

RESEARCH BRIEF

Infrastructure Development for the Digital Silk Road (DSR) and its Implications for China Under the Belt and Road Initiative

Fakhar Hussain^{1*}, Ali Imran², Zakar Hussain³, and Muhammad Ikramullah Khan²

¹Government Imamia Associate College, Sahiwal, Pakistan

²The Islamia University of Bahawalpur, Pakistan

³Government College University Faisalabad, Pakistan

*diplomat786@gmail.com

Digital transformation does spur development. The first half of the 21st century is defined as a competition between the United States and China within the digital realm (Gordon & Nouwens, 2022). Although the United States has long dominated the international system, that dominance is currently being challenged by China's emergence as a new power. With the execution of the digital Silk Road (DSR), the international community's reaction will have a far-reaching effect on the future structure of the contending global order due to the resurgence of great power rivalry in the geopolitical context (Cheney, 2020). The basis of tension between China and the United States concerning 5G is a battle for dominance in digital connectivity. It is a matter of power and influence linked with the ownership of communication infrastructures, leading to access and control of the information and data transferred over 5G networks (Rauf, 2021). As an emergent digital technology superpower, China is a credible contender to the U.S. hegemony in world affairs (Cheney, 2020). The United States is worried that the Chinese technology will be used in DSR, which will not give any access to the United States for monitoring, surveillance, and interception of information and financial data flowing across Belt and Road Initiative (BRI) countries, especially because data is the "new oil" of the 21st century. Thus, in the technology arena,

the U.S.-China rivalry will make this uni-polar world bi-polar again (Abdul, 2019).

Next-generation technologies like 5G are rapidly developing, making it possible for many devices to be linked to the Internet (Iwasaki, 2020). China aims to become the dominant force in internet technology, leveraging its vast population to surpass all other nations in online presence, thereby exerting its unique cultural and political values upon the digital landscape. The digital development of China is now beyond doubt (Gordon & Nouwens, 2022). China recognizes that the field of high-tech technology presents an opportunity for it to compete with the United States for technical supremacy. China currently holds the position of the largest global exporter of communication technology and is progressively enhancing its competitiveness in providing cutting-edge systems. In recent years, prominent technology firms in China have extensively advocated and executed advanced 5G networks, telecommunication systems, data centers, cloud computing, mobile payment systems, e-commerce, intelligence surveillance systems, and a significant number of other high-tech tools, which have made China the world's largest exporter of communication technologies (Muratbekova, 2021). The greater the control Chinese firms have over the world market, the more capacity they possess to establish standards and

build the next generation of transformative technology (Cheney, 2020). At a time when COVID-19 has become an important reminder of the crucial relevance of digital technologies, China has demonstrated its technological prowess by advancing its digital skills (Muratbekova, 2021). China aspires to appear as a world leader who can assist underdeveloped nations in bridging the digital divide (Arcesati, 2020).

DSR will enhance the Chinese quest for domestic autonomy of technology while bringing it closer to the core of the worldwide digital infrastructure networks, as well as establishing a worldwide network of digital technology. China, as its focal point, inherently facilitates the market expansion of technology corporations while advancing its diplomatic, security, and economic objectives. Extending from the depths of the ocean to the furthest reaches of space, DSR paves the way for big data tools, AI, and other strategic innovations to thrive (The Editorial Team, 2022). Huawei and ZTE drive DSR because they can provide high-quality fiber optic lines at far cheaper rates than their U.S. and European counterparts (El Kadi, 2019). As the largest suppliers of telecommunication and significant providers of 5G technology, Chinese telecom titans Huawei and ZTE have achieved their objective of dominating the global market of 5G technology. Chinese Tiktok app, smartphones manufactured by companies like One Plus, Oppo, Huawei, Xiaomi, and ZTE, and drones made by companies such as XAG and DJI are all in high demand, particularly in developing countries. It is expected that more than 138 countries will join the DSR. In the last two years, around 201 digital enterprises in China operating in the digital sector have executed 1,334 investment and collaboration projects abroad, 57% related to the DSR (Muratbekova, 2021).

