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Digital Economic Cooperation between China and Africa: A Global South and Dependency Theory Perspective

Cooperación económica digital entre China y África: Una perspectiva desde el Sur Global y la teoría de la dependencia

Coopération économique numérique entre la Chine et l'Afrique : Perspectives des pays du Sud et de la théorie de la dépendance

Cooperação Económica Digital entre a China e África: Uma Perspectiva do Sul Global e da Teoria da Dependência

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ABSTRACT The rapid growth of the digital economy is reshaping global economic structures and competition patterns. As part of the Belt and Road Initiative, the "Digital Silk Road" has strengthened China-Africa ties, making digital economy cooperation a key focus. This paper, from the perspectives of Global South and dependency theory, argues that China-Africa digital economic collaboration does not create dependence. Instead, it reduces Africa's reliance on northern countries and improves its global standing. Unlike northern nations, China, as a leader in the digital economy, aims to empower the Global South and correct global inequalities through cooperation. The partnership has shown great potential, with achievements in digital infrastructure, e-commerce, and cultural industries. However, challenges remain at various levels: globally, geopolitical tensions rise; regionally, Africa faces a digital divide; nationally, there are internal resistances; and socially, issues like poverty and cultural clashes pose obstacles. Despite these challenges, the "Digital Silk Road" offers Africa the chance for economic diversification and industrial upgrading, paving the way for a more equitable, sustainable future. China and Africa must continue to collaborate, leveraging technology for mutual growth and a shared digital future.

Keywords: Digital Economy, Digital Silk Road, China-Africa Cooperation, Global South, Dependency Theory

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RESUMEN El rápido crecimiento de la economía digital está transformando las estructuras económicas globales y los patrones de competencia. Como parte de la Iniciativa de la Franja y la Ruta, la "Ruta de la Seda Digital" ha fortalecido los lazos entre China y África, convirtiendo la cooperación en economía digital en un eje central. Este artículo, desde la perspectiva del Sur Global y la teoría de la dependencia, argumenta que la colaboración económica digital entre China y África no genera dependencia. Por el contrario, reduce la dependencia de África de los países del norte y mejora su posición global. A diferencia de las naciones del norte, China, como líder en la economía digital, busca empoderar al Sur Global y corregir las desigualdades globales mediante la cooperación. La alianza ha demostrado un gran potencial, con logros en infraestructura digital, comercio electrónico e industrias culturales. Sin embargo, persisten desafíos a diversos niveles: a nivel mundial, aumentan las tensiones geopolíticas; a nivel regional, África enfrenta una brecha digital; a nivel nacional, existen resistencias internas; y a nivel social, problemas como la pobreza y los choques culturales plantean obstáculos. A pesar de estos desafíos, la "Ruta de la Seda Digital" ofrece a África la oportunidad de diversificar su economía y modernizar su industria, allanando el camino hacia un futuro más equitativo y sostenible. China y África deben seguir colaborando, aprovechando la tecnología para el crecimiento mutuo y un futuro digital compartido.

Palabras clave: Economía digital, Ruta de la Seda Digital, Cooperación China-África, Sur global, Teoría de la dependencia

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RÉSUMÉ La croissance rapide de l'économie numérique remodèle les structures économiques mondiales et les modèles de concurrence. Dans le cadre de l'initiative « Ceinture et Route », la « Route de la Soie numérique » a renforcé les liens sino-africains, faisant de la coopération en matière d'économie numérique un axe essentiel. Cet article, s'appuyant sur les perspectives des pays du Sud et la théorie de la dépendance, soutient que la collaboration économique numérique sino-africaine ne crée pas de dépendance. Au contraire, elle réduit la dépendance de l'Afrique envers les pays du Nord et améliore sa position mondiale. Contrairement aux pays du Nord, la Chine, en tant que leader de l'économie numérique, vise à autonomiser les pays

du Sud et à corriger les inégalités mondiales par la coopération. Ce partenariat a démontré un potentiel considérable, avec des avancées dans les domaines des infrastructures numériques, du commerce électronique et des industries culturelles. Cependant, des défis subsistent à divers niveaux : à l'échelle mondiale, les tensions géopolitiques s'intensifient ; à l'échelle régionale, l'Afrique est confrontée à une fracture numérique ; à l'échelle nationale, des résistances internes persistent ; et sur le plan social, des problèmes tels que la pauvreté et les conflits culturels constituent des obstacles. Malgré ces défis, la « Route de la Soie numérique » offre à l'Afrique la possibilité de diversifier son économie et de moderniser son industrie, ouvrant la voie à un avenir plus équitable et durable. La Chine et l'Afrique doivent poursuivre leur collaboration, en exploitant les technologies pour une croissance mutuelle et un avenir numérique commun.

Mots-clés : Économie numérique, Route de la soie numérique, Coopération Chine-Afrique, Sud global, Théorie de la dépendance

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RESUMO O rápido crescimento da economia digital está a remodelar as estruturas económicas globais e os padrões de concorrência. No âmbito da Iniciativa Faixa e Rota, a "Rota da Seda Digital" reforçou os laços entre a China e África, tornando a cooperação na economia digital um foco central. Este artigo, na perspectiva do Sul Global e da teoria da dependência, defende que a colaboração económica digital entre a China e África não cria dependência. Em vez disso, reduz a dependência de África em relação aos países do Norte e melhora a sua posição global. Ao contrário das nações do Norte, a China, como líder na economia digital, visa fortalecer o Sul Global e corrigir as desigualdades globais através da cooperação. A parceria demonstrou um grande potencial, com conquistas nas infraestruturas digitais, comércio eletrónico e indústrias culturais. No entanto, ainda existem desafios a vários níveis: a nível global, as tensões geopolíticas aumentam; regionalmente, África enfrenta uma exclusão digital; nacionalmente, existem resistências internas; e socialmente, questões como a pobreza e os conflitos culturais representam obstáculos. Apesar destes desafios, a "Rota da Seda Digital" oferece a África a oportunidade de diversificação económica e modernização industrial, abrindo caminho para um futuro mais equitativo e sustentável. A China e África devem continuar a colaborar, alavancando a tecnologia para o crescimento mútuo e para um futuro digital partilhado.

