

Issue

Brief

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The Digital Silk Road in the Indo-Pacific: Mapping China's Vision for Global Tech Expansion

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Abstract

The Digital Silk Road (DSR), part of the Belt and Road Initiative, symbolises China's approach to expanding information exchanges and digital cooperation with emerging markets and developing economies. Under the DSR, several private corporations and state-owned enterprises supported by Chinese state banks are offering inexpensive technological contracts and rapidly building digital infrastructure projects. This brief examines the operationalisation of the DSR in the Indo-Pacific region by examining two major activities—the laying of undersea cables and the installation of hi-tech security cameras—to attempt to understand China's strategic objectives behind the DSR and its role in challenging the West's tech dominance in the Indo-Pacific.

In 2015, China launched the Belt and Road Initiative (BRI), its most extensive and ambitious external engagement initiative. The BRI builds on China's years-long international infrastructure diplomacy and signals the ambitions to consolidate its overseas investments, commercial loans, and grants-in-aid to various countries. The project has three broad components: the Silk Road Economic Belt, a transcontinental passage linking China with Southeast Asia, South Asia, Central Asia, Russia, and Europe; the 21st-Century Maritime Silk Road, a sea route linking China's coastal regions with Southeast and South Asia, the South Pacific, West Asia, and Eastern Africa; and the Digital Silk Road (DSR), information and communications technology (ICT) exchanges, and digital cooperation with emerging markets and developing economies.¹

Several private actors and state-owned enterprises in China, supported by state banks, have offered inexpensive technology contracts and rapidly built digital infrastructure projects across the Indo-Pacific, Africa, Europe, and other parts of the world.² Consequently, the DSR initiative has picked up pace since 2017, when it was officially launched as a separate component of the BRI, and several countries that are aiming for digital transformation have joined these tech projects. Official figures from the Chinese government suggest that the country has signed bilateral agreements for digital cooperation and infrastructural development with approximately 40 countries, or about one-fourth of the total countries that signed the BRI.³ Of these 40 countries, 24 are in the Indo-Pacific region, which includes 60 percent of the world's developing countries.

The DSR's growing footprint, accompanied by extensive investments in the physical connectivity and infrastructure domains, offers China the opportunity to shape the tech policy of several countries. By consolidating its hold in the digital domain of the Indo-Pacific, China aims to project itself as an alternative to the West. This brief examines China's operationalisation of the DSR in the Indo-Pacific region by assessing its two major components: undersea cables and hi-tech closed-circuit television (CCTV) cameras. While China's dominance in the 5G telecom market has been widely analysed, its influence in the domains of undersea cables and CCTV cameras has attracted less attention. This brief assesses these components in the context of the DSR's role in fulfilling China's strategic objectives.

Understanding China's Strategic Objectives

The DSR was first mentioned in the National Development and Reform Commission's 2015 'Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road' document,⁴ which stated that China should "build bilateral cross-border optical cable networks", "plan transcontinental submarine optical cable projects", and improve "satellite information passageways" to create the "Information Silk Road". The document envisaged the DSR as part of a comprehensive infrastructure push in BRI countries where China would develop housing projects, economic corridors, energy exploration programmes, and renewable energy generation projects, and establish entrepreneurial and investment cooperation mechanisms.⁵ Some subsequent Chinese government reports also refer to the initiative as the 'Belt and Road Digital Economy International Cooperation Initiative', aimed at leveraging digital opportunities and enhancing connectivity along the ancient Silk Route.⁶

A large part of the DSR's expansion can be attributed to China's bilateral digital cooperation agreements with various countries. In the Indo-Pacific, China has engaged as many as 24 countries on digital cooperation (see Table 1). Although most of these engagements are memoranda of understanding (MoUs) rather than tangible collaborations, they showcase the expanse of China's digital cooperation with other countries, which spans e-commerce, digital infrastructure projects, capacity building, and investment in the digital economy. Between 2017 and 2022, Chinese companies collectively invested nearly US\$23 billion in the 24 countries (see Table 1).^{7,8} Under these investments, China has built ICT infrastructure such as surveillance networks, laid undersea cable networks, and facilitated 4G and 5G network expansion to increase connectivity within the Indo-Pacific region.