China, through DSR, desires to make it easier for Chinese companies to take part in the advancement of communication and information technology on a global scale, seeks to enhance the influence and capability of China in setting international standards of technology and norms of cyber governance, and expedite rise of China to the position of technological leadership globally (Agbebi, 2022). China is racing ahead in the digital domains through its DSR, which seeks to establish China as the world's technological superpower (Cheney, 2020). Beijing aspires to establish a global digital infrastructure with China as the hub of a worldwide digital network to augment the influence of

China utilizing economic and social transition towards digitalization across the globe. From this perspective, it can be argued that China's digital strategy focuses on attaining the status of a "cyber superpower." From this perspective, it can be argued that China's digital strategy focuses on achieving the status of a "cyber superpower" (Iwasaki, 2020). By 2020, the DSR had become a focal point of China's foreign policy, and Xi has continued to promote cooperation on digital connectivity (Gordon & Nouwens, 2022). The Silk Road will be transformed into a modern information highway as a result of connectivity provided by DSR through a variety of different modes of communication, such as 5G, data centers, satellite navigation, and fiber optic cable (Abdul, 2019). DSR has been launched by China to facilitate the digital transformation of BRI nations and to increase the global demand for digital goods and services made by China, simultaneously securing the supremacy of China to setting international standards for next-generation digital technologies like AI, quantum computing, and fifth-generation (5G) mobile networks (Iwasaki, 2020).

This research is a qualitative and explanatory study. The impact of technological advancements and global interconnectivity will be crucial in shaping the outcome of the ongoing competition among major powers in the digital realm. China aims to establish itself as a technological superpower by investing in global digital infrastructure networks. It focuses on giving China a multi-regional base for developing its global systems, networks, and norms to take over political elites, standards, and markets. Beijing invests heavily at home to become the world leader in cutting-edge multipurpose technologies like global navigation, quantum computing, and artificial intelligence. It is capitalizing on the digital economy by setting up free trade zones and promoting its digital payment systems in other countries. China is also pushing the idea of "cyber sovereignty" by spreading its perspective on cyber norms and governance in the digital sphere via global organizations and diplomatic engagement.

Infrastructure Development of Electronic World Trade Platform (eWTP)

In 2016, Jack Ma presented the concept of Alibaba's "Electronic World Trade Platform" (eWTP) at the Boao Forum for Asia for the first time. It is regarded

as a functional component of DSR's operations, which aims to supplement the development strategies of participating nations by leveraging their relative capabilities to further their development plans (Alibaba, 2016). It is linked to DSR because the countries along the BRI are critical for Jack Ma and Alibaba's development aspirations to facilitate global trade and connect small businesses worldwide (Yean, 2018). Alibaba's online platform serves commercial objectives and broader political ambitions. Alibaba's investment in overseas data centers has the potential to open the door for other Chinese enterprises to expand their worldwide operations (Bosetti, 2020). By exploiting developing markets to bolster China's rise, the eWTP and DSR may weaken western-dominated marketplaces where online retailers like Rakuten, Amazon, and eBay, along with local companies already meeting the needs of most customers, will allow Chinese enterprises to compete more effectively (Mensah & Jianing, 2016). The business model being implemented by eWTP involves establishing "e-hubs" that leverage digital platforms to facilitate the global export of goods by small and medium-sized enterprises (SMEs) with reduced or eliminated taxes and expedited logistics through an efficient tariff system. According to Jack Ma, the e-hubs will create a comprehensive environment for advancing cutting-edge digital infrastructure in e-commerce and other sectors, including cloud computing, big data, markets, logistics, and payments (Alibaba, 2016). Beijing will become the gateway for developing nations seeking to use value chains and new technologies for growth because the participating countries will depend entirely on China's digital infrastructure to access data-sharing platforms (Mensah & Jianing, 2016). By 2025, it aims to provide the eWTP system to all 60 BRI member nations as part of a hegemonic strategy devised within the DSR framework for China's digital advancement (Bosetti, 2020). As a long-term initiative of the Chinese grand scheme, including the Digital Transformation Partnership Action Plan 2020 and the Internet + Strategy under the DSR, Alibaba's development of worldwide digital infrastructure for e-commerce is intended to ensure the continued economic success of China through data collection in the future (Alibaba, 2016). The overarching goals of the 2030 Agenda aim for the intensification of connectivity across regions and countries through the development of infrastructure, policies, finance, trade, and, most

importantly, among the people, the eWTP and BRI are likely to be viewed as a new form of "inclusive globalization" offering alternative ways for the world's least developed countries to thrive (Mensah & Jianing, 2016).

