

## ISSUE BRIEF

APRIL 2021

# Partnering for Africa's Digital Future: Opportunities for the United States, South Korea, and India

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Technological competition between the United States and China poses a special dilemma for African nations, whose prosperity depends on doing business with both Beijing and Washington. Although President Joe Biden is expected to assume a softer policy stance toward China—one couched in the language of human rights and liberal values, rather than power and strategic capabilities—competition will persist, driven by Beijing's ambition to control the key technologies of the future.

Rising US-China tensions may eventually force African nations to take sides. Speaking at the 2020 Munich Security Conference, then-US Defense Secretary Mark Esper warned allied nations that the use of Chinese company Huawei's fifth-generation (5G) technology could compromise future intelligence cooperation with the United States. That's a real problem for Africa because, together, Huawei and Chinese phone maker ZTE have built nearly 80 percent of Africa's third-generation (3G) network infrastructure, while Huawei has built 70 percent of all fourth-generation (4G) networks and is competing to build all the future 5G networks in Africa.<sup>1</sup> Chinese mobile-phone maker Transsion Holdings controls 64 percent of Africa's feature phone market, and more than 40 percent of its smartphone market, and social media platforms such as TikTok and Vskit are fast becoming popular among Africa's connected youth.<sup>2</sup> For African leaders, disassociation from Beijing is becoming less and less feasible—or attractive.

So too is closer alignment with the United States. Washington simply cannot match the large volumes of funding that Beijing extends to the continent.

The mission of the Atlantic Council's Africa Center is to promote dynamic geopolitical partnerships with African states and to redirect US and European policy priorities toward strengthening security and bolstering growth and prosperity on the continent.

1 Abdi Latif Dahir, "The African Union is Doubling Down on Deepening Its Relationship with Huawei," *Quartz Africa*, May 31, 2019, <https://qz.com/africa/1632111/huawei-african-union-sign-deal-to-boost-5g-ai-cloud-computing/>.

2 Andrew Deck, "Africa's Phone Phenom: Your Guide to Transsion," *Rest of World*, June 23, 2020, <https://restofworld.org/2020/transsion-from-china-to-africa>. Vskit is a video-based platform developed by Trassnet, a joint venture between China's NetEase and Transsion.



A man uses his cell phone to launch the Sportpesa online sports betting link along the streets of Nairobi, Kenya. Photo credit: Reuters/Thomas Mukoya.

Recent conduct by leading US technology companies, including by Facebook and Google following the 2020 US presidential election, has additionally prompted a global pushback against US “big tech” that could make it harder for the US public and private sectors to compete and hold sway in African markets.

Fortunately, there is a third way, both for African countries looking to avoid the crossfires of US-China competition, and for US policymakers seeking to bolster US competitiveness and influence in the region. The solution hinges on closer cooperation with emerging powers, notably South Korea and India, which have recently demonstrated their determination to better understand Africa's challenges and prospects, and to figure out how their citizens could collaborate with African businesses and governments. For example, in his 2018 address to Uganda's parliament, Indian Prime Minister Narendra Modi outlined “ten guiding principles for India-Africa engagement” that center on cooperation in digitalization, clean-energy technologies, and cybersecurity—a marked detour from the policies that have historically shaped India-Africa ties. South Korea-Africa relations under President Moon Jae-In have also entered a new phase, with an emphasis on commercial linkages and people-to-people collaboration. Both South Korea and India are rapidly expanding their technological capabilities,

and their foreign policies also align well with US interests in the region, and vis-à-vis China.

For Washington, cooperation with these emerging powers could keep the door open to US influence in Africa, and could help ensure that Beijing's strategic foothold in the continent does not deepen. For African countries, such partnerships could help bypass the “either-or-ism” implicit in US-China competition, while encouraging greater diversity and agency in their foreign affairs. There is real opportunity for African states to realize the potential that such alliances could create, and to become significant multilateral actors, able to leverage their distinct assets and pursue their own interests. This report explores how.

## Emerging Powers, Emerging Technology Partners

### South Korea

South Korea is in the process of defining its policies toward the African region and assessing where it fits into Africa's existing network of both traditional and new partners.<sup>3</sup> The second Seoul Dialogue on Africa, held in 2019, was a key early initiative in President Moon Jae-In's approach, and signaled both Seoul's commitment to increasing its engagement with its African counterparts and a preference for deepened collaboration with the United States. Moon has, overall, been slow in developing his Africa policy, though officials from his government have made multiple trips to the continent. However, if the Seoul Dialogue is any indication, Moon is now approaching Africa with a focus on youth, technology, and entrepreneurship.<sup>4</sup>

South Korea started to renew its ties with Africa under President Roh Moo-Hyun (2003–2008), who was the first South Korean president to visit the region in twenty-four years. Lee Myung-Bak and Park Geun-Hye, Moo-Hyun's immediate successors, followed suit with their own travels; their policies largely centered around Africa's economic development and countering the North Korean threat.<sup>5</sup> Yet, the Moon administration does not appear to view Africa as a venue for competition with its northern neighbor, and is instead focused on entrenching Seoul's cultural influence

3 Emilia Columbo, “South Korea's Evolving Role in Sub-Saharan Africa,” Center for Strategic and International Studies, January 2, 2020, <https://www.csis.org/analysis/south-koreas-evolving-role-sub-saharan-africa>.

