

The Digital Silk Road as Planetary Intelligence: A Story of China in Africa

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The Digital Silk Road as Planetary Intelligence: A Story of China in Africa / Pollio, Andrea - In: Parables of AI in/from the Majority World. An anthology. / Singh R., Guzmán R.L., Davison, P.. - ELETTRONICO. - New York : Data & Society Research Institute, 2022. - pp. 89-99

*Availability:*

This version is available at: 11583/2978218 since: 2023-11-12T12:45:02Z

*Publisher:*

Data & Society Research Institute

*Published*

DOI:

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Andrea Pollio



Luthuli Avenue.  
Photo taken  
by the author.

## 1.

For almost eighteen months now, as of February 2022, I have been studying the presence and impact of Chinese technology companies in East Africa, where cities like Nairobi have become the experimental testbeds of China's high-tech presence in the continent. This phenomenon is broadly referred to as the Digital Silk Road, signaling that China's global program of connectivity—the Belt and Road Initiative<sup>(1)</sup>—is complemented by investments in digital infrastructure.

With a topic as controversial as China in Africa, friends and colleagues often ask how I ended up researching something so daunting and complex. In response, I have a few stories that I use interchangeably. One of these stories begins in a pub in Sydney, Australia, where I lived during my doctoral studies. It must have been the beginning of summer 2017, and I was busy writing the last chapter of my dissertation. During the previous three years, I had been researching the interface between Silicon Valley's entrepreneurial cultures and the world of antipoverty in Cape Town, a city that portrayed itself as Africa's startup capital: its Silicon Cape.<sup>(2)</sup>

My advisor had forwarded me an email from a young urbanist interested in digital innovation. He was considering the idea of enrolling in a PhD programme, and, three years into my doctorate, I was the right person to talk to for advice. When we caught up, on a warm and wet Sydney evening, I told him about my work, about how wonderful and intense my field research in Cape Town had been, and how fascinating it was to think about the technopolitics of digital entrepreneurship in urban Africa. He listened quietly and then came back with a laconic question: “But what about China?” he asked, his foam-ringed beer glass almost empty.

I was puzzled. I replied: “What about it?” Until then, China had never been within the horizon of questions that I had come to expect and fear as a PhD student. In response, my interlocutor explained that with the Digital Silk Road and other infrastructural investments in Africa, he thought I would have something to say about the Chinese digital presence in the continent. Was it a neocolonial strategy? Had China inaugurated a new era of technological development? What were African startups doing to attract Chinese capital? Were the Chinese setting up hidden backdoors in their equipment to spy on African governments?

I sheepishly responded that I had nothing to say about China, but all of a sudden that same question—*what about China?*—seemed to be everywhere. It was around then that large Chinese technology companies began appearing in Western media more and more frequently, and often in connection to cybersecurity concerns in Africa.<sup>(3)</sup> Only a few weeks after that first conversation, for example, the African edition of French newspaper *Le Monde* alleged that computers in the African Union’s headquarters in Addis Ababa were connecting every night to servers in Shanghai, and that the Chinese-funded, -designed, and -developed futuristic building as a whole was bugged by secret microphones.<sup>(4)</sup>

Two years later, back at home in Italy, and without a long-term job, I found myself watching Prime Minister Conte and China’s state chairman Xi meet in Villa Madama to celebrate Italy’s support over the so-called 21st Century Maritime Silk Road. It was against the backdrop of their handshake (at an ivy-covered Renaissance mansion, flanked by the flags of China, Italy, and the European Union), that I crafted a project proposal seeking funding from the EU to study these new “Silk Roads” in Africa. It was a strategic move, at a time when so many EU countries were considering or already partnering with China, and asking bewildering questions about China’s long game, or whether Africa had been a laboratory for its future geopolitical moves. After all, Asia has always elicited mixed emotions in Europe, between fear and fascination,

as Edward Said pointed out in his well-known study of cultural representations of the East in the West.<sup>(5)</sup> As Xi journeyed across the capitals of the continent, those same emotions reverberated in the media, swinging between overt sinophobia and a more subtle incapacity to engage global China beyond Europe's own history of modernity and coloniality.<sup>(6)</sup>