Infrastructure Development of Beidou Navigation Satellite System

In 1994, China began developing its Beidou Navigation Satellite System (BDS) as a substitute for the U.S. Global Positioning System (GPS) to ensure national security and foster global satellite navigation for civilian and military applications (Muratbekova, 2021). It was developed in three stages. BDS-1 became operational in 2000 and initiated location service delivery within China. In 2012, the BDS-2 system was completed to provide positioning services in Asia-Pacific. In 2020, the BDS-3 satellite was officially put into operation to offer satellite navigation services all over the globe (State Council Information Office of the People's Republic of China, 2022). The primary objective of BDS is to furnish users worldwide with precise navigation, location, and timing services (Imran, 2023). Satellites operated by BDS have enhanced capabilities in terms of both accuracy and bandwidth. It has achieved an accuracy of 1 meter for general usage and 1 centimeter for secret military use (McConoly, 2021). The level of precision attained is especially advantageous in fields such as surveying, precision agriculture, and autonomous vehicles, wherein even minor deviations in positioning can yield consequential outcomes (Imran, 2023). As part of next-generation technologies, it will be used to develop robotics and 5G network driverless cars to enhance surveillance capabilities vis-à-vis military control and command of China while making them less dependent on U.S.-run satellite navigation systems, ultimately benefiting the People's Liberation Army Navy (PLAN) (Zhao, 2015). Since developing the technology, the Chinese armed forces have been allowed to designate targets independently of the United States' intervention, which has been a significant advantage. Using its navigation system, China does not have to be concerned about being thwarted by America or any other military when firing missiles and bombs hurtling its targets. It has provided the Chinese army with unfettered access to data on the whereabouts of its

soldiers, as well as pinpoint targeting and directional guidance for assaults. The scope of BDS coverage was limited exclusively to China before the announcement of DSR and BRI. At present, there are a total of 63 surveillance and 55 tracking satellites in operation (McConoly, 2021). Within the next five years, BDS-3 will link more than 30 countries across the globe, including Pakistan, Thailand, Laos, and Brunei, as part of BRI. Using the BDS platform, China-made products have been sold to more than 130 nations in South Asia, West Asia, Eastern Europe, the ASEAN, and Africa (Kazmi, 2020). The increasing dependency of more and more countries on BDS will likely result in China's heightened global geopolitical influence (Bosetti, 2020). BDS can determine an individual's location and transmit this information to other parties, which proves advantageous for fishing vessels, public transportation vehicles, field personnel, and emergency responders who intend to share messages and communicate their whereabouts. It can rescue people stranded in a mountainous area with no mobile phone service by sending a message of 1,200 Chinese characters (McConoly, 2021).

Infrastructure Development of Fiber Optic Cables

The undersea and terrestrial fiber optic connections constitute the backbone of the digital business and functioning of the Internet. By the start of 2020, approximately 406 submarine cables had been deployed worldwide, linking the North Pacific and Atlantic Oceans to facilitate intercontinental connectivity between North America and East/Southeast Asia (Ghiassy & Krishnamurthy, 2020). The global data traffic, including video streaming, phone calls, financial transactions through ATM withdrawals, credit card payments, and stock markets, is transmitted through subsea fiber optic cable networks and serves as the backbone of the contemporary digital economy while having control over more than 98% of the global Internet (Kelkar, 2018). China is the most prominent owner and supplier, accounting for approximately 11.4% of the total supply of fiber optic lines worldwide. The surge in Chinese production of submarine fiber optic cables from 7% during 2012–2015 to 20% in 2016–2019 is regarded as a significant milestone in the digital rise of China under DSR (Lee, 2017).

