

September 9, 2019  
Ms. Lisa R. Barton  
Secretary  
U.S. International Trade Commission  
500 E St. SW

Re: ITIF Post-Hearing Written Submission Regarding Investigation No. 332-571: U.S. Trade and Investment with Sub-Saharan Africa: Recent Trends and New Developments

Dear Ms. Barton:

Please find below the Information Technology and Innovation Foundation's (ITIF) post-hearing written submission concerning Investigation No. 332-571: U.S. Trade and Investment with Sub-Saharan Africa: Recent Trends and New Developments.

The Information Technology and Innovation Foundation (ITIF) appreciates the U.S. International Trade Commission's (ITC) invitation to provide a post-hearing written submission regarding its investigation into Sub-Saharan Africa (SSA). ITIF's submission focuses on ITC's interest in a broad overview and description of recent developments in the digital economy for key SSA markets, including with regard to national and regional regulatory and policy measures and market conditions in key countries in SSA that affect digital trade.

Sincerely,

Nigel Cory  
Associate Director, Trade Policy, The Information Technology and Innovation Foundation

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## OVERVIEW

The foundations for a vibrant digital economy are appearing in the large and diverse set of countries that make up sub-Saharan Africa. Obviously, these countries face many challenges—better ICT infrastructure and more affordable ICT services, improved digital literacy and skills training, an open and effective payments network, and clear and effective institutions, laws, and regulations, among others—to fully benefit from digital technologies and a more prosperous domestic, regional, and global digital economy.<sup>1</sup> Of course, neither digital technologies nor digital trade are a shortcut to development. But they can certainly help sub-Saharan Africa close the considerable gap with the world leaders in the global digital economy. The United States can play a supporting role in helping develop the infrastructure, institutions, and policies that support digital development and trade. On the latter, this includes by advocating for those policies that support an open, competitive, and innovative digital economy and trading environment, many of which this submission highlights.

Africa (still) needs to fully embrace and harness the unfolding data revolution.<sup>2</sup> The full benefits of e-commerce and digital trade will only be realized when Internet connectivity becomes ubiquitous and people and firms have the digital skills, with governments providing the right policy frameworks, to help them succeed in the digital economy. Most domestic digital markets in sub-Saharan African countries are small and fragmented and of insufficient size to attract investment or provide the market for technology-driven companies to rapidly scale. Countries need to work together to do this. Regional integration efforts are underway in some areas, but progress has been haphazard. For example, African Union (AU) members adopted the AU Convention on Cybersecurity and Data Protection in June 2014. However, the AU Convention has not currently taken effect as it has, to date, not been ratified by 15 out of the 54 AU member jurisdictions. The AU Convention does provide a personal data protection framework which member countries may potentially transpose into their national legislation, and encourages African countries to recognize the need for protecting personal data and promoting the free flow of such personal data.

Removing barriers to digital trade and enacting compatible frameworks and principles for digital and digitally enabled goods and services would provide the region's firms with the critical economies of scale needed to succeed in the global digital economy. Digital trade opens up new economic opportunities (by lowering the costs of trade) and new and better ways of doing things (via innovation in developing, providing, or accessing new digital services).<sup>3</sup> Digital trade policies that protect data flows also support data innovation—the use of data to create value—which has become increasingly important to economic growth, competitiveness, scientific discovery, and social progress as new technologies and methods have made it easier to collect, store, analyze, share, and use information.<sup>4</sup>

The risk is that without a shared, ambitious approach the opportunity for a more-integrated African digital economy will slip away as countries head in the other direction toward digital protectionism. There is a potential for these barriers to emerge as some sub-Saharan African countries are set to enact new or revised digital-related laws and regulations. For example, there is no unified approach to personal data protection across the African continent, with some countries having comprehensive personal data protection legislation in place, while others have no legislation or constitutional protection, and some consider or enact misguided local data storage policies.<sup>5</sup> These barriers are not only a barrier to digital trade with the United States, but

prevent the critical economies of scale and network effects offered by a larger regional market, which would help bridge the digital divide faster within their respective countries and within the region in relation to the global digital economy.

The region's generation and use of data remains underdeveloped, in part due to the lack of a clear legal and regulatory regime to support the free flow of data across borders as well as interoperable data protection and privacy regimes to ensure the security of personal data while specifying that protections should travel with data, wherever it is processed and stored. The production of data, and use of digital services, in the region's 21st century digital economy is held back by some very 20th century trade issues—high tariffs and taxes on information communication technologies (ICTs) and related services. Prices of ICTs are a major determinant of their use. Reducing or eliminating these would ensure more people and firms use ICTs, which would spur digital development and trade. The region is a world leader in some new, mobile-based digital financial services, but local data processing requirements and other market restrictions, along with the lack of interoperability and high fees for cross-border digital transactions, discourages regional and global e-commerce and digital trade.

Similarly, the region's ability to fully realize the benefits of digital technologies and economic activity come down to the fact that many people in SSA countries lack reliable and affordable Internet connectivity, especially those in landlocked countries, which rely on a limited number of expensive terrestrial connections (as opposed to coastal countries which may have a submarine cable connecting them to the global Internet). The benefits of addressing the infrastructure and regulatory barriers to greater connectivity go beyond those most closely associated with the digital economy and trade, but extend to greater levels of economic productivity.

Take sub-Saharan Africa's largest economy, Nigeria, for example. The development challenge facing Nigeria is considerable, so it's no surprise that Nigeria has many areas to improve upon with regard to the digital economy. The United Nations Conference on Trade and Development's (UNCTAD's) B2C E-commerce Index ranks Nigeria 75th in the world and 2nd in Africa (behind Mauritius).<sup>6</sup> Improving infrastructure for the power grid and ICT connectivity is a key challenge. Deloitte estimates that expanding Internet access in Africa to match levels in high-income countries could enhance productivity by as much as 25 percent, generating \$2.2 trillion in gross domestic product and more than 140 million new jobs.<sup>7</sup> Mobile penetration in Nigeria reached 49 percent in 2018, which lags behind the levels of other large emerging economies, such as 53 percent in India and 73 percent in Indonesia.<sup>8</sup> Currently, 44 percent of mobile subscribers in Nigeria are using 3G technology and 4 percent are using 4G technology, as compared to over 18 percent 4G penetration in South Africa and 16 percent in Angola.<sup>9</sup> However, the situation is improving: in 2017, the continent saw the largest global increase in Internet users—20 percent.<sup>10</sup>

However, despite these challenges, Nigeria is emerging as a dynamic and growing digital economy. The considerable market potential from a young and growing population, rapid urbanization, rising incomes, and widespread technology adoption has led to Nigeria becoming home to some of the biggest e-commerce and digital firms in Africa. Nigeria's digital economy and trade potential is already evident despite these challenges.<sup>11</sup> Data analytics firms like Terragon, Mines, and Paga are using big data and proprietary artificial

intelligence systems as part of new services that are allowing them to expand across the region and the globe.<sup>12</sup> Similarly, 54gene is aiming to build and use the first and largest collection of genetics data in Africa.<sup>13</sup> Supported by improving network coverage and more advanced connection speeds, e-commerce and m-commerce offerings are helping consumers to leapfrog formal retailing in Nigeria and the region. While hard to estimate, the e-commerce sector in Nigeria is estimated to be worth over \$10 billion and is growing rapidly.<sup>14</sup> Nigeria is also home to 55 active tech hubs, accelerators, and incubators (ranking it second, just behind South Africa, which has 59).<sup>15</sup> Nigeria has already seen considerable success in establishing startup ecosystems—as demonstrated by the startup success of Yabacon Valley—and attracting significant amounts of venture capital, but needs to address various issues around the supporting framework for it to become the startup center of the Africa.<sup>16</sup>

Nigeria exemplifies the challenge, but also the opportunity, that digital technologies present in Africa. However, whether people and policymakers fully realize the potential benefits of digital technologies and trade will depend in part on whether they're able to enact the right supporting policy framework. This submission highlights some of these issues and specific cases where sub-Saharan countries are enacting policies which act as a barrier to both digital development and digital trade with the United States.

## **DATA PRIVACY, PROTECTION, AND LOCAL STORAGE REQUIREMENTS**

Sub-Saharan Africa still has a lot of progress to make when it comes to enacting data privacy and protection frameworks.<sup>17</sup> In Africa, only 23 of 55 countries (43 percent) have privacy and data protection laws.<sup>18</sup> Such data-related rules are key building-block laws that have a considerable impact on a country's digital economy and ability to benefit from digital trade.