Palavras-chave: Economia Digital, Rota da Seda Digital, Cooperação China-África, Sul Global, Teoria da Dependência

INTRODUCTION

Since the founding of the People's Republic of China in 1949, China and Africa have maintained a close partnership built on mutual support and a shared vision for the future. Together, China and Africa represent one-third of the world's population, and the modernization of these two regions is essential for realizing the broader development of the Global South. Over the decades, China has achieved tremendous economic progress and governance improvements, which have been complemented by its deepening ties with Africa. During the opening ceremony of the 2024 Forum on China-Africa Cooperation (FOCAC), Chinese President Xi Jinping emphasized that, after nearly 70 years of joint efforts, China-Africa relations are now at their strongest point in history. He proposed elevating bilateral relations to the level of strategic partnerships, positioning China-Africa relations as an all-weather alliance that strives for a shared future in the new era (Xi,2024).

As we enter the digital age, it has become increasingly important to consider how China can support

the Global South, including Africa, in fostering collective development to build a more equitable world. China and Africa must work together to promote growth in this evolving landscape, with collaboration in the digital economy serving as a crucial component of their joint efforts.

The rapid rise of the digital economy is reshaping the global economic landscape and altering patterns of international competition. Technological innovation is often described as the "lever of prosperity" and has consistently been a driving force behind economic and social progress(Abramovitz,1956). Throughout the history of human industrial civilization, four major general-purpose technologies have shaped the world: steam engines, electric power, internal combustion engines, and digital technology. Steam engines drove the first industrial revolution, while electricity and internal combustion engines powered the second. Today, digital technology, as the latest and most influential general-purpose technology, is the driving force behind the fourth industrial revolution (Tencent,2020).

The current phase of the digital revolution is characterized by the convergence of multiple technologies—such as the Internet of Things, blockchain, cloud computing, big data, machine learning, and artificial intelligence—leading to rapid dissemination and shorter iteration cycles(Rotman,2020). This transformation is fundamentally reshaping traditional methods of production, governance, and international relations (Schwab,2016).

In the economic realm, digital technology has become indispensable for critical systems, such as commodity transportation, resource allocation, international finance, and infrastructure management. In the military domain, the digitization of warfare has become integral to strategic operations, enabling decentralized command structures and resource optimization through digital technologies(Krepenevich,1994). In the cultural domain, digital innovation is giving rise to new cultural forms, transforming how information is disseminated and how cultures interact globally. Digital media's influence in shaping national soft power and cultural identity has received growing attention, underscoring its role in modern international communication(Kim,Trimi& Chung,2014).

The economic model of general-purpose digital technology is the digital economy, which encompasses "a series of economic activities that use data as key production factors, modern information networks as significant carriers, and information and communication technologies as critical drivers for improving efficiency and optimizing economic structure." (NBSC,2021) Simply put, the digital economy is fueled by data, networks, and digital technology as its catalyst.

According to the China Academy of Information and Communications Technology, the digital economy can be categorized into four main areas: digital industrialization, industrial digitization, digital governance, and data valorization. Digital industrialization refers to industries related to information and communication technology (ICT), such as electronic manufacturing, telecommunications, software, and the internet industry. Industrial digitization involves applying digital technologies to traditional sectors to enhance efficiency, including fields like intelligent manufacturing, the Internet of Vehicles, and platform economies. Digital governance focuses on integrating technology with governance frameworks to improve public services and promote diverse governance mechanisms. Lastly, data valorization includes all activities that enhance data value, such as data collection, standardization, pricing, circulation, and protection (CAICT,2021).

The global economy is transitioning from a traditional industrial model to a digital economy, which has become a major engine for societal development. In 2023, the global digital economy reached $44.71 trillion, accounting for 42.66% of the world's GDP (CAICT,2024). The digital economy is expanding at an unprecedented speed, reshaping the economic structure, and altering the competitive landscape worldwide (Xi,2022).

Looking ahead, the digital economy's share within the broader economic structure is expected to grow further, both in China, Africa, and globally. However, Africa still faces significant challenges, including a relatively weak digital infrastructure and limited technological capabilities. This makes international cooperation essential for sustainable progress. In recent years, under the framework of the Belt and Road Initiative and FOCAC, China-Africa collaboration in the digital economy has produced significant results, becoming a model for Global South cooperation. Nonetheless, challenges and disputes also exist, highlighting the need for balanced and mutually beneficial approaches to ensure the long-term success of these partnerships. Recent developments further underscore the growing significance of China-Africa digital cooperation. At the September 2024 Forum on China-Africa Cooperation (FOCAC) Beijing Summit, both sides adopted the China-Africa Digital Cooperation Development Action Plan (2025–2027), which prioritizes artificial intelligence cooperation, data security frameworks, and digital capacity-building initiatives. In parallel, the African Union's e-commerce protocol under the African Continental Free Trade Area (AfCFTA) began trial implementation in early 2025, providing a new institutional foundation for expanding China-Africa digital trade.

Statement of the Research Questions

Since the Belt and Road Initiative was proposed, the "Digital Silk Road" connecting China and Africa has become increasingly significant, positioning digital economy cooperation as a new highlight of China-Africa relations. This paper aims to explore two key questions: first, whether digital economy cooperation between China and Africa will lead to Africa's dependence on China; and second, why this cooperation has achieved notable success and holds great promise for the future.

China's digital economic initiatives in Africa have undoubtedly promoted development on the continent and advanced Chinese interests to some extent. However, questions remain as to whether these investments may lead to deeper dependence on China, attracting considerable attention from the global academic community.

More recently, new criticisms have emerged in Western media and think tanks such as Chatham House and Brookings, which warn of potential risks to data sovereignty and cybersecurity stemming from Chinese-built digital infrastructure. Within Africa itself, some scholars and policymakers have also cautioned against over-reliance on a single partner, emphasizing the importance of diversified digital cooperation to safeguard long-term autonomy. Critics argue that China's economic activities in Africa could create asymmetric dependence, with some even characterizing these initiatives as "neo-colonialism". Concerns include the potential for a "debt trap," a lack of technology transfer, and the possibility that China is primarily extracting resources for its benefit. For instance, Lamido Sanusi, the Governor of the Central Bank of Nigeria, pointed out that China buys Africa's primary products and sells the finished goods back, a dynamic he likens to colonialism (New York Times,2013). Moreover, scholars like Phineas Bbaala argue that without adequate technology transfer, Africa risks becoming overly dependent on China, hindering its ability to achieve sustainable development (Bbaala,2018).

Conversely, other scholars see China's economic activities in Africa as mutually beneficial and a critical source of development. These scholars acknowledge that China's aid serves its own interests, such as securing resource supplies and expanding export markets. However, they also argue that China offers African countries an alternative path to development—one that is free of political preconditions, thereby preserving national sovereignty. For instance, Liu Qingjian highlighted that strengthened cooperation with Africa provides a strategic foundation for China's domestic development while helping Africa integrate into the global industrial system. African leaders have also voiced support for China's initiatives, citing improvements in infrastructure and economic opportunities (Liu,2018).