This is my full disclosure. I started my current research funded by a large geospatial institution—the European Union—to study another large geospatial phenomenon of our time—the One Belt One Road. And although I do not know to what extent my success in getting funding from the EU was determined by the choice of a timely topic at a topical moment, the reason I start this story from its (auto)biographical origins is because research projects like mine begin from a single data point—the conditions of possibility of research—in which the interaction of geopolitical and personal parables is inextricable. In my case, as I will explain in the lines that follow, my research project has turned out to be (much more than I originally envisioned), about data, technology, and the global scales of artificial intelligence brought about by China's connectivity projects in Africa. And yet these large, almost unfathomably vast, artificially intelligent systems are the result of single, innumerable data points which, blending personal and geopolitical intelligences, like my own story into this research, always begin somewhere, never too far away from the storyteller.

## 2.

数字一带一路 (Shuzi yidai yilu) means Digital—as in *made of numerical data*—one belt one road. Described by some as a high-tech neocolonial effort,<sup>(7)</sup> the geopolitics of the Digital Silk Road are particularly puzzling. Many Chinese corporations in the digital realm are not state-owned enterprises. In fact, they have had a long, fraught relationship with the state, oscillating between being championed and undermined,<sup>(8)</sup> as demonstrated by the recent crackdown on their financial leeways.<sup>(9)</sup> However, as a few scholars of technology have shown, tech companies were at the forefront of China's experiments with market liberalization in the 1980s and 1990s,<sup>(10)</sup> and in renegotiating its place in the world after decades of isolation. Anecdotally, ICT companies were among the first industries to be allowed to import and experiment with foreign equipment in the late 1970s.<sup>(11)</sup> They henceforth enjoyed a unique freedom in finding foreign markets in the early 2000s. But while Africa has indeed

been a testbed for Chinese technology going global,<sup>(12)</sup> just like it has been for state construction companies,<sup>(13)</sup> the Digital Silk Road seems the haphazard, at times collaborative,<sup>(14)</sup> at times contradictory act of many “digital champions” rather than a concerted neocolonial effort. In other words, the digital shadow of “Global China”<sup>(15)</sup> in Africa still remains to be outlined.

### 3.

When I landed in Kenya in June 2021, I initially stayed in a small, half-furnished apartment overlooking the construction site of the new expressway, an elevated highway poised to connect Nairobi’s international airport, the city centre, and its middle class suburbs. Funded and built by a Chinese contractor, the new toll road was at once a roaring mess and an engineering marvel (and the emblem of new infrastructural anxieties of sovereignty).<sup>(16)</sup> One of the promises of the Chinese firm was to automate the construction process by using prefabricated blocks, thereby reducing the construction time of the project. At night, until very early in the morning, long precast girders would be rolled across and suspended over the span of newly built columns. Meanwhile, some 70 km outside the city, Huawei was building Kenya’s national data centre in Konza, a greenfield smart city designed to become the country’s technological hub.<sup>(17)</sup> The expressway and the data centre—respectively built by a state-owned enterprise and a private technology giant—were part of the same undisclosed deal between China and Kenya, and therefore illustrate the inextricable ties between One Belt One Road infrastructure and its digital sub-brand.

Despite this, Kenya is not officially part of the Digital Silk Road. A report by CARI, the China in Africa Research Initiative at Johns Hopkins University, recently explained that very few ICT projects in Africa have been branded under the banner of the Digital Silk Road—none of which are in Kenya.<sup>(18)</sup> Despite this, Chinese tech companies have been incredibly active in the country, from building the national broadband backbone,<sup>(19)</sup> to realizing the almost-legendary migration of Kenyan mobile money (M-Pesa<sup>(20)</sup>) user data from German to local servers.<sup>(21)</sup>