4 Ibid.

5 Ibid.

in the region and forging long-term bilateral and multilateral ties. As a middle power that lacks the economic and military clout of either China or the United States, Seoul leans on soft-power resources for influence. Since the 1990s, its creative industries—pop music (K-pop), television, film, and video games—have gained global popularity with support, but not direction, from the government. This has allowed Seoul to carve out strategic diplomatic and multilateral spaces of influence.

South Korea seems to be pursuing a similar strategy in Africa. Youth camps hosted by the Korea-Africa Foundation, an arm of the Korean Foreign Ministry, provide support for African youth and forge early ties with people who could emerge as Africa's industry and political leaders.<sup>6</sup> The camp held in Seoul in 2019 hosted forty teenage students from South Korea and twelve African countries, including Ethiopia, Ghana, Nigeria, Uganda, Sudan, Zimbabwe, and Rwanda. Among the activities were a visit to a K-pop museum, taekwondo demonstrations, and education in information and communication technology (ICT) and agrobiotechnology.<sup>7</sup> The Korea-Africa Youth Forum held ahead of the 2019 Seoul Dialogue also provided discussions on African startups and an opportunity for young African and South Korean entrepreneurs to network.<sup>8</sup>

"South Korea has a compelling story to tell," Joseph Nye has argued, as "in 1960, it had approximately the same level of economic wealth as Ghana, one of the more prosperous of the newly independent countries in Africa," but by 2010 had grown to the world's eleventh-largest economy, a story undoubtably attractive to many developing African economies.<sup>9</sup> It transitioned to democracy in 1987 after decades of authoritarian rule, and has become a cultural and technological powerhouse. South Korean tech companies such as Samsung, Hyundai, and LG Electronics are global household names. Unlike China's binary worldview of itself versus the rest of the world, South Korea provides an alternate model of what a twenty-first century Asian country can look like: an advanced economy mixed

with an ancient civilization that is at once democratic, technologically innovative, and culturally vibrant. Thus, Seoul's deepening engagement with Africa presents an alternative to Beijing's authoritarian political and economic model, and could open the door to constructive influence in the region. African countries could consider more proactive engagement with Seoul and comprehensive exchanges centered on expanding Africa's creative and technology industries. Fruitful collaboration on the COVID-19 response in Africa has provided an opening.<sup>10</sup>

The Biden administration could also consider deepening collaboration with Seoul on its soft-power strategies. Specifically, it could consider coalition building to boost South Korean and US investments in African creative industries, connecting creators, policymakers, and investors. Africa's video-game industry is an especially rapidly growing market, and the video-game sector is one in which South Korean companies are global leaders. Support for African creative industries could counterbalance Beijing's influence and help Washington hold sway in the region. There is also opportunity to cooperate on digital-infrastructure creation, in an effort to loosen Beijing's grip on the sector.

### *Creating Digital Infrastructure*

Despite Beijing's dominance in Africa's digital industries, the Moon administration, in concert with the Biden-Kamala Harris administration, has the opportunity to leverage its own experiences in the digital economy to work with African countries to create the necessary infrastructure to support this sector. South Korea is a leader in 5G. It was the first country to deploy 5G and leads the world in coverage.<sup>11</sup> In 2020, the Moon administration introduced the "Digital New Deal," through which it hopes to continue to build on its lead. The "Digital New Deal" allocates \$541 million to promote industrial convergence between 5G and artificial intelligence (AI), and an additional \$41 million to build 5G and cloud computing for the government.<sup>12</sup> It also sets am-

6 Emilia Columbo, "South Korea's Evolving Role in Sub-Saharan Africa."

7 Yi Whan-Woo, "Korea, Africa Jointly Organize Inaugural Youth Camp," *Korea Times*, August 12, 2020, [https://www.koreatimes.co.kr/www/nation/2020/08/176\\_273661.html](https://www.koreatimes.co.kr/www/nation/2020/08/176_273661.html).

8 Ibid.

9 Joseph S. Nye, "South Korea's Growing Soft Power," *Daily Times*, November 11, 2009, <https://www.belfercenter.org/publication/south-koreas-growing-soft-power>.

10 R. Maxwell Bone and Matthew Minsoo Kim, "South Korea's Response to Covid-19 in Africa," *Diplomat*, April 15, 2020, <https://thediplomat.com/2020/04/south-koreas-response-to-covid-19-in-africa/>.