Through this literature review, it is evident that both perspectives agree on the benefits of China-Africa economic cooperation but diverge on the question of whether it fosters dependency that could hinder sustainable development. Compared to traditional forms of cooperation, digital economic cooperation between China and Africa has unique characteristics, such as building digital infrastructure, enhancing digital skills, and promoting entrepreneurship, which may help mitigate dependency concerns.

This paper seeks to examine the specific dynamics of digital economic cooperation in this context—determining whether it perpetuates or reduces dependency and exploring the reasons behind its notable successes and promising future.

DEVELOPMENT

Theoretical Analysis of the Cooperation

The question of whether China-Africa digital economic cooperation will lead to asymmetric dependence on China can be effectively analyzed using dependency theory.

Dependency theory, developed in the late 1960s, posits that resources flow from the "periphery" of poorer, exploited nations to the "core" of wealthier nations, enriching the latter at the expense of the former. A central tenet of this theory is that poorer nations remain impoverished because of the unequal integration into the global system, which reinforces the wealth of core nations (Deji,2012). As Samir Amin argues, the capitalist world-system perpetuates structural dependency by organizing global production in a way that systematically transfers value from the periphery to the core. This unequal exchange ensures that peripheral economies remain subordinated and unable to achieve autonomous accumulation (Amin,1976) .

Dependency theory relies on two key premises:

1. Poor nations provide natural resources, cheap labor, outdated technology, and markets for developed nations, which helps sustain the affluent lifestyle of the latter.

2. Wealthy nations perpetuate dependence through multifaceted channels, including control over the economy, politics, culture, and media.

To understand why China-Africa digital economic cooperation does not align with these premises, two arguments can be made:

1. Mutually Beneficial Development Goals: Unlike the traditional model of wealthy nations extracting resources from poorer nations, China promotes a "win-win" partnership in Africa, focusing on shared growth. This cooperation model challenges the core-periphery framework by investing in projects that enhance both parties' capabilities. In contrast to the extractive logic critiqued by Amin—where peripheral economies are locked into supplying raw materials and consuming finished goods—China's digital cooperation emphasizes productive capacity building and endogenous growth potential (Amin, 1976).For instance, China's investment in digital infrastructure—such as fiber-optic cables and data centers—enables Africa to bridge the digital divide and become better integrated into the global digital economy. These investments are not geared toward exploitation but toward establishing a foundation for long-term development.

2. Focus on Building Capacity and Sovereignty: China's digital economic initiatives in Africa prioritize technology transfer, capacity building, and skills development, empowering African nations to achieve greater technological sovereignty. Unlike traditional "core-periphery" dynamics that focus on the central nations' benefit, China's initiatives—such as training local professionals and establishing technology hubs—help create domestic capabilities in Africa. By enhancing local skills and technological infrastructure, African nations can reduce dependency and grow independently in the digital age.

These factors challenge the traditional dependency model and demonstrate the potential for a more

balanced China-Africa relationship, one that fosters mutual empowerment rather than perpetuating exploitation. In addition to dependency theory, the lens of digital sovereignty provides fresh insights. African countries increasingly seek to establish rules and standards that protect their control over digital infrastructure and data flows, navigating between major powers in the digital era. Moreover, critiques of platform capitalism (Zuboff, 2019) highlight the risks of data commodification and monopolistic practices in the global digital economy. Compared to U.S. and European approaches, China presents itself as a partner that emphasizes technological inclusivity and localized empowerment, although this claim requires further empirical scrutiny.

Structural Analysis: The current global digital system is characterized by a center-periphery model, with the United States occupying the central position through its "digital colonial" practices. This structure reflects what Amin termed the polarization of the world economy, where technological monopolies in the core reinforce dependency and underdevelopment in the periphery(Amin, 1997) . The U.S.-led digital order exemplifies this dynamic.U.S. hegemony in software, hardware, and network control has allowed it to dominate the global digital landscape, exploiting peripheral nations by setting technical barriers, monopolizing the digital industry, and controlling global rules and narratives(Cai&Yu,2024).

In contrast, China is not at the core of this system, meaning its cooperation with Africa operates on a different plane. Rather than perpetuating digital colonialism, China seeks to break U.S. dominance through collaboration. For instance, China and Africa are working to build a "digital community with a shared future" to create a fair, open, and secure global digital ecosystem. Such efforts involve challenging existing norms and reshaping the rules to benefit developing countries, ultimately reducing dependence on any singular dominant power.

Behavioral Analysis: China has never sought to create or maintain dependence in Africa through exploitative practices. The foundation of China-Africa cooperation has always been based on reciprocity and mutual benefit. Unlike core-periphery relationships where economic, cultural, and political control is exerted, China's role in Africa has focused solely on economic development without imposing political preconditions or leveraging cultural influence(Sautman& Yan 2006).

Since the mid-20th century, China and Africa have developed a robust economic partnership that has progressed through multiple stages—from primary product exchanges to advanced technological collaborations. In the early 1950s, shortly after the founding of the People's Republic of China, China began assisting African nations despite its own limited resources. This support included establishing factories, farms, water conservation systems, energy infrastructure, transportation networks, telecommunications, and facilities for cultural, educational, and healthcare needs, exemplified by China's construction of the Tanzania-Zambia Railway.

China's cooperation with Africa spans a broad array of sectors and includes significant non-reimbursable aid. Starting in the 1960s, China has sent over 25,000 medical personnel to 48 African countries, providing medical care to approximately 230 million patients over the last six decades (China News, 2024). Importantly, these efforts have been offered without any resource-based conditionality, treating both resource-rich and resource-poor nations equally. To date, China has assisted 53 African countries, completing over 900 comprehensive projects focused primarily on infrastructure. Initiatives in agriculture, fisheries, and vocational training have also been central to this partnership (Office of the Leading Group for Promoting the Construction of the Belt and Road Initiative, 2023).

Spanning over half a century, China's engagement in Africa reflects an enduring commitment that emphasizes aid without exploitation or resource dependency. Today, digital economic cooperation marks the latest phase of this partnership. Programs such

as Luban Workshops for vocational training and the expansion of digital technology projects have enhanced local labor skills and helped unlock Africa's economic potential (Shi,2024). Additionally, China has supported infrastructure development and poverty alleviation through mechanisms like equity funds, empowering African nations to build internal capabilities and progress towards genuine post-colonial economic independence.