Unfortunately, Kenya and some other countries in SSA have taken their lead from the European Union's flawed approach to data privacy and protection. SSA countries should instead take a careful and considered approach to enacting their own data protection and privacy regimes and avoid "copying and pasting" the European Union's approach; they should scrutinize each individual privacy provision, including data controller/processor registration, an "adequacy" approach to international data transfers, explicit consent, and the right-to-be-forgotten. For example, rather than adopt the "adequacy" standard used by the European Union and copied by others, SSA countries should adopt a duty-of-care provision. When it comes to handling data, companies doing business in a country should be responsible for their own actions and the actions of both their agents and business partners, regardless of where they are located. This could be made clear in law by declaring that companies doing business in a country are legally responsible for any failures to protect the personal data of that country's citizens, regardless of whether those failures are the fault of the company in that country, or an affiliate or business partner in another nation. In other words, a country's data protection would travel with the data, regardless of where the data travels. Companies doing business in a given country would then have a strong incentive to assist their business partners outside that country in adhering to the country's privacy protections, because its citizens and government could seek remedies for any privacy violations.

Similarly, there have been several instances where data-related policy debates in SSA countries have considered or enacted restrictive requirements for the transfer of data outside of their respective borders (further outlined in country cases below). Like other regions, some policymakers in SSA are mistakenly attracted to the notion that data must be stored domestically in order to ensure it remains secure and private, which is false. Policymakers focusing on geography to solve cybersecurity and privacy concerns are missing the point. Consumers and business can rely on contracts or laws to limit voluntary disclosures to ensure data stored abroad receives the same level of protection as data stored at home. Obviously, countries have the prerogative to determine how companies use data, but this again highlights how the focus should be on how companies treat data—and holding them accountable to it—rather than where data is stored. In fact, local data storage can actually undermine personal data protection. For example, without an independent judiciary and set of legal protections, local data storage can facilitate easier access to personal data for governments, such as for social or political reasons, as they can bring more pressure and tools to bear in forcing local providers to disclose data. This is a real scenario in Kenya, where a recent draft data protection bill requires a copy of data to be stored locally, rather than prohibiting transfers of all data.

Given many SSA countries still have to enact foundational data protection laws, it's likely that debates about the location of data and cybersecurity will continue. SSA is not alone in having policymakers who misunderstand how the confidentiality of data does not generally depend on what country information is stored in, but rather on the measures used to store it securely. A secure server in Kenya is no different from a secure server in Brazil. Data security depends on the technical, physical, and administrative controls implemented by the service provider, which can be strong or weak, regardless of where the data is stored. For example, in a practice that protects both data privacy and security, some cloud-computing companies have upgraded security controls such that customers retain the keys used to encrypt data before it is uploaded, thereby preventing third parties or the cloud companies themselves from accessing their data.<sup>19</sup> This highlights what policymakers should focus on: ensuring that firms managing personal data abide by relevant privacy requirements and use best-in-class cybersecurity measures.

The below outlines some country-specific cases involving data privacy and protection which restrict the transfer of data across a country's borders.

### **Cote-d'Ivoire**

In 2013, Cote-d'Ivoire, enacted privacy laws which required firms to get pre-approval from the regulator before processing personal data outside of the Economic Community of West African States (ECOWAS, which includes 15 member countries, ranging from Benin, Ghana, Liberia, Mali, Niger, Nigeria, and Senegal).<sup>20</sup>

### **Kenya**

In 2016, Kenya's Communications Authority considered including data localization provisions within Kenya Information Communications (Cyber-Security) Regulations (2016). Article 10(1) required the hosting and storage of "public information" within Kenya. Furthermore, article 19 noted how other countries, such as Russia and Brazil, have also enacted data localization laws.<sup>21</sup>

In 2018, Kenya released a draft Data Protection Bill for comment that included a number of provisions that either directly or indirectly lead to data localization.<sup>22</sup> The bill is reportedly still being debated by Kenyan policymakers.<sup>23</sup> It aims to implement the right to privacy, pursuant to Article 31 of Kenya's constitution. Kenya is emerging as a dynamic and growing digital economy, but the draft bill (if enacted) could hamper that development. The main problem with the draft bill is its misguided belief that the geography of data storage improves data privacy and security. Forcing firms to store data locally—a concept known as data localization—does neither (as explained further below).

Kenya's Data Protection Bill (part VI, section 44) states:

- (1) Every data controller or data processor shall ensure the storage, on a server or data center located in Kenya, of at least one serving copy of personal data to which this bill applies.
- (2) The cabinet secretary shall prescribe, based on strategic interests of the state or on protection of revenue, categories of personal data as critical personal data that shall only be processed in a server or data center located in Kenya.
- (3) Cross-border processing of sensitive personal data is prohibited.<sup>24</sup>

The draft bill also included other vague and potentially broad provisions that raise the specter of further localization and sudden changes to key legal requirements for firms managing data in or from Kenya. The draft bill allowed the proposed data commissioner to create new categories of sensitive personal data (to be stored locally), and the cabinet secretary to designate categories of critical personal data that can only be processed in Kenya on grounds of “strategic interests of the state or on protection of revenue.” Beyond the vagueness of what “protection of revenue” means, together, these provisions raise considerable uncertainty for firms—especially foreign ones—about how to abide by Kenyan privacy law and how they operate in Kenya (or if they can, in the likely scenario the firm is foreign and uses ICT systems based outside of Kenya). In addition, the bill repeatedly makes the false connection between the geography of data storage and processing and data protection by associating international transfers with risks and dangers. The draft bill (section 45.1.b) states that transfers of personal data outside of Kenya require people to give their explicit consent, “after having been informed of the possible risks of the transfer, such as the absence of appropriate security safeguards.”<sup>25</sup>

Unfortunately, Kenya's draft Data Protection Bill reflects key elements of the European Union's General Data Protection Regulation (GDPR). For example, the draft bill (section 15) states that all data controllers and data processors must register with the data commissioner, with some exceptions. The EU Data Privacy Directive, which was in force between 1995 and 2018, initially included a similar concept that was dropped after it proved unworkable. The broad range of firms such a requirement would cover—especially small and medium-sized enterprises (SMEs)—would prove particularly burdensome. Just as troubling is the bill including the “right to be forgotten,” which provides people with the right to the “deletion of false or misleading data about them.”

Furthermore, the draft bill adopts the European Union’s misguided approach to international data transfers. The bill (part IV, section 22.1.h) requires data controllers or data processors to ensure personal data is “not transferred outside Kenya, unless there is adequate proof of adequate data protection laws by the recipient country.” This “adequacy” requirement mirrors the European Union’s flawed approach to data protection in that it tries to make foreign countries responsible for enforcing Kenyan data privacy standards instead of using domestic regulators to hold companies responsible for breaches of Kenyan data privacy laws—regardless of where those companies store the data. A critical flaw in the European Union’s approach is the mistaken logic that this country-by-country assessment is effective in promoting better data privacy and protection by companies that manage personal data.<sup>26</sup> This top-down approach is ultimately untenable, as differences in social, cultural, and political values, norms, and institutions are behind countries not regulating privacy the same way. For example, given the country’s approach to data protection and privacy, it is inconceivable China would ever be deemed “adequate” from a European perspective (despite the fact that data flows continue mostly unfettered between the two regions).<sup>27</sup>

## **Nigeria**

Unfortunately, despite its large digital economy potential and positive engagement at the WTO on e-commerce talks, Nigeria has a number of concerning data localization and ICT-related barriers (in addition to those relating to payments, covered separately).

In 2015, Nigeria pushed ahead with a requirement to force local data storage and mandated local content requirements for a range of ICT hardware. These policies stem from the Guidelines for Nigerian Content Development in ICT, issued in draft form in 2014. Several of the provisions in the Guidelines stipulate the implementation of procurement restrictions, local content requirements for ICT hardware, the creation of an indigenous development plan, and restrictions on cross-border data flows.

