WISER Presentation Title: Digital Infrastructure, China, and the Reorganization of Dependency

Primer: This piece examines Huawei's rise in Kenya as part of a broader transformation in African digital governance. The sections trace how telecommunications liberalization shifted the state from direct infrastructure provision toward regulation, procurement, and partnership with external firms, creating the institutional terrain in which Huawei could expand. They then situate the company's growth within China's own pursuit of technological autonomy, state-supported finance, and overseas market development.

The broader argument of the book is that digital infrastructure does not simply expand state capacity; it reorganizes the conditions under which that capacity is exercised. Huawei's projects can extend connectivity, technical capability, and public services while simultaneously embedding governments within external systems of finance, proprietary technology, expertise, and maintenance. The concept of operational dependency captures this tension: sovereignty is not simply lost or surrendered, but performed through infrastructures that states can deploy without fully controlling. Huawei therefore offers a lens for moving beyond binary accounts of China as either development partner or geopolitical threat, toward examining how risk, authority, capacity, and dependency are redistributed through digital infrastructure.

Liberalization as Common Sense

The preceding observation requires further historical contextualization. The liberalization—and subsequent financialization—of Kenya's digital infrastructure can be traced to reforms initiated in the 1990s. Following the 1996 Sessional Policy Paper, the government enacted legislation designed to dismantle the state monopoly over telecommunications. The policy explicitly relocated responsibility for development to private enterprise, declaring that "it is the private sector that must seize the opportunities and take the initiative to provide investment … to obtain appropriate technologies and develop efficient production" (Republic of Kenya 1996: 5). In accordance with this vision, the government moved to dissolve the monopoly held by the Kenya Posts and Telecommunications Corporation (KPTC), established under the KPTC Act of 1977 to build and maintain the country's communications and digital infrastructure (World Bank 1979). The state consequently shifted from direct infrastructural provision toward a regulatory and facilitative role organized around market coordination, public–private partnerships, and the attraction of external capital. Development was thereby recast less as the cultivation of domestically controlled productive and technological capacity than as integration into liberalized circuits of global finance, investment, and technological provision.

At the onset of liberalization, KPTC—despite significant operational and financial constraints—was not a failed or institutionally vacant system. By the mid-1990s, it had developed switching capacity of approximately 380,000 ports across more than 180 exchanges and maintained a national transmission network comprising roughly 4,400 kilometers of terrestrial microwave infrastructure (Ogbu and Mihyo 2000). Liberalization therefore did not fill an infrastructural void; it reorganized an existing material and administrative landscape. The introduction of a licensing regime for private operators marked a decisive shift from direct public provision toward market-mediated coordination, and from the state as the principal builder and operator of communications infrastructure toward a model increasingly driven and dependent on private provision, external finance, and regulatory oversight.

It is worth emphasizing that framed as a strategy for attracting capital, advanced technologies, and managerial efficiency at scale, this shift recast development as a modality of market participation. It reoriented the statist practices of early postcolonial governance by transferring greater responsibility for infrastructure from public institutions to private firms and redefining capacity as something to be accessed through external finance, expertise, and technological networks rather than cultivated within the state. This transformation laid the foundation for a model of digital development in which procurement, outsourcing, and externally supplied systems increasingly displaced direct public provision. It thereby created the conditions under which integration into global circuits of finance and technology could deepen rather than overcome dependency, including through the forms of Chinese digital engagement examined later in the chapter. The state, in this sense, did not simply retreat; it was reconstituted—from builder to broker, and from provider to facilitator.

The emergence of the internet in Kenya unfolded amid regulatory ambiguity and institutional contradiction. In 1996, even as telecommunications liberalization was formally underway, KPTC maintained that the provision of internet services over privately leased lines remained illegal—an attempt to preserve state control over telecommunications access within an increasingly market-oriented policy environment. This position did little, however, to deter a new generation of entrepreneurs and intermediary organizations from creating digital spaces beyond the state's direct control. The African Regional Computing Centre (ARCC), a Nairobi-based nonprofit,

had already introduced internet connectivity in 1995 as part of a broader mandate to promote computing and communications technologies across the continent. Its activities extended beyond connectivity to training, consultancy, research, and computer literacy, particularly for small and medium-sized enterprises framed as engines of economic growth. ARCC also served as a link between new businesses and donors, banks, and government agencies, while bringing in email, electronic bulletin boards, and other early internet tools to help change the way people do business and engage in their communities.

Crucially, these initiatives were not merely technical interventions but expressions of an emerging developmental logic in which Western donors and philanthropic institutions—including the British Council, the National Science Foundation, and the Overseas Development Agency—presented digital technologies as remedies for infrastructural weakness and limited public capacity. This framing detached those deficits from the global political-economic processes that had produced them, recasting historically constituted constraints as localized technical and managerial problems. Digital systems consequently emerged as supplements to, and increasingly as substitutes for, direct state provision.

