Digital Silk Road and Geopolitical Realignment in Central Asia

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DEDICATION

I dedicate this research to my beloved parents and my husband. Their love and support encouraged me to complete my thesis in the required timeframe. They are the reason behind my success, and it was their prayers and efforts that brought me to this level. I also want to dedicate this work to my honorable supervisor, Dr Adam Saud, for his great supervision and guidance that contributed to successful completion of my thesis.

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ABSTRACT

China's Digital Silk Road (DSR) is changing geopolitical dynamics, technical dependency and debates on digital sovereignty across Central Asia. As China increasingly uses technical statecraft, exports digital governance models and engages in global standard-setting in order to increase its regional presence, the DSR represents a move away towards the strategic use of information power. This study examines the impact of China's DSR investments on the geopolitical context and the emerging concept of digital sovereignty among Central Asian countries. It examines whether China's increasing digital footprint is greeted with cooperation, adaptation or resistance from the local actors. Drawing on the theoretical frameworks of complex interdependence and constructivism, this study is an explanatory multiple-case design that comprises all five Central Asian states; Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan. This methodology facilitates a systematic examination of the strategic rationale behind the digital expansion of China and the region's differentiated policy responses. Empirical evidence points to digital interdependence in Central Asia as not necessarily all good or all evil. Rather it is a reflection of a negotiated political environment where material power, normative ideals and technical infrastructures are present. While the Chinese government pursues the narrative of a "shared digital future", regional governments reinterpret, recalibrate and adapt this vision according to their own identities, geopolitical interests and concerns about sovereignty. Overall, the findings contribute to the broader context of the discussion about digital geopolitics, technical dependence and the emergence of a new digital world order

Key words: Digital Realignment in Central Asia, Digital geopolitics, Technical dependency, Digital sovereignty, Complex interdependence, Shared digital future.

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CHAPTER 1

INTRODUCTION

1.1) Background of the Study:

In the start of the 21st century, the geopolitical and geoeconomic situation changed significantly. With the emergence of artificial intelligence, highly sophisticated Net infrastructure and the informatization of the economy, power is no longer determined in the traditional forms of industrial production and military force. Digital power has become an unavoidable part of national power and geopolitical strategy in this new age. States have already begun a complex and intense struggle to monopolise cyberspace, regulate the flow of electronic commerce, and in general to institutionalise the core principles of the new rules of the road that will govern the global use of technology. This competition has transformed the international strategic landscape into what many scholars refer to as the "technopolar era" in which areas of influence are defined by technical ecosystems and not conventional military alliances[1] States that are able to harness the data flow, develop digital standards, and export technology standards will have tremendous geopolitical power. During this changing geopolitical order, the ambitious project of China to construct the Digital Silk Road (DSR) is a grand project with the potential to fundamentally alter the patterns of communication globally.

The DSR was first introduced in 2015 and was one of the key elements of China's broader initiative known as Belt and Road Initiative (BRI). Since its establishment, it has gained more and more prominence, especially as President Xi Jinping has repeatedly stressed China's goal to be a "cyber superpower" and a global center for technological innovation [2]. The Digital Silk Road (DSR) focuses on digital infrastructure and connectivity, including 5G telecommunications, cross-border fibre-optic cable, data centres, artificial intelligence, cloud computing, e-commerceships, fintech platforms and satellite navigation. In contrast, the Belt and Road Initiative (BRI) has previously

[1] Cui, Fang. 2025. “The Digital Silk Road: China’s Strategy for Global Technological Leadership.” *International Journal of Artificial Intelligence* 15 (7): 763–68. https://academicpublishers.org

[2] Winter, Tim. 2022. “Geocultural Power and the Digital Silk Roads.” *Environment and Planning D: Society and Space* 40 (5). https://doi.org/10.1177/02637758221118569.

focused on tangible physical infrastructure such as roads, ports, railways and pipelines. Practically speaking, however, the DSR encourages China-centric digital ecosystems, fosters a low reliance on Western technology providers, and shapes global governance standards in Beijing-favoured models, in spite of its stated goal of "building a community of common destiny in cyberspace"

Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan make up the Central Asian region, a long-historical nexus of trade, culture and imperial competition. Once a key stage on the Classical Silk Road, the area is now acting as a strategic buffer between China, Russia, and Western powers, such as the United States and the European Union. As the Eurasian heartland and an important juncture connecting the East and the West, the region has retained important geopolitical significance. In addition to its location along key overland trade and energy routes, the region has rich hydrocarbon resources (approx. 4% of the world's proven reserves of natural gas), uranium (Kazakhstan accounts for more than 40 percent of production), gold, and hydropower potential[3] . The China-Central Asia-West Asia Economic Corridor, an integrated network linking energy, transport and what will become an increasingly digital infrastructure, builds on these existing corridors. Consequently, China has a strategic and opportunistic interest in solving the digital divide in Central Asia.

