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DISCUSSION PAPER

**China–Pakistan Technology and
Artificial Intelligence (AI) Cooperation:
Changing Dynamics of State & Private Sector Partnerships**

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Executive Summary

Overview

China–Pakistan cooperation in the technology sector has two dimensions: strategic and operational. Strategically, it is anchored in three domains - land, water, and space. Operationally, it manifests through infrastructure connectivity, maritime and underwater security, and cyberspace.

Key Findings & Recommendations

- Pakistan has a timely opportunity to leverage its growing technological partnership with China.
- Pakistan must strengthen governance, improve security, and diversify its international economic partnerships.
- Effective use of the National Centre of Artificial Intelligence (NCAI) requires stronger linkages among government, academia, business, and the media.

Cooperation Across Three Domains



Land

- Technology Infrastructure Connectivity
- Energy, Industry, Agriculture and Telecom Connectivity



Water

- Maritime Cooperation
- Building Ports, Securing Sea-lanes, Trade and Underwater Fiber Optic Cables



Space

- Space and Cyberspace Cooperation
- Joint Satellite Development and Launch Programs

Technological Sophistication

Figures from Lowy Institute Asia Power Index 2020

	China	Pakistan
Human Resources in R&D (Total R&D Researchers)	1,767,579	69,769
R&D Spending (% of GDP)	2.1%	0.2%
Number of Supercomputers in Global Top 500	229	0
Renewable Energy Generation (in gigawatt hours)	1,615,689	30,794

Introduction

The new year opened with evidence of China's expanding technological reach. A top Chinese aerospace company, PIESAT, showcased advanced satellite and drone-related technologies, including remote-sensing applications at the AI Rise Expo in Pakistan's capital, Islamabad, engaging directly with Pakistan's space agency, SUPARCO. What appeared to be an ordinary technology exhibition, in fact, signaled a deeper strategic moment in the evolving convergence of China–Pakistan cooperation in space, Artificial Intelligence (AI), and advanced technologies.

The U.S. Artificial Intelligence Commission Report has captured this race incisively. The report declares, "AI is expanding the window of vulnerability the U.S. has already entered. For the first time since World War II, America's technological dominance, the backbone of its economic and military power, is under threat. China possesses the might, talent and ambition to surpass the United States as the world's leader in AI if the current trends do not change. AI technologies will be a source of enormous power for the companies and countries that harness them".¹ The 'window of vulnerability' appear real as China has become a strategic player and is seeking to integrate deeply with partner countries, as technologies are now embedded in almost every aspect of life, making the technology sector intrinsically global.

The U.S. and China offer two different models of AI technology, but the broader principles appear to be similar. Silicon Valley and Shenzhen symbolize these models. There is one fundamental difference: the U.S. is striving to deny China's technological rise and prefers supremacy, while China aims for integration and connectivity. The U.S. National Security Strategy 2025 aims to close the 'window of vulnerability' and contends that it must "remain the world's most scientifically and technologically advanced and innovative country... [and] maintain unrivaled 'soft power' through which we exercise positive influence throughout the world that furthers our interests."

On the other hand, the Communiqué of the Fourth Plenary Session of the Communist Party of China calls for "boosting full integration between technological and industrial innovation," expanding domestic demand, "opening China wider... and pursuing high-quality Belt and Road cooperation," signaling a twin strategy of self-reliance and global outreach. Its recommendations to "accelerate agricultural and rural modernization," "narrow the rural–urban gap," and promote cultural and economic integration, reflecting the Party's view that modernization must be nationally cohesive. Regionally, the Plan's support for the Belt and Road Initiative (BRI) aligns domestic upgrading with multilateral connectivity, trade, education, and cultural exchange.

Against this backdrop, this discussion paper examines the evolving trajectory of China–Pakistan cooperation in technology and AI, having two dimensions: strategic and operational. Strategically, it is anchored in three domains - land, water, and space. Operationally, it manifests through infrastructure connectivity, maritime and underwater security, and cyberspace.