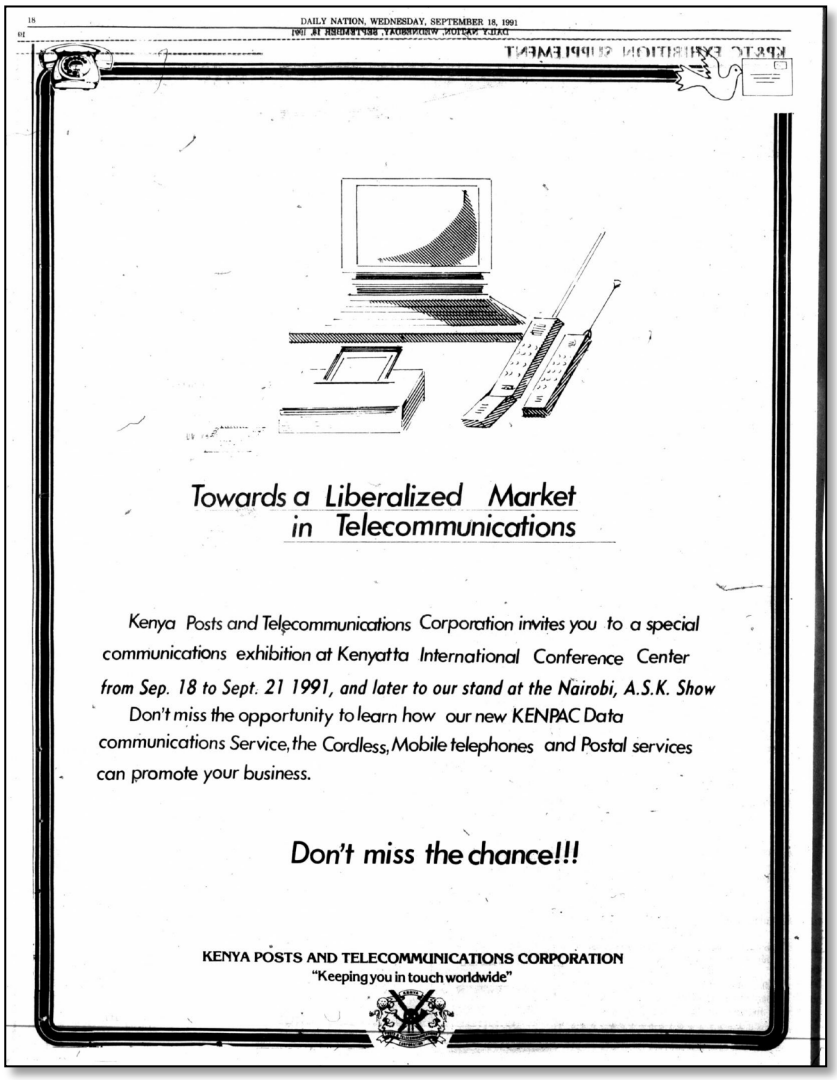

Figure 1. Advertisement "Towards a liberalized Market in Telecommunications", by KPTC found in the Daily Nation, 1991.

The establishment of the East African Internet Association (EAIA) in 1995 marked a salient point, consolidating private-sector interests as an organized political and economic force within Kenya's emerging digital economy. Representing a growing network of electronic service providers and claiming a user base of at least 3,000, the EAIA presented itself as a cooperative platform for accelerating technological adoption across East Africa (Dinar 1996). Its significance, however, lay less in its scale than in the developmental rationality it advanced. The association portrayed digital technologies as broadly applicable solutions to market inefficiency, limited access to health services, administrative constraints, and the difficulties facing entrepreneurial growth (Daily Nation 1997). Technology thus appeared not simply as a functional tool, but as a modality of governance: a means of addressing developmental problems without undertaking the slower, politically contested, and institutionally demanding work of building public capacity. Conditions framed as bureaucratic inefficiency or institutional delay became justifications for technological substitution. The EAIA therefore did more than promote connectivity. It helped normalize a developmental paradigm in which infrastructural authority was progressively distributed across private firms, donor networks, civil-society organizations, and technical systems, reorganizing the terms through which governance itself was exercised.

These developmental practices took material form in the hybrid arrangements through which Kenya's early internet infrastructure was assembled. Within the institutional environment cultivated by organizations such as ARCC, private firms, including Swift Global, emerged as intermediaries between inherited public systems and an expanding market for digital services. Founded in 1996 amid telecommunications liberalization, Swift Global relied on KPTC's existing lines to provide data transmission, producing an infrastructural arrangement that blurred the boundary between public provision and private enterprise (Daily Nation 1999). Connectivity, consequently, became both a public utility and a commercial service: the state supplied the underlying infrastructure, while private actors increasingly organized access, delivery, and value capture. Liberalization thus transformed not only who provided digital services but also the character of infrastructure itself, redistributing authority across public networks, private firms, and market-mediated forms of provision.

Through these hybrid arrangements, Swift Global provided early internet services—including fax, email, and web hosting—while remaining tethered to the infrastructural limitations inherited from KPTC. Restricted bandwidth and the high cost of international connectivity also compelled start-ups and nongovernmental organizations to rely on FidoNet, a store-and-forward network supported by GreenNet, a British nonprofit collective, to exchange messages (Mureithi 2017). Data were stored locally and transmitted only when an upstream connection became available, producing an asynchronous mode of communication organized around infrastructural scarcity. Kenya's early digital expansion thus depended not on the displacement of existing constraints, but on improvised arrangements that combined public networks, private enterprise, and transnational technical support.

This improvisational ecology—marked by delay, intermittency, and dependence on external gateways—reveals that Kenya's early digital networks were not merely technical systems but political assemblages produced at the intersection of donor-funded experimentation, changing state authority, and private entrepreneurial initiative. The resulting infrastructure was neither fully national nor global, neither wholly public nor private. It was a product of liberalization in motion, embodying the contradictions of a postcolonial state still animated by the statist and developmental aspirations of independence even as its technological capacity became increasingly assembled through uneven external circuits of capital and expertise.

Within this ecology, firms such as Swift Global did more than expand access to digital services. They helped consolidate a new modality of governance in which private intermediaries

performed operations previously associated with public institutions. Infrastructure became not only an object of modernization but also a mechanism through which reform itself was organized and enacted. The technological fix therefore did more than promise to overcome scarcity; it made scarcity productive by rendering private actors indispensable to technological provision and economic progress. In doing so, it addressed immediate infrastructural constraints while leaving the structural conditions that produced dependence largely intact.

This transformation unfolded amid the broader fallout of structural adjustment policy, including rising poverty, contracting public employment, and deteriorating state services. Rather than confront these effects—particularly civil-service retrenchment and institutional weakening, both long associated with deepening inequality—policymakers and development actors reframed the crisis. For EAIA leaders, World Bank officials, and corporate actors alike, stagnation reflected not the fallout of austerity but the incomplete advance of liberalization. Canada's IDRC crystallized this view: "technology is not the problem"; the true obstacle was a policy environment "inhospitable to ICT development" (Ogbu and Mihyo 2000: 8). This reasoning naturalized technology as a neutral and indispensable vehicle of progress, as though its adoption could finally deliver development's long-deferred promise. Within this imaginary, cyberspace appeared as what Wendy Chun (2005:29) describes as an "electronic" frontier—a new terrain of value creation and opportunity through which the anticipated African renaissance might be realized (Mbeki 1996). Failure was therefore interpreted not as evidence of the limits of the technological fix, but as proof that reform had not proceeded far or quickly enough. Rather than discrediting liberalization, its disappointments became the rationale for deeper market integration and the further transfer of public functions to private actors.