The rapidly digitising economies of the Indo-Pacific offer a significant potential to expand the DSR's footprint. Accordingly, China has encouraged its tech and communication companies to deepen cooperation with and expand their market share in countries in the Indo-Pacific. State-owned enterprises like China Telecom, China Mobile, Hikvision, Unicom, and Dahua (which is partially state-owned) and private companies like Huawei, Baidu, Hengtong, Alibaba, and Tencent have consolidated their presence in the emerging markets and developing economies of the Indo-Pacific.

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Table 1: China's MoUs and Bilateral Agreements on Digital Cooperation in the Indo-Pacific

Country	Bilateral Digital Cooperation Under the DSR	Chinese Loans and Investments Under the DSR (2017–22) (in US\$ millions)
Bangladesh*	MoU signed in 2015. Huawei and Chinese state-owned enterprises built the ICT infrastructure network.	1,130
Brunei	MoU signed in 2017. Subsequently, China participated in e-commerce and digital infrastructure projects.	200
Cambodia	MoU signed in 2017. A consortium of Chinese state-owned banks lent US\$200 million for Cambodia's national broadband project.	500
Djibouti	MoU signed in 2017. China Development Bank loaned US\$18.3 million for Phase II of the Djibouti Telecommunication Network Expansion and Renovation Project.	250
Fiji	MoU signed in 2020. China-Pacific Island Countries Juncao Technology Demonstration Centre was unveiled in March 2023.	N/A
Indonesia	MoU signed in 2017. Subsequently, both nations partnered in e-commerce and digital infrastructure projects. The Industrial and Commerce Bank of China loaned US\$177 million for the Palapa Ring Middle Project.	7200
Kenya	MoU signed in 2017. In 2019, Kenya secured a Chinese loan to have Huawei set up a data centre and smart-city facilities at the greenfield Konza business park at a cost of US\$168 million, which is the largest loan provided by a Chinese bank to the Kenyan ICT sector.	200
Laos	Laos received a Chinese loan worth US\$20 million in 2018 to build internet infrastructure and provide training for the Lao National Internet Center.	50

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Country	Bilateral Digital Cooperation Under the DSR	Chinese Loans and Investments Under the DSR (2017–22) (in US\$ millions)
Malaysia	MoU signed in 2017. Zhong Xing Telecommunication Equipment (ZTE) collaborated with Malaysia's U Mobile in 2015 for the research and development of pre-5G and 5G mobile broadband technologies.	1130
Maldives*	In 2012, the Sri Lankan subsidiary of Huawei Technologies signed an MoU with the Maldives' National Centre of Information Technology to develop IT infrastructure in the Maldives under the SMART Maldives project.	184
Mauritius	China invested US\$20 million to build ICT infrastructure in the island nation, which was taken under the wing of the DSR after China provided interest-free loans worth US\$7.3 million for the Mauritius Broadcasting Corporation Technical Cooperation project.	127
Mozambique	MoU signed in 2017. Exim Bank of China invested US\$300 million in the television broadcast networks and the information and broadcast highway development in Mozambique.	600
Myanmar	In September 2018, both countries signed the China-Myanmar Economic Corridor agreement.	339
Pakistan	MoU signed in 2017. Subsequently, both nations partnered in e-commerce and digital infrastructure projects. China is supporting increased connectivity in Pakistan through ICT developments in the China-Pakistan Economic Corridor.	2730
Papua New Guinea	MoU signed in 2017. China participated in the Kumul Submarine Cable Network. The Exim Bank of China loaned US\$229 million to the Ministry of Treasury of the Government of Papua New Guinea.	200
Philippines	MoU signed in 2017. In the same year, the Exim Bank of China pledged US\$329.5 million preferential buyer's credit for a national broadband project.	1300