In 2020, most Central Asian states showed inadequate indigenous capabilities in cloud computing, cybersecurity, and advanced artificial-intelligence applications and their average broadband penetration significantly lagged behind that of the Organisation for Economic Cooperation and Development. This discrepancy has provided an environment favourable for the export of Chinese digital infrastructure. Large scale data centres, cross border fibre optic links and 4G/5G cellular networks have been advocated by Chinese technology conglomerates especially Huawei and ZTE. For example, Huawei's Data Processing Centre in Kazakhstan, which was inaugurated in 2019, is currently used as a regional center for cloud-based governmental systems and logistics related to international trade. At the same time, however, Kyrgyzstan has adopted China's BeiDou satellite navigation system for transportation and agrarian management, while Uzbekistan has signed a

[3] Sharifli, Yashar. 2025. “China-Central Asia Weekly Digest.” *China Global South Project (CGSP),* August 2, 2025. https://chinaglobalsouth.com/analysis/china-central-asia-weekly-digest/

collaboration with Huawei to digitalise public services and to implement "Safe City" surveillance programmes [4].

The Digital Sovereignty Realm (DSR) involves combining normative and regulatory constructs along with implementation of hardware elements. From its promotion of Chinese cybersecurity laws to 5G protocol standards, the Chinese government has already demonstrated a desire to influence the rules of the digital domain in accordance with the ideological direction of its ruling class. Indeed, the implementation of such standards may force partner nations to join costly long-term technology ecosystems, creating long-term dependencies on digital infrastructures. China's approach is a hybrid model of commercial development interwoven with the government's policy, and in which private companies are used as tools of diplomatic warfare in the service of Beijing's geopolitical goals. Whereas, originally China had claimed that they had started DSR-related technological projects in eighty countries by 2023, recent reports claim that China has now started over 3,000 such projects across the world under the BRI and DSR initiative.

China's growing digital presence has built the world's largest broadband network, which includes an estimated 1.9 million 5G base stations serving nearly 3.3 billion people. Chinese companies have sold smart-city technology to 106 countries around the world, 53 of which are in Asia and 30 in Europe[5]. In Central Asia, some big DSR-related projects were opened in 2025. Among them, the most notable is the "Trans-Caspian Fiber-Optic Cable," implemented by Azartelecom, the largest telecommunications company in Azerbaijan, and Kazakhtelecom in March 2025[6]. This cable runs approximately 380 km across the Caspian Sea and links Sumgayit in Azerbaijan, Baku in Azerbaijan and Aktau in Kazakhstan, allowing high-speed data transfer between the countries.

[4] Breistrand, Lars. 2023. "China's Digital Silk Road and Authoritarian Digitalisation in Kazakhstan." Paper presented at the Central Eurasian Studies Society (CESS) Conference. NomadIT. https://nomadit.co.uk/conference/cess2023/paper/74303

[5] Patil, Sameer. 2025. "The Digital Silk Road and Smart City Networks in the Indo-Pacific: A Primer." *Observer Research Foundation (ORF)*, September 8, 2025. https://www.orfonline.org/research/the-digital-silk-road-and-smart-city-networks-in-the-indo-pacific-a-primer

[6] Qiu, Winston. 2025. "AzerTelecom and Kazakhtelecom Ink Agreement for the Trans-Caspian Fiber Optic Cable Project - Submarine Networks." *Submarinenetworks.com*, March 6, 2025. https://www.submarinenetworks.com/en/systems/intra-asia/trans-caspian/azertelecom-and-kazakhtelecom-ink-agreement-for-the-trans-caspian-fiber-optic-cable-project.