Fiber optic connections in conjunction with Chinese data centers and servers are used primarily to enhance global internet connectivity between the east and west of the globe under DSR. China has recently implemented a project involving the installation of fiber optic cables to connect Indonesia and the Philippines through underwater lines and establishing a cross-border network to link Myanmar and China. The prime objective of this initiative is to facilitate the horizontal transfer of information between these countries (Lele & Roy, 2019). Well-known telecom firms in China, such as China Telecom, China Unicom, and China Mobile, have built terrestrial cable networks to connect Europe and Asia. China's undersea Asia-Africa-Europe-1 (AAE-1) is a 25,000-kilometer-long network with a capacity of 40 terabits per second that links Asia, Africa, and Europe (Bosetti, 2020). Chinese companies mainly own the submarine cable network PEACE (Pakistan East Africa Connecting Europe). The first phase of the PEACE cable system will include landings in Djibouti, Pakistan, Kenya, Egypt, and France. It will link to the economic arteries of the most densely populated continents: Africa, Asia, and Europe (Ma, 2020). It is an optical cable link installed by Huawei Marine to connect China with Africa, the Arab world, and Europe. This 12,000 km connection is the shortest and fastest high-speed internet communication link between Africa and Asia (Cheney, 2020). The China-Pakistan overland trans-Eurasian fiber optic cable network, which connects Pakistan to Europe, Central Asian Republics, and China, was formally inaugurated in May 2016. This US\$44 million project was officially launched on July 13, 2018 (Abdul, 2019). Beijing is pushing for the construction of underwater and cross-border cables, such as Pakistan-China Fiber Optic Project cables, to avoid highly trafficked choke areas like the Straits of Malacca and protect its communications from foreign espionage agencies (Kelkar, 2018). China aims to leverage terrestrial fiber optic cables to link Afghanistan with Europe, CARs, and South Asia as part of CPEC (Ghiassy & Krishnamurthy, 2020).

Infrastructure Development of 5G Network

The next-generation digitalization, which fuels tremendous power rivalry, depends on deploying 5G networks. The fifth generation, often known

as 5G, is the next generation of mobile technology that is anticipated to be one thousand times more capable and one hundred times quicker than the technologies used in the preceding generations. It will change the Internet so that it offers quick and dependable connectivity by utilizing top-notch facilities like videoconferencing apps, downloading high-resolution videos and images, video and voice calls, or enhancement of the digital user experience with features like remote presence, holograms, or virtual reality (Ahmed et al., 2021). The deployment of 5G networks on a broad scale is poised to unlock the full potential of the Fourth Industrial Revolution. The cornerstone of this digitalization, which is marked by rapid and continuous technological evolution, is 5G and other disruptive technologies such as artificial intelligence, the Internet of Things, process automation, advanced data analysis, cloud computing, robotics, drones, 3D printing, and virtual and augmented reality. It will catalyze both social and economic development. It is estimated to contribute eight trillion dollars to the globe's economy by 2030 (España Puede, 2020). The three largest state-owned Chinese telecommunication firms (China Unicom, China Telecom, and China Mobile) aim to invest around US\$180 billion over seven years to construct 5G infrastructure. China has also declared a total investment of US\$411 billion towards enhancing 5G infrastructure systems between 2020 and 2030 (Strand, 2018). The 5G is currently in its early stages of development; however, Chinese policymakers perceive this cutting-edge digital technology as a prospect to promote the global adoption of Chinese norms and standards (Rawat & Hao, 2018). The advent of 5G digital networks by Huawei and ZTE will bring about a transformative impact not only on the industrial landscape of China but it will also make smart city projects better, which will be administered by artificial intelligence and the Internet of Things. Furthermore, the 5G technology is intended to serve as the backbone of the Chinese digital economy. As of 2020, Huawei has successfully deployed over 600,000 base stations for the 5G network (Ahmed et al., 2021). According to projections, approximately 50% of the global population will be able to utilize 5G technology, with over one billion individuals expected to have access to it by 2024 (Center for Strategic and International Studies, 2019). The proposed strategy also anticipates that the expansion and reinforcement

of 5G networks will facilitate the increased usage of digital currency globally (Bosetti, 2020).

Infrastructure Development of Artificial Intelligence (AI)