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Country	Bilateral Digital Cooperation Under the DSR	Chinese Loans and Investments Under the DSR (2017–22) (in US\$ millions)
Samoa	MoU signed in 2017. The Exim Bank of China provided a US\$19 million government concessional loan for a national broadband project.	155
Seychelles	China provided a US\$20 million grant for the Seychelles' Radio and Broadcasting House Construction and Equipping project.	N/A
Singapore	MoU signed in 2017. Subsequently, both nations partnered in four undersea cables running through Singapore, including the Pakistan and East Africa Connecting Europe (PEACE) cable. The remaining cables connected Singapore to the greater Southeast Asia.	2500
Solomon Islands	MoU signed in 2017 for bilateral cooperation. In 2022, China loaned US\$66 million to the Solomon Islands to build 161 mobile communication towers which are to be built and supplied by Huawei.	450
South Korea	MoU signed in 2017. Subsequently, both nations partnered in e-commerce and digital infrastructure projects.	1230
Sri Lanka*	MoU signed in 2011 for the construction of the Lotus Tower, which was aimed at improving digital connectivity, reducing internet downtime, and improving telecommunications within the island nation. The Exim Bank of China loaned US\$88.6 million to the Sri Lankan Telecommunications Regulatory Commission for this project.	300
Thailand	MoU signed in 2017.	1900
Vietnam	MoU signed in 2017.	400

Denotes investments before BRI

Source: Data compiled by the authors from China Global Investment Tracker;⁹ Global Development Policy Center, Boston University;¹⁰ AidData China loans and contracts database;¹¹ the Belt and Road Portal News Archives;¹² Submarine Almanac 2023;¹³ and government sources in Bangladesh.¹⁴

Understanding China's Strategic Objectives

In the last decade, Chinese tech companies have significantly expanded their footprint in the Indo-Pacific (see Table 2). For instance, Huawei¹⁵ and Alibaba¹⁶ dominate markets in Southeast and West Asia in the telecom and digital payments sectors, respectively.¹⁷ Alipay, an online payments service, has nearly 1.3 billion users worldwide, and Huawei has emerged as the primary vendor for major technology projects in the developing world, especially 5G networks. Since these companies constitute the technological capacity in these countries, they also receive servicing and operational contracts, which further consolidates their hold in the region. The DSR has further facilitated Chinese tech companies to capture markets in the Indo-Pacific.

Table 2: Chinese Companies Involved in the DSR

Service/Activity	Chinese Companies Involved
Undersea cables	Hengtong, HMN Technologies
CCTV cameras	Hikvision, Dahua
4G/5G mobile network	Unicom, China Mobile, Huawei
Digital payments	Alipay

Source: Authors' own

China's investment in ICT development in the Indo-Pacific and the market capture by Chinese companies reflect Beijing's latent strategic aims. China has facilitated the expansion of its tech corporations through the DSR and used the overseas revenues of these companies to build domestic technological capacity. Strong technological capacity is key for global power projection, especially since Beijing's tech rivalry with Washington is now at a peak.

Notably, China's tech capacity has strengthened since it joined the World Trade Organization in 2001 and began engagements with Western tech companies.¹⁸ After China opened up its economy in 1978, several Western companies such as Nortel, Amazon, and Cisco established offshore manufacturing firms in Chinese Special Economic Zones.^{19,20,21} Today, through the DSR, Chinese tech companies are able to challenge the West's tech dominance in the developing world.

In addition, through DSR, China is also aiming to position itself as the central node in the contemporary tech ecosystem through developing connectivity in the Indo-Pacific and other regions, which would help China access large data

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pools and develop a new standards ecosystem. China is also utilising the DSR to promote digital commerce through digital free trade zones. These zones have increased international e-commerce by reducing cross-border trade barriers and establishing regional logistics centres. Therefore, the DSR has helped Beijing leverage its emerging status quo in a globalising world and recognise the significance of economic interdependence.