On October 14, 2015, the Nigerian government issued a final notice outlining compliance requirements.<sup>28</sup> In a classic case of misguided state-directed development, the policy requires all multinational companies to submit details of their Nigerian content programs by November 16, 2015. This needs to include details on the number of indigenous jobs created and local capacity building and ICT skills programs. The latest notice fails to clarify a number of outstanding questions about the policy, such as the apparent lack of a legal basis for the local content requirement and the possible requirement for majority Nigerian equity ownership in ICT firms.<sup>29</sup> Furthermore, the Guidelines include a number of misguided, unrealistic, and counterproductive policies, such as a 50 percent local content requirement in the ICT sector within three years of the policy coming into force, a procurement program for computer hardware that only allows purchases from government-approved sellers, the requirement of locally manufactured SIM cards, and the use of Nigerian companies to build cell towers and base stations. Nigeria also wants ICT companies to “host all subscriber and consumer data” locally, and Section 14.1.3 calls for all government data to be hosted “locally inside the country.” It also requires ICT companies to use Nigerian companies for at least 60 percent of all value-added services on their networks within the first two years of the policy, increasing to 80 percent within three years.<sup>30</sup>



Nigeria's Minister of Communications Technology, Omobola Johnson, used the fact that 60 percent of the computers sold in Nigeria in 2012 were manufactured by HP and Dell as the rationale for the import substitution program.<sup>31</sup> But this simplistic assessment is misguided and fails to get to the heart of what drives innovation and investment, as well as the nature of ICT production networks and the extensive and complex supply chains involved. These policies will do little to help the poor quality, expensive, and noncompetitive ICT products manufactured by domestic companies in Nigeria. Further, as noted above, they will slow down overall ICT adoption rates. ICT is just the latest sector to be targeted in Nigeria, as the U.S. State Department points out in its 2015 investment climate statement on the country, noting that "Nigeria's trade regime remains protectionist and distorting, with restrictive import tariffs and outright import prohibitions in place intended to spur domestic agricultural and manufacturing sector growth."<sup>32</sup>

In 2019, the Nigerian Information Technology Development Agency (NITDA) issued a data protection bill with localization provisions.<sup>33</sup> It was approved by the legislature in July 2019, but still must be approved by the president before it becomes law. International transfers of data are allowed if certain restrictive criteria are met, such as whether the individual has provided their explicit consent to the transfer and if the foreign country provides an appropriate level of protection (which will be determined by NITDA as part of an unclear process).<sup>34</sup> In addition to the problems with the "adequacy" concept noted previously, the last thing NITDA should be doing is spending time and resources to determine the adequacy of other nations' data protection policies. Rather, NITDA's core energy and focus should be upon enforcing firms are following the law and protecting user privacy and promoting the deployment of next-generation digital infrastructure and bolstering the capacity of individuals and enterprises to compete in the global digital economy. Determining the adequacy of other nation's data protection policies is an extremely low-value-added regulatory endeavour for a nation like Nigeria, which has so much else it needs to do to advance its digital economy.

## **Rwanda**

Rwanda has enacted both formal and informal data localization measures. Firstly, in May 2017, Rwanda's telecommunications regulator fined MTN (a telecommunications company that is a subsidiary of South Africa's MTN Group) US\$8.5 million (10 percent of its annual turnover) for maintaining Rwandan customer data in Uganda and for running its IT services outside the country in breach of its license.<sup>35</sup> Secondly, data sovereignty is embedded in the government's National Data Revolution Policy, which requires that all critical data related to government operations be stored locally in a central, designated (privately owned) national data center.<sup>36</sup>

Specifically, articles 16 and 17 state:

- Article 16: Security of Government critical data and systems. The National Data Center (NDC) shall ensure security of Government critical data and systems. The NDC, which was built in accordance with international standards and latest technology, shall also improve efficiency in data hosting, and shall be managed and run by the selected managing company, on a fee-for-service basis to Government institutions.

- Article 17: Hosting critical Government data and information. All Government IT systems and applications, which process, store and provide critical Government data and information shall be hosted in the NDC. These include, but are not limited to: website hosting, email hosting, shared applications such as Document management and e-archiving, and Government enterprise applications.<sup>37</sup>

## South Africa

On November 19, 2013, South Africa's new Protection of Personal Information Act (the POPI Act) was signed into law.<sup>38</sup> The POPI Act makes the transfer of personal information outside of South Africa subject to certain exceptions, which raise potential concerns about how these rules will be interpreted and enforced, as they could become de facto data localization tools.<sup>39</sup>

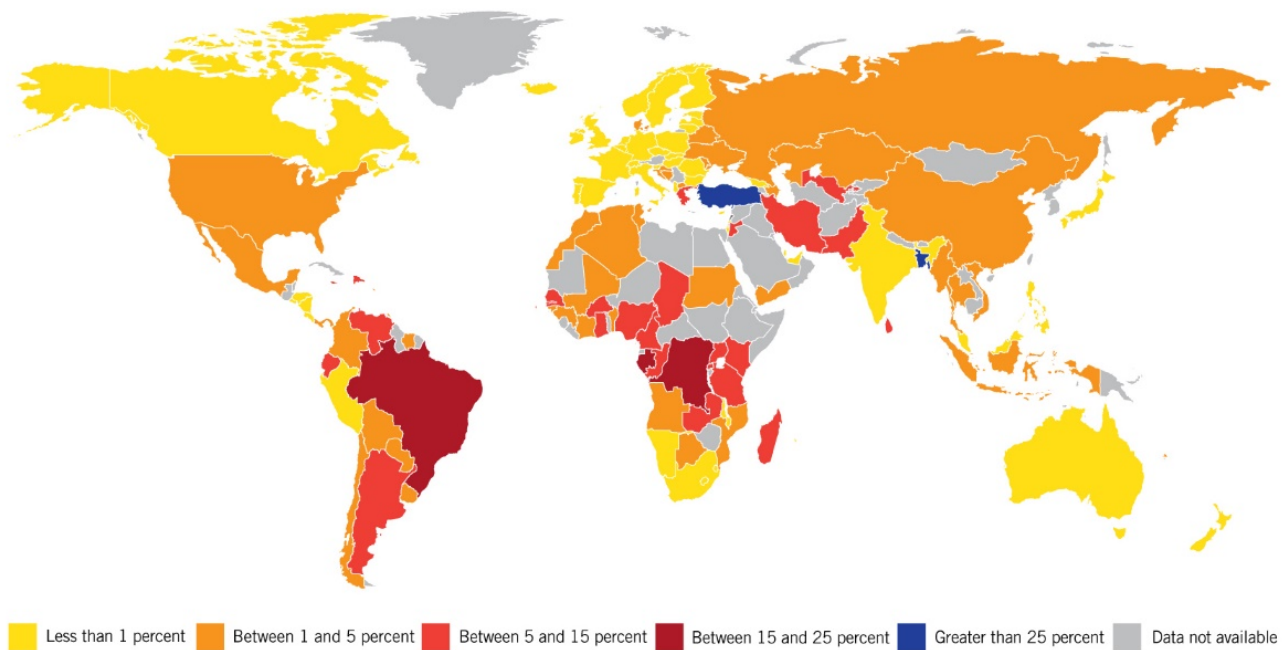
- The POPI Act requires the data recipient (in a foreign country) to be subject to a law or contract which upholds principles of reasonable processing of the information that are substantially similar to the principles contained in the POPI Act and includes provisions that are substantially similar to those contained in the Protection of Personal Information Act (PPI Act) relating to the further transfer of personal information from the recipient to third parties;
- if the data subject gives their consent to the transfer;
- the transfer is necessary for the performance of a contract between the data subject and the responsible party;
- the transfer is necessary for the conclusion or performance of a contract concluded in the interest of the data subject between the responsible party and a third party; or
- the transfer is for the benefit of the data subject, and it is not reasonably practicable to obtain the consent of the data subject to that transfer; and if it were reasonably practicable to obtain such consent, the data subject would be likely to give it.<sup>40</sup>

For example, explicit consent requirements like this one not only fail to increase the privacy protections of South Africans but would also significantly increase compliance costs and reduce data innovation in South Africa.<sup>41</sup> South Africa and other countries should not be seduced by the misguided and costly fallacy that it is the location of data that matters when it comes to privacy. Indeed, there are other transparency mechanisms that data privacy regulators can initiate to achieve desired goals without resorting to de-facto data localization policies. Rather than restrict data flows, South Africa's data privacy regulators should rewrite the rule to simply require the disclosure of countries in which an organization stores its data. This is an effective tool for empowering citizens to understand how their data is protected and what countries it's stored in. This knowledge allows people to essentially "vote-with-their-feet" by opting not to use a service if they are disinclined to support industries or worry about government control in a specific country.<sup>42</sup>