Technology is the core of a globalized China. The China-World Exposure Index reveals technology to be one of the key dimensions along which the world's exposure to China has generally increased.² The technology flows between China and the world have increased significantly.³ The table below shows the extent of China's integration in trade, technology, capital and data.

SCALE OF CHINA'S GLOBAL INTEGRATION*

TRADE

11% of global goods trade.
However, 6% of global services trade

TECHNOLOGY

Second in the world on R&D spending.
However, more IP imports than exports

CAPITAL

Top 3 financial systems.
However, less than 6% foreign ownership

DATA

First in the world on the number of internet users.
However, only 20% US cross-border data flows

**Data from the McKinsey Global Institute Report (2019)*

China is the largest economy in terms of purchasing power parity and the second largest by nominal size. It is the world's largest exporter and the leading producer of many goods. Currently, 128 out of 190 countries trade more with China⁴ than with the United States, and post-pandemic, China has maintained an economic growth rate of roughly 3 percent, demonstrating resilience despite global challenges.

Alongside its economic strength, China has invested heavily in research and development, accounting for 23 percent of global spending, just 2 percent behind the United States. This sustained investment has sharpened its technological capabilities, expanded its spheres of influence, and built a robust technology ecosystem. According to China experts, China's "scientific and technological power are now increasingly world class."⁵ Against this background, the critical question is how effectively China and Pakistan have been able to leverage this technology collaboration to strengthen bilateral growth and innovation.

The evidence reveals that the record is mixed but lately the two are showing signs of substantive improvement. The analysis below provides an overview of the ebb and flow of dynamics of scientific and technological cooperation between the two countries. In this discussion paper, we provide an overview of last 25 years and for the purposes of brevity and conceptual clarity we have divided into four phases.

Analysis

FOUR PHASES OF THE TECHNOLOGY COOPERATION

1

Institutional Foundations (2001- 2015)

Technological cooperation between Pakistan and China was formally established in December 2001 with the signing of a Memorandum of Understanding between the Ministry of Science and Technology of China and the Ministry of Science and Technology of Pakistan, establishing a Fund for Joint Research and Development. However, for almost 15 years despite relative domestic political stability, Pakistan remained pre-occupied with Global War on Terrorism (GWT). Combating GWT, pushed technological cooperation to a lower ladder and progress in this pivotal area remained slow.

2

Launching of the China-Pakistan Economic Corridor (CPEC) (2015-2020)

Following the launch of the China-Pakistan Economic Corridor (CPEC) in 2015 and the issuance of the Joint Statement on the All-Weather Partnership, more than fifty MoUs were concluded across multiple sectors, including technology, signaling a major acceleration of bilateral scientific and technological collaboration, and CPEC hailed as a “game changer” for Pakistan’s economy and regional connectivity.⁶ The CPEC projects were divided into short-term, medium-term and long-term to be completed by 2020, 2025 and 2030 respectively. While progress was made in energy generation and road infrastructure, cooperation in the technology sector remained limited.⁷

3

Strategic and Operational Technological Cooperation (2020-2024)

During former Prime Minister Imran Khan’s official visit to China, where six agreements were signed, including the second phase of the China-Pakistan Free Trade Agreement and Joint Working Group (JWG) on IT, exploring and expanding scientific and technological cooperation. An MoU on Fiberization Cooperation was signed between the Ministry of Information Technology and Telecommunications (MoiTT) and Hunan SUNWalk Group was also signed. This has been operationalized. Several kilometers of Optical Fiber Cable (OFC) has been completed, with a telecom investment of \$5 million. Equipment is mainly sourced from Pakistani manufacturers.⁸

4

Advanced Digital and Emerging Technologies (2024 onwards)

Cooperation in AI, quantum computing and in other advanced digital technologies. Viper (Pakistan) and Heovose (China), focused on computer assembly under the “Made in Pakistan” policy, are producing AI-powered Intelli-Screens since July 2025. Additionally, relocation of Chinese industries to Pakistan is underway; for example, E-commerce Gateway (Pakistan) and ACE Market-2 Inc (China) signed an agreement in May 2025. Additionally, an MoU was signed by the CEO of Sky47 and the Vice President of Alibaba Cloud International on July 1, 2025 to provide localized cloud services to Pakistani enterprises.