The digital strategy of China relies heavily on artificial intelligence. It is a core technology expected to play a crucial role in China's economic growth in the foreseeable future. Chinese innovations in data processing, fingerprint recognition, intelligent tracking, industrial robots, driverless vehicles, and service robots are becoming increasingly applicable (Webster et al., 2017). Opportunities in artificial intelligence are abundant in the automobile business, which is expected to have more than 300 million passenger vehicles on the road by 2030 in China (Shen et al., 2022). AI is expected to play an increasingly crucial role in logistics, online business, and digital health in China, allowing the country to become a leading global player in this technology (Smith, 2023). As part of its 15-year "China Standards 2035" strategy, China aspires to set international norms and standards for next-generation digital technologies such as AI and IoT. China has set a goal to sustain its competitiveness with other prominent nations and enhance its AI development ecosystem by 2020. China aims to develop an AI industry valued at over 150 billion Yuan, equivalent to approximately US\$21 billion. It also aims to establish preliminary ethical standards, laws, and regulations concerning critical areas of AI. By 2020, China has made significant advancements in several facets of AI, including cross-medium intelligence, big data intelligence, swarm intelligence, autonomous intelligence systems, and hybrid enhanced intelligence. China has set a target to attain a significant advancement in fundamental AI theory and to be a world leader by 2025 in specific applications. China intends to increase the value of its primary AI business to more than 400 billion Yuan, equivalent to US\$58 billion, and to codify AI ethical standards (Roberts et al., 2021). The scale of the AI core industry will be over 400 billion RMB, and other related sectors will exceed 5 trillion RMB by 2025 due to the widespread adoption of AI in fields such as medicine, manufacturing, agriculture, defense production, and smart cities. China desires to become an AI innovation hub by 2030. By then, the core AI sector is predicted to experience a

growth rate of over 100% and be worth 1 trillion Yuan (US\$147 billion), and standards and regulations will be updated to address newly emergent challenges. China, by 2030, envisions the AI core industry scale to surpass 1 trillion RMB, with related industries exceeding 10 trillion RMB (Webster et al., 2017). It will also produce US\$29.76 billion in entirely new sectors of the economy by 2030. According to estimates, AI will transform the global economy by 2030, with a projected contribution of \$15.7 trillion (Liu, 2023). A technology park valued at US\$2.1 billion is set to be established near Beijing (Deng, 2018).

Implications of the Digital Silk Road (DSR) for China

The macroeconomic planning of China places digitalization at the core of its industrial and technological policy objectives, giving it a prominent position. China is to emerge as a dominant player in the realm of digital technologies for both economic and political aspirations. The security, geopolitical, and financial considerations of DSR have been projected to be substantially bigger (Shi-Kupfer, K., & Ohlberg, 2019). China has intensified its endeavors to advance its national interests on a global scale by utilizing digital diplomacy and e-governance. The DSR will ensure that Chinese norms and standards of digital technology are shared and implemented within international institutions, allowing DSR participant countries to share their perspectives on the principles and norms of cyber governance (Ghiasi & Krishnamurthy, 2020). In recent years, digital technology has significantly spanned all aspects of society. The global influence of Beijing is likely to be bolstered due to an increase in the number of nations that rely on Chinese technology, software, and digital services, which is made possible by the Chinese control over the massive volumes of data acquired through digital infrastructure built under DSR (Cheney, 2019). Beijing plans to become a futuristic digital powerhouse. The strategic investments by China in digital technology have contributed

to its domestic development and expanded its technology superiority worldwide (Lele & Roy, 2019). China's ability to make significant progress in quantum computing will allow its intelligence agencies to set up highly secure "encrypted communication" lines and decode most "conventional encryption" in the near future (Segal, 2018).

China has set a goal for 2049 of becoming a "superpower of science and technology" with a more robust military that is capable of fighting and winning wars (Laskai, 2018). China must allocate resources toward developing cutting-edge technologies such as quantum computing, AI, and satellite navigation systems to consolidate its military and economic dominance (Bosetti, 2020). Most poor developing nations need more appropriate digital connectivity infrastructure, putting them at a disadvantage in the global economy and increasing their vulnerability to falling further behind (Ghiasi & Krishnamurthy, 2020). China's digital strategy covers society and the economy as a whole. It brings together the most critical global and local projects under DSR, which include e-trade platforms, financial technology, and e-government (Nouwens et al., 2021).

In 2020, China formed a national blockchain committee to establish industry-wide standards for using blockchain technology. Major participants included Tencent, Ant Financial, Huawei, and Baidu (Lele & Roy, 2019). The execution of DSR presents significant opportunities for advancing digital infrastructure and business transactions. Next-generation wireless networks, satellite navigation, artificial intelligence, quantum computing, and fiber optic connections comprise the backbone of the digital infrastructure under DSR. China seeks to enhance regional integration in Southeast Asia by improving the value chains and supply chains (Bosetti, 2020). South Asian countries are swiftly adopting and executing China's digital outreach to transform their technical landscapes. However, it is noteworthy that Beijing will significantly influence its technological development if it heavily relies

on Chinese technology and investment (Ghiassy & Krishnamurthy, 2020). With the increasing adoption of digital networks by small and medium-sized enterprises for global trade, the DSR has the potential to offer an advanced cross-border logistical infrastructure to cater to their needs. China intends to establish a satellite-based navigation system called the “Space Silk Road” as part of BRI to build a China-centric digital infrastructure with a greater emphasis on Beijing’s interests. Under DSR, the most prominent Chinese IT firms have heavily invested in India, Indonesia, Thailand, Myanmar, and Singapore (Cheney, 2019).