## ICT TAXES AND TARIFFS

The digital economy is driven by data, which is generated by governments, individuals, and firms using ICT devices. ICT prices play a large role in determining how widely and frequently ICTs are used in people's daily lives and jobs. Unfortunately, SSA is (generally) a high tax and tariff market for ICT products, which slows the region's uptake and use of data-driven ICTs. Taken from a 2014 ITIF Report "Digital Drag: Ranking 125 Nations by Taxes and Tariffs on ICT Goods and Services," figures 1 and 2 show that one-half of the top 50 countries for ICT tax and tariff rates are from Sub-Saharan Africa.<sup>43</sup> The World Bank notes in its report "A Single Digital Market for East Africa" that the affordability of ICT devices, especially smart phones, is a major barrier to connectivity in the region.<sup>44</sup> While devices have become more affordable over the last few years (in part due to the introduction of low-cost Chinese and Indian ICT products), taxes on mobile devices, such as VAT and customs duties, remain high in many parts of the region. For example, taxes represented 18 percent to 19 percent of the retail price for these products in Tanzania and Uganda in 2016.<sup>45</sup>

**Figure 1: Map of Countries by Total Taxes and Tariffs for Consumer ICT Products and Services<sup>46</sup>**



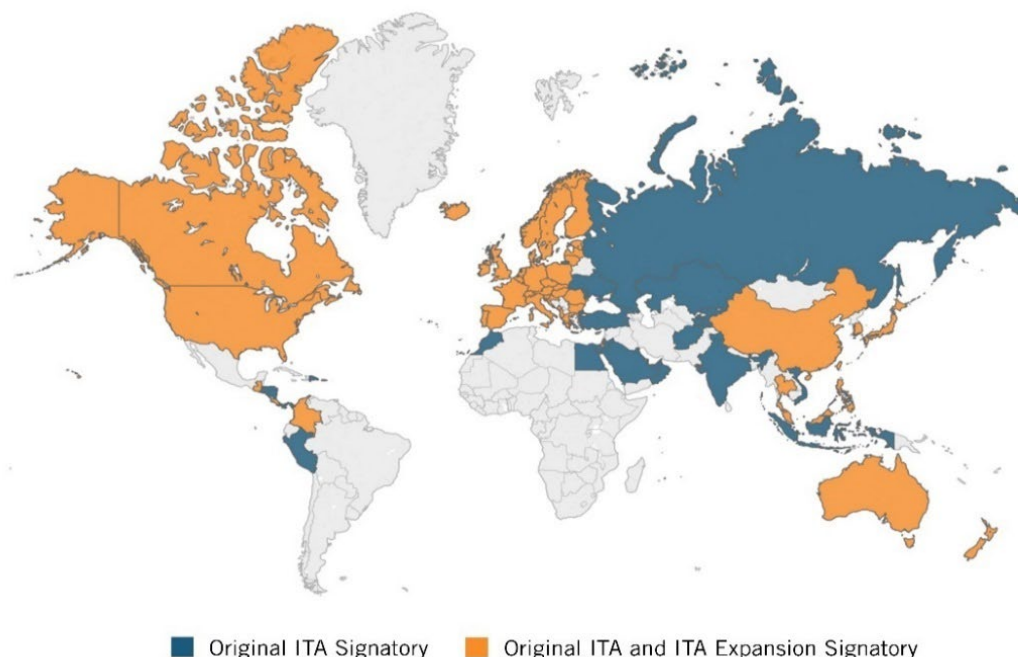
**Figure 2: Tariffs on Consumer and Business-Use Products<sup>47</sup>**

Country	Consumer Product Tariff Total (%)	Business-Use Product Tariff Total (%)
Angola	5.4	4.7
Benin	8.6	8.1
Burkina Faso	8.7	9.3
Cameroon	12.9	12.9
Chad	11.4	11.6
Congo, Dem. Rep.	6.6	7.1
Congo, Rep.	30.0	30.0
Cote d'Ivoire	9.9	10.4
Gabon	12.5	12.3
Gambia, The	7.6	10.5
Ghana	2.5	5.8
Guinea	9.8	8.5
Guinea-Bissau	9.2	7.6
Kenya	0.9	1.9
Madagascar	10.2	8.8
Mauritius	0.0	0.0
Mozambique	8.3	5.1
Namibia	0.1	0.0
Nigeria	6.4	6.0
Rwanda	1.3	2.6
Senegal	11.3	11.0
Sierra Leone	7.2	7.9
South Africa	0.1	0.2
Tanzania	1.4	3.8
Togo	9.5	10.3
Zambia	12.9	10.5

SSA countries are conspicuously absent from the Information Technology Agreement (ITA) (figure 3). This is important as tariffs on ICT products remain particularly high in Africa. An Organization for Economic Cooperation and Development (OECD) study found that tariffs on ICT goods are the highest in Africa, about 12 percent on average.<sup>48</sup> Initially launched in 1996, and expanded in 2016, the ITA and its expansion completely removed tariffs on a broad set of ICT products (such as semiconductors, computers, and telecommunications equipment).<sup>49</sup> The ITA represents one of the most successful trade agreements the WTO has ever forged.<sup>50</sup> The ITA has played a powerful role in reshaping global trade since it first took effect 20 years ago by empowering the formation of efficient global ICT supply chains, thus enabling a shift from a linear, closed innovation model to an open innovation paradigm that relies on close collaboration among suppliers, network partners, and customers to bring breakthrough ICT products to market.<sup>51</sup> However, the

only ITA members from Africa are from North Africa (Egypt and Morocco). Of the ITA member countries from Africa, their average applied tariffs on ICT products is 2.8 percent and zero for ITA products, while for the 40 non-members the average applied tariffs for ICT products is 12.6 percent and 9.1 percent for ITA products.<sup>52</sup>

**Figure 3: Original ITA and ITA Expansion Signatories<sup>53</sup>**



Taxes and tariffs on ICTs are important factors as they have a significant impact on demand for these productivity- and innovation-empowering capital goods.<sup>54</sup> Indeed, ICT goods are highly price elastic, meaning that a one percentage point decrease in price leads to a more than one percentage point increase in ICT adoption. In fact, economists estimate that a 1 percent decrease in the price of ICT products can lead to a 1.3 percent increase in demand for those products.<sup>55</sup> Accordingly, eliminating tariffs on imports of ICT products can have a powerful impact on increasing their adoption, thus deepening the extent of a nation’s ICT capital stock, which in turn generates increased economic growth. The demand impact of lower prices was made clear in Kenya when a brief period of zero value-added taxes on mobile phone handsets in 2009 saw the sales of devices and mobile services soar. This also had a positive net impact on government revenues, due to higher levels of telecom service tax collected and positive impacts on Kenya’s overall economic growth rate.<sup>56</sup>

ICT prices also have a much broader economic impact as multiple academic studies have found strong linkages between ICT consumption (i.e., usage) and economic growth in developing countries. For example, a December 2010 World Bank report, “Kenya Economic Update,” found that “ICT has been the main driver of Kenya’s economic growth over the last decade.”<sup>57</sup> Specifically, the report found that ICTs were responsible

for roughly one-quarter of Kenya's GDP growth during the 2000s. Moreover, ICTs' contribution to Kenyan economic growth has only grown over time, with the ICT sector providing a more than six-times-greater contribution to Kenyan GDP in 2009 compared with 1999.<sup>58</sup> Likewise, a study of six West African countries found that approximately 40 percent of their increase in total factor productivity growth was attributable to ICT-related growth.<sup>59</sup>

### The Potential for Digital Duties on Imports of Digital Products

A potential additional problem for the digital economy in SSA is that some countries (especially South Africa) want to enact duties on imports of digital products. To do this, South Africa and its like-minded partners (such as India and Indonesia) want to end a long-held WTO commitment to not enact duties on imports of digital products. Spurred on by dubious and misguided research from certain officials within UNCTAD, many SSA countries oppose efforts to negotiate new e-commerce and digital trade rules at the WTO and the extension of this moratorium on digital duties (due to be decided at the WTO ministerial conference in 2020).<sup>60</sup> Allowing countries to enact digital duties, for example, would create the scenario where every song or movie or piece of software that is digitally delivered to a customer in another country would face a tariff, thereby putting it at a price disadvantage to local products, while also increase the price for consumers. Thankfully, Nigeria has dissented from the broader "Africa Group's" efforts at the WTO to advocate for the end of the moratorium and an end to e-commerce and digital trade talks.