I. Infrastructure Development: Platform for Energy, Industry & Telecom Connectivity

● Power Generation Technology

China–Pakistan cooperation includes advanced construction machinery and project management for roads, bridges, and highways under CPEC. Smart surveying, geospatial mapping, and digital monitoring are used in projects like the Gwadar Eastbay Expressway and Nokundi–Mashkhel–Panjgur Road. In energy, coal, hydro, and renewable projects use grid management, automation, and control systems. Notable projects include Karot Hydropower, Hubco Coal, and Port Qasim Power. Chinese technology transfer strengthens Pakistan’s infrastructure. The collaboration shows evolving partnerships where the state sets policy frameworks while private businesses drive project execution and operations.

● Telecom Hardware

Chinese firms dominate Pakistan’s telecommunications market, supplying core network equipment through Huawei and ZTE. Chinese smartphone brands account for over 70 percent of sales, with Vivo 30 percent, Infinix 20 percent, Tecno 10–12 percent, and Xiaomi and Oppo 15–20 percent. More than 90 percent of locally assembled mobile phones are Chinese. Agreements with China Mobile International, China Telecom Global, and the Pakistan–East Asia Cable Enterprise boosted Pak-China Optical Fiber Cable traffic from 150 Gigabits to 480 Gigabits. These developments show the state facilitating infrastructure while private Chinese and local businesses expand networks and services.

● Industrial Technology

Pakistan’s auto industry is undergoing its biggest shift in decades, moving from Japanese internal combustion engine (ICE) dominance to a Chinese-driven electric vehicles (EV). Chinese automakers, Changan, MG, JAC, FAW, Chery, BAIC, and BYD, now hold more than 35 % of the market, offering locally assembled, feature-rich vehicles and EVs that directly challenge Toyota, Suzuki, and Honda. Passenger car sales grew 17 % in 2025, while Chinese EVs received 55 of 57 new two-wheeler licenses. Supported by the National EV Policy 2025–2030, which targets 30 % EV sales by 2030, and \$340 million Chinese FDI in assembly, the state enables market growth while private firms drive adoption and localization. Chinese EV launches, such as BYD assembling 25,000 units/year by 2026, mark the largest structural shift in Pakistan’s automotive landscape.

● Solar Panels

Pakistan has rapidly expanded its solar energy capacity to address the energy crisis, importing approximately 16–17 GW of solar panels in 2024 alone, and over the past five years totaling around 39 GW, with 95 % of these panels sourced from Chinese manufacturers. Solar now supplies roughly 25% of the country’s electricity. The private sector including businesses, farms, and households drives most installations while the state provides policies, incentives, and support for imports, enabling investment and supporting local solar installers, maintenance services, and energy-related businesses, strengthening the market and creating jobs.¹⁰

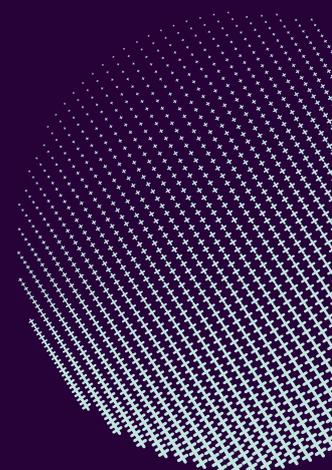
II. Maritime Cooperation: Building Ports, Securing Sea-lanes and Trade

In February 2025, Naval Exercise AMAN-25 was conducted, with China serving as the lead partner and navies from 60 countries participating. The declared objectives of these drills were to curb piracy, promote maritime commerce, and ensure the security of sea lanes from the Arabian Sea to the Malacca Straits, under the longstanding AMAN theme of “Together for Peace.” The exercise demonstrated growing regional cooperation in maritime security, which is increasingly gaining momentum as nations work together to safeguard critical shipping routes and maintain stability in key waterways.