Another telling example is HealthNet, an NGO based at Kenyatta National Hospital that sought to expand healthcare access in underserved Kenyan communities. In exchange for office space within the public hospital, it provided connectivity and information services to hospital staff—an arrangement that reflected the growing use of NGO-led technological interventions to compensate for infrastructural and administrative gaps amid the decline of KPTC (Adam 2003). As reliable connectivity remained limited, particularly in remote regions, organizations such as HealthNet assumed increasingly important roles in both digital provision and public-service delivery. Under the leadership of Dr. Fred Bukachi, and in partnership with the international nonprofit SatelLife, HealthNet deployed low-Earth-orbit satellite systems that enabled low-powered transceivers to relay health information to community organizations across Kenya and beyond. The intervention expanded access and addressed immediate service constraints, but it did so through externally supplied infrastructure, expertise, and institutional partnerships. HealthNet thus exemplifies the technological fix in practice: technological systems compensated for deficiencies in public provision while simultaneously relocating essential capacities beyond the direct control of government.

Early internet adoption in Kenya did more than introduce a new communications medium; it helped reconfigure how development problems were framed and acted upon. Instead of centering institutional expansion or bureaucratic capacity-building, interventions increasingly treated development as a question of access—how connectivity could be extended, systems deployed, and markets activated. In this shift, technology moved from instrument to organizing logic, structuring how developmental objectives were defined and pursued. What appeared as innovation and entrepreneurial dynamism unfolded alongside a transformation in governance practices, in which authority was exercised less through direct provision and more through coordination, facilitation, and the alignment of external actors. The internet did not expunge the state so much as rework its modalities of action, translating enduring political questions—capacity, accountability, sovereignty—into technical challenges of connectivity and system performance. Accordingly, it narrowed the field of what could be recognized as a development problem, rendering unequal integration into global

systems less relevant and visible even as they persisted. Seen across the trajectory from KPTC's infrastructural monopoly to ARCC's donor-mediated interventions and EAIA's organized advocacy, the technological fix emerges not simply as a set of solutions, but as a governing rationality—one that reshapes both how development is imagined and how it is enacted.

Early Huawei, Risk, and Dependency

Rather than remain a visibly contested political project, liberalization hardened into an infrastructural common sense that organized practices of governance and development. Even where it was challenged by African scholars (Mafeje 2008; Mkandawire and Soludo 2003) and institutions such as the Organization of African Unity (1981) and the Khartoum Declaration (1988), its underlying assumptions persisted. Markets and technology were no longer merely proposed as solutions; they became the terms through which development problems were rendered legible. Within this framework, persistent economic constraints were recoded as failures of implementation—evidence not of the limits of reform, but of its incomplete realization. As critiques of privatization circulated, many nonetheless adopted its evaluative criteria, conceding the efficiency of private provision even while contesting its social consequences. This produced a subtle but consequential redefinition of state legitimacy: governance came to be assessed less by the state's capacity to redistribute resources, redress historically constituted inequalities, or secure political-economic autonomy than by merely being able to deliver services, meet performance benchmarks, and facilitate markets. Liberalization thus endured not primarily through direct imposition, but through its incorporation into the very metrics by which institutional success and failure were judged.

Saliently, liberalization operated not only as a set of policies, but also as a regime of evaluation through which risk, return, and investability were measured. In the early 1990s, Kenya's macroeconomic conditions—stagnating growth, high inflation, and mounting external debt—were codified through financial models that structured access to capital. Real GDP growth approached zero in 1992–93, inflation reached 34 percent in March 1993, and external debt stood at approximately $6.7 billion by 1994, with servicing obligations consuming nearly a third of GDP (IMF 1995). Yet these figures did not speak for themselves. Sovereign-risk assessments translated them into a hierarchy of investability, shaping borrowing costs, repayment horizons, and expected returns. Evaluation therefore did not merely reflect economic circumstances; it helped organize the terms on which capital became available. Long-term infrastructure projects, including telecommunications networks, became difficult to finance not because they lacked developmental significance, but because their extended time horizons exceeded the calculative and commercial limits of prevailing financial frameworks. What emerged was therefore more than a shortage of capital: it was a structural misalignment between the temporal horizons of finance and the requirements of infrastructure. Projects requiring patient investment were rendered commercially unviable, revealing how evaluative regimes delimit what can be recognized as viable development.

TALENTED TELECOMMUNICATION EMPLOYEES NEEDED

Huawei Technologies is a leading international telecommunications manufacturing and systems provider with a turn over of 1.5 billion US$ in 1999, manufacturing Switches, SDH, Access Networks, WLL, Data Communication and Power Supply Systems, providing a complete solution to telecommunication networks. Currently the following **vacancies** exist in our regional office based in Nairobi.

1. Marketing Manager

The successful candidate should be:

- Holder of a bachelor's degree or better in the field of Telecommunication, or Electrical Engineering
- Minimum of 5 year's successful experience in the marketing
- Good interpersonal and communication skills
- Has a thorough knowledge about the current telecommunication technologies such as Switching, SDH, WLL etc
- Familiar with the usage of computer

He will be in charge of the exploitation of the telecommunication marketing in East Africa.

2. Project and Engineering Senior Engineer

The successful candidate should:

- Hold a bachelor degree or better in the field of Telecommunication, or Electrical Engineering
- Has a thorough knowledge about the current telecommunication technologies such as Switching, SDH, WLL etc
- Has minimum of 3 year's experience in the maintenance and installation of telecommunication equipment.

He will be responsible for the implementation and conclusion of projects in East Africa.