11 "The State of 5G Developments," VIAVI Solutions, February 2020, <https://www.viavisolutions.com/en-us/literature/state-5g-deployments-2020-posters-en.pdf>.

12 "3rd Supplementary Budget Proposal of 2020," Republic of Korea, Ministry of Economy and Finance, June 3, 2020.



President Kagame welcomes Prime Minister Modi of India for his first State Visit to Rwanda in July 2018. *Photo credit: Flickr/Paul Kagame.*

bitious targets for adoption of electric and hydrogen-powered vehicles, as well as job creation. The United States and Africa should recognize the opportunities this policy provides for collaboration.

In 2018, the US Overseas Private Investment Corporation (OPIC) launched its “Connect Africa” initiative, which invested more than \$1 billion in projects that support communications, value chains, and transportation in Africa. The Better Utilization of Investment Leading to Development (BUILD) Act, passed the same year, formed a US International Development Finance Corporation (DFC) with a spending cap of \$60 billion for emerging-market infrastructure projects in low-to-middle-income countries. Last

June, the US Trade and Development Agency (USTDA) announced its “Access Africa” initiative to support the development of quality ICT infrastructure in sub-Saharan Africa. These efforts could facilitate cooperation on shared US-South Korean-African projects as network infrastructure, AI adoption and norm setting, and clean-energy solutions.

South Korea’s largest telecommunications company, KT Corporation, is already an active player in some of Africa’s digital economies. Working in a joint venture with the Rwandan government, between 2013–2017 KT constructed Rwanda’s entire 4G long-term-evolution (LTE) network, which has expanded high-speed wireless services to 95 percent of the country’s roughly twelve million citizens.<sup>13</sup>

<sup>13</sup> Bob Koigi, “KT Completes Construction of Nationwide LTE Network in Rwanda,” *Africa Tech*, May 15, 2018, <https://africabusinesscommunities.com/tech/tech-news/kt-completes-nationwide-lte-network-in-rwanda/>.



KT is building 4G networks in Botswana and Gabon, and has market presence in Tanzania, Angola, Botswana, South Africa, Sierra Leone, Ghana, and Liberia. In Tanzania, KT together with Samsung established a digital national-identification system. The \$47-million project was commissioned by Tanzania's National Identification Authority and consists of a data center, a backup center, regional registration offices, a biometric identification and management system, and a network-control system.<sup>14</sup> While not without controversy, such digital ID systems could provide legal identification to all Tanzanian citizens, with the potential to extend basic goods and services and drive socioeconomic development.

Still, it will be a challenge for South Korea to compete directly with China in digital-infrastructure creation. Seoul could consider its activities as part of its broader Africa strategy, and as an enabler for the market entry of South Korean film, television, and video games in the region. African governments could also consider digital partnerships with South Korea as a way to diversify their technological reliance away from Beijing and exercise greater agency over their affairs.

### *Video Games and Korean Soft Power*

As a middle power sandwiched between some of the world's most powerful states, Seoul has, at times, relied on its soft-power influence to achieve its foreign policy aims. South Korea ranks fourteenth out of sixty countries in Brand Finance's "Global Soft Power Index," and nineteenth of thirty in the University of Southern California's 2019 "Soft Power 30" index.<sup>15</sup> Its global standing has, in recent months, been helped by its laudable handling of the COVID-19 pandemic, and Seoul appears eager to seize the moment and convert the attractiveness of Korean culture into true soft power. Last year, South Korea's Culture Ministry announced initiatives intended to further promote the country's creative industries, including eased regulations, increased subsidies for creative companies, and support for video-game companies expanding overseas.<sup>16</sup> African public and private actors could recognize the opportunities these incentives

create for collaboration between South Korean and African creative industries, including Africa's growing video-game market. Washington could also realize the strategic soft-power importance of video games and provide support to South Korean and African gaming companies through a combination of educational exchanges, regulatory guidance, and financing. This could unlock opportunities for US companies in a booming market, and position Washington to influence narratives about diplomatic issues such as human rights, democracy, and the West for decades to come.

Games are especially potent soft-power instruments, as they reflect the social systems in which they are embedded. Conventional games—such as checkers, Risk, and even musical chairs—draw on various aspects of culture, art, history, and science, and establish relations between them to tell a story. Stories are integral to video games. They create for players an immersive experience in which players themselves become part of the narrative. For example, the popular video game *Tomb Raider*, created by English game developer Core Design, tells the tale of a girl named Lara in search of a lost kingdom. During her voyage, her ship sinks and she finds herself shipwrecked on an island and captured in a tomb. She must find her way to freedom. Lara is portrayed as an intelligent and strong English archaeologist of aristocratic upbringing; her persona was intended to counter stereotypical female characters dominant at the time.