These changes have sped up the modernization and interdependency processes in Central Asia and also spurred controversial geopolitical and security discussions[7].

Meanwhile, critics of DSR say that the infrastructure (surveillance technology and centralized data storage) could further entrench authoritarian governance regimes, enable political surveillance, and reduce privacy safeguards. These concerns have been heightened by high-profile cases in Southeast Asia and Africa where Chinese-made digital systems have been linked to data breaches and murky contractual terms which allow Chinese corporations access to sensitive data. Thus, dramatic implications for the balance of power in the region are obvious. With the help of a common language, trade routes and integration structures like the Collective Security Treaty Organisation and the Eurasian Economic Union (EAEU), Russia has exercised hegemony over the cultural, economic and security space of Central Asia for more than two centuries. By creating its own cyber infrastructure, the DSR brings an additional non-Russian dependency that could be further entrenched over time and undermine Moscow's power.

At the same time, it runs counter to the regional interests of both the United States and Europe, especially since Washington and Brussels promote "trusted connectivity" initiatives to counter Chinese influence. In this way, this paper argues that China's Digital Silk Road in Central Asia is more a strategic recoding of digital infrastructure in the region than a set of economic initiatives. The implications of this transformation are wide-ranging, touching on the structure of alliances, the sovereignty, and the long-term geopolitical trajectory. It aims to answer the question whether this expansion is a structural change of the balance of power in the Eurasian geo-politics or whether it is confined by competing strategies of other world powers, political projects from local actors and the inherent dilemma of multi-vector diplomacy of Central Asian states. In a digital order that is becoming increasingly controversial, the study also discusses how different actors craft narratives about cybersecurity, digital sovereignty, and economic interdependence and how these narratives shape decision making.

[7] Hoagland, Richard E., Aigerim Karibayeva, and Nikita Wolkov. 2020. *China's Growing Influence in Central Asia through Surveillance Systems.* Policy Brief. Caspian Policy Center,. https://api.caspianpolicy.org/media/uploads/2020/09/PB-Chinas-growing-influence-in-CA-through-surveillance-systems.pdf

1.1.1) Key Objectives of Digital Silk Road Initiative

In 2017, the Digital Silk Road was given an official name and strategic direction by President Xi Jinping in his speech at the Belt and Road Forum. The recognized "digital gap" that many developing countries face, as well as the surge of China's domestic digital economy have been its main motivations to develop itself into an important part of China's foreign-policy agenda. By taking this strategic stance, China can leverage its technological capabilities to bridge the digital divide globally, at the same time, advancing its geopolitical and economic goals[8].

The development of infrastructure is just one of the major goals of the Digital Silk Road. Its main goal is to create an international digital ecosystem (with a strong emphasis on China). This project includes the promotion of collaboration in areas such as e-commerce, finance, industrial digitalisation, quantum computing, and artificial intelligence, all focused towards building a Beijing-centred integrated digital network. This objective is closely tied to China's goals of becoming technologically self-sufficient and dominating the world stage.

The Digital Silk Road is a crucial factor for China to become a leader in high-technology fields and to gain more autonomy in the international digital space by supporting the development and export of digital ecosystems at home. The scheme aims to increase the visibility of Chinese technology companies abroad. Through financial and political assistance, the programme helps Chinese companies to enter and dominate digital economy development, which reinforces Chinese trade relations and creates a landscape in which Chinese products and services are valued. This approach is not limited to just commercial interests; it seeks to build economic and financial systems that go beyond the dominance of the traditional Western countries, especially of the United States.[9]. However, another, albeit less discussed, goal of the Digital Silk Road is the active shaping and promotion of international digital norms and standards. Beijing will make use of its financial strength and increase its involvement in international standards organizations to influence the rules of the digital infrastructure. These include Huawei's proposals for a new set of internet

[8] Reddy, R. Kumar. *Digital Silk Road: Beijing's Digital Footprint and Its Political Implications.* Washington, DC: Observer Research Foundation America (ORCA) https://www.orcasia.org/digital-silk-road.