Perhaps pinpointing what the Digital Silk Road actually is or does is less useful than using it as a malleable, powerful concept to capture the emergence of a new planetary ecosystem of data through which China is scripting a new, non-eurocentric, multipolar technological present.<sup>(22)</sup> The very history of the Silk Road, as a concept, is telling. As Tim Winter narrates in his book on the use of heritage

in contemporary Chinese soft power,<sup>(23)</sup> the Silk Road was originally a European invention, a trace on the imperial map of the world that intentionally followed the easiest commercial routes in the scramble for Asia. And yet that European concept also mapped a long gone moment in history during which China was at the centre of global trade—a narrative that contemporary China does not shy away from using today to reclaim its planetary economic dominance.<sup>(24)</sup> With these two insights in mind—that the Silk Road is a malleable geocultural concept that captures different geopolitical imaginations depending on who’s using it, and that it follows rather than creates new fabrics of connectivity—I set off in my fieldwork asking a very banal and practical question: Where did Chinese tech—namely the most mundane of devices such as feature phones and smartphones—first arrive in Kenya? I suspected that finding the landing point would be a gateway to the digital-corporate nexus of the Chinese presence in the country and on the continent.

#### 4.

I didn’t need to wait long to discover that of all the bustling commercial hubs in the city, Luthuli Avenue and the surrounding streets in downtown Nairobi was the pulsating hub of the Digital Silk Road for Kenya. On Luthuli, along a stretch of a few hundred metres, almost a thousand electronic stores sell, buy, repair, repurpose, and refurbish Chinese tech. A colleague and friend suggested that I speak to one of his nephews, the owner of a small electronics store in the area. “At first it was Nokia,” he explained, recalling the time when Luthuli Avenue had become Nairobi’s commercial hub for mobile phones. Nokia, the Finnish company, sold affordable and yet durable, sturdy phones. Not only did the battery last for days, Nokia phones were also easy to repair. “Then it was Samsung,” he continued, explaining that the South Korean company had been the first to break into the affordable smartphone market. Samsung also sold other affordable hardware, from TVs to washing machines. Eventually, however, Chinese companies such as TECNO and Huawei had taken over. Today, Luthuli Avenue is cluttered with signs of these Chinese companies—Oraimo, Tecno, Itel, Xiaomi, Oppo, Sinix and Haier—with only a few remaining Samsung and Nokia banners.

One story that explains this change is that Chinese hardware companies were better placed to understand the media and communication needs of what media scholar Jack Linchuan Qiu has called “working class network society,”<sup>(25)</sup> because they had more than a decade of experience serving the urban poor and rural



migrants in the booming cities of China. Kenya, and Africa more broadly, I was told several times by Chinese managers and other employees of tech companies, had some striking similarities with the early days of the Chinese mobile boom. At the same time, the experience of selling affordable phones to the masses in China had taught many hardware entrepreneurs how to deploy mass campaigns replicating and adapting older Maoist strategies of mobilization<sup>( 26 )</sup> and encircling the cities from the countryside.<sup>( 27 )</sup> With that came the insight that selling devices to the bottom of the economic pyramid was not a race to the bottom at all, I was told by a former Nokia design consultant who'd worked in Kenya for many years. If anything, she elaborated over a long Zoom call from Finland, it was a race to understanding market segmentation at a level of detail that would inform engineering decisions—for example, in striking a perfect balance between the computing power and the battery life of devices. To do so, Chinese companies had to rely as much as they could on local intelligence. Not just on a couple of local hires, but a much more complex ecology of data.

## 5.

The first or the last kind of data—depending from which side one looks at the economic transaction of a Chinese mobile phone ending up in the hands of a Kenyan user—is sales data. Sales data is crucial for a company to understand when a particular model or line has reached the end of its shelf life as well as to gauge the exact pricing point to shift from one market segment to another. But accurate sales data is a logistical problem. With thousands of small electronic stores scattered around the country and very few official retailers it is very hard to compound sales intelligence. Not just that: according to my research participants, while some Chinese brands do have official distributors in East Africa, many stores bulk import devices from alternative sources: Somali stores, for example, source Chinese and other tech from the Arab Gulf countries, especially the Emirates. Other stores have a direct line with African agents working in the port cities of China. If this logistical complexity wasn't enough, each single sale transaction is never the same. There is no fixed price for Chinese phones. In the same shop, on the same day, the same device might be sold at ten different prices, I was told by a shop owner on Luthuli Avenue.