Beijing has long lamented that Western narratives dominate global discourse. A 2017 *China Daily* article observed that the majority of video games in China "were European or US products, based on Western legends or history [with characters as] Zeus and Medusa, both based on Greek mythological characters."<sup>17</sup> Games created by Chinese developers and published by Chinese platforms, such as NetEase and the technology conglomerate Tencent, can now "inspire" Westerners "to learn about Chinese history and legends." The well-received game *Genshin Impact*, released last year, is predicated on Chinese legends, and employs Chinese names including "Zhongli" and "Liuye Qixing." It has come under scrutiny for censoring terms

14 "KT Corp Delivers New Digital Identification System for Tanzania," *AfricaBiz*, July 29, 2018, <https://www.africabiz.link/africa-tender-business-news/Tanzania-United-Republic-Of/149438-KT-Corp-Delivers-New-Digital-Identification-System-for-Tanzania.html>.

15 "Global Soft Power Index 2020," Brand Finance, <https://brandirectory.com/globalsoftpower/>; "The Soft Power 30: A Global Ranking of Soft Power," University of Southern California Center on Public Diplomacy, 2019, <https://softpower30.com/wp-content/uploads/2019/10/The-Soft-Power-30-Report-2019-1.pdf>.

16 Song Seung-Hyun, "Korea to Relax Regulations on Game Industry to Lead Global Market," *Korea Herald*, May 7, 2020, <http://www.koreaherald.com/view.php?ud=20200507000819>.

17 Zhang Zhouxiang, "King of Glory Can Help Promote China's Soft Power," *China Daily Europe*, August 27, 2017, [http://www.chinadaily.com.cn/kindle/2017-08/27/content\\_31182956.htm](http://www.chinadaily.com.cn/kindle/2017-08/27/content_31182956.htm).



Rwanda's delegation to the Global Green Growth Institute (GGGI)'s Global Green Growth Week in Jeju, South Korea in September 2016, led by Rwanda's Ambassador to South Korea, Emma Francoise Isumbingabo. During Global Green Growth Week, Rwanda shared its climate resilience efforts with the world and built new partnerships for its green growth plans, including the green city pilot project. *Photo credit: Flickr/Rwanda Green Fund.*

such as “Taiwan,” “Hong Kong,” “Falun Gong,” and “Putin” in its in-game chat function.<sup>18</sup> For Beijing, video games are another tool through which to advance its worldview. Tencent Games, an offspring of Tencent, is the biggest video-game company in the world. It has stakes in multiple US and foreign gaming companies, and a notable and growing presence in Africa's gaming industry.

While still nascent, Africa's gaming sector is ripe for growth—propelled by a low cost to play, a youthful population, and a high penetration of mobile devices in the region. Games played on smartphones, rather than through the Internet, have become globally popular. In 2019, the mobile-gaming market generated \$69 billion in revenues and accounted for 45 percent of the total gaming market.<sup>19</sup> Two of Africa's largest mobile-gaming markets, Nigeria and South Africa, are expected to grow 13.2 percent and 23 percent, respec-

<sup>18</sup> Helen Davidson, “Genshin Impact Players Say Chinese Game Censors ‘Taiwan’ and ‘Hong Kong’ Chat,” *Guardian*, October 8, 2020, <https://www.theguardian.com/world/2020/oct/08/genshin-impact-players-say-chinese-game-censors-taiwan-and-hong-kong-chat>.

<sup>19</sup> Katie Jones, “Online Gaming: The Rise of a Multi-Billion Dollar Industry,” *Visual Capitalist*, July 15, 2020, <https://www.visualcapitalist.com/online-gaming-the-rise-of-a-multi-billion-dollar-industry/>.

tively, from 2019 to 2023.<sup>20</sup> In 2018, Kenya's video-game market was valued at \$83 million, and is projected to rise to \$153 million by 2023.<sup>21</sup> It could be a mistake to allow China to become dominant in this sector; doing so could expose African countries to Chinese political censorship and possible security risks. Data harvested from games could be exploited more easily than from social media apps like TikTok and WeChat: in most cases, gamers must provide their real names, dates of birth, payment information, and locations, and they create constant voice samples using in-game chats. For Washington, Beijing's leverage over African gaming markets could erase the United States' cultural influence in the region. Beijing is also active in African music, film, and television.