[9] Ding, Yuan, and Ang Xiao. 2023. *Evolution of China's Belt and Road Initiative: Digital Silk Road*. Invesco. https://www.invesco.com/content/dam/invesco/apac/en/pdf/insights/2023/march/invesco-evolution-of-chinas-belt-and-road-initiative-digital-silk-road-mar23.pdf

protocols at the International Telecommunications Union and China's foreign aid policy, which requires that recipients adhere to Chinese standards in exchange for aid. By actively contributing to the design of international governance frameworks, China increases its normative influence, shaping the online experience of its partners subtly and creating a "cyberspace with Chinese characteristics." As a result, the Digital Silk Road operates as a sophisticated tool of soft power, working towards the reshaping of the global digital order in line with China's interests [10].

The Digital Silk Road is a strategic reaction to the growing technological competition with the United States. The necessity to maintain technological progress in the face of external requirements and restrictions provides the specific impetus for self-sufficiency in key technologies..[11]. This suggests that the Digital Silk Road is a defensive move aimed at building an alternative parallel digital ecosystem that makes China less vulnerable to Western technical dominance, rather than an external extension of China's digital muscle power[12] .The Chinese government's political support and policy-bank financing allow Chinese companies to provide advantageous conditions in highly competitive industries

1.1.2) Key Technological and Infrastructural Components of DSR

Within the scope of the Digital Silk Road, China aims to build an extensive set of advanced technologies and infrastructural assets geared towards the establishment of a robust and interconnected digital ecosystem. In order to move toward next generation capabilities for the Internet of Things (IoT), the program intentionally incorporates both basic "hard infrastructure" and sophisticated "soft infrastructure." Significant advancement in digital infrastructure underpins the Digital Silk Road, which includes the laying of fibre optic cables to include transcontinental underwater links, establishment of 4G and 5G wireless communications network and an extensive

[10] Sukhankin, Sergei. 2021. “Tracking the Digital Component of the BRI in Central Asia, Part One: Exporting"Safe Cities' to Uzbekistan.” *China Brief* 21, no. 3 (February 11). Jamestown Foundation. https://jamestown.org/program/tracking-the-digital-component-of-the-bri-in-central-asia-part-one-exporting-safe-cities-to-uzbekistan/

[11] China Media Project. 2023. “The CMP Dictionary: Digital Silk Road (数字丝绸之路).” China Media Project. November 24, 2023. https://chinamediaproject.org/the_ccp_dictionary/digital-silk-road/.

[12] Kassenova, Nargis, and Benoît Duprey. 2021. *Digital Silk Road in Central Asia: Present and Future*. Davis Center for Russian and Eurasian Studies, Harvard University. https://daviscenter.fas.harvard.edu/sites/default/files/files/2021-10/Digital_Silk_Road_Report_2021.pdf

base of internet infrastructure. [13]. A notable example is the undersea cable network of 15,000 kilometres designed to provide the routes that connect Asia, Africa and Europe as under the Pakistan and East Africa Connecting Europe (PEACE) initiative. [14]. China's share in world undersea cable is expected to go from 11.4 per cent in 2019 to 20 per cent in 2025-30, mirrored by bold sectoral ambitions. Advanced data centres and cloud computing capabilities, which form the backbone of digital services and data storage, are also incorporated on these networks[15].

Artificial Intelligence (AI): Artificial intelligence (AI) is often conceptualised as the "brains" of China's ability to leverage its digital infrastructure at a global scale. State-of-the-art algorithms are operating software that drive technology-driven economic growth and transformation. Beijing is not shy about incorporating these models into governmental frameworks for wider application among Digital Silk Road member nations, making Chinese AI companies like DeepSeek likely global standard-bearers. The focus on AI signals that the Digital Silk Road is about not just physical connectivity, but also developing a data-rich ecosystem open to analysis and optimisation with Chinese AI expertise, to turn raw data into valuable assets and economic power

Smart City Initiatives: Smart city initiatives are another crucial aspect, focusing on big data, cloud computing and advanced urban technologies. Through the use of contemporary data analytics and artificial intelligence, these projects want to improve public transport, e-governance and urban administration for the sake of a more efficient and responsive city governance[16].