Claims that China's activities in Africa amount to "neo-colonialism" overlook the outcomes of these cooperative efforts. Mwangi Wachira, a former World Bank economist and Kenyan scholar, has noted that projects under the Belt and Road Initiative align closely with Africa's needs, promoting mutual respect and equality rather than reinforcing dependency. China's approach prioritizes industrial upgrading and local empowerment, challenging traditional dependency relationships.

Beyond dependency theory, the "Global South" perspective offers a complementary framework for understanding China-Africa cooperation. The rise of Global South countries and their pursuit of strategic autonomy provide a foundation for more equitable partnerships. Under the Global South framework, China and Africa can collaborate to reduce reliance on traditional powers and enhance their standing in the global arena.

As of August 2024, China's investments in Africa have reached notable milestones, including $65 billion in loans from the China Development Bank and $40 billion in direct investments. Over the past three years, Chinese enterprises have created more than 1.1 million local jobs across Africa. In the past decade alone, Chinese companies have signed contracts worth over $700 billion for projects in Africa, achieving a turnover exceeding $400 billion. Furthermore, Chinese companies have played a pivotal role in building wireless stations and high-speed mobile broadband networks, benefiting more than 900 million people on the continent.

Infrastructure development represents another core area of China-Africa cooperation, with nearly 100,000 kilometers of roads, over 10,000 kilometers of railways, nearly 1,000 bridges, and close to 100 ports either constructed or upgraded (Central Government of China, 2024). These large-scale undertakings, alongside smaller projects in transport, energy, electricity, housing, and social welfare, have significantly contributed to the economic and social advancement of African nations.

These initiatives highlight the potential of South-South cooperation to drive sustainable growth without fostering dependency. Programs like "Silk Road E-Commerce," digital trade initiatives, and digital infrastructure projects underscore a shared commitment to mutual economic growth, with benefits that extend across both China and Africa.

In a word, China-Africa digital economic cooperation is a manifestation of South-South collaboration that emphasizes mutual benefit rather than dependency. Unlike the exploitative models typical of traditional north-south dynamics, this partnership aims to foster balanced development and contribute to a more equitable world order.

Empirical Analysis of China-Africa Digital Economy Cooperation

From a theoretical perspective, China-Africa digital economy cooperation is unlikely to lead to asymmetric dependence. Under this premise, the cooperation has already achieved remarkable results and demonstrates broad potential. This success is due to the substantial growth potential of digital economic collaboration between China and Africa. The continuous driving forces—such as system renewal, institutional inertia, subject demand, and object endogeneity—have supported the deepening of this cooperation.

1. System Renewal

System Renewal refers to the process by which the global trade system adapts and evolves in response

to changing dynamics, such as the decline of a unified trade framework and the rise of regional trade systems. This renewal involves shifting from a centralized model, traditionally supported by dominant powers like the U.S., to a more regionally focused structure, addressing challenges in global governance, particularly within outdated mechanisms like the WTO. System renewal emphasizes regional cooperation, such as bilateral and multilateral agreements, to maintain stability and foster growth in response to emerging economic, technological, and ideological shifts.

The global trade system is dynamic, composed of structural and interactive units that are capable of self-renewal. Currently, the global trade landscape is characterized by two divergent trends: the diminishing role of a unified global trade framework and the rise of regional trade systems, which are playing an increasingly important role in international commerce. These shifts reflect significant reforms in the global trade environment (Huang).

The Sino-U.S. rivalry has introduced instability into the global trade system, affecting the availability of economic and trade public goods. According to hegemonic stability theory, the stability of the international system relies on a dominant power willing to provide public goods. However, China's resurgence has led to a relative decline in U.S. influence, and the changing balance of benefits and costs has weakened the U.S.'s willingness to maintain global stability. This has resulted in challenges within mechanisms such as the World Trade Organization (WTO), where negotiations have stalled, especially since 2015, and the rise of protectionism has further weakened the global trade framework. As a result, regional and bilateral trade agreements have emerged as substitutes to fill this void, helping sustain international economic activities.

The intensifying Sino-U.S. confrontation, combined with rising technological competition and ideological differences, has left the global trade system increasingly fragile. This has driven countries to place greater emphasis on regional economic cooperation as a hedge against global uncertainties. For China and Africa, multilateral and bilateral collaborations—including digital economic partnerships—have become crucial components of a stable and prosperous regional economy. Initiatives like the African Continental Free Trade Area (ACFTA) and the China-Africa Digital Silk Road exemplify how regional partnerships can address trade challenges and promote stability.

The existing mechanisms that govern global public goods, especially within the digital economy, are outdated. They fail to account for the unique characteristics of the modern digital economy, thus inadequately supporting international digital cooperation. The WTO, established in 1995, is struggling to adapt to the demands of the digital age, as evidenced by the stalled Doha Round of negotiations. Regionalization and globalization should be seen as complementary processes—regional agreements help address the shortcomings of global governance by providing flexible and context-specific solutions.

To better facilitate digital economy development, China and African countries need to deepen digital cooperation. Such efforts can help bridge the gaps in digital public goods and create more agile frameworks for economic collaboration. Strengthening regional ties will not only promote foreign trade across Africa but also serve as a stepping stone toward broader optimization of the global trade system. This will help ensure that trade mechanisms remain relevant and effective in an increasingly digitalized global economy.

2. Institutional Inertia

Institutional Inertia refers to the tendency of established cooperative institutions and mechanisms to sustain momentum in collaboration by reducing transaction and coordination costs. In the context of China-Africa relations, this inertia stems from well-developed cooperative frameworks, such as FOCAC and

the Digital Silk Road, which enable continued partnership and facilitate the implementation of new initiatives. Institutional inertia helps ensure that digital economic cooperation remains steady and strategic, even as the partnership adapts to new goals and challenges.

China and African countries have established robust cooperative institutions, and the continuous improvement of these institutions has reduced the cost of cooperation while promoting sustained collaboration. Strategic design and the establishment of various mechanisms provide strategic guidance and policy guarantees for China-Africa digital economy cooperation.