South Korea's gaming industry could be a counterbalance. The South Korean gaming industry is large, with revenues expected to reach \$6.1 billion this year, and it is uniquely embedded in South Korean mass culture.<sup>22</sup> Competitive gaming, including the lucrative eSports market, is especially popular. Massive multiplayer games such as *Guild Wars* and *Lineage*—both developed by South Korean gaming company NCSoft—and *MapleStory*, developed by South Korea's Nexon, are well liked in African countries where the gaming market is rapidly expanding, including South Africa, Nigeria, Kenya, and Ghana. Such multiplayer games often involve hundreds or thousands of players playing simultaneously. They could be compared to global online communities with potential to foster meaningful interactions and people-to-people ties. Strong people-to-people and culture-to-culture ties could boost South Korean and African bilateral and multilateral relations in other diplomatic spaces. Seoul could, therefore, consider providing its gaming companies with resources to expand to African markets in particular. Nexon, NCSoft, and Netmarble, South Korea's largest mobile gaming company, are already established market entities in parts of the region.

African governments and gaming startups could also consider closer collaboration with their South Korean counter-

parts to facilitate the expansion of African gaming sectors. Doing so could contribute to solving Africa's job-creation and youth-unemployment challenges, and could further propel the continent's creative industries on the international stage. Such partnerships could take many forms: South Korean companies could invest in gaming startups; South Korea's Culture Ministry could work with African development finance institutions and governments to advance regulatory reform that supports intellectual-property and data-privacy enforcements; and a consortium of South Korean funds, African banks, and gaming companies could facilitate financial partnerships and educational exchanges. Through initiatives such as "Prosper Africa," Washington and the US private sector could also consider participating in such arrangements. Doing so could enable US companies to establish a foothold in a fast-moving market that speaks directly to millions of young, connected Africans. It could also provide a meaningful alternative to Beijing's soft-power push across the continent.

## India

Despite a protracted history of engagement with the continent, the India-Africa relationship is yet to achieve its full potential. Until very recently, the Indian government did not have a clear, long-term strategy for its relations with the region. Prime Minister Modi's "ten principles" have since reinvigorated ties with many African countries, with an emphasis on industry, technology, security and intelligence cooperation, and financial inclusion. In Zambia, for instance, India is helping to establish business incubators for technology startups.<sup>23</sup> India's ties with Zimbabwe increasingly center on anti-terrorism and defense cooperation.<sup>24</sup> In its relations with Uganda, New Delhi is focusing on energy infrastructure and technology applications for agriculture.<sup>25</sup>

India is now pursuing a diversified approach to its Africa policy, and steadily emerging as a credible alternative to Beijing across industries. Itself still a developing nation in

20 "Insights from the Entertainment & Media Outlook: 2019-2023, An African Perspective," PricewaterhouseCoopers, October 2019, <https://www.pwc.co.za/en/assets/pdf/entertainment-and-media-outlook-2019-2023.pdf>.

21 "Value of the Video Games Market in Kenya from 2014 to 2023," Statista, January 29, 2021, <https://www.statista.com/statistics/1067753/kenya-video-games-market-value/>.

22 "Video Games: South Korea," Statista, <https://www.statista.com/outlook/203/125/video-games/south-korea>.

23 "India, Zambia, Sign 6 Pacts; Strengthen Cooperation in Defence, Mineral Resources," Press Trust of India, August 21, 2019, <https://www.thehindubusinessline.com/news/national/india-zambia-sign-6-pacts-strengthen-cooperation-in-defence-mineral-resources/article29212686.ece>.

24 "India, Zimbabwe Agree to Strengthen Existing Areas of Cooperation," Asian News International, November 4, 2018, [https://www.business-standard.com/article/news-ani/india-zimbabwe-agree-to-strengthen-existing-areas-of-cooperation-118110400630\\_1.html](https://www.business-standard.com/article/news-ani/india-zimbabwe-agree-to-strengthen-existing-areas-of-cooperation-118110400630_1.html).

25 "India, Uganda Agree to Boost Economic, Defence Cooperation," Press Trust of India, July 24, 2018, <https://economictimes.indiatimes.com/news/politics-and-nation/india-uganda-agree-to-boost-economic-defence-cooperation/articleshow/65122056.cms?from=mdr>.

many ways, India depends on African states for its economic development and support for its regional and global ambitions. Exchanges between Indian and African tech hubs, for instance, could enable greater African agency and fuel African startups through investment and shared learnings. They could also create a market for Indian tech products and services. As India develops its capabilities in advanced technologies like satellite communications and artificial intelligence, it could partner with African states including Ethiopia, Ghana, Kenya, Nigeria, Rwanda, and South Africa—all of which have successfully launched satellites into orbit and are expanding their technological capabilities in other areas. Here, the United States could also emerge as an ally for India and African states engaged in the space race, in which China is also advancing its presence.

On matters of technological development and norms, the United States and India are now more aligned than they were even one year ago. Under Modi's "AatmaNirbhar Bharat" ("Self-Reliant India") policy, New Delhi is pursuing a vision of technological self-reliance and techno-nationalism that is rooted in notions of indigenized capabilities, state sovereignty, and a globally free and open Internet. These ideas reflect Washington's focus on national security, democracy, and technology.