Persons that identify themselves with above mention positions can sent their curriculum vitae's with certified copies of professional and academic certification to:

The General Manager,
P. O. Box 66430,
Fax: 331637
Nairobi

or can send e-mail: Huawei@net2000ke.com.

Closing Date: 29th February 2000.

Figure 2. "Huawei job ad in Nairobi" found Daily Nation, 2000.

Within this context, alternative arrangements—eventually including Chinese finance and foreign policy—came to represent a different financial rationality, one that recalibrated time, risk, and return to support long-term infrastructural expansion. For one thing, Huawei entered Kenya in 1998 with fewer than ten employees working from a modest Nairobi office, positioning itself within a telecommunications sector newly opened to foreign investment and private competition. By then, the Shenzhen-based firm had already begun transforming from a small seller of telephone switches into one of the world's fastest-growing providers of telecommunications equipment and network solutions.

Huawei's early development illuminates the industrial strategy that underpinned this expansion. Its first branded product, the BH03—a 24-interface switch assembled from imported components—was closely modeled on Zhuhai Telecom's BH01 (Dou 2025). Such imitation was not exceptional in early 1990s China. Within a weakly enforced intellectual-property regime, replication operated as a common mechanism of technological learning, adaptation, and industrial upgrading. However, Huawei gradually distinguished itself from domestic competitors such as ZTE, which relied more extensively on joint ventures to obtain foreign expertise, by investing heavily instead in internal research and development capacity. Initially financed through ventures including Mobeco Telecom, this strategy reflected founder Ren Zhengfei's conviction that Western firms would not willingly, even through joint ventures, transfer their most advanced technologies. Innovation consequently emerged not merely as a commercial or technical imperative, but as a strategic project aimed at building capacity and reducing dependence within a global production system structured by unequal control over technological knowledge.

By the time Huawei entered Kenya—and expanded across Africa more broadly—it was no longer a peripheral equipment trader but an emerging infrastructural actor capable of constructing networks, training engineers, and establishing durable relationships with telecommunications operators and state institutions (Kassamani 2001). Unlike many Western firms whose activities were bounded by conventional commercial-risk thresholds, Huawei operated through an institutional approach in which corporate investment was supported by state-linked finance and wider Chinese policy objectives. Critically, this arrangement did not eliminate risk, but distributed it across a broader set of Chinese institutions, enabling longer investment horizons and more substantial infrastructural commitments. As one Huawei official observed, many African markets had historically been regarded as "not very profitable," with limited competition and prohibitively high costs imposed by incumbent Western providers—conditions that rendered them unattractive within prevailing commercial frameworks.

Huawei's internationalization involved more than expanding sales abroad. It required reorganizing the conditions under which a Chinese firm could compete within a technological order dominated by entrenched Western incumbents such as Cisco Systems, Lucent Technologies, Nokia, and Alcatel, whose command of intellectual property, technical standards, and high-end infrastructure shaped the terms of participation in the global digital economy. Entering this landscape demanded not only competitive products, but an institutional reconfiguration of finance, risk, and market access. Chinese state-linked institutions, including the People's Bank of China and the China Development Bank, directed financial resources toward overseas corporate expansion, distributing the risks of entry across a wider institutional architecture (Kirby, Chan, and McHugh 2020). The USD 10 billion credit line extended to Huawei's overseas customers exemplified this model (Hu 2011). Financing operated not simply as corporate support, but as an enabling infrastructure connecting the firm, Chinese financial institutions, and host-country markets. Risk was not eliminated; it was redistributed in ways that allowed Huawei to make substantial infrastructural commitments where competitors operating under narrower commercial thresholds might hesitate or withdraw.

This financial architecture complemented Huawei's own technological and organizational development. The company's trajectory was supported by credit from state-linked financial institutions, including China Merchants Bank, and unfolded within a broader national effort to cultivate domestic technological capabilities (Dou 2025). Its international expansion emerged from the interaction of corporate experimentation, internal research and development, state-supported finance, and an overlapping—though not necessarily unified—concern among Huawei and Chinese policymakers with reducing technological dependence on Western incumbents. Huawei's expansion into Kenya, and Africa more broadly, became possible through the convergence of substantial infrastructural deficits, growing demand for affordable telecommunications services, Beijing's supply-side support, and the firm's expanding technical and organizational capacities. These conditions created the opportunity for overseas growth, while Huawei's institutional formation shaped how it assessed risk, structured financing, supplied technology, and cultivated long-term relationships abroad. Its African expansion was therefore neither the straightforward execution of Party-state policy nor an exclusively commercial venture. It arose from the contingent alignment of national industrial strategy, corporate ambition, state-linked finance, and African governments' pursuit of digital capacity.

With its willingness to absorb some of the risk, Huawei consequently positioned itself not simply as an equipment vendor, but as a long-term participant in Kenya's evolving telecommunications ecosystem. A 2000 recruitment advertisement issued by its Nairobi office, seeking marketing managers and senior engineers with expertise in switching systems, synchronous digital hierarchy, and wireless technologies, provides an early indication of this strategy. The positions required personnel capable of implementing and managing telecommunications projects across East Africa, suggesting that Huawei was developing the organizational and technical capacity necessary for sustained growth. What emerged was therefore more than market entry: it was the gradual consolidation of an infrastructural presence through which new technological capabilities and relations of dependence were produced together. Infrastructure became both a means through which Kenya pursued expanded digital capacity and a mechanism through which dependency on external finance, proprietary technologies, and technical expertise became institutionalized.

Huawei's expansion illuminates a deeper structural tension. China's effort to reduce its technological dependence on Western incumbents was enabled partly through outward expansion into markets where its firms could accumulate revenue, technical experience, and influence over emerging infrastructures and standards. African countries—and markets across the Global South—became important sites within this process. Demand for affordable telecommunications systems created opportunities for Chinese firms to consolidate their capabilities and extend their global reach, even as recipient states entered new relations of technological dependence framed through the language of partnership. The aspiration to digital sovereignty thus traveled in both directions, animating policy in Nairobi as well as Beijing, but its material realization remained profoundly asymmetrical.