## **PAYMENT SERVICE MARKET RESTRICTIONS**

Electronic payment services are central to broad SSA government efforts to improve market efficiency, financial inclusion, revenue collection, and broader public service delivery (such as via e-money and e-ID cards). They're also a crucial facilitator of digital trade as a cross-border transaction obviously involves the flow of information and funds as part of a transaction between parties operating in different currencies, financial markets, etc. Payments are central to the suite of online services (such as two-sided marketplaces, search functions, or customer review processes) that together make it much easier, cheaper, and safer for individual consumers and firms to find goods and services and market opportunities around the world and to use a growing range of payment options to pay for the transaction. However, while the Internet may be global, each country's laws and regulations can seriously affect the ability of U.S. payment service firms to seamlessly provide a fairly standardized service within and across markets as part of digital domestic and trade transactions. Sub-Saharan Africa is no different in that many countries have enacted measures (especially concerning data) that affect the ability of U.S. firms to compete on fair and level terms and provide services using their global business model and IT infrastructure, rather than setup or use local IT facilities or be forced to hand over domestic transactions to local firms.

Rules and laws pertaining to data are critical to payment services, as the collection, processing, storage, and transfer of data is central to the delivery of the service itself and to the analytic processes firms use to prevent fraud, enhance cyber security, improve customer service, and drive market insights.<sup>61</sup> This is evident in the fact that payment networks clear and settle transaction information, not funds. Divergent, restrictive and burdensome regulatory frameworks translate into costs, complexity, and lost economic opportunities for local firms and customers to use cutting-edge payment services to access the global digital economy. These

restrictive laws and markets matter as payment providers compete on the full spectrum of advanced data analytics to provide value-added services to customers, merchants, and others.

Unfortunately, a growing number of economies, including in SSA, are using data-related restrictions as a barrier to market entry and operations for payment service providers (as detailed in the country case studies below). Many SSA countries have enacted laws requiring that all domestic transactions be processed by a local ‘switch,’ which is an independent entity or internal process that facilitates communication between various providers. This local processing requirement acts as a de facto data localization requirement and/or market restriction as it prevents U.S. firms from processing domestic transactions in a country. Other countries don’t require use of their local switch, but instead require that all domestic transactions be processed on shore. Similar to forcing firms to use local switches, this is another way to create an un-level playing field as these regulations force foreign payments providers to either duplicate their global capabilities in-market by building a local data center or simply excludes them from processing domestic transactions.

Policymakers in SSA countries enact these policies for a few reasons. Firstly, in the misguided belief that forcing payment firms to setup or use a locally owned transaction processor will somehow help improve financial inclusion. Such local restrictions prevent local firms from using the best, lowest-cost payment providers. It also misses the point about the additional value-added services that U.S. and other globally competitive payment providers can bring to a market. Ensuring that local firms have easy and cheap access to new, low-cost, and innovative electronic payment options is critical to connecting domestic firms with foreign customers. Furthermore, these restrictions limit the ability of U.S. firms to contribute to the payments ecosystem and facilitate greater use of e-payments.

Designating a local- or government-owned payments processor for domestic transactions can actually undermine a country’s financial sector development. Setting up and operating local transaction processing services is not straightforward as the provider needs to stay abreast of changing technology, consumer trends, and cybersecurity and other technical risks. Transaction processors (whether foreign or domestic) need to continuously invest in the IT systems and procedures to ensure they are able to process domestic transactions using best practices and best-in-class services. A payment switch no longer processes only credit card or debit card authorization transactions, so a payment switch must be able to adjust to changes. Nowadays, payment switches have to enable prepaid or loyalty services, value-added services such as immediate payments, premium payments, recharges, and others, token vault, merchant, and support services, device management system (ATMs, POS, MPOS), key management (key handling, key rotation, and key sharing), dynamic currency conversion to support foreign currency transactions, and reconciliation and settlement.<sup>62</sup> With regard to cybersecurity, this also means the ability to support advanced authentication and enabling technologies (such as biometrics, secured element and tokenization, geo-location based authentication, and cryptographic keys) to stay ahead of hackers and cybercriminals.<sup>63</sup>

Secondly, some SSA countries (such as South Africa), while embracing cloud computing, are considering local transaction processing as they’re concerned about “sovereign risk,” which means that they’re worried about the unlikely scenario that if they face financial sanctions they don’t want to be cut off from the global financial system. They therefore want to enact domestic transaction processing as a way to make themselves self-reliant. For instance, a 2018 consultation paper released by South African Reserve Bank explicitly refers to

Russia's efforts to enact a self-reliant system, as well as other restrictive regimes in India and Nigeria, as models to consider following.<sup>64</sup>

Barriers that make it costlier, more complex, and/or illegal for payment service firms to export and use transaction data as part of centralized data analytics platforms limit the ability of payment services firms to use data from the broadest range of sources to provide secure, innovative, and standardized services to customers around the world. This means that U.S. payment service providers can't use their highly sophisticated, centrally managed global IT systems (which may only involve a few strategically placed data centers around the world). Instead, U.S. firms have to either setup their own data center within a country, contract a local firm to process domestic transactions from that country, or hand over domestic transactions to a government-mandated/protected payment processor.

The impact of restrictions on payments data can be described on a sliding scale of restrictiveness and impact (below, from least to worst). Variations on each of these models are found in SSA:<sup>65</sup>

- Local “mirroring” requirements require foreign firms to capture a first copy of the transaction data for local storage, before transferring it out of the economy for storage and processing in its global IT systems. Such mirroring requirements also affect data analytics processes depending on specific requirements, as they can extend to how firms are/are not able to use and update this local copy.
- Full and only local data storage requirements require foreign firms to either setup their own local data storage facilities and data processing services or pay a third-party provider for these services.
- Local data processing or routing requirements (requiring firms to send transaction data to a designated firm) completely cuts off foreign firms from using data that is critical to providing modern services. This can effectively be done in two key ways: when a country designates a local firm (often state-owned) to be the only payment processor or when it requires firms to route all payments through a local (often state-owned) firm.

Specifically, by requiring firms to use only local data services, economies enacting data localization may prevent U.S. firms from using best-in-class cybersecurity and fraud prevention measures. Many U.S. payment service firms rely on global datasets for these and other new data-driven services. Local data storage and processing requirements may also prevent firms from using modern techniques for storing data, such as “sharding,” which involves breaking up data and storing it in multiple locations, or constantly moving it between different data centers in different physical locations. This is a major potential issue, as cyber threats are on the rise with increased digitalization.

Local data storage or processing requirements also limit U.S. firms' ability to use data analytics to combat credit card fraud, which is a global challenge for consumers, financial institutions, and regulators. These data analytic models use behavioral, temporal, and spatial techniques to assess a consumer's behavior and whether a transaction is out of the ordinary or not. U.S. payment service firms use this process tens-of-thousands of times daily, which ultimately involves billions of pieces of data. These data-driven systems are powerful and



fast enough to detect fraud in real time by using models based on historical data (and deep learning) to proactively identify risks.

Below are some detailed country- and sub-region case studies. Currently, Angola, Malawi, Mozambique, Namibia, and Zambia mandate domestic payment switches. Zimbabwe, Mauritius, the West African Economic and Monetary Union (known by its French acronym UEOMA), and the Economic Community of Central African States (CEMAC) region also have domestic payment switches. Projects to build domestic payment systems are underway in the Democratic Republic of Congo, Lesotho, and Swaziland. The policies in the case studies below restrict the ability of U.S. payment service firms from entering and operating in these markets.

## **Ghana**

Ghana has enacted a series of legislative reforms to account for the changing nature of payment services and the need to improve financial inclusion. They represent part of the government's broader strategy to create an enabling regulatory environment for convenient, efficient, and safe retail payment and fund transfers.<sup>66</sup> However, unfortunately, Ghana used the reform process to enact localization measures that restrict the ability of U.S. payment services to operate in the country.

In June 2019, Ghana enacted the Ghana Payment Systems Bill & Guidelines, which among many other things, set out the requirements to obtain a payment systems operator license.<sup>67</sup> In particular, it calls for: firms to establish a local entity, at least 30 percent local ownership, and for a board of directors that includes at least three Ghanaians, one of which must be the CEO. In July 2018, Ghana issued draft regulation that required all domestic transactions to be processed by the Ghana Interbank Payment and Settlement Systems Limited (GhiPPS, which is wholly owned by the Central Bank of Ghana). However, there was significant industry concerns, so the final implementing directive has not yet been issued. GhiPPS already manages the national switch and domestic scheme "e-ZWICH" (introduced in Ghana in 2008, it was Africa's first biometric electronic payment system).