In January, India permanently banned fifty-nine Chinese mobile apps, including TikTok and WeChat, and is taking steps to sideline Chinese communications vendors in the Indian market. These developments potentially hand the Biden administration the chance to provoke conversations about 5G, cybersecurity, and other supply-chain issues. Despite the growing popularity of Chinese apps with Africa's urban youth, there is also growing concern among some African public and private leaders over Beijing's surveillance and political-warfare tactics, and its growing monopoly over the continent's critical digital infrastructures. The United States, India, and African states could consider coalition building on policies to mitigate Chinese surveillance risks, encourage homegrown technology solutions, and cooperate in the critical space race.

### *Encouraging African Technology Ecosystems, Decentralized Solutions*

Technology ecosystems across Africa have experienced incredible growth over the past few years, boosted by a torrent of venture funds, development finance, corporate investment, and fast-growing, innovative communities. From 2018 to 2020, the number of tech hubs in Africa increased by more than 25 percent, from four hundred and forty-two to more than six hundred.<sup>26</sup> Most hubs are concentrated in Nigeria (ninety), followed by South Africa (seventy-eight), Egypt (fifty-six), and Kenya (fifty).<sup>27</sup> Most are either business incubators—providing mentorship, business services, and financing—or innovation hubs like CcHub in Nigeria and Kenya's iHub, which foster connections among entrepreneurs.

While hubs vary in structure and services, they are generally essential for Africa's economic development, championing "African solutions for African problems." IceAddis in Addis Ababa—one of Ethiopia's first tech hubs, founded in 2011—fosters development of Ethiopia's ICT ecosystem. The hub offers co-working space with Internet access for entrepreneurs, and runs accelerator bootcamps that have graduated more than forty ventures.<sup>28</sup> MoSera, for instance, is a mobile-based platform that connects employers and jobseekers in the Ethiopian market. DUKA, an interior-design company, provides mobile design and visualization services. iCog Labs—an AI and robotics research lab—helped develop "Sophia," the world's first humanoid robot, and launched the SingularityNET, the world's first decentralized AI network based on blockchain technology.

Decentralized AI is considered the next significant advancement in artificial intelligence. It democratizes access to complex computing models, which are currently concentrated in a handful of parties, and enables collaboration, potentially spurring localized, blockchain-driven business-model innovation. Consider, for instance, a decentralized social media platform in which users are financially rewarded for posting on the platform, and can permanently save and remove their content. Or a land registry that is fixed and timestamped. Such solutions "can bring transparency to opaque or corrupt systems, and verifiability and immuta-

26 Emilia Columbo, "Leveraging Africa's Technology Boom to Protect US Interests," *Lawfare*, April 7, 2020, <https://www.lawfareblog.com/leveraging-africas-technology-boom-protect-us-interests#:~:text=In%20the%20past%20two%20years,more%20than%20600%20in%202020>.

27 Jordan Smith, "Why Companies Like Microsoft and Google are Betting Big on Africa," *CNBC*, March 7, 2020, <https://www.cnbc.com/2020/03/06/why-companies-like-microsoft-and-google-are-betting-big-on-africa.html>.

28 Jake Bright, "Ethiopia's Bid to Become an African Startup Hub Hinges on Connectivity," *Tech Crunch*, June 21, 2019, <https://techcrunch.com/2019/06/20/ethiopias-bid-to-become-an-african-startup-hub-hinges-on-connectivity/>.





Children spend time playing video games together in Kinshasa, Democratic Republic of the Congo. *Photo credit: Flickr/Tomas/Coco Makanda*

bility to commercial processes,” according to the United Nations Development Programme.<sup>29</sup> They also begin to address the issue of sovereignty—including self-sovereign identity—giving individuals control over their personal data, a matter of critical importance in many parts of Africa where data-privacy regulations are weak or nonexistent.

As part of the “AatmaNirbhar Bharat” strategy, India’s government is encouraging this kind of “decentralized system,

where economic entities are expected to be self-reliant,” bound by a “generalized system of social trust.”<sup>30</sup> Modi especially emphasizes the centrality of Indian entrepreneurship and technology-driven innovation, also through foreign partnerships. Here, there could be opportunity for cooperation and mutual learning between Indian and African entrepreneurs. India boasts more than thirty thousand startups and two hundred and fifty incubators.<sup>31</sup> The city of Bengaluru has the third-largest startup environment

29 “The Future Is Decentralized: Block Chains, Distributed Ledgers, and the Future of Sustainable Development,” United Nations Development Programme, March 2, 2018, <https://www.undp.org/content/undp/en/home/librarypage/corporate/the-future-is-decentralised.html>.