Surveillance System: Surveillance systems installed in the framework of smart cities often include cameras produced by Chinese companies such as Hikvision and Dahua Technology, which combined account for around 60 percent of the world market. The use of these devices in such a

[13] China Academy of Information and Communications Technology (CAICT). 2025. “China Bridging Digital Divide with Submarine Cables.” *People’s Daily* / GOV.cn, March 25, 2025. Accessed October 21, 2025. https://quizlet.com/839842492/cyber-awareness-challenge-2024-flash-cards/

[14] Peace Cable International Network Co. Ltd., "PEACE Cable Completes Connection of Pakistan-Egypt Segment to Connect to Marseille, France," *Data Center Dynamics*, August 19, 2022

[15]Wang, Zheng. 2024. “China’s Digital Silk Road (DSR) in Southeast Asia: Progress and Challenges.” *ISEAS Perspective*, no. 2024/1 (January 5). ISEAS–Yusof Ishak Institute. https://www.iseas.edu.sg/articles-commentaries/iseas-perspective/2024-1-chinas-digital-silk-road-dsr-in-southeast-asia-progress-and-challenges-by-wang-zheng/

[16] He, An. 2022. "The Digital Silk Road and China’s Influence on Standard Setting" (CIGI Papers No. 264). Centre for International Governance Innovation (CIGI). https://www.cigionline.org/publications/the-digital-silk-road-and-

chinas-influence-on-standard-setting/
widespread manner raises privacy concerns and potential for enhanced surveillance due to the ease with which they can be monitored and the information they can gather[17].

E-commerce and Digital Payment System: China's digital economy model is further characterised by e-commerces and digital payments systems. Bilateral co-operation mechanisms have been established with over 20 countries, and are actively promoting localised and cross-border e-commerce platforms. A key part of this model is the widespread use of mobile payment systems that support seamless digital transactions on a global scales[18].

BeiDou Navigation Satellite System (BDS): The BeiDou Navigation Satellite System (BDS) is a major strategic offer, a direct competitor of the U.S.-based Global Positioning System (GPS). BDS provides integrated global location, navigation, and timing services that are used in various fields such as transportation, agriculture and forestry, fishing, hydrological monitoring, weather forecasting, communication, power dispatching, disaster relief, and public security[19]. The breadth of these applications-from satellite systems to AI software, from physical cables-is a great example of a "full stack" approach to digital exporting. Through this integrated strategy, China is able to provide end-to-end solutions that could engender significant technological dependencies and create a cohesive China-centered digital ecosystem in recipient countries that could complicate efforts by competing and collaborating suppliers[20].

1.2) Research Gap/ Rationale

Despite the extensive body of research on China's Belt and Road Initiative (BRI) across its economic, infrastructural, and geopolitical dimensions, the Digital Silk Road (DSR) remains comparatively underexplored—particularly in the context of Central Asia. Much of the existing research focuses on the BRI's material and strategic impacts in regions such as Southeast Asia, Africa, and Eastern Europe, while the digital component has received limited analytical attention.

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[17] GlobeNewswire. 2022. "Global Surveillance Camera Market to 2027 with Chinese Companies such as Hikvision and Dahua Dominating the Market." September 29, 2022. https://www.globenewswire.com/

[18]Beck, Tess. 2023. "Why Chinese-Made Surveillance Cameras Are Increasingly Seen as a Security Concern." *TIME*, December 12, 2023.

[19] China Satellite Navigation Office / China Daily. 2020. "BeiDou System's Applications Spread around Globe." *China Daily*, June 24, 2020.

[20]Civil Aviation Administration of China (CAAC). 2023. "BeiDou System to Provide Services for Global Civil Aviation." News release, November 21, 2023. http://www.caac.gov.cn/English/News/202311/t20231121_222110.html.

Moreover, most of the studies often assume a direct link between China's digital investments and its expanding geopolitical influence, overlooking the potential for resistance, adaptation, or reinterpretation by local actors. Central Asia, with its enduring ties to Russia, increasing engagement with Western institutions, and complex domestic political dynamics, provides a unique setting that challenges simplistic narratives of uncontested Chinese digital dominance. This research therefore seeks to bridge this gap by examining how the DSR shapes Central Asia's digital transformation, and by assessing whether China's growing technological presence translates into substantive geopolitical leverage within the region.