To overcome this complexity, Chinese tech companies have adopted a sales-agent model. After each transaction is negotiated, the sale is eventually recorded into



machine-readable files by an army of thousands of sales assistants. Each specialized in a particular brand, or even a specific product line, these sales agents are one of the engines of a large data ecosystem wired from the streets of Nairobi to the headquarters of tech companies in cities like Shenzhen and Beijing. These sales agents often receive a basic salary from the company as well as a cut on each item sold. They compete with each other in larger shops that sell more than one brand. They are also the prongs of a very sensitive machine. By gathering fine-grained data each day, sales and marketing teams can make immediate decisions. A social media campaign manager for a Chinese phone brand in Kenya, for example, explained to me that any change in sales patterns is immediately followed up to understand what is causing a slump or surge. This data is then put into action by the sales agent—who might be retrained, or encouraged to change strategy, to modify the layout of their shop, to reduce prices, or else—but also by the mothership in mainland China, where production decisions are made.

In fact, production decisions are made on a much wider set of information beyond sales data. With my research assistant, I sat down for an interview with a former employee of one of these companies. He'd been recruited as a university student, in the early days of the mobile boom in Kenya. His task was to walk the streets around the university, find students who were using a particular mobile phone, interview them about the user interface and about the specs, and report these responses into an online feedback system. Later on, he was asked to take hundreds of photos a day—photos of Kenyan people casually busy with their chores. The photos served the purpose of training the AI of new cameras to recognize dark skins. As a result, many Chinese phones are much better at capturing faces with high melanin levels than other brands. Ultimately, my informant had become a manager in the local R&D department, managing a swarm of university students recruited to continuously test new products and new features so as to inform market-sound manufacturing decisions. They, too, often used Luthuli Avenue as an experimental site, interviewing passersby and gathering additional UX data.

## 6.

Finally, phones themselves are sources of data, through a plethora of applications that gather information about users' media and financial behaviors. Some Chinese phone brands have developed or are developing their own operating systems, as alternatives to Android and Apple's iOS. This is not just the case of Huawei, which was forced to launch HarmonyOS after it was placed on the Entity List by the US government,<sup>(28)</sup> but it is the case of other Chinese brands that have their own application marketplaces. In fact, some of the most downloaded apps in sub-Saharan Africa have been developed by Chinese firms. Think of Boomplay, the music-streaming platform dedicated to African artists: Boomplay is the brainchild of the software arm of Transsion, the company that owns TECNO and other phone brands sold in East Africa. If you scroll through the apps of a TECNO phone, traditional Android applications coexist with an exclusive ecology of apps specific to TECNO and other Transsion labels. I discussed this with a Kenyan tech journalist, a popular YouTuber who films reviews of phones and other gadgets. "It is as if these brands are getting ready for a post-android time in which Chinese phones will run on their separate ecosystem," he told me, while we shared a sirupy dawa one early afternoon. Other online commentators more conspiratorially speculate that all these applications hide spyware.<sup>(29)</sup> It is not a secret that advertising-led business models are, in fact, always based on tracking users.

Whether being tracked is one of the tradeoffs for accessing media platforms for free, or a sinister form of "surveillance capitalism,"<sup>(30)</sup> the swarms of information connecting Africa and China are incredibly complex and diverse. In fact, they involve much more than surveillance. And much more than phones. In Kenya alone, for example, a company such as Huawei is involved in the mobile money business (with M-Pesa), in the sale of high-end smartphones and other tech gadgets, in the data center industry, in the national hardwired broadband plan, and in the construction of Safaricom's 5G network.