30 As quoted in “Aatmanirbhar Bharat Not About Import Substitution; Here’s What the Modi’s Self-Reliant India Means,” *Financial Express*, June 6, 2020, <https://www.financialexpress.com/economy/atmanirbhar-bharat-not-about-import-substitution-heres-what-the-modis-self-reliant-india-means/1983347/>.

31 R. Ramanan, “Powering Aatmanirbhar Bharat through Innovation and Entrepreneurship,” Government of India, NITI Aayog, July 27, 2020, <https://niti.gov.in/powering-aatmanirbhar-bharat-through-innovation-and-entrepreneurship>.

in the world, and attracts more foreign tech investment than any other Indian city.<sup>32</sup> Its success could be a model for some of Africa's tech ecosystems, especially as the Indian regulatory and economic environment shares many commonalities with African countries—more than it shares with South Korea or the United States, or, indeed, China.

Early-stage Indian investors are starting to see opportunity in African markets. The India-Africa Entrepreneurship Forum, which in 2019 brought together more than three hundred Indian and African innovators and investors, has spurred discussion about the possible establishment of an India-Africa investment corridor that could facilitate the exchange of knowledge, capital, and resources. Despite notable progress, African startups are still largely short of corporate partners that could help with the challenge of scaling in a region with nontraditional supply chains, difficult distribution, and limited access to financial markets. Such an investment corridor could be consequential for the expansion of the African tech industry and the development of new business models—also giving African companies access to India's billion-dollar market. Notably, leading Indian companies such as Wipro, Bharti Airtel, Essar, and Tata were among the first to invest in Africa's tech markets, and are also expanding their presences.

While distant, growth of Africa's tech sectors and progress toward technological self-reliance could curb the continent's foreign dependence. That a decentralized AI network has already been developed in Africa is promising. Indian policymakers could continue to support such efforts, also encouraging African cooperation on global norm shaping around decentralized platforms and other advanced technologies—promoting open and accountable systems to contrast Beijing's opaque state-led model. This is another area in which the United States could have particular influence, given its global technological dominance and the growing chorus of American voices clamoring for tech ethics and digital self-sovereignty. Working in concert, the United States and India could engage Africa's technology ecosystems to advance a democratic and inclusive understanding of technologies—one that could also benefit African development.

### *An Eye on the Skies*

“AatmaNirbhar Bharat” aims to decouple strategic Indian sectors from foreign dependencies and challenge Beijing's growing international assertiveness. Though much attention is directed to competition in terrestrial technologies, the space race is critical for national sovereignty, security, and economic power. Although still nascent, India is emerging as a space power. In 2020, India's government created the Indian National Space Promotion and Authorisation Centre (IN-SPACe) to provide opportunities for private Indian companies and startups in the sector. Proposed activities include small satellite-launch vehicles, geospatial services, satellite constellation, and the development of space-application products.<sup>33</sup>

Foreign partnerships are important for India's space strategy. This opens the door for Africa's space industry, which, though fledgling, is growing—as well as for Washington, which is determined to blunt Chinese efforts to strengthen its space and global-surveillance capabilities. As the cost of satellite technology continues to decline, a growing number of African nations are voicing their space-based ambitions. Since 1999, eleven African countries have successfully launched thirty-eight unilateral and three multilateral satellites into orbit. Estimates suggest that, by 2024, at least nineteen African states will have launched at least one satellite into space, with the total number of satellites launched by African countries rising to more than ninety.<sup>34</sup> African demand for space products and services is today among the world's highest, with the industry projected to exceed \$10 billion in revenues by 2024 from \$7 billion today.<sup>35</sup>

Unlike in Africa's terrestrial infrastructure, China is not yet a major player in Africa's space sector, despite its rapid advancements. In 2019, Beijing financed and launched Ethiopia's first satellite. It also built and launched Sudan's first-ever satellite, and has sold satellite technology to a number of African states, including Nigeria and Kenya. But, Beijing is, for now, one among many, with Japan, Russia, the European Union, and United Kingdom all active; the United States is so far a minor player. Such diversity of partners is commendable, and should continue to be fostered.

- 32 “How Bangalore became Asia's Silicon Valley,” Scalpers, accessed January 19, 2021, <https://thescalpers.com/how-bangalore-became-asias-silicon-valley/>; “Bangalore, Hyderabad among Top 20 Global Cities Attracting FDI in ICT Sectors,” Press Trust of India, March 2, 2019, <https://www.businessday.in/top-story/bangalore-hyderabad-among-top-20-global-cities-attracting-fdi-in-ict-sectors-reports-lp/story/323834.html>.
- 33 “IN-SPACe to Provide Level Playing Field for Pvt Companies, Start-ups in Space Sector,” Press Trust of India, January 4, 2021, <https://economictimes.indiatimes.com/news/science/in-space-to-provide-level-playing-field-for-pvt-companies-start-ups-in-space-sector-jitendra-singh/articleshow/80102973.cms?from=mdr>.
- 34 “By 2024, More than 19 African Countries Would Have Launched Satellite into Space,” Space in Africa, April 5, 2020, <https://africanews.space/by-2024-more-than-19-african-countries-would-have-launched-satellite-into-space/>.
- 35 “African Space Industry Annual Report—2020 Edition,” Space in Africa.