Consolidating its digital hold in the Indo-Pacific is a priority for China. The Indo-Pacific is a single strategic and geopolitical construct linking the contiguous waters of the Western Pacific and the Indian Ocean. The region begins from the eastern coast of Africa and includes the Indian Ocean countries, Southeast Asia, Japan and its adjoining countries, and the Americas. The region houses 65 percent of the world's population, produces 63 percent of the world's gross domestic product, and carries out 50 percent of the global trade; therefore, it has emerged as a hub of economic growth and offers a significant market for Chinese companies, especially tech corporations. Beijing is seeking to leverage the DSR to capitalise on the economic and technological dynamics of the region. For instance, ZTE, Huawei, and China Unicom have been aggressively penetrating new markets in the region by offering 5G technology at cheaper rates²² than Western competitors and buying equity in local telecom companies²³ to further telecom hardware exports. This, combined with the push from the Chinese government, has enabled Huawei and ZTE to corner 29 and 11 percent of the total global 5G revenues, respectively.²⁴

“ZTE, Huawei, and China Unicom have been aggressively penetrating new markets by offering 5G technology at cheaper rates than Western competitors and buying equity in local telecom companies to further telecom hardware exports.”

A robust national ICT infrastructure requires physical infrastructural capacity, which encompasses undersea cables, mobile towers and stations, server stations, surveillance technology, fibre optics, and antennas.

The development of ICT infrastructure is three-layered, namely, data connectivity, which comprises cables and antennas to transmit data and frequencies; the route and change layer, which sends data from one point to another through the shortest data point; and the edge layer, which is the access layer where switches connect and deliver data to devices like computers and servers.

Investing in these capacities is expensive, especially for countries that are just beginning to undertake the process of digitalisation. Through the DSR, Chinese corporations are financing and investing in developing these physical capacities in the Indo-Pacific countries. Beijing's involvement has included exporting 5G technology, laying undersea cables and optic fibre, enabling the provision of satellite dishes, as well as providing cutting-edge technologies such as cloud computing, artificial intelligence (AI), and facial recognition software. Two of the major activities of the DSR include laying undersea cables and installing CCTV cameras.

Undersea Cables

China's interest in undersea cables precedes the DSR. As of 2020, HMN Technologies (formerly Huawei Marine Networks) has executed 16 undersea cable projects, amounting to US\$1.6 billion, across 27 countries in the Indo-Pacific (see Table 3). In less than a decade (2012–20), HMN has laid down almost 70,000 kilometres of undersea cables and completed 100 contracts.²⁵ These projects have received considerable Chinese state patronage, which has enabled the company to expand its footprint; from holding a 7-percent share of global undersea cables projects in 2012, the company increased its share to 20 percent in 2019.²⁶ In 2020, Hengtong, China's largest power and optical fibre cable manufacturer, acquired an 81-percent stake in HMN Technologies.²⁷

HMN Technologies is rapidly advancing its capabilities and aims to become self-sufficient in installing and repairing cables.²⁸ One of HMN Technologies' major recent projects is the ambitious PEACE undersea cable, which starts in Pakistan and ends in France, thus connecting Europe, Africa, and Asia.²⁹ In Pakistan,

the PEACE cable is also linked with the China–Pakistan Economic Corridor, which aims to increase connectivity for the port cities of Gwadar and Karachi.³⁰ Connectivity between the two nations is further strengthened by a fibre-optic line that connects the port cities to Rawalpindi, which is the headquarters of the Pakistani military. A fibre-optic line already runs through the city to China’s Xinjiang Uyghur Autonomous Region.³¹ Together, these linkages connect Pakistan’s ports to the nation’s fibre-optic system that runs through Rawalpindi and has established links with China for strategic cooperation.