Even Chinese companies that do not sell devices or equipment, such as Opera, the Norwegian browser now owned by Chinese gaming billionaire Zhou Yahui, produce large amounts of data with their browsing, news, media, messaging, financial, and entertainment platforms.<sup>(31)</sup> From his glazed corporate office overlooking Nairobi's fast-changing skyline, the chief editor of Opera News East Africa proudly told me that his division had engineered the largest crowd-sourced, AI-powered news platform on the continent.

Given this complexity, my early reporting from my field research suggests that the Digital Silk Road could, and perhaps should, be conceptualized as the geospatial intelligence of a planetary scale phenomenon, a shift in the geopolitics of information toward a multipolar technological order.<sup>(32)</sup> In this I draw on Benjamin Bratton's<sup>(33)</sup> and others'<sup>(34)</sup> insight that artificial intelligence is not the property of a single software, or of a single device. It is an emerging feature of complexity, of humans and things living, organizing, and transforming the planet.<sup>(35)</sup>

As I have narrated, the substrate of the DSR is both organic and inorganic, it is the accidental result of myriad devices, applications, shops, sales agents, users, and a data infrastructure that functions through undersea cables, telephone towers, excel spreadsheets manually filled in every day, multiple operating systems, and everything in between. Seen in this way, the DSR also sheds light on what Kate Crawford calls “registries of power,”<sup>(36)</sup> the colonial, mineral, labor, and other planetary layers of artificial intelligence, as well as on its singularities: the unique data points that feed this system, surfacing from multiple other types of intelligence—economic, technical, affective and otherwise—in the streets of a city like Nairobi.

Andrea Pollio holds a PhD in economic geography and urban studies from the Institute of Culture and Society, University of Western Sydney. He researches and writes about tech and development in urban Africa (mostly).

### **Acknowledgments**

Thanks to Marie-Therese Png, Seyram Avle, Alessio Koliulis, Hannah Claus, Tom Cowan, Ranjit Singh, Rigoberto Lara Guzmán, Ali Bhagat, Francesca Governa, Liza R. Cirolia, Alexandria Williams, and Jack Ong'iro Odeo. The research for this project is funded by a Marie Skłodowska-Curie fellowship, grant number SURGE 886772.