The Forum on China-Africa Cooperation (FOCAC) serves as the primary platform for fostering China-Africa relations, enabling pragmatic collaboration and friendly exchanges. Leveraging this mechanism, numerous initiatives for China-Africa digital economic cooperation have been launched. For instance, the "FOCAC Beijing Action Plan (2007-2009)" issued at the 2006 Beijing Summit outlined cooperation in areas such as information infrastructure, telecommunications services, network security, and human resource development in telecommunications. At the Eighth Ministerial Conference of FOCAC in November 2021, China and Africa agreed to implement the "Digital Innovation Project," which includes supporting Africa with 10 digital economy projects, establishing a China-Africa Satellite Remote Sensing Application Cooperation Center, and promoting the construction of joint laboratories, partner institutes, and innovation cooperation bases. Furthermore, in September 2024, the "FOCAC Beijing Action Plan (2025-2027)" was released, proposing the China-Africa Digital Cooperation Development Action Plan and setting out plans to construct a China-Africa Digital Technology Cooperation Center and encourage Chinese companies to implement 20 digital infrastructure and transformation projects in Africa.

China and African countries have also made substantial progress in building digital cooperation platforms and diversifying the areas of collaboration, with specific mechanisms established for digital economic cooperation, such as the China-Africa Internet Development and Cooperation Forum and the China-Africa Digital Economy Cooperation Forum. On August 24, 2021, the China-Africa Internet Development and Cooperation Forum launched the "China-Africa Digital Innovation Partnership Plan," proposing six key areas for cooperation, including digital infrastructure, digital economy development, digital education, inclusivity, digital security, and building a collaborative platform. In May 2024, the same forum issued the "Chairman's Statement on China-Africa Artificial Intelligence Cooperation," outlining initiatives such as strengthening policy dialogue, promoting technology R&D, fostering industrial cooperation, conducting talent exchanges, and building strong network and data security frameworks. On July 29, 2024, during the China-Africa Digital Cooperation Forum in Beijing, China and 26 African nations signed the China-Africa Digital Cooperation Development Action Plan, targeting six key areas: digital policy, digital infrastructure, digital innovation, digital transformation, digital security, and digital capabilities(Zhang).

The construction of the Digital Silk Road (DSR) also provides significant impetus for China-Africa digital economic cooperation. The DSR is an integral part of the Belt and Road Initiative, supporting the vision of building a shared community in cyberspace. China has introduced initiatives such as the Global Data Security Initiative, the Belt and Road Digital Economy Partnership, and the BRICS Digital Economy Partnership Framework. It also led the formulation of the Cross-border E-commerce Standard Framework, providing institutional support for the DSR. During the Third Belt and Road Forum for International Cooperation in October 2023, China, alongside 14 other "Global South" countries—including Gambia, Ethiopia, Kenya, and Sao Tome and Principe—jointly issued the "Beijing Initiative for International Cooperation on the Belt and Road Digital Economy." This initiative outlined 20 consensus points for deepening international cooperation

in the digital economy, focusing on infrastructure, industrial transformation, digital capabilities, and cooperative mechanisms.

These established institutions and mechanisms not only reduce transaction and coordination costs for China and Africa but also contribute to long-term cooperation momentum, ensuring that digital economic collaboration remains a key pillar of the evolving partnership between China and Africa.

3. Subject Demand

Subject Demand refers to the mutual need between China and Africa for digital economy cooperation, which serves the strategic interests of both parties. Africa requires digital public goods, such as infrastructure and skills training, to support its industrial and economic development, while China seeks to strengthen its geopolitical influence and expand markets for its digital economy. This complementary demand forms a foundation for sustainable and mutually beneficial collaboration. China and Africa share a mutual need for digital economy cooperation, and this collaboration fundamentally serves the interests of both sides.

Africa's Demand for Digital Public Goods: Africa requires digital public goods from China to accelerate industrial upgrading and regional development. Although Africa is making progress in integrating into the global digital economy, significant challenges remain.

• Digital Infrastructure Gap: Africa has a considerable gap in digital infrastructure, making it one of the regions with the most underdeveloped digital systems. Ongoing local conflicts, natural disasters, and substantial structural obstacles have worsened the sustainability of infrastructure development. The specific obstacles vary greatly across Africa, depending on factors such as population size and density, urbanization levels, access to digital resources, and geographical conditions. Landlocked African countries, for example, face high international transportation costs, and many least-developed countries have large rural populations, complicating efforts to promote terrestrial digital infrastructure. According to statistics, of the 54 International Telecommunication Union member states in Africa, 28 are least-developed countries, five are small island developing states, and 15 are landlocked developing countries. This diversity contributes to disparities in information and communication technology (ICT) usage—Internet utilization exceeds 60% in more developed economies, while it remains below 10% in the least-developed economies(UN).

• Digital Skills Shortage: Africa also faces a significant shortage of digital skills, which are crucial for developing the digital economy. As with internet penetration, digital talent levels vary across the continent and are generally insufficient to meet the demands of a growing digital economy. Only a small segment of the population possesses advanced digital literacy and professional skills. To overcome this shortage, some African countries seek external support for emerging sectors such as e-commerce. Many high-skilled jobs are outsourced or filled by foreign professionals, limiting the growth and adoption of the digital economy in the region. Countries are actively trying to break the "talent bottleneck" by cultivating local talent at all levels—from digital infrastructure maintenance to advanced technology research. However, the efforts face challenges related to resource availability, training capacity, and long lead times. Local training initiatives have yet to yield significant results.

China, with its advanced technology and experience in digital development, serves as an ideal partner to help bridge these gaps. The complementary capabilities between China and Africa create a strong foundation for effective collaboration, with China providing the technology and expertise needed to drive Africa's digital transformation.

China's Interests in Strengthening Digital Cooperation with Africa: Strengthening digital economic cooperation with Africa aligns with both China's political and economic interests.

• Geopolitical Significance: Africa holds strategic geopolitical importance for China, particularly in the context of growing rivalry with the United States. Digital technology has increasingly become a tool of geopolitical influence, and enhancing China's presence in Africa's digital market can help shape an international environment conducive to China's stability. For China, maintaining strong diplomatic and economic ties with Africa is crucial, especially as global competition in digital technology intensifies.

• Economic Imperatives: Amid a challenging international economic environment and significant domestic development pressures, expanding overseas markets is crucial for China to maintain high-quality economic growth. President Xi Jinping has emphasized the need to "accelerate the development of the digital economy, promote the deep integration of the digital economy with the real economy, and build a digital industry cluster with international competitiveness." Given its large population and favorable development trends, Africa represents an excellent target market for such initiatives.

Therefore, digital economy cooperation between China and Africa addresses the specific needs of both sides. For Africa, it provides essential digital public goods to support development and industrial growth. For China, it enhances geopolitical influence and creates opportunities for market expansion. The complementary nature of these interests makes digital cooperation mutually beneficial and sustainable in the long term.