Similarly, HMN Technologies has been instrumental in connecting the Indonesian archipelago.³² The corporation has also extended its services in the larger Southeast Asian region. In its flagship overseas conference, Huawei Connect 2021, the company promised deeper digital connectivity in Southeast Asia to supplement the region’s aim to become a destination for high-end manufacturing through building infrastructure and capacity to deploy 5G industrial applications.³³

By 2025, China intends to capture 60 percent of the world’s fibre-optic communications market.³⁴ China’s telecom companies are joining undersea cable consortiums that award contracts to lay down cables.³⁵ The dominance of Chinese companies threatens the commercial prospects of Western companies like SubCom and Alcatel and raises security concerns; for instance, the US has flagged China’s potential eavesdropping and manipulation of the data traffic from these cables.³⁶

Table 3: Major Undersea Cables built by HMN Technologies

Undersea Cable Project	Countries Involved	Cost (in US\$ mn)	Owner	Landing Stations
The Pakistan and East Africa Connecting Europe Cable	Egypt, France, Pakistan, Kenya, Seychelles, Singapore, Maldives, Somalia, Saudi Arabia, Tunisia, Malta, Djibouti, Cyprus, South Africa	425	China Construction Bank, China-ASEAN Information Harbor Co., Tropic Science Co.	Egypt—Abu-Talat; Somalia—Berbera; Djibouti—Djibouti City; Malta—Golden Bay; France—Marseille; Somalia—Mogadishu; Kenya—Mombasa; Seychelles—Victoria; Cyprus—Yeroscipos; Egypt—Zaafarana

Components of the DSR

Undersea Cable Project	Countries Involved	Cost (in US\$ mn)	Owner	Landing Stations
Kumul Domestic Submarine Cable System	Indonesia, Papua New Guinea	136.4	PNG DataCo Limited	Papua New Guinea—Kavieng, Kerema, Kimbe, Kokopo, Lae, Lorengau, Madang, Popondetta, Port Moresby, Vanimo, Wewak, Alotau, Milne Bay, Arawa, Daru; Indonesia—Jayapura
SEA-H2X	China, Malaysia, Singapore, Thailand, Malaysia, Philippines	125	China Mobile, China Unicom, Converge ICT, PP Telecommunication Sdn Bhd	Malaysia—Kuching; Philippines—La Union; China—Lingshui, Tseung Kwan O; Thailand—Songkhla; Singapore—Tuas
The Singapore Malaysia (SIGMAR) Cable	Singapore, Malaysia	120	Telekomunikasi Indonesia International (Telin Singapore), Campana Group	Myanmar—Thanlyin; Singapore—Tuas
Mataram Kupang Cable System (MKCS)	Indonesia	94	Telkom Indonesia	Indonesia—Ambalawi, Ende, Kupang, Mataram, Saraemee, Sumbawa Besar, Waingapu

Components of the DSR

Undersea Cable Project	Countries Involved	Cost (in US\$ mn)	Owner	Landing Stations
B2JS (Jakarta-Bangka-Batam-Singapore) Cable System	Indonesia, Singapore	76	Triasmitra	Indonesia—Batam, Batu Prah
Batam Dumai Melaka (BDM) Cable System	Indonesia, Malaysia	76	Moratelindo, Telekom Malaysia	Indonesia—Batam, Dumai; Malaysia—Melaka
Malaysia-Cambodia-Thailand (MCT) Cable	Cambodia, Malaysia, Thailand	70	DTAC, Ezecom, Symphony, Telekom Malaysia	Malaysia—Cherating; Thailand—Rayong; Cambodia—Sihanoukville
Transworld (TW1) Cable	Oman, Pakistan, UAE	40	Transworld	Oman—Al Seeb; UAE—Fujairah; Pakistan—Karachi
Gulf2Africa (G2A) Cables	Oman, Somalia	37.5	Golis Telecommunications, Omantel, Telesom	Somalia—Berbera, Bosaso; Oman—Salalah
Palapa Ring Middle	Indonesia	37	Government of Indonesia	Indonesia—Bangga, Baubau, Buranga, Kendari, Lakudo, Luwuk, Manado, Melonguane, Morotai, Ondong Siau, Raha, Salakan, Sanana, Sofifi, Tahuna, Taliabu