To bolster regional security, China and Pakistan have conducted a series of joint naval exercises under the “Sea Guardian” program, showcasing deepening maritime and technological cooperation. The first exercise was held in 2022, followed by Sea Guardian-2 and Sea Guardian-3 in 2023, featuring anti-submarine drills, search and rescue operations, helicopter landings, and coordinated maneuvers. Alongside these exercises, China has provided naval technology support to Pakistan, including Hangor-class submarines, strengthening Pakistan’s maritime capabilities. Together, these initiatives highlight a growing strategic partnership, enhancing operational readiness, maritime security, and regional influence.¹¹ This feature of maritime connectivity for peaceful purposes and security needs to be enhanced for boosting trade, commerce and maritime tourism.

China’s export led growth strategies, its rising energy needs (oil import), combined with the competition with the U.S has given new salience to Maritime routes (such as Panama, Malacca Straits, Strait of Hormuz, Persian Gulf, Suez Canal to mention a few). In this context BRI and CPEC acquire economic and geopolitical salience, thus maritime collaboration should be designed and operationalized in a manner that ensures its long-term sustainability.

“In this context, BRI and CPEC acquire economic and geopolitical salience, thus maritime collaboration appears to be the future direction.”



Port Infrastructure and Handling Technology

China–Pakistan cooperation in port infrastructure has involved the installation of modern cargo-handling and storage equipment at strategic maritime facilities. For example, under the China-Pakistan Economic Corridor (CPEC), Gwadar Port’s development includes Chinese-installed quay cranes and expanded container yards, which modernize loading and unloading capabilities and increase handling efficiency. Chinese partners have also supported the expansion of cargo storage areas and related infrastructure, improving logistical capacity at the deep-sea port. Another specific initiative is the planned maritime industrial complex at Port Qasim, where Chinese firms such as Shandong Xinxu Group are preparing to develop ship repair, recycling, and support facilities that will include modern dock infrastructure and handling technology.

Maritime Transportation and Navigation Technology

China and Pakistan have explored joint ventures in shipbuilding and maritime transport systems. A July 2025 MoU between the Pakistan National Shipping Corporation and Shandong Xinxu Group aims to enhance shipping and fleet management, including technical cooperation in vessel operations and maintenance.¹²

Although detailed public reporting on specific navigation systems is limited, the broader cooperation framework fosters modern port traffic management systems and feeder services to support safe and efficient movement of ships, with planned collaboration on dry dock and floating dock facilities at Gwadar and Port Qasim.

Waterway Monitoring and Operational Technology

Pakistan’s maritime development plans clearly aim to integrate automated monitoring and control systems for waterway safety and logistics. The Maritime Affairs Action Plan promotes adoption of electronic data interchange and “smart port” technologies that connect ports like Gwadar with global shipping networks, including systems for real-time tracking of cargo and vessel operations, logistics planning, and harbor management. In addition, infrastructure projects such as the Gwadar Free Zone and expanded services at Port Qasim are expected to incorporate modern operational technology for safety, automated management, and environmental monitoring as part of broader cooperation with Chinese partners. It is equally important that due attention is paid towards upgrading, modernizing port facilities at Karachi.