These measures to localization infrastructure for digital payments will affect the financial sector's broader development and the government's efforts to encourage people to use new electronic payment methods. Policies that affect competition and payment service processes are important as they ultimately affect service availability and cost. As a report from KPMG states, the greatest barrier to the Bank of Ghana's desire to shift the country towards a 'cash-lite' economy is the continued high cost of electronic transactions, as for example, an instant interbank transfer of GHS1,600 (just under USD\$300) costs around \$5 at Ghana's banks, but just \$1 at Nigerian banks.<sup>68</sup> Despite changes in technology and payment services, Ghana remains a largely cash- and cheque-based society. Indeed, whereas global trends seem to lead toward an overall reduction in the use of cheques, statistics from the Bank of Ghana show a steady increase in cheque usage in the country—from approximately \$7.4 billion in value in 2010 to \$29.76 billion in 2015, a 240 percent increase over five years.<sup>69</sup>

## **Nigeria**

In 2011, Nigeria's Central Bank introduced a measure that requires all point-of-sale and ATM transactions to be processed locally. Under no circumstances are these transactions to be processed outside Nigeria.<sup>70</sup> Nigeria has also had a regulation in place for over a decade that requires that all domestic digital transactions be processed locally. However, Nigeria only began enforcing it earlier this year.

## **South Africa**

South Africa is considering policies that would create a more-restrictive payment services framework, especially as it relates to processing domestic transactions. As mentioned above, South Africa is looking at China, Russia, and India's restrictive frameworks as potential models as it implements its own payments modernization strategy.

In June/July 2018, the South African Reserve Bank imposed a moratorium prohibiting the migration of domestic transaction volumes from Bankserv (South Africa's bank-owned domestic payment switch) to international payment schemes. The South African Reserve Bank enacted the moratorium after it found out that domestic South African banks planned to move more of their transactions to global payment service networks. The moratorium was to be in place until a new policy was developed and enacted.<sup>71</sup>

Specifically, the consultation paper states:

“In the SARB's (South African Reserve Bank) oversight role of monitoring retail payment system in SA (South Africa), some shortcomings in relation to the aspect of the processing of retail payments have been identified. Over the last few years, some participants migrated the processing of card transactions to offshore processors. This phenomenon may also occur in other payment streams. The processing of retail payment systems is core and critical to the smooth functioning of the NPS (National Payment Scheme), and the broader economy. Further, there are potential sovereign / geopolitical and financial stability risks to SA from sole reliance on offshore processing of domestic transactions.”<sup>72</sup>

Reflecting this paragraph, the Reserve Bank of South Africa and the government have taken the position that the national payments system forms part of the country's critical infrastructure, and that it's integral to the successful functioning of the local economy. Reliance on international payment networks (in their view) therefore poses systemic, geopolitical, and sovereign risks (i.e., sanctions-related) as they are not locally owned or operated. The moratorium was met with some industry pushback, reflecting the impact to local banks and businesses when markets are shut off from global payment providers, such as those from the United States.

## **West African Economic and Monetary Union**

The West African Economic and Monetary Union (UEOA) is made up of eight mainly francophone nations in West Africa, including Benin, Burkina Faso, Cote d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo. Together, they've created a regional central bank, the Central Bank of West African States (Banque Centrale des Etats de l'Afrique de l'Ouest, BCEAO) and share a common currency: The West Africa CFA franc. BCEAO requires that all domestic transactions and intra-regional transactions within member states be

processed by the regional switch, GIM-UEMOA (Interbank Electronic Banking Group of the Economic and Monetary Union of West Africa). This creates a de facto monopoly, government-owned system for payment transactions within the regional bloc.

Like many other developing countries and regions, West Africa is trying to manage changing regulatory requirements, technological innovation, and consumer preferences with regard to payments. However, as outlined above, enacting discriminatory and restrictive data-related policies will not help the region develop a competitive and innovative payments service, which is critical to encouraging the use of modern payment services, broader financial inclusion goals, and engagement in the digital economy. A Centre for Financial Regulation & Inclusion report on payment systems in Africa outlined the nature and scale of the challenges facing WAEMU.

WAEMU currently has a limited deployment of traditional financial service points (bank branches and ATMs), which acts as a barrier to financial access in the region, never mind deployment of newer payment services.<sup>73</sup> Although the BCEAO has prioritised a shift toward modern non-cash payment instruments and channels, cheques continue to account for most non-cash payments in the region.<sup>74</sup> In 2016, interbank checks accounted for 65 percent of the volume of transactions processed in the regional processing system and 85 percent of the value.<sup>75</sup> This illustrates the extent to which the payment system continues to be dominated by paper-based instruments such as cheques, despite the gradual increase in mobile money usage.

In general, payment infrastructure in the West African region remains underused and usage costs, although lower than before, remain very high. Consequently, the region has not seen noticeable reductions in the cost of clearing and settlement, which can act as a barrier to further payment system participation at the national and regional levels. These factors and others have disincentivised financial service providers from investing in interoperable frameworks in the region and has raised the cost of cross-border payments in the region.<sup>76</sup> For example, in 2016, cross-border retail payments accounted for only 1.13 percent of the total transactions processed through the regional payments processing provider (SICA-UEMOA).<sup>77</sup>

## **BACKBONE INTERNET CONNECTIVITY AND THE DIGITAL ECONOMY**

Firms, citizens, and governments must first be online to be able to participate in the digital economy. As shown by figure 4, many countries in SSA face relatively high Internet access costs, which like tariffs on ICTs, is a key determinant of digital adoption (and from this, digital economic development and the ability to engage in global digital trade). The impact this has on ICT adoption is significant. In modeling the impact of fixed and mobile broadband on the SSA economy, an International Telecommunications Union (ITU) study found that prices are a key enabler for adoption of the technology and that a 10 percent drop in prices would boost adoption of mobile broadband by more than 3.1 percent.<sup>78</sup> Similarly, if the United States is able to help SSA countries improve ICT deployment and adoption, the broader economic benefits could be significant. A World Bank study found that the arrival of faster Internet in sub-Saharan Africa during the late 2000s and early 2010s increased the probability that an individual was employed by 3.1 to 13.2 percent, relative to areas unconnected to submarine cables, and that the employment impact on unskilled and lower-educated workers were more positive than in higher-income countries.<sup>79</sup> These economic factors work together in the long-term toward building stronger digital trade partners for the United States.



those landlocked.<sup>87</sup> One of these projects in Uganda lowered the cost of data by 40 percent.<sup>88</sup> In addition to these, China's Exim Bank and Chinese firms Huawei, China Unicom, and other partners from China have announced a number of subsea cable projects (such as the South Atlantic Inter Link (SAIL) and PEACE Cable system) to connect Africa with Asia, Europe, and South America.<sup>89</sup>

While the African continent's overall capacity to connect to global telecommunications infrastructure has improved considerably over the last ten years, looking at a fiber network map of the continent shows there are many gaps and many issues around cost remaining, especially for terrestrial links for landlocked countries.<sup>90</sup> Currently, wholesale costs are amplified by the high charges associated with international IP transit services, especially in landlocked countries, which are required to facilitate cross-border transfers of connectivity from coastal landing points. These high prices directly affect retail prices, which adversely affect the affordability of Internet services for consumers. Users in landlocked countries in Africa pay on average \$232 more per month for fixed broadband access than those living in coastal areas.<sup>91</sup> In many SSA countries, it still costs much more to get data to a submarine cable landing point than it does to take it the rest of the way to the United States or Europe.<sup>92</sup> The reach of the relatively new critical ICT backbone infrastructure is limited for land-locked African countries (notably Uganda, and Tanzania, among others), which face ongoing limitations in the availability of terrestrial open-access fiber networks.<sup>93</sup> This leads to relatively high retail Internet connectivity prices. For example, the average cost of 1GB of mobile broadband data around the world is about 5 percent of average monthly income, but in Africa, it costs 8.8 percent of average monthly income (compared to 3.6 percent in Latin America and 1.5 in Asia).<sup>94</sup>

There have been some improvements, however, these are isolated and not necessarily interconnected with competing networks. In terms of terrestrial backbone fiber network, the most significant recent development was that by Liquid Telecom (by far the biggest fiber network operator on the continent) in 2018 that its "One Africa" network now stretches all the way from Cape Town to Cairo. Yet, even with this network, the cost of terrestrial access has not dropped much.<sup>95</sup> Furthermore, Liquid Telecom deployed an East Africa Fiber Ring that connects five countries in the region and reaches the South Sudanese border.<sup>96</sup>

However, if the United States wanted to take a truly holistic view of helping digital development in Africa, which lends itself to greater digital trade, it should focus on key policy issues that affect the cost and availability of Internet connectivity, especially as it relates the backbone network. Key issues that the United States should focus on given their affect on broadband costs in coastal and landlock countries in SSA include: submarine cable landing fees (paid by cable owners to the transit country); landing station costs (paid by cable owners and/or internal telecom operators); transit and/or interconnection charges for landlocked countries to carry traffic across a transit country (paid by operators to infrastructure owners to carry traffic); and border interconnection costs imposed by the operators and/or regulators in the transit country (paid by transit country operators and/or operators and/or regulators in the landlocked country).