Components of the DSR

Undersea Cable Project	Countries Involved	Cost (in US\$ mn)	Owner	Landing Stations
Converge Domestic Submarine Cable Network (CDSCN)	Philippines	32.5	Converge ICT Solutions Inc.	Philippines— Baclayon, Bacong, Bogo, Boracay, Buenavista, Cagayan de Oro, Coron, Naga, Ormoc, Pasacao, Roxas, Roxas City, San Carlos, San Juan, San Remigio, Tagbilaran, Talisay City, Taytay, Toledo
Maldives Sri Lanka (MSC) Cable	Maldives, Sri Lanka	22	Ooredoo Maldives (Ooredoo Maldives), Dhivehi Raajjeyge Gulhun (Dhiraagu), Dialog Axiata (Dialog)	Maldives— Hulhumale; Sri Lanka—Mount Lavinia
Mauritius and Rodrigues Submarine Cable System (MARS)	Mauritius	17.5	Mauritius Telecom	Mauritius— Baie du Jacotet, Rodrigues
Total Cost		1,030		

Source: *Submarine Almanac 2023*³⁷

CCTV Cameras

Chinese companies have also strengthened their presence in the global CCTV market (see Table 4). Hikvision and Dahua, the two largest CCTV companies

in the world, are Chinese, and have installed over 6.3 million cameras outside the country, of which 25 percent are in the US and Vietnam.³⁸ Many of these CCTV cameras have been installed by national authorities as part of smart-city solutions offered by China under the BRI.³⁹

Table 4: CCTV Cameras installed by Dahua and Hikvision in the Indo-Pacific Region

Country	Dahua	Hikvision	Total
Vietnam	151,483	671,828	822,324
South Korea	42,479	179,566	222,012
India	33,786	180,883	214,455
Thailand	37,489	140,502	177,901
Malaysia	35,865	99,861	135,513
Taiwan	56,999	76,671	133,604
Australia	18,786	41,276	60,046
Indonesia	8,459	22,157	30,614
Japan	4,571	25,403	29,968
Pakistan	8,642	17,026	25,642
Cambodia	4,568	21,067	25,609
Singapore	7,784	17,613	25,375
Bangladesh	11,482	3,322	14,804
Sri Lanka	914	6,967	7,847
New Zealand	2,287	5,295	7,581
Mongolia	66	1,110	1,176
Maldives	713	148	861
Nepal	135	439	574
Brunei	72	374	446
Laos	99	245	344
Papua New Guinea	38	266	304
Fiji	64	94	158
Bhutan	7	131	138

Country	Dahua	Hikvision	Total
Micronesia	5	75	80
Myanmar	13	40	53
Samoa	2	38	40
Cook Islands		21	21
Vanuatu	7	13	20
Solomon Islands	2	4	6
Tonga	2	4	6
Kiribati	3		3
Timor-Leste		3	3
Marshall Islands	1		1
Palau		1	1
Total	426,823	1,512,443	1,937,530

Source: *Top 10 VPN*⁴⁰

However, this deployment of CCTV cameras has also sparked cybersecurity and surveillance fears, and ethical concerns.⁴¹ For instance, Dahua's cameras reportedly have a skin-colour analytics feature as part of a smart security solution.⁴² These cameras have become a key element of extremely accurate AI-enabled facial recognition software deployed by China. The US and Australia have linked Dahua and Hikvision to Chinese authorities' surveillance in the restive Xinjiang province.⁴³ Most re-education and detention camps in Xinjiang contain equipment from Hikvision; in its 2020 half-yearly report, Hikvision noted that it is financing surveillance equipment worth US\$145 million for the Xinjiang police.⁴⁴