Fiber-Optic Cable Technology

China–Pakistan cooperation underwater includes fiber-optic cable infrastructure linking Pakistan to global data networks. Pakistan is connected to the PEACE (Pakistan & East Africa Connecting Europe) cable, a China-backed submarine cable system developed by Huawei Marine. The PEACE cable is approximately 12,000 kilometers long and has a designed capacity of up to 96 terabits per second, with landing stations at Karachi and Gwadar. The idea for the fiber-optic cable originated in 2007, but it was completed in 2017. The project was included in the CPEC, after its launch in 2015 and was financed by a loan from China’s EXIM Bank. The 820-km cable, using Huawei equipment, connects Rawalpindi to the China border. The two share a common operational interest. Pakistan views this link as a secure backup to submarine cables, reducing dependence on routes linked to India. While, it helps China create safer digital routes to Africa and the Middle East.¹³ Until recently, with the Chinese companies including China Mobile International (CMI), China Telecom Global (CTG), and PEACE Cable have entered into agreements with the Special Communications Organization (SCO), the transit traffic on the Pak-China Optical Fiber Cable has increased significantly. Pakistan also aims to adopt China’s best practices in fiberization, Right of Way (ROW), data centers, and spectrum policies. Leveraging Chinese expertise in submarine cables, data centers, and 5G is also a key lesson. Challenges faced include security concerns regarding M/S SUNWalk by the Ministry of Interior and excessive charges on Chinese land cables, which are being addressed.

Port and Coastal Underwater Surveillance Technology

China has supplied Pakistan with port-level underwater surveillance and security systems for strategic ports, including harbor defense sonar, underwater cameras, and intrusion-detection sensors. These systems are associated with Gwadar Port and Karachi Port, supporting port security. Pakistan also seeks China’s support on best practices, policy reforms, and incentives for rapid fiberization and digital infrastructure. This includes regulatory guidance for green data centers, cloud adoption, and hyperscale infrastructure. Pakistan welcomes China Telecom’s cloud partnerships and China Unicom’s proposals for new Points of Presence, submarine cables, routing 10–15 percent of global traffic through Pakistan, and potential submarine landing stations in Gwadar.

Undersea Engineering and Maintenance Technology

China–Pakistan cooperation includes subsea engineering technologies, with Chinese teams maintaining submarine cables to ensure reliable operations and timely fault repairs. Interestingly, seabed and undersea cables are increasingly securitized, as Lynn Kuok has perceptively observed that the “seabed has become an arena of great-power competition, sabotage and surveillance. Fiber-optic data cables carry 99 percent of transoceanic digital traffic, including financial flows and government, diplomatic, and military communications”. She cautions, “as risks grow and trust erodes, global cabling is splintering into U.S.-led, Chinese-led and non-aligned blocks, with routes and landings increasingly mirroring geopolitical alignment rather than commercial logic”.¹⁴

III. Cyberspace: The Emerging Frontier

Cyberspace has emerged as a critical domain of China–Pakistan cooperation, linking space, digital infrastructure, and data governance. As strategic competition increasingly extends beyond land, sea, and air, both states view cyberspace as central to national security, technological sovereignty, and economic resilience.

The federal cabinet approved a Memorandum of Understanding on cybersecurity cooperation between Pakistan’s National Cyber Emergency Response Team and China’s National Computer Emergency Response Technical Team to enhance training, threat prevention, and policy coordination. Pakistan and China also collaborate on a Computer Emergency Response Team initiative to secure digital traffic along the CPEC. This cooperation integrates cybersecurity measures and artificial intelligence tools to defend networks and data infrastructure, reflecting a shift toward coordinated, state-led digital and cyber defense frameworks.



“Without robust cooperation and vigilance, critical networks and data infrastructure remain highly vulnerable to sophisticated cyber threats that could disrupt national security and economic stability.”