Conclusion

It is imperative to conclude that with the development of DSR, western countries, particularly the United States, are becoming wary of it. There are worries from the perspectives of national security, politics, and values in addition to economic ones, such as the broad adoption of Chinese standards in next-generation digital technologies, which would be detrimental to non-Chinese enterprises. The West is especially afraid that (a) data gathered by Chinese enterprises from BRI member nations will be given to the Chinese authorities, (b) surveillance will increase around the globe, and (c) people will have less freedom on the Internet everywhere. The rise of Chinese mobile payment applications such as Baidu Wallet, Alipay, and WeChat Pay will increase the quantity of sensitive financial data passing through Chinese hands. One of the contributing factors to the tensions between the United States and China is the growing market share of Huawei in the global telecommunications industry, which poses a potential threat to American leadership, particularly in the realm of 5G technologies. The Biden administration has little choice except to seek options to compete with the Chinese DSR both at home and overseas. Through foreign investment in digital infrastructure, China not only exports digital authoritarianism and political illiberalism but also provides a model and training for how governments can employ law, censorship, and surveillance to establish technologically empowered totalitarian regimes. As countries become more

reliant on China for their internet access, they expose themselves to the possibility that Beijing will spy on their data traffic. The United States should implement a “Digital Marshall Plan” to advance cutting-edge digital technologies and the Internet, which the original Marshall Plan achieved to reconstruct a war-torn globe to provide a viable alternative to China.

Declaration of Ownership

This report is our original work.

Conflict of Interest

None.

Ethical Clearance

This study was approved by our institution.

References

- Abdul, R. (2019, January). Pakistan-China optical fibre cable (OFC) project: Opportunities and challenges. *Pivot*, (1), 26–28. https://www.researchgate.net/publication/332932485_Pak-China_Optical_Fibre_Cable_OFC_Project_-_Opportunities_and_Challenges
- Agbebi, M. (2022, February 1). *China’s digital Silk Road and Africa’s technological future*. Council on Foreign Relations. <https://researchportal.tuni.fi/en/publications/chinas-digital-silk-road-and-africas-technological-future>
- Ahmed, R., Whelan, M., & Sutterlin, E. (2021, July). *5G and the future internet: Implications for developing democracies and human rights*. National Democratic Institute. <https://www.ndi.org/sites/default/files/5G%20and%20the%20Future%20Internet%20White%20Paper.pdf>
- Alibaba. (2016). *Fact sheet: Electronic World Trade Platform*. <https://www.alizila.com/wp-content/uploads/2016/09/eWTP.pdf?x95431>
- Arcesati, R. (2020, April 28). *The digital Silk Road is a development issue*. Mercator Institute for China Studies. <https://merics.org/en/comment/digital-silk-road-development-issue>
- Bosetti, R. (2020). *The Digital Silk Road: Towards a China-centred Eurasian tech ecosystem?* Global Policy Institute. https://gpilondon.com/publicationthe-digital-silk-road-towards-a-china-centred-eurasian-tech-ecosystemgpilondon.com/wp-content/uploads/2020/12/Policy-Report_The-Digital-Silk-Road