Remote-hijacking vulnerabilities have also been identified in the Hikvision cameras, which may enable unauthorised access.⁴⁵ Additionally, there are worries about cross-border data transmission to Chinese and China-based servers. For instance, the UK's Biometrics and Surveillance Camera Commissioner's 2021-22 annual report noted that system upgrades can potentially allow these cameras to record video or audio and download this data to Chinese servers.⁴⁶ Amid such concerns, in 2022, the US government banned Dahua and Hikvision sales on American soil and determined to reassess the surveillance tech used at government facilities.⁴⁷ Australia has also begun removing Hikvision and Dahua cameras after a government audit found them in use in government buildings.⁴⁸

China's practices have led to several other countries adopting similar surveillance measures domestically. According to the Carnegie Endowment's AI Global Surveillance Index, several countries in Southeast Asia, including Myanmar and Laos, have deployed CCTV cameras and facial-recognition technology to fortify their security surveillance network.⁴⁹ Indeed, surveillance networks and other tech capacities are often part of 'smart cities'.⁵⁰

Approximately 214,000 Dahua and Hikvision CCTV cameras are installed in various Indian cities, including Mumbai (32,563), Chennai (9795), Bengaluru (8616), and Delhi (7006).⁵¹ In March 2021, the Indian government noted that around one million CCTVs from Chinese companies are installed in government institutions.⁵² The government also admitted that there are vulnerabilities associated with video data captured through CCTV cameras being transferred to servers located abroad and stated that the government is taking the necessary steps to mitigate surveillance concerns. In April 2023, the Confederation of All India Traders wrote to the Ministry of Electronics and Information Technology requesting a ban on Chinese cameras and formulating plans for 'Make in India' devices.⁵³

“Approximately 214,000 Dahua and Hikvision CCTV cameras are installed in various Indian cities, including Mumbai (32,563), Chennai (9795), Bengaluru (8616), and Delhi (7006).”

Strategic Implications of the DSR

In the Indo-Pacific, China is emerging as a fierce competitor to the US-led technological order by successfully using the DSR and exporting tech to reorder the regional digital ecosystem. Prior to China's emergence as a major global tech supplier, especially before its tech exports came under the aegis of the DSR, the US and its allies dominated global tech markets. The US's share of global high technology exports has declined from 21 percent (US\$357.4 billion) in 2007 to 9.4 percent (US\$264.8 billion) in 2021.^{54,55} Meanwhile, China's share of global tech exports rose from 20.3 percent (US\$345 billion) in 2007 to 33.4 percent (US\$942 billion) in 2021.^{56,57,58}

The proliferation of Chinese tech has caused considerable consternation among likeminded democracies of the Indo-Pacific and the West, which fear losing lucrative tech contracts in the region to Chinese corporations. Democratic powers in the Indo-Pacific region fear that Chinese tech exports are accompanied by Chinese models of digital authoritarianism and social norms that use ICT to surveil, repress, and manipulate domestic and foreign populations.⁵⁹ Authoritarian regimes can utilise technologies and software procured from China to replicate the Chinese Communist Party's surveillance and bring critical financial and personal data of its citizens under the scrutiny of the state itself, or that of Beijing. For instance, dominating the undersea cables market gives China potentially unfettered access to the vast amounts of varied data transmitted through these cables. These concerns are exacerbated by China's National Intelligence Law, 2017, which mandates Chinese organisations and citizens to "support, assist and cooperate with the state intelligence work".⁶⁰ This includes handing over or giving access to user data or other information pertaining to national security, or any other dataset that is trafficked by Chinese tech companies. This has prompted speculations around the presence of digital 'backdoors', at Beijing's behest, in digital infrastructure provided by Chinese companies.⁶¹ For example, the PEACE cable raised concerns regarding user privacy and data protection in the US and Australia.⁶²