China's "Going Global" strategy (*Zǒuchūqù Zhànlüè*) provided the institutional machinery for this expansion. First articulated through the State Council's 1999 "Notice on Encouraging Enterprises to Engage in Overseas Processing and Assembly Business," the strategy encouraged national champions such as Huawei and ZTE to move beyond equipment exports toward sustained overseas investment and technological innovation (People's Republic of China 1999). State-backed finance and policy support enabled these firms to enter markets that conventional commercial frameworks frequently regarded as insufficiently profitable. In Kenya, this outward strategy took material form through telecommunications networks, financing arrangements, training programs, and long-term vendor relationships. Huawei's presence was therefore not simply commercial. It

embedded China's industrial ambitions within Kenya's pursuit of digital capacity, producing infrastructures that expanded state capabilities while institutionalizing reliance on externally controlled technologies, finance, and expertise.

Africa, then, did not simply receive infrastructure; it became integral to the financial and strategic architecture through which Beijing internationalized its firms, cultivated new markets, and pursued technological sovereignty. Taylor and Zajontz (2020) interpret this engagement as a spatial fix through which surplus capital, industrial capacity, and technical expertise are projected outward to alleviate domestic pressures and open new avenues for accumulation. Such expansion responds to recurring pressures within capital accumulation—including overcapacity, market saturation, and declining returns—by seeking new geographical sites in which capital can be invested, infrastructure constructed, and industrial capabilities extended. African economies were therefore not passive destinations for Chinese capital, but constitutive sites in the reproduction and internationalization of China's political economy.

Viewed through this lens, the language of mutually beneficial partnership and South–South solidarity captures only part of the relationship. China's rise and African development trajectories are materially intertwined, but not on equal terms. China's technological autonomy is partly assembled through infrastructures, markets, mineral supply chains, and technical standards extending across Africa and other regions. These arrangements can expand Beijing's strategic room for maneuver while narrowing that of recipient states by embedding them within externally financed, proprietary, and technologically governed systems. The outward extension of digital networks, capital, and standards therefore does not eliminate dependency or risk; it reorganizes their distribution. Uncertainty may be transferred, deferred, or absorbed across interconnected sites, while the technological autonomy secured by one actor is partly enabled through constraints placed on the choices of another.

Within the Going Global strategy (Yu 2011), infrastructure investment was not evaluated solely by its immediate financial returns. It was also understood as a modality through which China could anchor long-term political relationships, consolidate diplomatic ties, and extend its influence across strategically important sectors (Pomfret 2016). This dimension is particularly salient in Africa, whose 54 states constitute the largest regional voting bloc within the U. N. and an important constituency across other multilateral institutions. African governments have consequently provided significant diplomatic support to Beijing. For instance, African votes were instrumental in restoring the People's Republic of China's seat at the U. N. in 1971, prompting Mao Zedong to remark that African countries had "carried" China into the organization (Lin, Zhao, and Pang 2021).

Against this backdrop, lending by institutions such as the China Development Bank and the Export-Import Bank of China prioritized telecommunications, energy, mining, and transport in Africa—sectors in which sustained infrastructural and financial presence could generate political, economic, and strategic influence over time. China's extensive involvement in African critical-mineral sectors further illustrates this logic, reinforcing its position within global supply chains while shaping the terms of wider geopolitical competition. Financial exposure was therefore not simply avoided or minimized; it was institutionalized through state-backed credit arrangements that extended repayment horizons, absorbed short-term volatility, and subordinated immediate profitability to longer-term strategic objectives. Infrastructure investment, in this configuration, operates as more than an economic intervention. It becomes a geopolitical instrument through which relationships are consolidated, dependencies are organized, and the future distribution of strategic power is shaped.

Viewed from Kenya, Beijing's engagement—and the growing presence of firms such as Huawei—appeared broadly aligned and compatible with the country's liberalization agenda, supplying financial and technical resources for the expansion of digital capacity. Huawei's

interventions, in particular, were welcomed as a technological fix: a modality of addressing chronic bandwidth scarcity, extending telecommunications access, and embedding digital infrastructure within the everyday practices of citizens and entrepreneurs. These projects also critically furnished visible and calculable evidence of progress, allowing technological deployment to operate as a proxy for broader processes of modernization and structural transformation.

The company's first major contract—the development of an "Intelligent Network Platform" in partnership with Telkom Kenya—captures this dynamic (Daily Nation 2001). Created following the dissolution of the Kenya Posts and Telecommunications Corporation, Telkom Kenya embodied the changing governance logic of liberalization: it remained state-owned but was restructured to operate according to the disciplines of a competitive market. Beginning in 1999, Telkom and Huawei collaborated on a KSh 450 million platform that introduced prepaid calling cards and toll-free services, instruments intended both to expand access and stimulate consumer demand (Daily Nation 2001). At the platform's launch, Transport and Communications Minister Musalia Mudavadi declared that telecommunication has now become a basic need. We are living in a world where the speed of communication is as crucial as the message being transported" (Daily Nation 2001:6). His statement distilled a modality of governance in which speed, access, and technical capacity became calculable indices of national progress. Within this framework, infrastructure did not merely support development; its expansion became both the evidence and the measure of development itself.

Liberalization thus opened space not only for corporate entry, but for a technopolitics of development in which privately supplied digital infrastructure became constitutive of state capacity itself. Firms such as Huawei were not simply service providers; they became co-producers of the state's infrastructural presence, embedded within the technical systems through which authority was exercised, services delivered, and developmental progress made visible.

Huawei on the Rise: Risk, Power, and the Reorganization of Dependency

By the early 2000s, Huawei had moved from a peripheral entrant to a major infrastructural actor in Africa's telecommunications sector. Its presence was concentrated at the foundations level of digital connectivity—network equipment, switching systems, and fibre optic cables—even as the company remained comparatively less established within software and application layers. Multimillion-dollar contracts made visible how infrastructure provision could serve simultaneously as a means of accumulating technical credibility, securing durable market presence, and extending geopolitical reach. Within only a few years of operating on the continent, Huawei had secured government tenders worth more than $400 million. These included two agreements with Zimbabwe's state-owned telecommunications operators valued at $322 million, as well as a $34 million contract with Telkom Kenya to upgrade the Intelligent Network platform it had previously installed (Daily Nation 2004). As the archival record demonstrates, these were not isolated commercial victories. They formed part of a broader process through which Huawei embedded its technologies, expertise, and organizational presence within the evolving foundations of Africa's digital infrastructure.