1.2.1) Theoretical Gap

While existing literature on China's Digital Silk Road in Central Asia has largely relied on realist and neo-realist frameworks, focussing on national interests, power projection, and strategic rivalry, but they often overlook the deep-rooted systemic interdependence between the political, economic and the digital space, and how the ideas, norms and identities contribute to the state actions. In order to overcome these limitations, the study uses a broad theoretical framework, which combines both constructivism and the theory of complex interdependence. Complex interdependence allows for in-depth examination of simultaneous collaboration and competition in fields such as cybersecurity, digital infrastructure and economic integration, which highlights the fact that inter-state relations cannot be categorized as being zero-sum power relations. Constructivism emphasizes the ways that Central Asian states understand and challenge the competing digital narratives promoted by China and the West, while at the same time articulating their own identities, historical trajectories, and foreign policy orientations [21]. Together, these theoretical lenses attend to both ideational frameworks and material interdependencies inherent in the digital engagement of China with Central Asia to provide a nuanced understanding in contrast to realist interpretations of, for example, Huawei's 5G initiatives as strategic instruments [22] .

[21] Dadabaev, Timur, and Alisher Umarov. 2025. "A Constructivist Framework for the Central Asian Regional Security Complex: Identity, Interests and Security Dynamics." *International Affairs* 101 (2): 445–463. https://iais.uz/en/outputnew/a-constructivist-framework-for-the-central-asian-regional-security-complex-identity-interests-and-security-dynamics

[22] Diamond, Larry. 2020. "How Technology Strengthens Autocracy." *Foreign Affairs* 99 (2). https://www.foreignaffairs.com/articles/china/2020-02-06/digital-dictators.

1.2.2) Contextual Gap

Although global attention has focused on the broader great power competition between China and the United States in the digital and information domains, limited scholarly work has examined how this rivalry plays out in Central Asia. Existing debates often remain abstract, overlooking the region's unique dynamics where the interests of China, the United States, Russia, and the European Union intersect. This paper challenges the prevailing view that Central Asian states are passive recipients of Chinese technology and influence, instead offering a nuanced account of how they actively navigate digital competition through strategic diplomacy and layered national identities. In pursuit of digital sovereignty and strategic autonomy, these states engage in a careful balancing act—adopting hybrid models of digitalization that blend Chinese technological inputs, European regulatory frameworks, and indigenous policy initiatives.

1.2.3) Methodological Gap/Analysis

The existing literature on the Digital Silk Road (DSR) in Central Asia by China has primarily focused on the description of its infrastructure and policy, often neglecting the stories behind the perceptions of digital sovereignty. The study seeks to address that gap through a holistic method that incorporates the discourse, content and thematic analysis through a comparative case study model. Although existing literature might be inclined to focus on the growth of fiber-optic networks or Safe City projects, it seldom explores how these developments are perceived on the local level, and whether they are viewed as being a threat to local autonomy, instruments of control, or symbols of the modern world[23].This study transcends the normative and geopolitical perspective by providing a more in-depth analysis of the way in which the digital role of China is bargained and redefined in different Central Asia contexts.

1.3) Problem statement

The rapid expansion of the Digital Silk Road (DSR) in China across Central Asia, offered by significant investments in digital infrastructure, has radically contributed to changes in the technological and economic environment of the region. Such projects provide better connectivity,

[23]Central Asia-News. 2017. "Tashkent "Safe City" Project to Unify Security Information Systems." *Central Asia News*, September 20, 2017. https://central.asia-news.com/en_GB/articles/cnmi_ca/features/2017/09/20/feature-01

modernization and economic development opportunities. However, they also introduce serious issues in terms of the geopolitical inferences of the growing digital presence of China. The most important question is whether these projects are causing unevenly balanced dependencies that can jeopardize the political and strategic autonomy of Central Asian countries. At the same time, the increasing Chinese digital presence is superimposed on the long-term regional presence of Russia that might possibly reinvent the old spheres of influence and rebalance the balance of power. This study, therefore, examines the way the DSR is transforming the political landscape of Central Asia, with special attention being paid to the issue of sovereignty, strategic orientation, and stability in the region.

1.4) Research Questions

1. What are the strategic interests underlying China's export of its digital model to Central Asia?

2. How do China's Digital Silk Road investments influence the geopolitical dynamics and digital sovereignty of Central Asian countries?