Overreliance on any one country could expose African nations to significant vulnerabilities, jeopardizing likely progress toward ameliorating major societal challenges, such as connectivity and resource scarcity, made possible through the help of satellite technology.

The current state of play is a significant opportunity for trilateral space cooperation between the United States, India, and African countries. India has already signed memoranda of understanding (MoU) for space cooperation with Tunisia, Morocco, Nigeria, and South Africa. Its agreements with Nigeria and South Africa center on joint efforts in remote sensing, satellite-based communications and navigation, and planetary exploration. The South African government is considering launching its own geostationary telecommunications satellite, which could provide services to the entire Southern African Development Community by 2025.<sup>36</sup> If successful, this could create an enabling environment for other advanced technologies that could drive widespread regional development. MzansiSat, a South African private prospective satellite operator, is among the key leaders in the effort; it is currently seeking funding and partners.<sup>37</sup>

It is in the US interest to engage these developments through both the public and private sectors. Judd Devermont and Temidayo Oniosun argue that “US companies are well-positioned to sell space equipment and services to African governments. Specifically, the US private sector could build new satellites, sell ground station equipment, provide capacity training, and offer launch services.”<sup>38</sup> In 2017, SpaceX launched Ghana’s first satellite, GhanaSat-1, from the Kennedy Space Center. The satellite monitored Ghana’s coastlines and provided learnings on various use cases, including monitoring water pollution and illegal mining.<sup>39</sup> The Biden administration could consider providing financial incentives to allow the US private sector to expand such initiatives and compete with state-backed Chinese firms.<sup>40</sup> Such a program would advance US diplomatic and national security interests, and further the US Agency for International Development’s efforts to foster African self-reliance.

## Revised Strategies for the Tech Era

For African countries eager to sidestep US-China competition—and for the United States, which seeks to thwart Beijing’s technological ascendance and political influence, and to advance its own—credible partnerships with emerging powers could be essential. Countries like South Korea and India that are technologically innovative and globally ambitious, and whose policies largely align with US and many African interests, could be attractive allies. The US and African governments should pursue strategies to develop and strengthen these relationships.

In order to be effective, such partnerships should be diverse, reflecting the increasing relevance of hybrid power in a post-pandemic world, as well as the dynamism of the African continent. Such partnerships should also be long term. Where Washington has previously floundered in its approach to China, including its global advances, has been in its inability to strategize truly long term—ten, twenty, thirty years into the future. South Korea’s emphasis on tech-driven soft power that speaks especially to Africa’s young populations could, then, be an effective approach, as could eventual Indian-African space alliances, supported by the US private and public sectors. If used well, space infrastructures could improve African markets and advance self-sufficiency. Such policy approaches could then benefit Africa and promote US interests.

How could the success of such partnerships be measured? That in twenty to thirty years, African states will have developed critical digital infrastructures and evolved key industries, including the creative industry. That the United States, South Korea, India, and other major allies remain essential partners for African countries across all aspects of power, and China has been deterred from strengthening its foothold in the region. That African countries have also become important multilateral actors, able to advance their own national and regional objectives. And that the liberal global order has not receded, but has instead expanded and consolidated, supported by a growing number of African nations. These are grave ambitions, but these are also grave issues. It is important for Africa, South Korea, India, and the United States to cooperate.

36 Muhammed Akinyemi, “South Africa May Launch Internet Satellite for SADC,” *Space in Africa*, October 27, 2020, <https://africanews.space/south-africa-may-launch-internet-satellite-for-sadc/>.

37 Njeri Purity, “MzansiSat—The prospective satellite operator looking to provide internet connectivity to Africa’s SADC region,” *Space in Africa*, January 13, 2021, <https://africanews.space/mzansisat-the-prospective-satellite-operator-looking-to-provide-internet-connectivity-to-africas-sadc-region/>.

38 Judd Devermont and Temidayo Oniosun, “Is the United States Losing the African Space Race?” *War on the Rocks*, June 23, 2020, <https://warontherocks.com/2020/06/is-the-united-states-losing-the-african-space-race/>.

39 Jake Bright, “Africa Has Entered the Space Race, with Ghana’s First Satellite Now Orbiting Earth,” *Tech Crunch*, August 6, 2017, <https://techcrunch.com/2017/08/06/africa-enters-the-space-race/>.

40 Devermont and Oniosun, “Is the United States Losing the African Space Race?”

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This report is part of a partnership between the Atlantic Council's Africa Center and the Policy Center for the New South.





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