For one thing, Huawei's appeal was not reducible to price alone. Its prior Intelligent Network project with Telkom Kenya had proven satisfactory, enabling seamless upgrades that expanded prepaid capacity and extended internet access to broader populations. These arrangements were not merely imposed; they were actively taken up by African governments seeking to navigate constrained investment environments and expand infrastructural capacity. What followed was not merely intensified competition between Chinese and Western firms, but a reconfiguration of

telecommunications governance in Africa—one in which cost, capability, and control became inseparable from the global politics of technological ownership and access.

A closer examination of this tender process reveals how Huawei converted its institutional and technological development into a competitive advantage. The company secured the contract against more than twenty bidders by combining aggressive pricing with broadly comparable technical capacity (Daily Nation 2004). Its closest competitor, Alcatel, like many of the other firms involved, relied on equipment supplied by Cisco Systems, then the dominant vendor. This common dependence on an incumbent supplier narrowed the scope for price differentiation among Western bidders. Huawei, by contrast, operated through a distinct cost structure, combining lower labor costs with equipment developed largely through its own research and production systems.

Neither was this capacity incidental nor achieved through a linear process of endogenous innovation. From the mid-1990s, Huawei invested heavily in research and development, establishing centers in Shanghai and Beijing and later extending its research operations to India (Fan 2011). Its technological trajectory combined improvisation, adaptation, imitation, and incremental refinement. Critics have pointed to practices that tested or crossed the boundaries of intellectual-property law. Yet Huawei's development must also be situated within the broader dynamics of late industrialization, in which firms frequently acquire technological capability by absorbing, adapting, and progressively internalizing knowledge initially controlled by established producers. Its research investments were, moreover, embedded within a wider state-supported effort to cultivate domestic technological capacity. Through participation in national initiatives—including a billion-dollar program intended to strengthen China's semiconductor industry—Huawei benefited from public investment directed toward industrial upgrading and reduced dependence on foreign technology. The advantage visible in the Kenyan tender was therefore not simply one of cheaper labor or lower prices. It reflected the accumulated effects of corporate learning, internal research, state support, and a national project of technological autonomy.