3. How do regional actors respond to China's digital expansion in Central Asia?

1.5) Research Objectives

The key objective of this research is to analyze the impact of China's Digital Silk Road (DSR) investments on the geopolitical dynamics and the digital sovereignty of Central Asian countries. It assesses whether China's increasing digital participation faces cooperation and adaptability or encounters resistance from local actors.

1.6) Significance of the Study

The study is relatively significant due to its comprehensive examination of the Chinese digital development in Central Asia via its Digital Silk Road (DSR) programs and includes valuable information about one of the most strategically disputed regions in the world. Through an analysis of the scope, scale and strategic goals of the Chinese-led digital infrastructure projects, the study aims to shed light on how the vision of Beijing in the digital space is reshaping the geopolitical and security landscape of Central Asia. The research examines the argument of whether the

growing digital power of China is fostering regional compliance to its strategic interests, the philosophy of multi-vector policy or altering local actors to seek their own independence. Such a thorough discussion is helpful to comprehend the balance between the economic opportunities and strategic threats concerning technological dependence and sovereignty. Finally, the findings are expected to be of great use to scholars, strategists, and policymakers because they will give an informed view of the consequences of China DSR on the balance of power in the region and the dynamics of the power conflicts between the great powers as a whole in Central Asia.

1.7) Limitations of the Study

Despite its broad scope, this research has a number of limitations. First, the majority of the study's foundation is secondary data sources such as government publications, academic literature, policy documents and media coverage. The political sensitivities of digital infrastructure projects and the lack of transparency in Chinese and Central Asian government records may limit access to the accuracy of such data. Second, even though the study focuses on the five Central Asian republics, including Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, it's possible that the results won't be immediately applicable to other parts of the world that are a part of the Digital Silk Road. Third, since digital technology and geopolitical movements are dynamic and ever- evolving, the conclusions drawn are as up to date as the time of writing and could change as new information becomes available. Last but not least, the study is limited by a lack of in-depth primary fieldwork in Central Asia due to political and logistical difficulties, which could prevent a more in-depth understanding of the general public's view on China's online presence.

1.8) Organization of the Study

The research is further split into five chapters that address various issues of the research topic.

Chapter One *"Introduction*"

An introduction to the research is made in this chapter including the background of the Digital Silk Road (DSR) in Central Asia from China. It highlights research gap, statement, objectives, research questions, significance and limitations. Additionally, it provides a little bit of historical context about the DSR and its importance to the geopolitical landscape and digital landscape of the area.

Chapter Two *"Literature Review and Theoretical Framework"* The current research and policy literature on the DSR, digital sovereignty, Central Asian geopolitics is critically scrutinised in this chapter. It identifies significant discussions and gaps in the field's knowledge. The chapter also develops the theoretical framework by combining the Complex Interdependence Theory and the Constructivism which will serve as the analytical lens through which the findings of the study are evaluated.

Chapter Three *"Research Methodology"*

The case study method, sources of data and analytical tools such as topic and discourse analysis are all discussed in this chapter. It covers how information is obtained from government publications, scholarly research and media sources. In order to ensure validity and reliability of the research, the chapter also mentions issues regarding ethics, restrictions and quality control mechanisms.

Chapter Four *"Navigating Geopolitics and Digital Sovereignty under China's Digital Silk Road"*

This chapter serves as the analytical core of the study, centering on the transformation of the Central Asian geopolitical and digital environment by China's Digital Silk Road (DSR). It looks at the strategic logic of China's growth of its online power and places these incentives within the wider competition between the United States, the European Union, and Russia. At the same time, it assesses the DSR's impacts on digital sovereignty, in particular asking if Chinese-led digital infrastructure has strengthened or weakened the autonomy of Central Asian governments, or if it has created new asymmetries of interdependence. Besides high politics, the chapter explores how local authorities, private companies, and civil society actors interpret, adapt, or deny the discourses around China's digital setup.

Chapter Five "*Conclusion and Recommendations*"

The overall results are summarised in Chapter 5, which also goes over the research topics again, emphasising theoretical and policy contributions and offering suggestions for future study as well as for policy makers and regional stakeholders.