4. Object Endogeneity

Object Endogeneity refers to the inherent tendency of the digital economy to foster cross-border and cross-sectoral cooperation due to its fundamental characteristics. The digital economy naturally transcends national borders, promoting the free flow of data, resources, and knowledge, which enhances connectivity and shared growth. Additionally, its application across multiple sectors—such as industrial digitization and digital governance—integrates digital solutions with traditional industries, increasing efficiency and supporting sustainable development.

The digital economy transcends national and geographical boundaries, inherently promoting cross-border collaboration (Cai&Yu,2023). The circulation of resources and knowledge is essential for economic growth, especially in the digital era. Digital technology, by its nature, crosses borders and creates spillover benefits that extend beyond individual nations, enhancing connectivity and fostering shared growth. Data, the core element of the digital economy, is inherently infinite, shareable, and open. The value of data increases with greater sharing and openness, which, in turn, drives the expansion of market scale and user bases. The mobility of digital economic factors far exceeds that of traditional economic systems, making international cooperation a critical element for maximizing the potential of digital technology. By integrating African digital markets with Chinese technological capital, both regions benefit, supporting the broader development of the regional digital economy.

The digital economy also naturally spans multiple sectors, encompassing digital industrialization, industrial digitization, digital governance, and data valorization. Each of these areas involves integrating digital technologies with traditional industries to boost efficiency and innovation. The longstanding cooperation between China and Africa in traditional sectors provides a solid foundation for digital integration. Digital technologies can be seamlessly layered onto these existing frameworks, enhancing outcomes at minimal cost. This integration facilitates higher productivity and economic diversification, contributing to sustainable development.

The cross-border and cross-sectoral dimensions of China-Africa cooperation have driven notable achievements in the digital economy. On a macro level, China and various African nations have implemented governmental strategies to advance

digital collaboration, while on a micro level, Chinese technology companies have formed partnerships with African nations, leading to significant advancements in digital infrastructure, e-commerce, and digital cultural industries. In Ethiopia, for example, Chinese firms have played an instrumental role in building digital infrastructure. Huawei, a prominent player in Ethiopia's digital landscape, has contributed to major projects, including the development of the country's largest Level III modular data center in the Gorassef area of Addis Ababa. Once completed, this data center will house 800 servers, enhancing Ethiopia's IT and network infrastructure and reducing annual operation and maintenance costs by an estimated 5–6 million birr. Huawei's investment of $3.5 million will support Ethiopia's mobile money platform, "Tele-Birr," next-generation business systems, and future expansions into colocation and cloud services, marking a pivotal milestone in the country's digital economy (Huawei, 2024).

In addition to data centers, Huawei has collaborated with Ethio Telecom to establish the SuperApp platform, integrating 42 applications to provide a comprehensive range of digital transformation services. This partnership has strengthened Ethiopia's telecommunications infrastructure, fostered local technical expertise, and advanced national digitization. Additionally, Alibaba has worked with the Ethiopian government to establish the eWTP (Electronic World Trade Platform) project, a multifunctional digital trade hub aimed at positioning Ethiopia as a central gateway for African goods exports. During the COVID-19 pandemic, the eWTP hub in Addis Ababa played a critical role in distributing medical supplies, underscoring its value in Africa's pandemic response (Xinhua, 2019).

Through these collaborations, Ethiopia has gained substantial technological advantages across telecommunications and digital services. Beyond Ethiopia, other African countries have also advanced digital cooperation with China in recent years. In Nigeria, Huawei partnered with the government in 2024 to expand 5G base stations and establish a national data center, extending coverage to over 40 percent of the population. In South Africa, Alibaba launched a regional cloud service hub in Cape Town in 2024 and deepened e-commerce integration through cooperation with Takealot, a leading domestic platform. In Kenya, China Mobile and Safaricom jointly upgraded the M-Pesa mobile money system in early 2025, expanding digital financial inclusion to rural communities and small businesses. These diverse cases demonstrate the breadth of China-Africa digital cooperation across infrastructure, e-commerce, and fintech.The adoption of modern digital solutions has elevated the digitization of key industries such as agriculture, education, and healthcare, enhancing operational efficiency and laying a foundation for Ethiopia's competitiveness in the international market. These achievements have infused new momentum into the Digital Silk Road, accelerating high-quality growth and fostering a more interconnected digital economy across Africa.

Challenges of China-Africa Digital Economy Cooperation

Despite the significant progress made in China-Africa digital economic cooperation, there are challenges at multiple levels:

1. Global Level

The global landscape presents significant challenges for China-Africa digital economy cooperation, shaped by economic downturns and rising geopolitical tensions. With the global economy in a downward cycle, economic growth forecasts for 2024 remain just above recessionary levels, posing constraints on investment and increasing financial risks for digital initiatives in both China and Africa. Concurrently, intensifying geopolitical competition, particularly between China and the United States, introduces further complexity. As the U.S. and other global players, including Europe, Russia, and India, expand their interests and partnerships in Africa, the space for unimpeded China-Africa digital collaboration becomes increasingly limited. These economic

and geopolitical pressures highlight the need for strategic adaptability and resilience to sustain and grow digital partnerships amid an evolving international environment.

The global economy is experiencing a downward cycle, which has an impact on China-Africa digital cooperation. According to the United Nations Conference on Trade and Development's latest forecast, global economic growth is expected to drop to 2.6% in 2024, barely above the 2.5% recession threshold. The OECD also predicts that global growth will slow to 2.7% in 2024, marking the lowest annual rate since the global financial crisis(UNCTAD). Such sluggish economic conditions can reduce available investment, slow project implementation, and increase the financial risk of ongoing digital initiatives. In this environment, both China and African countries may face greater challenges in securing funding for new digital infrastructure projects or expanding digital services, limiting opportunities for the growth of the digital economy.

Rising geopolitical confrontations, such as the competition between China and the United States, further complicate digital cooperation. In its 2022 National Security Strategy, the U.S. identified China as the "biggest geopolitical challenge" (White House). As the United States seeks to counterbalance China's influence in Africa, it continues to ramp up investments and partnerships in the region, which could hinder China-Africa cooperation. The rivalry also draws in other global players—European nations, Russia, and India—all of whom are increasing their outreach and investments in Africa. European countries have a longstanding interest in Africa, viewing it as part of their economic sphere of influence. Meanwhile, Russia and India have stepped up their initiatives, with Russia holding its first Russia-Africa Summit in 2019 and India closely following China's cooperation model in Africa. These external pressures can affect the space available for digital cooperation between China and Africa.