● Space Agency Cooperation and Institutional Linkages

China and Pakistan cooperate at the institutional level through Pakistan's Space and Upper Atmosphere Research Commission (SUPARCO) and China's China National Space Administration (CNSA). This cooperation includes joint planning, technical coordination, and formal agreements covering satellite development, launch services, and data sharing. Pakistan shared its "cloud first policy" and welcomed Chinese cloud service providers. Deeper cooperation in artificial intelligence, software, and big data is proposed, including establishing joint innovation centers in Shenzhen, Karachi, and Islamabad, and strengthening technical talent training through joint programs. The two sides can jointly establish export centers for digital solutions to emerging markets like Saudi Arabia and Central Asia, and build digital infrastructure in Africa and Central America. China is willing to strengthen exchanges in policy environments, technological innovation, standard research, and talent training.

● Joint Satellite Development and Launch Programs

China has supported Pakistan in the design, development, and launch of multiple satellites, including Pakistan Remote Sensing Satellite-1 and PakTES-1A, both launched from China's Jiuquan Satellite Launch Center, with technology transfer and training for Pakistani engineers. Following the May 25 Pakistan-India conflict, this domain is likely to gain further strategic importance, as satellite-based intelligence, surveillance, reconnaissance, and secure communications become central to crisis monitoring and deterrence. Future cooperation may therefore expand toward remote sensing and real-time data integration.

● Data Systems

China-Pakistan space cooperation includes collaboration on satellite ground stations, data reception systems, and satellite-based applications. Chinese institutions have supported Pakistan in establishing and upgrading ground control and data processing facilities used to receive, process, and analyze imagery from Chinese-launched satellites. This cooperation enables the use of satellite data for remote sensing, mapping, environmental monitoring, agriculture, and disaster management, integrating Chinese space technology into Pakistan's civilian and government data infrastructure. China's cooperation with Pakistan in cyberspace reflects a shift toward state-controlled internet governance. The United States promotes a free and open internet managed through a multi-stakeholder model, where governments, private companies, and civil society all share decision-making. However, the U.S. has faced criticism for mass surveillance programs and its control over ICANN (Internet Corporation for Assigned Names and Numbers), the organization that ensures every website has a unique address and that internet traffic reaches the right place. By aligning with China, Pakistan supports cyber sovereignty, where states control their own networks and digital rules, signaling a move toward a multipolar cyber order that prioritizes national authority over global U.S.-led frameworks.¹⁴

Conclusion

China–Pakistan technological cooperation is growing in several important areas, including land, water, and cyberspace. This partnership started with a series of MoUs and has now reached advanced technologies like AI, satellites, and undersea cables. Cooperation in infrastructure, maritime security, and digital technology helps Pakistan improve its economy, trade, and safety. Simultaneously, it allows China and Pakistan to work together on global projects and technology sharing.

This growing cooperation also has a flipside; it has led to increased exposure of Pakistan on China. In 2024, Pakistan was ranked first globally on the China Index, meaning it is the country with the highest exposure to China. The China Index measures how much influence China has over a country, looking at three aspects: how dependent a country is on China, how China can influence decisions, and how much a country adapts policies to China’s interests. Pakistan’s technology subcategory scored 100%, the highest among all countries, showing that Pakistan is increasingly dependent on Chinese technology.

It is noteworthy that Pakistan is “tightly linked with China through regional supply chains” and as an emerging economy and a neighboring country, it has a “high exposure to Chinese outbound investment”.¹⁵ While the China–Pakistan strategic partnership is bringing dividends, as China is now an important market and a significant provider of investment and capital, it also underscores the importance for Pakistan to strengthen its own domestic economic capacity while simultaneously diversifying its international economic partnerships to reduce overdependence and enhance long-term resilience.

It is also worth mentioning that China–Pakistan technological cooperation has transitioned from foundational MoU’s and agreements to expansive strategic and operational integration across infrastructure, digital connectivity, and emerging technologies. The signing of 24 MoUs last year under the Joint Working Group on IT Cooperation demonstrates deepening engagement in ICT infrastructure, cybersecurity, and human resource development, with coordinated efforts to train up to 300,000 Pakistani youths in advanced digital skills including AI, cloud computing, and cybersecurity, a key component in bridging the digital skills gap and fostering a competitive tech workforce.