The United States should use all available trade, economic, and development assistance tools to help SSA countries, and the region as a whole, reduce the cost of Internet access given the foundational role it plays in digital economy engagement and development. There's obviously considerable room for the United States Agency for International Development to work bilaterally and via multilateral development banks to help SSA countries build ICT infrastructure and a best-practices regulatory framework. A coordinated regulatory

response is necessary to facilitate the interconnection of national networks to create seamless regional backbone networks.

From a trade policy perspective, the United States should continue making the case that SSA members should open up their services markets, join the Information Technology Agreement (and its expansion), for members to sign on and implement the commitments in the Telecoms Reference Paper, and to make the case for regulatory best-practices in managing terrestrial network connections (to ensure fair and reasonable costs, especially for landlocked countries) at the International Telecommunications Union and on a bilateral and regional basis.<sup>97</sup> As to the first two of these proposals, a total of 108 WTO members have made commitments to facilitate trade in telecommunications services. Of these, 99 members have committed to extend competition in basic telecommunications (e.g., fixed and mobile telephony, real-time data transmission, and the sale of leased-circuit capacity). A further 82 WTO members have also committed to the regulatory principles spelled out in the Telecoms Reference Paper, a blueprint for sector reform that largely reflects best practice telecoms regulation. However, showing how far the region lags behind, telecommunication commitments by SSA countries are very patchy, even though many of these countries have enacted unilateral reforms that are well beyond liberalization commitments countries have made under the General Agreement on Trade in Services (GATS).<sup>98</sup> This gap remains in place (in part) as services trade negotiations were tied up in Doha Development Round negotiations, which died some time ago.

Further, the United States should review its policy advocacy and development programs as they relate to discussions and projects at the International Telecommunications Union, the World Bank, the WTO, and at other bilateral, regional, and multilateral forums where telecommunications issues are discussed. In these, the United States should advocate for those regulatory best practices that lower cost, such as: advocating for a regulatory framework and set of decisions/rules that lower fees associated with cable landings, landing station operation/construction, interconnection and transit charges, border interconnections (e.g., developed countries often don't charge fees for these or allow high transit charges); advocating for greater telecommunications competition (as the more cables in a transit country, the more cable connections to landlocked countries); and trade and regulatory commitments that facilitate market entrance by new operators (whether foreign or domestic) and inward ICT investment.

The United States and its development partners should push relevant organizations to do more around improving transparency around sub-sea cable connections and terrestrial network connections (and pricing) as access and the cost per Mbps varies dramatically across the region. Regulators may simply be unaware of how their country stacks up in terms of national backhaul pricing. The same may be true within countries. This is not to suggest that private-sector operators should necessarily reveal their business agreements, but a basic rate card that would establish a ceiling for costs. For example, a single data point such as the price of an STM-1 (155Mbps) link across 250km would provide critical insight into the competitiveness of the market. An example of good practice exists in Botswana, where the regulator (BOCRA) publishes a public rate card for access to the national fiber optic backbone.<sup>99</sup>

Similarly, the United States should push relevant domestic and regional organizations to improve both the research material and empirical evidence related to these issues. The United States should make the case for

relevant institutions to undertake relevant policy research and to hold relevant discussions around these issues. For example, the United States should ask the World Bank to conduct research into the impact (essentially the correlation) between telecom regulatory choices in transit countries and broadband prices for neighboring landlocked countries and the impact of regulatory changes that help reduce the cost of broadband access and deployment. At the WTO, the United States should push for discussions around cross-border telecommunications services and research into the trade impacts of national telecom policy settings. At UNCTAD, the United States should seek to work with its ICT division on the issue of capacity building for relevant regulatory authorities in SSA, perhaps as part of contributions and engagement related to the Intergovernmental Expert Group on Ecommerce and the Digital Economy.

At the ITU, the United States should push for discussions among members on best-practice regulation to help reduce the cost of broadband. Many discussions around best practices for creating an enabling environment for telecommunications have largely taken place in organizations like the ITU, including the telecommunications development sector, which has continued to study issues around cost, deployment, and access for broadband and next-generation networks.<sup>100</sup> ITU work has also focused on tariff policies and tariff models for next-generation networks, convergence issues, universal access to broadband fixed and mobile services, impact analysis and application of cost and accounting principles, taking into account the results of the studies carried out by ITU-T and ITU-R, and the priorities of developing countries. Some countries, such as Burundi and Uganda, have retained ownership of some backbone infrastructure, although these networks face some private competition. More work needs to be done as, for example, a lack of competition in network ownership has ripple effects on the wholesale market prices for broadband.

## **THE STATE OF OPEN DATA**

Open data frameworks are emerging as a key complementing factor in a country's digital economy. "Open data" refers to data that is made freely available without restrictions.<sup>101</sup> Many governments have begun to embrace open data as a way to encourage transparency and accountability, increase public participation, and promote economic growth. By allowing open data, government agencies can foster data-driven innovation not only within government, but also among private-sector organizations, civil society, academia, and individuals who can make use of these data sets. The impact of releasing open data can be substantial. A 2013 McKinsey Global Institute report estimated that open data could add over \$3 trillion annually in total value to the global economy.<sup>102</sup> Without wanting to minimize the real challenges that SSA governments face in opening up data—such as conversion costs, privacy and legal concerns, internal political and institutional barriers, and other systemic concerns—it can support more readily apparent (and more traditional) economic and institutional development goals around improving governance and local economic development and innovation.

However, SSA countries' progress toward enacting broad, consistent, and reliable open data frameworks is slow overall and varied in practice (with cases of progression, but also regression, across the region).<sup>103</sup> Some governments are working toward data openness, but this remains the exception, not the rule.<sup>104</sup> In 2011, Morocco launched the continent's first open data initiative. Since then, more than 20 countries and regional and international organizations have launched open data initiatives specific to Africa. According to the Open

Data Inventory (ODIN)'s global index (of open data regimes for national statistical offices), Rwanda, Mauritius, South Africa, Botswana, Sierra Leone, and Senegal (in that order) are all leaders in Africa. However, at the global level, Rwanda ranks 38th while Mauritius ranks 40th, which shows the room for progress.<sup>105</sup> This is not surprising, given that countries around the world—developed and developing—are at various stages of enacting open data regimes.

Recent analysis of open data in Africa shows the varied levels of open data development in SSA. The status and development of open data in Africa can be derived from two major global initiatives: the Africa Open Data Index (AODI) by Open Knowledge International and the Open Data Barometer (ODB) by the World Wide Web Foundation. The Open Data Barometer African Edition (which assessed 29 countries in Africa by 420 key data sets, including budgets, election results, agricultural data, health statistics, geographic information, national laws, etc) reveals a few key statistics:

- Of the 30 countries analyzed, roughly one fourth (23 percent) of all key datasets (420 in total) are not available online at all.
- Only 6 percent of all data (28 out of 420 datasets) is openly licensed (open licenses must allow anyone to use data for any purpose). Open license terms are used by statistical offices in Botswana, Senegal, Rwanda, and Somalia, as well as open data portals in Cote d'Ivoire, Eritrea, Kenya, and Mauritius.
- Only 14.5 percent of all data (61 datasets) is provided in at least one machine-readable format. The usual ways of publishing data are via websites (embedded in HTML, or provided as images), or in PDFs.
- Timeliness is a major challenge. The Open Knowledge International's Africa Open Data Index (AODI) found that only one-third of all the assessed data is provided in a timely manner. Roughly three out of four countries publish budgets (80 percent of the countries sampled), national laws (73 percent of all countries), and procurement information (70 percent of all countries) that is not older than one year. Half of all countries publish updated elections data and 47 percent keep their company registers updated. All other data categories are updated by a small percentage of the assessed countries.<sup>106</sup>

In SSA, most governments still lack comprehensive guidelines, technical standards, and management procedures for open data frameworks. Often, government-wide open data policies are only considered once open data initiatives have already been operating for some time. Data portals from National Statistics Offices (NSOs) remain the most frequent and reliable data sources available in SSA countries. However, although NSO's are the main source of data, they are rarely the host of the portal, which instead is hosted by technology and communications ministries or ministries of finance. There are also sectoral pilot initiatives by different government agencies to promote the release of particular government data online. For example, the Extractives Industry Transparency Initiative (EITI, which includes many African member countries).<sup>107</sup>



Overall, open data is often seen as a secondary priority for policymakers in SSA, separate from other development issues, such as physical infrastructure.<sup>108</sup> Contributing to the current situation is that advocates of open data in SSA are dealing with state-driven cultures within which it is considered sufficient to have public institutions alone responsible for control and monitoring of executive functions.<sup>109</sup> The role and availability of open data at a regional level could be supported and built upon by enacting standardized approaches to data collection, formatting, and publication, such as through harmonized data classification policy (i.e., best practices), which are apparently being developed by the African Development Bank.