These global challenges, encompassing both economic and geopolitical factors, make it difficult for China and Africa to fully capitalize on the potential of digital economy partnerships. Economic constraints limit the availability of resources, while geopolitical competition creates uncertainty and undermines collaborative efforts. The evolving international landscape underscores the need for resilience, adaptability, and strategic diplomacy to ensure the continued growth of China-Africa digital cooperation.

2. Regional Level

At the regional level, Africa's digital cooperation with China faces significant hurdles stemming from the continent's digital divide and political instability. Limited access to digital technology and varying levels of governance capability across the continent hinder the development of a cohesive digital economy. Political instability further complicates these efforts, as it disrupts project continuity and heightens investment risks. Together, these factors create barriers to digital integration and equitable growth. However, with a focus on building local capacities, strengthening governance frameworks, and prioritizing underserved areas, China-Africa digital cooperation has the potential to bridge these divides and support sustainable regional development.

Africa faces a significant digital divide, with regional internet penetration at only 36% and less than one-third of the population having broadband access. Many areas, particularly rural regions, remain far from fiber or cable connections, which limits access to digital technologies and services. The African Union's "Africa Digital Transformation Strategy (2020-2030)" aims to create a secure digital single market by 2030, but progress is uneven. Digital governance capabilities across the continent also vary significantly, with an average score of 0.34 on the UN e-Government Development Index, compared to the global average of 0.54. Only a few countries—such as Seychelles, Tunisia, South Africa, and Mauritius—exceed this global benchmark (African Union,2020). These disparities in digital infrastructure and governance make it difficult to implement digital projects uniformly, creating barriers for China-Africa

digital cooperation initiatives that require consistent and reliable infrastructure.

Ethnic and religious conflicts, political instability, and governance issues in many African countries pose additional risks to digital cooperation. Political changes can lead to social and economic disruptions, which undermine the stability necessary for successful digital economic collaboration. Instability often results in delayed or canceled digital projects, disrupted supply chains, and increased investment risks. For instance, regions experiencing conflict may struggle to attract or retain the foreign investments needed to develop digital infrastructure. This unpredictability makes it challenging to establish long-term digital initiatives, thereby limiting the scope and effectiveness of China-Africa digital partnerships.

The digital divide and political instability are interconnected, each exacerbating the other. Poor digital infrastructure and lack of governance capabilities can fuel social inequality and exacerbate tensions, which in turn create a volatile environment for digital projects. Political instability also hinders the development of new infrastructure, deepening the digital divide. China-Africa digital cooperation, therefore, needs to address these challenges comprehensively by focusing on stabilizing governance, increasing access to digital services, and promoting regional integration initiatives.

Despite these challenges, there are opportunities for China-Africa digital cooperation to make progress. Investment in local capacity-building and digital governance could strengthen institutions, thereby reducing the impact of political instability on digital projects. Moreover, targeted digital initiatives that prioritize underserved rural areas could help bridge the digital divide while demonstrating the tangible benefits of digital cooperation.

3. National Level

At the national level, the success of China-Africa digital cooperation is constrained by a shortage of digital skills and persistent socioeconomic inequality across African countries. The lack of qualified ICT professionals hinders the implementation and sustainability of digital infrastructure projects, while socioeconomic disparities limit access to essential digital resources and opportunities. Together, these challenges perpetuate a cycle of limited technological advancement and inequality. However, by prioritizing digital skills development, strengthening local governance, and promoting inclusive access to technology, China-Africa partnerships can help build a more equitable and resilient digital economy across the continent.

A significant barrier to successful China-Africa digital cooperation is the shortage of digital skills across African countries. Basic, standard, and advanced ICT skills remain limited, with only 6% of the sub-Saharan African population possessing advanced ICT capabilities—far below the global average of 24%. Even in relatively advanced countries like Zambia, considered a leader in ICT skills, the number of professionals with advanced skills is still insufficient to meet the demands of a growing digital economy(ITU,2020). This skills gap hinders the implementation of digital infrastructure projects, limits technology transfer, and reduces the overall impact of China-Africa digital initiatives. Moreover, the "brain drain" phenomenon exacerbates this issue. Due to a lack of local opportunities and resources, many skilled African professionals leave for better opportunities abroad. The African Union estimates that 70,000 talented individuals leave Africa each year, further diminishing the available talent pool and making it challenging for digital projects to find the qualified professionals needed for successful implementation.

To mitigate this skills shortage, China-Africa cooperation can prioritize digital skills development by expanding existing training programs like the Luban Workshops, which focus on vocational training. Establishing additional technology-focused educational institutions and scholarship programs for digital skills development could help retain local talent and

provide a more sustainable base for future cooperation.

Widespread socioeconomic inequality and poverty are additional obstacles to China-Africa digital cooperation. Social inequality restricts access to education, digital tools, and opportunities for many communities, thereby deepening the digital divide and limiting the reach and success of digital initiatives. Governance structures in some African countries may also lack the capacity or resources to effectively facilitate digital cooperation projects, leading to delays, resource misallocation, or mismanagement. For example, poor local governance can result in inadequate infrastructure deployment, preventing many communities from benefiting from China-Africa digital projects.

Effective China-Africa cooperation requires addressing these governance challenges through capacity-building initiatives. Strengthening local institutions and ensuring transparency in project implementation can help maximize the benefits of digital cooperation. Additionally, targeted projects that specifically address marginalized communities could help alleviate the effects of social inequality by providing equitable access to digital services, ultimately fostering a more inclusive digital economy in Africa.

The digital skills shortage and socioeconomic inequality are interconnected, with each reinforcing the other. The lack of digital skills limits access to better job opportunities, which in turn perpetuates poverty. Similarly, inequality restricts educational opportunities, making it difficult to bridge the skills gap needed for a robust digital economy. Addressing these interconnected challenges will require a holistic approach, with China-Africa digital cooperation playing a key role by focusing on initiatives that promote local skills development, improve governance capacity, and ensure equitable access to technology.

4. Social Level

On a social level, the success of China-Africa digital cooperation is influenced by cultural, religious, and economic factors that shape local acceptance and implementation of digital projects. Cultural and religious differences can create challenges in communication and coordination, impacting project timelines and outcomes. Additionally, widespread poverty limits both access to digital infrastructure and the capacity to retain skilled professionals, further complicating collaboration efforts. Addressing these barriers requires culturally sensitive approaches, targeted investments, and skill development initiatives that promote inclusive and sustainable digital growth across Africa.

Cultural and religious differences between China and Africa can create misunderstandings and tensions that impact the effectiveness of digital cooperation. For example, cultural distinctions between collectivism (often associated with Chinese culture) and individualism (more prevalent in some African societies) can lead to challenges in decision-making and coordination. Chinese teams may prioritize group consensus and centralized decision-making, whereas their African counterparts might emphasize individual initiative, potentially causing friction during project execution.