Pakistan now has a window of opportunity to harness and maximize the advantages of this strategic and operational cooperation. Pakistan should not let its enthusiasm for tech cooperation with China wane. The ball is in our court and it is important for Pakistan to develop strategic clarity on priority domains, whether internet infrastructure, surveillance systems, machine learning, or indigenous tech production, and sustained investment in developing human capital are critical.

Silicon Valley and Shenzhen are emerging as two competing and, in some ways, complementary models of the U.S.–China tech rivalry. This has led a recent Hinrich Foundation report to characterize it as “the greatest show on earth,”¹⁶ transforming economies, societies, and state behavior worldwide. In this evolving landscape, a globalized China is not only reshaping technological production but also redefining connectivity, infrastructure, and digital governance across regions. Yet, in complex ways in AI and technology, the U.S. and China are intricately tangled. The world is watching in awe and shock at how the U.S.–China technology and AI race will be managed. For Pakistan, the challenge as well as the opportunity lies in positioning itself within this global technological ecosystem rather than remaining at its periphery. In our recommendations, we put forward a few pathways for how Pakistan can strategically embed itself within China-led digital and multilateral connectivity networks while safeguarding national interests.



**“Pakistan must
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Future Direction

Strengthen International Transit traffic: Pakistan should boost international transit traffic by encouraging Chinese operators to route 10–15 percent of their global internet traffic through Pakistan, thereby strengthening network resilience and promoting the country as a regional transit hub. The capacity of the existing Pak–China Optical Fiber Cable (OFC) system should be continuously enhanced beyond 450 Gbps through collaborative upgrades and bilateral agreements. Traffic should be increased in phases to 1 Tbps, with the system further upgraded to 4 Tbps over the next three years, and a new cable system deployed to achieve a capacity of 12 Tbps. In this context, there is a renewed need to develop a shared strategic vision on maritime security, commerce, and trade.

Develop partnership on fiberization policy frameworks: To support the policy framework, Pakistan should seek technical and strategic assistance from China for the development of national policies on fiberization, spectrum sharing, and Right of Way (RoW), modeled on successful Chinese regulatory frameworks.

Identify and Prioritize areas of emerging technologies collaboration: With respect to green data centers and emerging technology infrastructure, Pakistan should collaborate with Chinese partners to establish green, energy-efficient data centers and to promote cloud computing and AI infrastructure across the country. It should work closely with China Telecom to onboard cloud service partners, initiate pilot cloud projects, and build the required capacity for hyperscale cloud services nationwide. In addition, support should be extended to China Unicom in establishing carrier-neutral Points of Presence (PoPs) and in developing shorter submarine cable routes through Pakistan to enhance regional data flow efficiency.

Ensure Transparency: Pakistan should ensure transparency in all technology-related initiatives, particularly operational projects, by making key agreement clauses and financial costs publicly available.

Imaginatively utilize NCAI: The establishment of the National Center for AI (NCAI) represents a forward-looking initiative of the Government of Pakistan. For its effective utilization, the government must create strong linkages with academia and industry. Once such linkages are formalized, the next step would be to identify relevant Chinese institutions and organizations, in both the public and private sectors, with which partnerships can be developed. Training programs, exchanges, and joint collaboration among professionals in research and practice should be actively pursued.

Framework on Intellectual Property Rights: Pakistan should develop a mutually agreed framework on intellectual property rights, which is essential for jointly developed technologies. This is equally important for technology transfer and capacity building, particularly for Pakistan. Such efforts require a deeper understanding of Chinese language and culture among Pakistani scholars, researchers, and professionals.

Construct big data cross-border trade platform: Drawing lessons from China, Pakistan could also develop a big data platform for cross-border trade to capture both external data; such as information from port operators, transporters, freight forwarders, and shipping agents, and internal data related to importers, exporters, and other relevant stakeholders.

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