However, what this means is that many governments in SSA require external support to start open data initiatives. Unfortunately, there is no clear leader in the region for other neighbors to use as a reference point and source of local expertise. At various stages of time, Ghana, Kenya, Nigeria, South Africa, Tanzania and Burkina Faso have made significant steps towards becoming a regional leadership role on open data, but progress has either stalled or reversed over time.<sup>110</sup> What this means is that SSA countries generally have to go to international forums for advice and assistance, especially to the Open Government Partnership (OGP), the International Open Data Charter, or the Global Open Data for Agriculture and Nutrition network (GODAN).

This is both good and bad. SSA member countries have enacted open data frameworks after signing onto the OGP, which is an international organization promoting more open, effective, and accountable government.<sup>111</sup> OGP members from SSA include: Burkina Faso, Côte d'Ivoire, Ghana, Kenya, Malawi, Nigeria, Sierra Leone, and South Africa.<sup>112</sup> Tanzania withdrew in June 2017. Separate, but related, is that Burkina Faso, Uganda, and Sierra Leone have all undergone World Bank Open Data Readiness Assessments (ODRA) to help them consider and develop their own approaches to open data.<sup>113</sup> However, this dependency on external advice and resources means that many open data initiatives are discontinued when external resources are no longer available (this has happened in Ghana (on two occasions) and also in Kenya). For example, while government-run open data teams are becoming more frequent (such as in Burkina Faso and Mauritius), these rarely have the human and budgetary resources to be sustainable over the long term and are generally too dependent on external development resources.<sup>114</sup> What this suggests is that externally funded open data initiatives need to increase their focus on local capacity-building within governments, with a focus on institutionalizing open data processes.<sup>115</sup>

Besides government-related open data initiatives, other open datasets are being created or curated or supported by different stakeholders in the data ecosystem in SSA, including national, state, and local governments, supra-national institutions (United Nations agencies, the World Bank, the African Development Bank), NGOs, private firms (e.g., Uber releasing traffic data for Cairo, Johannesburg, Pretoria, and Nairobi and Orange releasing cell usage data), academia (e.g., OpenAIR), and citizen crowd-sourced data.<sup>116</sup> Private sector engagement in developing and creating open data frameworks is very low compared to other global regions.<sup>117</sup> However, there are examples of private sector firms helping provide data-driven insights that support innovation across a wide range of sectors, which is in turn helping address various socioeconomic issues, such as aWhere and Medafrica using open data to help smallholder farmers increase their yields or improve access to health information.

## **LOOKING AHEAD: TOWARD A MORE INTEGRATED AFRICAN DIGITAL ECONOMY**

Efforts to encourage SSA countries to implement the building blocks required for a stronger and more integrated digital economy are already underway, but progress has been slow and varied.<sup>118</sup> For example, in 2014, African Union member countries adopted the Convention on Cyber Security and Personal Data Protection to reinforce member states' legislation and require members to establish legal, policy, and regulatory measures related to cybersecurity governance, electronic transactions, and personal data protection.<sup>119</sup> However, only 14 member countries have signed on, with 5 states ratifying the agreement.<sup>120</sup> Nigeria is one of the countries that has yet to sign and ratify the agreement. Furthermore, the Convention's regional monitoring mechanism has not yet been formally established.<sup>121</sup> The United Nations Economic Commission for Africa is also working with the African Union (AU) Commission on a digital identity platform for Africa.<sup>122</sup>

At the sub-region level, the Economic Community of West African States (ECOWAS, which includes Nigeria and 14 other countries) has started the process (also with uneven progress) of harmonizing relevant digital laws, such as on electronic transactions, personal data, and cybercrime. As a member of ECOWAS, Nigeria is bound by its Supplementary Act on Personal Data Protection Within ECOWAS (2010), which is the only binding data protection agreement in force in Africa. On January 25, 2019, Nigeria's National Information Technology Development Agency issued the Nigeria Data Protection Regulation 2019, which makes it the 10th ECOWAS member to comply with this obligation.<sup>123</sup> This is welcome progress that fills one of the gaps highlighted in the 2015 joint UNCTAD and ECOWAS review of the region's efforts to harmonize e-commerce legislation. This review also showed that Nigeria and other members have made some progress on some issues, but that significant gaps remain and that members need to step up regional cooperation and seek out additional capacity-building assistance.<sup>124</sup> Related to these efforts to have members enact harmonized e-transaction laws is work by Afreximbank, which only recently launched the Pan-African Payment and Settlement Platform (PAPSP), which is the first continent-wide digital payment system focused on facilitating payments for goods and services in intra-African trade in African currencies, with a goal of helping lower transaction costs and facilitating cross-border trade.<sup>125</sup>

Most encouraging, from a regional integration perspective, is the recently concluded African Continental Free Trade Area (AfCFTA), which represents a major step in the right direction in terms of removing traditional barriers to trade in goods within the region. UNCTAD estimates that reducing intra-African tariffs under AfCFTA "could bring \$3.6 billion in welfare gains to the continent through a boost in production and cheaper goods."<sup>126</sup> The closest AfCFTA gets to digital issues is its aim to progressively eliminate barriers to intra-African trade in services.<sup>127</sup> It therefore provides a potential platform for the region, and countries and sub-regions within it, to work toward building a more integrated digital economy by enacting laws and regulations that ensure the free flow of data and digital goods and services. This would follow similar initiatives to build regional economies of scale among Pacific Alliance countries (Chile, Mexico, Peru, and Colombia) in Latin America and the 11 Asia-Pacific countries in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (but not the closed and heavily regulated European Union, which removes some barriers while enacting others). Such regional integration can take place via specific digital trade chapters of trade agreements, but also outside such arrangements, such as via domestic and regional efforts to build better, interoperable payment systems, data privacy, electronic signature, digital ID, and cybersecurity

frameworks (as outlined above). An African digital trade initiative would obviously not be easy, given how hard it has been to address traditional barriers to trade in AfCFTA, but there may be an opportunity for progress given that these barriers and technologies are relatively new and countries have not yet enacted many of the (worst) barriers that some countries in other regions have done, such as India in South Asia, Indonesia in South East Asia, and China in East Asia.<sup>128</sup>

## **LOOKING AHEAD: GLOBAL DIGITAL TRADE**

The United States has a few key partners in SSA to work with on efforts to set new digital trade rules at the global level. A few SSA countries—Cote d’Ivoire, Benin, Kenya, and Nigeria—have recognized the need to engage with dozens of others countries to discuss and negotiate new e-commerce and digital trade rules at the WTO.<sup>129</sup> This builds on their collective membership of the WTO subgroup of developing countries—the so called “friends of e-commerce for development”—that share a common understanding of the positive impact of e-commerce and its versatility to create sustainable economic opportunities for all.<sup>130</sup> In joining WTO talks, Nigeria and the other countries listed above defied their neighbors in the African Group (which includes Egypt, South Africa, and 41 other countries), who oppose negotiations because they want to enact duties on digital products and other protectionist barriers as part of “digital industrial development,” which is akin to the tried-and-failed use of tariffs and infant industry policies of the last century.<sup>131</sup> Nigeria’s chief trade negotiator Chiedu Osakwe gets to the heart of why Nigeria (and the others) are right to engage at WTO negotiations: “The emergence of e-commerce is the product of fast-paced changes in technology that have presented Africa with the gift of opportunity. Maximizing its potential will depend on how the continent responds. Not engaging would be a mistake.”<sup>132</sup> In parallel WTO talks, the United States, through USTR and USAID and other agencies, should work with willing partners like Nigeria on how to help them engage local stakeholders (local firms and trade associations, government regulatory agencies, and others) about digital trade and barriers to it, the impact of barriers, policies that address data-related concerns domestically without acting as a barrier to data flows and digital trade, and how these all relate to WTO negotiations and their aims to implement new rules to prohibit barriers to digital trade.

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