**Endnotes**

- (1) Xiangming Chen, Julie Tian Miao, and Xue Li, *The Belt and Road Initiative as Epochal Regionalisation* (London: Routledge, 2021).
- (2) Andrea Pollio, "Making the silicon cape of Africa: Tales, theories and the narration of startup urbanism," *Urban Studies* 57, no. 13 (2020): 2715–2732.
- (3) Iginio Gagliardone, *China, Africa, and the Future of the Internet* (London: ZedBooks, 2019).
- (4) Par Ghalia Kadiri and Joan Tilouine, "A Addis-Abeba, le siège de l'Union africaine espionné par Pékin", *Le Monde Afrique*, (26 January 2018).
- (5) Edward Said, *Orientalism* (New York: Pantheon Books, 1978).
- (6) Wang Hui, *The Politics of Imagining Asia* (Cambridge: Harvard University Press, 2011).
- (7) <https://www.recordedfuture.com/china-digital-colonialism-espionage-silk-road/> [accessed 02.03.2022] See also Willem H. Gravett, "Digital coloniser? China and artificial intelligence in Africa," *Survival* 62, no. 6 (2020): 153–178.
- (8) On the story of Huawei, for example, see Wen, *The Huawei Model*.
- (9) Brian Liu and Raquel Leslie, "China's Tech Crackdown: A Year-in-Review", *Lawfare*, (January 7, 2022).
- (10) Yu Hong, *Networking China: The Digital Transformation of the Chinese Economy* (Urbana, Chicago and Springfield: University of Illinois Press, 2017).
- (11) Wen, *The Huawei Model*.
- (12) Deborah Brautigam, *The dragon's gift: the real story of China in Africa* (Oxford: Oxford University Press, 2011).
- (13) Zhengli Huang and Xiangming Chen, "Is China Building Africa?" *European Financial Review*, (July 2016): 7–13.
- (14) Ding Fei, Abdi Ismail Samatar, and Chuan Liao, "Chinese–African encounters in high tech sectors: Comparative investigation of Chinese workplace regimes in Ethiopia," *Development Policy Review* 36, no 1 (2018): 455–475.
- (15) Ching Kwan Lee, *The specter of global China* (Chicago: University of Chicago Press, 2020).
- (16) Wangui Kimari, "'Under construction': everyday anxieties and the proliferating social meanings of China in Kenya", *Africa* 91, no. 1 (2021): 135–152.
- (17) Prince K. Guma and Jochen Monstadt, "Smart city making? The spread of ICT-driven plans and infrastructures in Nairobi," *Urban Geography* 42, no. 3 (2021): 360–381.
- (18) Henry Tugendhat and Julia Voo, "China's Digital Silk Road in Africa and the Future of Internet Governance", Working Paper No. 2021/50 (Washington, DC: China Africa Research Initiative, School of Advanced International Studies, Johns Hopkins University, 2021).
- (19) Stefano Calzati, "'Data sovereignty' or 'Data colonialism'? Exploring the Chinese involvement in Africa's ICTs: a document review on Kenya", *Journal of Contemporary African Studies* (2022): 1-16.
- (20) Prince K. Guma and Mwangi Mwaura, "Infrastructural configurations of mobile telephony in urban Africa: vignettes from Buru Buru, Nairobi." *Journal of Eastern African Studies* 15, no. 4 (2021): 527–545.
- (21) Henry Tugendhat, "How Huawei succeeds in Africa: Training and knowledge transfers in Kenya and Nigeria," Working Paper, No. 2020/34 (Washington, DC: China Africa Research Initiative, School of Advanced International Studies, Johns Hopkins University, 2020).
- (22) On technodiversity, see Yuk Hui, *The question concerning Technology in China: An Essay in Cosmotronics* (Falmouth: Urbanomics, 2017). And the forthcoming: Benjamin Bratton, Bogna Konior and Anna Greenspan (eds.), *Machine Decision is Not Final: China and the History and Future of AI* (Falmouth: Urbanomics, 2022).
- (23) Tim Winter, *Geocultural Power* (Chicago: University of Chicago Press, 2019).

- ( 24 ) Winter, *Geocultural Power*. See also Ban Wang (ed.) *Chinese visions of world order: Tianxia, culture, and world politics* (Durham: Duke University Press, 2017); Aihwa Ong, “Buoyancy: Blue Territorialization of Asian Power,” in Frank Billé (ed.), *Voluminous States* (Durham: Duke University Press, 2020: 191–204).
- ( 25 ) Jack Linchuan Qiu, *Working-class network society: Communication technology and the information have-less in urban China* (Cambridge: MIT Press, 2009).
- ( 26 ) Wen, *The Huawei Model*.
- ( 27 ) Xiaowei Wang, *Blockchain chicken farm: And other stories of tech in China's countryside* (New York: FSG Originals, 2020).
- ( 28 ) Wen, *The Huawei Model*.
- ( 29 ) <https://www.bbc.com/news/technology-53903436> [accessed 03.02.2022]
- ( 30 ) Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (New York: PublicAffairs, 2019).
- ( 31 ) Brain Wasuma, “Chinese Billionaire Behind Kenya Mobile Lending Platforms,” *The Nation* (9 April 2021).
- ( 32 ) Hui, *The question concerning Technology in China*.
- ( 33 ) Benjamin H. Bratton, “Outing Artificial Intelligence. Reckoning with Turing Tests,” in Matteo Pasquinelli (ed.), *Alleys of Your Mind. Augmented Intelligence and Its Traumas* (Lüneburg: Meson press, 2015: 69–80).
- ( 34 ) Orit Halpern, “Planetary Intelligence,” in Jonathan Roberge and Michael Castelle (eds.) *The Cultural Life of Machine Learning*, (Cham: Palgrave Macmillan, 2021: 227–256).
- ( 35 ) Benjamin H. Bratton, “Planetary Sapience”, *Noema* (June 17, 2021).
- ( 36 ) Kate Crawford, *Atlas of AI* (New Haven: Yale University Press, 2021).