already receives significant U.S. private investments.²⁹ The second proposal focuses on

creating an inclusive innovation environment in support of the DTA’s pillar of human capital development.

Africa is buzzing with innovation, fueled by the continent’s youth and more than 640 tech hubs that house digital entrepreneurs.³⁰ Innovation can enable the creation of new context-specific solutions to African needs, help entrepreneurs attract capital, and, crucially, create jobs. However, innovation hubs across the continent vary disparately, with some having advanced technological capabilities and others, especially in rural areas, only offering basic coworking spaces and lacking equipment for the high-level research required to develop innovative products. The African Union has acknowledged the existence of an innovation divide, which has resulted in some African communities and ecosystems being better able to generate and profit from technology-centered inventions than others.³¹

Grassroots innovators, particularly those in rural areas, are critical to Africa’s innovation ecosystem. With distinct local knowledge, they create solutions for local problems. However, they usually lack adequate support because it is primarily found in urban centers.³² It is therefore essential for the DTA to expand current U.S. efforts to support grassroots innovators. For instance, USAID’s Building Research and Innovation for Development, Generating Evidence, and Training (BRIDGE-Train) program offers a model through its Achieving Sustainable Partnerships for Innovation, Research, and Entrepreneurship (ASPIRE) network.³³ ASPIRE currently provides the framework for a network that includes MIT D-Lab, Universidad del Valle de Guatemala, and the Guatemalan Exporters Association and seeks to extend this network of innovation and technology centers throughout Guatemala to rural areas via satellite campuses.³⁴ Such an attempt to empower innovation hubs outside of urban areas is critical to building a decentralized innovation network and will be crucial to driving an inclusive digital transformation across Africa.

Developing an innovation into a successful business requires financing that has a high appetite for risk to test the idea and advance the solution. Access to this type of financing, as opposed to the financing available from traditional banking or financing institutions, is a key challenge in the continent.³⁵ The DTA can increase its impact by providing financing options to African innovators through U.S. government resources and by mobilizing U.S. private capital. Multiple initiatives currently exist that offer the DTA opportunities for extending into the African ecosystem, such as USAID’s Development Innovation Ventures, which helps entrepreneurs develop high-impact solutions; Exploratory Programs and Innovation Competitions, which runs open innovation challenges and has the added benefit of attracting and linking inventors with other funders; and the U.S. African Development Foundation, which focuses on community-driven solutions.³⁶ In addition, the DTA can tap into Prosper Africa’s commitment to mobilize \$1 billion in private capital to advance African infrastructure and innovation.³⁷ This new initiative has the potential to support African innovators in their efforts to tap into the American market and build new partnerships and networks to foster the development of new innovative enterprises.

Although the U.S. government offers a number of innovation initiatives, these programs are housed within various departments and agencies in ways that are not always visible to innovators based in Africa. The DTA can provide a central platform to coordinate these various innovation initiatives into a single program that serves as the anchor. This coordination mechanism could even result in a signature program for African digital innovators, analogous to the Young African Leaders Initiative (YALI), which invests in the next generation of African leaders across the public sector, the private sector, and civil society.³⁸ With such a YALI-type anchor initiative, the DTA would increase the visibility of the United States’ numerous innovation initiatives among African beneficiaries. Ideally, this coordination

mechanism would have a digitally interactive platform and work with tech hubs on the continent, such as AfriLabs, to access their deep networks among the community of African innovators.³⁹

Proposal Three: Facilitate Seamless Geographical Integration of Digital Services and Trade

According to the African Union, the realization of Africa’s digital transformation necessitates the adoption of policies that foster an enabling environment.⁴⁰ The third proposal calls for the DTA to support measures to eliminate trade and other barriers to the seamless geographical integration of digital services between the United States and African nations.

There is a widespread perception in many African countries that U.S. companies are not interested in extending access to their popular digital apps to Africa. The ability to connect to and experience the full functionality of ride-hailing, streaming, and many other apps is often severely limited within African countries. Geographic location determines the range and access of capabilities for many digital apps.⁴¹ In the African continent, the range of services diminishes and, in some cases, shuts off. For example, purchasing a gaming device such as a PlayStation is a challenge for most Africans (except in South Africa) because a subscription is not “legally” available.⁴² This restricted access has contributed to the emergence and rise of popular Chinese apps to fill the gap. For instance, Boomplay, which comes preinstalled on Transsion phones, is the most popular music streaming app in the continent, far beyond the reach of Spotify and Apple Music.⁴³ With U.S.-China tech competition intensifying, it behooves the United States to seriously consider ways of lowering barriers to access for the world’s youngest continent and a future growth market for U.S. digital services.



For digital trade to flow between Africa and the United States, there is an urgent imperative to examine the foundations of market practices, be they regulatory or otherwise, and to ensure that the vision of the U.S.-Africa partnership translates into the seamless integration of digital experiences. The DTA should include activities that encourage the free flow of digital services and trade by involving the Office of the U.S. Trade Representative, which works to identify and eliminate barriers for U.S. companies.⁴⁴ The memorandum of understanding signed between the Office of the U.S. Trade Representative and the African Continental Free Trade Agreement includes text that encourages dialogue between U.S. and African parties, the promotion of an inclusive trade environment, and the development of relevant instruments to facilitate digital trade.⁴⁵ Additionally, the Prosper Africa Tech for Trade Alliance’s commitment to increase African exports to the United States by \$1 billion over the next five years includes e-commerce and digital trade with major U.S. companies and will necessitate addressing legal, regulatory, and logistical bottlenecks for e-commerce and digital trade.⁴⁶

Therefore, there is an immediate need to establish conversations between the United States and African nations in order to define, negotiate, and agree to results that will produce the free flow of digital products and services. The DTA could serve as the coordinating platform to initiate dialogues on lowering barriers to achieve the seamless geographic integration of digital services trade, while involving other relevant U.S. government agencies, such as the Department of Commerce.

Conclusion

A digital tech partnership is the cornerstone of the “seismic shift” happening in U.S.-Africa relations.⁴⁷ Judging by the United States’ new commitments of over \$1 billion around women’s empowerment in the digital economy, announced during U.S. Vice President

Kamala Harris’s March 2023 trip to the continent, the United States views digital technologies as an important aspect of revamping the U.S.-Africa relationship.⁴⁸ The three proposals outlined here—to close the digital divide, support the African innovation ecosystem, and facilitate seamless geographical integration of digital services and trade—can help ensure that the DTA lives up to its considerable promise.

Looking ahead, as the DTA moves into implementation, it will be essential to ensure the continuous process of consultation among the U.S. government, African governments and citizens, the African diaspora, and the private sector. Furthermore, to ensure ownership and sustainability, the actual programs must be codesigned and co-delivered with in-country African digital technology professionals who have the local knowledge necessary for achieving lasting results. Lastly, it is essential that the DTA manage any potential negative spillovers of the intensifying U.S.-China competition. The DTA’s implementers must be mindful of their messaging to frame the initiative as one that produces mutual benefits for the United States and African countries rather than a zero-sum framing that could negatively affect the DTA’s prospects.

About the Author

Jane Munga is a fellow in the Africa Program focusing on technology policy. Her career has focused on policymaking with an emphasis on the potential of digital technologies for digital development.

Acknowledgment

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