The DSR is part of China's broader 'techno-nationalism' that focuses on technological excellence aimed at geopolitically displacing the US and the West's tech dominance. The flagship 'Made in China 2025' initiative has sought to solidify China's position in emerging technologies and advance the manufacturing capacities of the country.⁶³ Simultaneously, China has focused on crafting new standards for emerging technologies; in 2021, it unveiled a long-term strategy which aims to build a standardisation management system with Chinese characteristics by 2035.⁶⁴

Strategic Implications of the DSR

Developing new tech standards is critical for China to provide the international influence seeks and to yield revenues. For instance, a patent fee paid by telecom operators and manufacturers in other countries directly benefits Chinese firms, which receive royalties or licence fees for standard essential patents that require foreign firms to comply with Chinese technical standards.⁶⁵ For instance, Huawei holds more than 110,000 patents⁶⁶ and has made the highest number of applications to protect its inventions internationally under the Patent Cooperation Treaty.⁶⁷ As a result, Huawei alone brought in US\$3 billion worth of licensing royalties between 2019 and 2021.⁶⁸


Another significant element of the standardisation is the new internet protocol (IP) proposed by China at the Internet World Conference in 2021,⁶⁹ which seeks to replace the US-invented Transmission Control Protocol/Internet Protocol. Although the newly proposed IP standard is faster than the existing protocol, it has built-in surveillance and a “shut-up command”, which can cut data flow to and from any IP address at any time.⁷⁰

Today, there is greater awareness of the security risks Chinese tech poses. However, smaller Indo-Pacific economies find it difficult to avoid Chinese tech due to commercial considerations and the benefits to the host state. This friction between cost and security risks is bound to amplify. While there are obvious commercial costs associated with offering advanced tech at cheap rates, China will nevertheless push the DSR to expand its footprint, thus enabling Chinese telecom and tech companies to thrive.

This proliferation of Chinese technology and its potential geostrategic and geoeconomic implications has prompted the US to act by strengthening domestic regulations and mobilising allies to crack down on Chinese tech corporations. The US government and the Congress pushback on DSR include measures such as banning Huawei, restricting the sales of Chinese CCTV cameras, and the passing of the CHIPS Act 2023.^{71,72} To further counter China, the US has deepened cooperation with traditional partners such as the G7 nations and the European Union and sought new partners such as India and Australia. Additionally, it has engaged in multiple initiatives such as the Quad, the Partnership for Global Infrastructure and Investment, and the US–India initiative on Critical and Emerging Technology to pursue tech innovation.⁷³ The course of these initiatives remains to be seen; however, it is clear that the US is relying on the power of its formal treaty allies and security partners to resist China’s push for the DSR.

Contemporary China–US power contestation is marked by technological, economic, and geopolitical tussles. Washington and Beijing are vying for influence and strategic advantage in the Indo-Pacific region, where several economies require external assistance to augment their technological capabilities and other developmental priorities, such as infrastructural overhauls and resource exploration capabilities. These requirements have led to the region’s intensifying interest in the DSR, which offers advanced tech at cost-effective rates and swift project delivery. Amid concerns and bans in the West, Beijing has shifted its focus to emerging economies, where financial incentives are more enticing and reception to Chinese tech is better compared to the West.⁷⁴

Although the COVID-19 pandemic may have curbed the enthusiasm of host countries regarding BRI investments, the DSR is persevering in the digital sphere.⁷⁵ The initiative has enabled Beijing to establish a tech empire that challenges the West’s dominance. While American social media platforms like Meta and X have a hold on internet users, Western tech companies have been unable to replicate this dominance in ICT infrastructure.

The DSR has the potential to enhance digital connectivity in developing economies in the Indo-Pacific. However, it also provides Beijing with a tool to leverage to meet its geopolitical objectives, specifically through the surveillance and exploitation of in-built backdoors. Therefore, the weaponisation of tech through DSR can help China strengthen its hold in the digital domain and advance its authoritarian vision for tech expansion. 

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