- Center for Strategic and International Studies. (2019). *Transcript of CSIS- Simon Chair in political economy: 'China's Digital Silk Road*. http://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/190211_Chinas_Digital_Silk_Road.pdf
- Cheney, C. (2019, September 26). *China's Digital Silk Road: Strategic technological competition and exporting political illiberalism*. Council on Foreign Relations. <https://www.cfr.org/blog/chinas-digital-silk-road-strategic-technological-competition-and-exporting-political%3fampwww.cfr.org/blog/chinas-digital-silk-road-strategic-technological-competition-and-exporting-political>
- Cheney, C. (2020, May 11). The nexus between China's digital Silk Road and digital authoritarianism. *Italian Institute for International Political Studies*. <https://www.ispionline.it/en/publication/nexus-between-chinas-digital-silk-road-and-digital-authoritarianism-26071>
- Cheney, C. (2021). *Chapter 8: The Digital Silk Road: understanding China's technological rise and the implications for global governance*. Elgaronline. <https://www.elgaronline.com/display/edcoll/9781789908701/9781789908701.00016.xml>
- Cheney, C. (2020). *The nexus between China's digital Silk Road and digital authoritarianism*. Italian Institute for International Political Studies. <https://www.ispionline.it/en/publication/nexus-between-chinas-digital-silk-road-and-digital-authoritarianism-26071>
- Deng, I. (2018, July 17). China's AI Industry gets most funding, but lags US in key talent. *South China Morning Post*. <https://www.scmp.com/tech/china-tech/article/2155600/chinas-ai-industry-gets-most-funding-lags-us-key-talent-says>
- El Kadi, T. (2019, June 6). The promise and peril of the Digital Silk Road. *Chatham House*. <https://www.chathamhouse.org/2019/06/promise-and-peril-digital-silk-road>
- Espana Puede. (2020, November). Strategy for the promotion of 5G technology. <https://espanadigital.gob.es/sites/agendadigital/files/2022-01/Strategy-for-the-promotion-of-5G.pdf>
- Ghiassy, R., & Krishnamurthy, R. (2020). *China's Digital Silk Road: Strategic implications for the EU and India*. Institute of Peace and Conflict Studies. https://ipcs.org/issue_select.php?recNo=6153
- Gordon, D., & Nouwens, M. (2022). The digital Silk Road: Introduction. In D. Gordon & M. Nouwens (Eds.), *The digital Silk Road: China's technological rise and the geopolitics of cyberspace*. The International Institute for Strategic Studies IISS. <https://www.iiss.org/online-analysis/online-analysis/2022/12/digital-silk-road-introduction/>
- Strand, J. (2018, June 27). Five reasons why Europe has already lost the 5G race. *IoT Now*. <https://www.iot-now.com/2018/06/27/84975-five-reasons-europe-already-lost-5g-race/>
- Imran, Z. (2023, March 15). *Will Chinese BeiDou surpass American GPS? Paradigm Shift*. <https://www.paradigmshift.com.pk/beidou-china/>
- Iwasaki, K. (2020). COVID-19 brings new developments in China's digital Silk Road. *JRI Research Journal*, 3(9), 1–12.
- Kazmi, S. (2020, August 3). China's BeiDou navigation system for Pakistan. *Foreign Policy News*. <https://foreignpolicynews.org/2020/08/03/chinas-beidou-navigation-system-for-pakistan/>
- Kelkar, K. (2018, August 8). *From silk threads to fiber optics: The rise of China's digital silk road*. Observer Research Foundation. <https://www.orfonline.org/expert-speak/43102-from-silk-threads-to-fiber-optics-the-rise-of-chinas-digital-silk-road/>
- Laskai, L. (2018, April 9). *Civil-military fusion and the PLA's pursuit of dominance in emerging technologies*. China Brief, 18(16). <https://jamestown.org/program/civil-military-fusion-and-the-pla-pursuit-of-dominance-in-emerging-technologies/>
- Lee, S. (2017, January 25). *The cybersecurity implications of Chinese undersea cable investment*. The Henry M. Jackson School of International Studies. <https://jsis.washington.edu/news/cybersecurity-implications-chinese-undersea-cable-investment/>
- Lele, A., & Roy, K. (2019, November). Analysing China's digital and space belt and road initiative (Occasional Paper No. 55). *Institute for Defence Studies and Analyses*. <https://idsa.in/occasionalpapers/china-digital-bri-op55>
- Liu, S. (2023, February 27). Will China create a new state-owned enterprise to monopolize artificial intelligence? *The Diplomat*. <https://thediplomat.com/2023/02/will-china-create-a-new-state-owned-enterprise-to-monopolize-artificial-intelligence/>
- Ma, W. W. (2020, October 5). How digital Silk Road – the Chinese BRI in cyberspace will transform lives. *Global Village Space*. <https://www.globalvillagespace.com/how-digital-silk-road-the-chinese-bri-in-cyberspace-will-transform-lives/>
- McConoly, R. (2021, May 24). China's Beidou GPS is a strategic challenge for the U.S. *Naval Post*. <https://navalpost.com/chinas-gps-beidou-is-a-strategic-challenge-for-the-u-s/>
- Mensah, I. K., & Jianing, M. (2016). *E-Government, China internet plus, and the One Belt One Road Initiative: The Africa connection*. World Academy of Science, Engineering and Technology International Journal of Information and Communication Engineering, 10(8), 2634–2638. <https://publications.waset.org/10004987/pdf>
- Muratbekova, A. (2021, February 22). *China's post-pandemic digital Silk Road*. Eurasian Research Institute.