Differences in religious practices also pose challenges. Religion plays a significant role in many African societies, and specific beliefs can influence the acceptance of certain technologies or working practices. For instance, in predominantly Muslim regions, certain restrictions on working hours or the use of specific technologies may delay project timelines. In some cases, local resistance to new technologies due to religious concerns could necessitate modifications to the technology itself or the way it is introduced. These differences can impede the efficiency and success of digital cooperation projects unless proactively addressed.

To mitigate these challenges, cross-cultural training and localized adaptations of technologies are essential. Training programs aimed at improving cross-cultural understanding can help Chinese and African teams develop more effective communication strategies,

minimizing misunderstandings. Additionally, incorporating local customs and religious practices into project planning—such as adjusting work schedules or providing culturally appropriate alternatives for certain technologies—can enhance acceptance and collaboration, making projects more inclusive and efficient.

Poverty presents significant barriers to advancing the digital economy in Africa. High levels of poverty limit the ability of both individuals and governments to invest in essential digital infrastructure, reducing access to the tools and services necessary for digital participation. This lack of investment, in turn, inhibits consumer purchasing power for digital products and services, making it difficult for digital initiatives to gain traction in certain areas.

Poverty also exacerbates the ongoing "brain drain" in Africa. Many skilled individuals leave the continent to seek better opportunities in more developed regions, further depleting the local talent pool and weakening the foundation for China-Africa digital economic collaboration. This talent migration means that even when infrastructure is in place, the local human capital necessary to operate and maintain digital systems may be insufficient.

Addressing poverty as a barrier to digital cooperation requires targeted investments in infrastructure and education, as well as initiatives that promote inclusive growth. China and African nations can collaborate to develop affordable digital solutions tailored to low-income populations, such as low-cost internet services and digital literacy programs. Additionally, promoting initiatives like Luban Workshops, which train local technicians and engineers, can help develop a skilled workforce capable of sustaining digital projects, reducing the reliance on external expertise and mitigating the effects of brain drain.

In addition to these multi-level challenges, several new issues have surfaced. Data security and privacy protection remain underdeveloped, as the African Union has yet to establish a continent-wide data protection framework, raising concerns about the safe circulation of cross-border data. Environmental sustainability has also emerged as a sensitive topic: data centers and digital infrastructure projects consume large amounts of electricity, prompting African environmental groups in 2024 to question the ecological footprint of the Digital Silk Road. Furthermore, multilateral rule-making has stalled—WTO negotiations on e-commerce once again deadlocked in 2024—leaving China and Africa without robust global governance mechanisms to support their digital initiatives.

In summary, while there is enormous potential in China-Africa digital economic cooperation, challenges remain across global, regional, national, and social levels. Addressing these challenges requires concerted efforts from both China and Africa, alongside greater international support, to bridge the digital divide, strengthen digital skills, and navigate cultural and geopolitical complexities.

CONCLUSIONS

The evolving landscape of China-Africa digital economic cooperation reveals both substantial achievements and pressing challenges. While China's digital initiatives have contributed significantly to infrastructure development, e-commerce, and skills transfer, complex factors such as economic constraints, political instability, and cultural differences pose obstacles to maximizing the partnership's impact.

Looking ahead, there are numerous opportunities for expanding China-Africa cooperation, particularly in the digital era. Promoting peaceful and stable development and fostering a prosperous Africa remain central goals for China-Africa collaboration. Advancing the digital economy is emerging as a crucial new driver of progress in these efforts, providing innovative avenues for mutual growth and shared success.

The Digital Silk Road presents significant potential to diversify Africa's economic structure and facilitate in-

dustrial upgrading, contributing to the creation of a more equitable, prosperous, intelligent, and sustainable society. Digital economic cooperation between China and Africa is fundamentally aligned with the principle of mutual benefit and does not foster asymmetric dependence. Rather, it supports Africa's development while providing China with a valuable partner in a rapidly evolving global landscape, demonstrating strong momentum and promising prospects for the future.

To capitalize on this momentum, China should continue to fulfill its role as a major international partner by offering enhanced digital technology support, expanding digital trade, and making strategic investments in African economies. These initiatives will help African countries alleviate existing economic pressures and unlock their development potential. More importantly, China should focus on building local capacity to ensure sustainable development, empowering African nations to independently manage and expand their digital economies.

China and Africa must work together under the Global South framework, adopting effective strategies to overcome emerging challenges. This includes emphasizing "Tech for Good" principles, promoting inclusive economic recovery, and working towards building a digital community with a shared future. By focusing on inclusivity, shared growth, and enduring partnerships, China and Africa can help shape a digital future for humanity that benefits all—one marked by collective progress and sustainable development in the digital era.

Ultimately, China-Africa digital cooperation has the potential to serve as a model of South-South collaboration that promotes sustainable growth, inclusivity, and resilience. By acknowledging and addressing these multidimensional challenges, both regions can foster a digital ecosystem that supports economic diversification, strengthens regional stability, and contributes to a more balanced global digital landscape.

While this study highlights the opportunities and challenges in China-Africa digital economic cooperation, it is important to acknowledge its limitations. First, the analysis is largely qualitative and relies heavily on existing literature, which might not capture nuanced impacts across specific regions in Africa. Second, the study could benefit from a more extensive exploration of the perspectives of African stakeholders, such as local communities, businesses, and policymakers, whose insights would provide a more comprehensive understanding of the cooperation's effects.

Future research should focus on empirical studies that evaluate the socio-economic impact of specific digital cooperation projects in Africa, particularly through case studies at the local level. Future studies should also incorporate quantitative methods, such as analyzing digital trade statistics and big data indicators, to better assess the economic and social impacts of cooperation. Comparative research is equally important, particularly juxtaposing China's Digital Silk Road with the European Union's Global Gateway and the U.S. Partnership for Global Infrastructure and Investment, both of which have stepped up activities in Africa since 2023. Finally, there is a need to include the perspectives of African stakeholders—local policymakers, entrepreneurs, and communities—through fieldwork, surveys, and interviews, in order to move beyond state-level narratives and capture grassroots experiences of digital transformation.Additionally, comparative studies that position China's digital initiatives alongside those of other major actors, such as the United States and European Union, would provide valuable insights into the competitive dynamics shaping digital cooperation in Africa. Further exploration of the role of local governance structures and their ability to integrate digital public goods is also a promising area for future research.

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