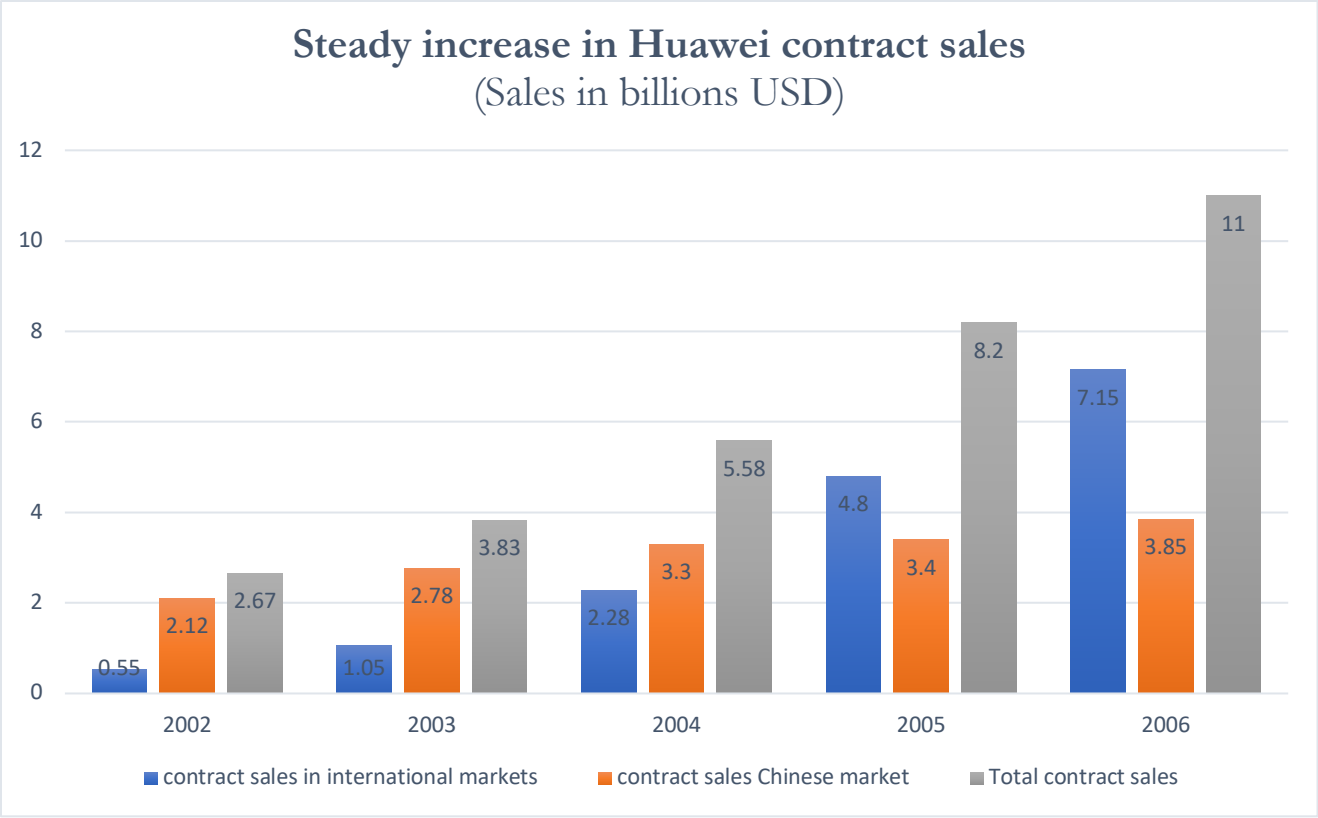

Figure 3. "Huawei Contract Sales" found in Huawei Annual Report, 2006

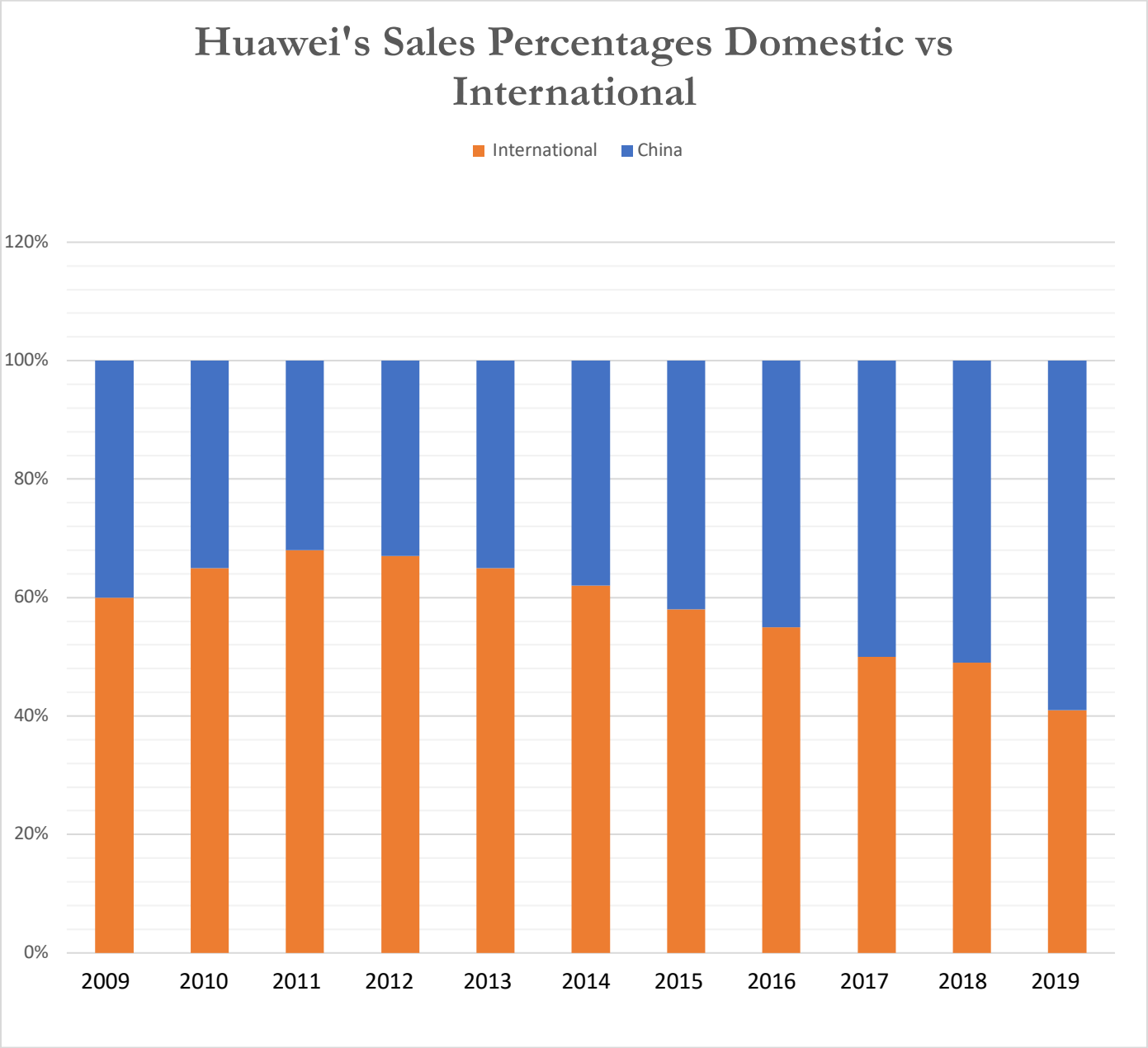

Figure 4. "Huawei Sales Percentages" found in sources: author compiled data from Huawei annual reports

In this light, Huawei's competitive advantage cannot be explained by subsidies or pricing strategy alone, as conventional accounts often imply. It reflected a historically situated process of capability-building through which dependence on Western technologies was progressively converted into technical competence and, ultimately, global competitiveness. Its expansion into Africa subsequently did more than deliver lower-cost infrastructure; it materialized an alternative pathway of technological development, forged through the strategic reworking of the asymmetries that Chinese firms had once confronted. This trajectory was neither spontaneous nor exclusively corporate. Liu Huaqing, then vice chairman of the Central Military Commission, visited Huawei's offices as early as 1996 (Gilley 2000), signaling the firm's growing alignment with state ambitions to reposition China within the global technological order. At the same time, the Shenzhen municipal government facilitated access to capital through high-technology investment funds, embedding Huawei within local experiments in industrial upgrading and digital modernization (People's Republic of China 1999).

By 2005, Huawei's international sales had surpassed its domestic revenues, marking an inflection point at which corporate expansion became increasingly intertwined with a broader national project of technological ascent. Ren Zhengfei's articulation of the firm's mission—"to develop national industry, keep pace with advanced technology, and build through indigenous research" (Qie and Li 2004)—captured this convergence of corporate strategy and national ambition. His later observation that "many wars broke out in Africa in the 1990s… so we took that opportunity" (Kirby, Chan, and McHugh 2020: 5) reveals the uneven geography through which this ascent unfolded. Markets regarded by established Westen firms as unstable, peripheral, or insufficiently profitable became spaces in which Huawei could accumulate experience, consolidate capabilities, and extend its infrastructural reach. China's movement towards technological autonomy was thus partly assembled through expansion into African environments whose political and economic vulnerabilities created opportunities for corporate entry.