- <https://www.eurasian-research.org/publication/chinas-post-pandemic-digital-silk-road/>
- Nouwens, N., M., Lons, C., Shehab, N., Malcomson, S., & Neill, A. (2021). China's digital Silk Road: Integration into national IT infrastructure and wider implications for Western defence industries. The International Institute of Strategic Studies. <https://iiss.org/blogs/research-paper/2021/02/china-digital-silk-road-implications-for-western-defence-industry> <https://iiss.org/research-paper//2021/02/china-digital-silk-road-implications-for-defence-industry#:~:text=11th%20February%202021-,China's%20Digital%20Silk%20Road%3A%20integration%20into%20national%20IT%20infrastructure%20and,intelligence%20sharing%20and%20defence%20integration>
- Rauf, A. (2021). The role of digital Silk Road and digital CPEC in BRI. *Pivot*, 3(1), 20–22.
- Rawat, D., & Hao, C. (2018, November 18). *China's Digital Silk Road: Implications for India*. ISAS Insights, (521), 1–6. <https://www.isas.nus.edu.sg/wp-content/uploads/2018/11/ISAS-Insights-No.-521-Chinas-digital-silk-Road-Implications-for-India-pdf>
- Roberts, H., Cows, J., Morley, J., Taddeo, M., Wang, V., & Floridi, L. (2021). The Chinese approach to artificial intelligence: An analysis of policy, ethics, and regulation. *AI & Society*, 36, 59–77. <https://doi.org/10.1007/s00146-020-00992-2>
- Segal, A. (2018, August 13). When China rules the web. *Foreign Affairs*. <https://www.foreignaffairs.com/articles/china/2018-08-13/when-china-rules-web>
- Shen, K., Tong, X., Wu, T., & Zhang, F. (2022). The next frontier for AI in China could add \$600 billion to its economy. *Mckinsey*. <https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-next-frontier-for-ai-in-china-could-add-600-billion-to-its-economy>
- Shi-Kupfer, K., & Ohlberg, M. (2019, April 8). China's digital rise: Challenges for Europe. Mercator Institute for China Studies. <https://merics.org/en/report/chinas-digital-rise>
- Smith, C. (2023, January 14). China's AI implementation is edging ahead of the US. *Forbes*. <https://www.forbes.com/sites/craigsmith/2023/01/14/chinas-ai-implementation-is-edging-ahead-of-the-us/?sh=7d86a70b2dfb>
- State Council Information Office of the People's Republic of China. (2022). China's BeiDou Navigation Satellite System in the new era. *China Daily*. *China Daily*. <https://www.chinadaily.com.cn/a/202211/05/WS6365cfe7a3105ca1f2274368.html>
- Strand, J. (2018, June 27). Five reasons why Europe has already lost the 5G race. *IoT Now*. <https://www.iot-now.com/2018/06/27/84975-five-reasons-europe-already-lost-5g-race/>
- The Editorial Team. (2022, February 1). China's digital Silk Road and shipping digitalization. *Safety4sea*. <https://safety4sea.com/cm-chinas-digital-silk-road-and-shipping-digitalization/>
- Webster, G., Creemers, R., Kania, E., & Triolo, P. (2017). Full translation: China's 'New Generation Artificial Intelligence Development Plan'. *Stanford Cyber Policy Center*. <https://digichina.stanford.edu/work/full-translation-chinas-new-generation-artificial-intelligence-development-plan-2017/>
- Yean, T. (2018, March 26). *The Digital Free Trade Zone (DFTZ): Putting Malaysia's SMEs onto the Digital Silk Road*. *ISEAS Perspective*, (17), 1–9. https://www.iseas.edu.sg/images/pdf/ISEAS_Perspective_2018_17@50.pdf
- Zhao, L. (2015, June 2). Beidou system to aid Belt and Road. *China Daily*. http://www.chinadaily.com.cn/china/2015-06/02/content_20884173.htm