Nonetheless, Huawei's rapid ascent attracted both geopolitical scrutiny and commercial contestation. For one thing, Huawei had already drawn the attention of the National Security Agency for its operations in Iraq and Russia—an early indication of how its global expansion would intersect with emerging geopolitical anxieties (Dou 2025). In Kenya, competitors questioned the plausibility of Huawei's bids, particularly its pricing strategy. Following the announcement of its Telkom Kenya upgrade contract, rival Western firms lodged formal complaints, arguing that Huawei's offer—discounted by approximately 65 percent, to about $4.8 million—was economically unsustainable under conventional market conditions (Daily Nation 2004).

At first glance, such pricing appears to confirm concerns about distortion. Yet focusing strictly on price can obscure the broader machinations and shifts. The issue is more than that Huawei could undercut competitors, but that it operated according to a different calculus of viability in Africa—one in which infrastructure projects were evaluated not only in terms of immediate return but also as components of longer-term financial, technical, and geopolitical commitments. What appeared implausible within prevailing commercial frameworks instead exposed their limits, particularly in high-risk environments where meager or short investment horizons render large-scale infrastructure difficult to finance. Accordingly, Huawei's continued success in securing and executing contracts across Africa thus signals not a breakdown of market rationality but the emergence of an alternative one—where pricing, financing, and state backing are integrated to expand what can be built and sustained on the continent.

These suspicions among Western firms reflected more than commercial rivalry. They expressed a deeper unease about Chinese state support, intellectual-property practices, and the technological futures being built through Chinese infrastructure. Allegations—some credible, others overstated—that Huawei relied on imitation or operated at the margins of established intellectual-

property norms exposed a broader tension: the rules governing technological innovation have also historically shaped, and often restricted, the access of late-industrializing firms and states to advanced knowledge and technical systems.

Intellectual-property regimes are commonly defended as necessary foundations of innovation, providing legal protections and financial incentives for firms to invest in research and development. In principle, mechanisms such as licensing and joint ventures also permit technological diffusion. Yet these pathways are neither neutral nor equally accessible. High licensing costs, restrictive contractual terms, limited knowledge transfer, and asymmetries in bargaining power can prevent late-industrializing firms from meaningfully acquiring and internalizing advanced capabilities. Intellectual-property protection may therefore stimulate frontier innovation while simultaneously constraining the practices of adaptation, reverse engineering, and incremental improvement through which technological catch-up has historically occurred.

This context does not render infringement irrelevant or inherently legitimate. It does, however, complicate accounts that treat imitation simply as evidence of corporate misconduct detached from the unequal organization of technological knowledge. Such practices may also operate as strategies of capability acquisition through which firms seek to overcome exclusion from higher-value segments of the global economy. Intellectual property, in this configuration, operates not merely as a neutral legal framework, but as an institutional architecture that regulates access to knowledge and structures the uneven distribution of technological capacity across the global economy.

Of course, this does not render African governments passive actors. Policymakers and technical elites in Kenya and beyond strategically navigate dependency, leveraging competing geopolitical interests, financing arrangements, and institutional partnerships to advance domestic agendas. Their agency is constrained but consequential: Chinese capital is selectively appropriated and embedded within local political and developmental projects, even as the terms of engagement remain asymmetrical. Dependency is therefore neither simply imposed nor overcome. It is negotiated in ways that may generate immediate advantages while reproducing the structures that delimit longer-term autonomy.

Beyond this strategic navigation, Africa's liberalizing yet infrastructurally constrained economies provided institutional and technical environments that Chinese firms found unusually legible. Their appeal lay not only in the relative absence of Western competition, but in the correspondence between African development conditions and those within which firms such as Huawei had themselves accumulated capability. As Huawei officials in Nairobi explained, these operating environments were "familiar"—not because African and Chinese trajectories were identical, but because both had been shaped by late industrialization, infrastructural unevenness, and subordinate integration into global markets. One Huawei employee noted that conditions ranging from "very poor and unstable power" to "hot… dusty environments" resembled those the company had encountered during China's own earlier development trajectory. African markets consequently appeared not as wholly unfamiliar frontiers, but as technically intelligible environments in which Huawei could adapt equipment, accumulate operational experience, and consolidate its infrastructural capabilities. Its expansion into Kenya was therefore not merely a pursuit of market share. It formed part of a broader process through which Huawei moved into higher-value technological activity while helping to reconfigure the infrastructures and financial pathways through which global connectivity was built. What was reorganized was not only where infrastructure was deployed, but how its risks, standards, capabilities, and benefits were distributed across space.

It is through this reorganization that risk emerges as a governing logic of infrastructural development. Risk does not merely constrain access to capital; it shapes where investment flows, the forms through which it becomes available, and the institutional relationships on which projects

depend. The classification of African economies as high-risk does not necessarily foreclose development, but channels it through particular arrangements: concessional or higher-cost lending tied to external contractors, vertically integrated delivery models, proprietary technologies, and long-term service agreements. Chinese state-backed finance does not eliminate uncertainty within these environments. It redistributes exposure across firms, lenders, states, and host governments, enabling projects to proceed while dispersing ownership and operational control. Debt does not in itself produce dependency; dependency emerges from the terms through which risk is managed. When financing binds infrastructure to external technical expertise, proprietary systems, and continuing maintenance relationships, repayment obligations become inseparable from longer-term operational reliance. Dependency, in this formulation, is not an unintended byproduct of development, but an operational condition through which infrastructure is financed, technological capacity expanded, and sovereignty exercised under constraint.

To be sure, externally mediated investment neither precludes the development of local capacity nor renders African states passive recipients of infrastructure. As the discussion below demonstrates, Chinese-financed projects, like other externally supported initiatives before them, can expand networks, facilitate technological learning, and enable new forms of economic activity. The issue is not whether such arrangements produce capacity, but the terms under which that capacity is assembled and sustained. When financing is tied to external contractors, proprietary technologies, and long-term service agreements, responsibility for maintaining, upgrading, and operating infrastructure remains distributed across actors beyond the state's control. Capacity expansion can therefore coexist with continuing operational dependence: local actors gain access to systems whose long-term viability rests on external expertise, standards, finance, and technical support. Dependency, in this formulation, is not the opposite of development but one of the conditions through which development is pursued.