CHAPTER 2

LITERATURE REVIEW/ THEORETICAL FRAMEWORK

2.1) Literature Review

The Digital Silk Road (DSR), which was launched by China in 2015, is a transformative approach to the development of a global digital infrastructure network. Through DSR, China wants to reinforce its stance as a world technology leader by launching the Chinese version of the digital model. It includes the manufacturing of fiber optics cables, Artificial intelligence systems, 5G networks, satellite navigation systems, and e-Commerce platforms. China not only wants to improve its economic growth through its multiple DSR-related projects but also is aiming at influencing global standards in the areas of cybersecurity, digital governance and data management. For many developing regions, DSR is an attractive initiative that brings investments in their information and communication technology (ICT) sector and opens the path to modernization and digital inclusion.

Central Asia is important in this context. The region remained a part of ancient Silk Road and its current geostrategic location between Russia, China, and Europe makes it an attractive region to expand China's westward digital expansion. Central Asian countries such as Uzbekistan, Kazakhstan and Tajikistan have welcomed Chinese investments to improve their digital infrastructure, e-governance system and also to build smart cities. However, this growing digital expansion is also worrying as it changes the geopolitical realities of Central Asia. DSR not only contributes to enhance connectivity and modernization, but also deepen the political and technological influence of China which can potentially challenge and reshape the current balance of power in the region.

The literature on DSR that exists is thus multifaceted. Some scholars see it as an initiative which strengthens economic cooperation, and regional integration. While others viewed it as a strategic tool to digitally dominate the region through the export of the Chinese version of digital ecosystem and governance norms. To view the dynamics through, this literature review explores a number of themes that arise within the existing literature: (1) Digital Geopolitics and Power Shifts, (2) Digital Infrastructure and Technological Penetration, (3) Cyber Sovereignty vs Open Internet Governance,

(4) Global Standard Setting and Norm Export and, (5) EU vs China - Competing Digital Architectures.

2.1.1) Digital Geopolitics and Power Shifts

Digital Silk Road is strategically changing the digital and geopolitical landscape in Central Asia and beyond. This transformation challenged the existing global digital infrastructure and the western technological influence. China's Digital Silk Road is a manifestation of Xi's vision to build China as a world leader in the establishment of infrastructure and governance of digital technologies. China is using both soft and hard power mechanisms to expand its influence and change traditional power relations especially in regions like Central Asia.

The existing literature captures the multifaceted nature of China's DSR initiative, which includes cybersecurity, digital infrastructure, economic dependency, standard-setting, and competing governance models. Studies emphasize on the strategic importance of DSR in the realization of the long-term super power ambitions of China. DSR is not only about laying digital infrastructure but about re-wiring the digital power nexus. In a paper, *The Digital Silk Road: A Strategic Initiative in China's Multifaceted Superpower Quest*, it is depicted that China's DSR is not about establishing links for the internet or building digital centres. Instead, it is a strategic tool to integrate digital economies, geopolitical influence, and security measures[24] .It gave China access to various developing economies where China can increase its influence through the implementation of its innovative digital governance models, the development of digital financial infrastructure and the promotion of the use of dual technologies. Moreover, the digital models of China are affordable and flexible which made them attractive to poor Central Asian countries. Whereas compared with the Western models, they are comparatively rigid and driven mostly by conditionality.

In a journal titled, *"In the shadow of dragon: Chinese soft power in Central Asia",* Rachel vanderhill, Sandra F Joireman, and Roza Tulepbayeva argues that China, through its growing digital presence, has expanded its normative influence and visibility in Central Asia. They highlighted the fact that while central Asian states embrace China's digital investments in terms of its affordability and flexibility, they also recognize issues over losing their control over digital

[24]Rahman, Ali. (2025). The Digital Silk Road: a strategic initiative in China's multifaceted superpower quest. Asian Journal of Political Science, 1–21. https://doi.org/10.1080/02185377.2025.2489375

assets and cyber sovereignty.[25] China is actively participating in international organizations and promoting norms that are state-centric and challenging global cyber freedom in favor of state-led data governance. For instance, Kazakhstan, through the initiation of its *"Digital Kazakhstan strategy"*, practically incorporated the Chinese model of digital sovereignty. Chinese-led Huawei and ZTE companies made Kazakhstan a regional hub for Chinese digital technology by facilitating cloud computing, 5G development, and AI-based security systems. Similarly, Uzbekistan is actively collaborating with Huawei and Alibaba Cloud to enable the digitization of e-commerce systems and government services, thereby integrating the Chinese digital model into its administrative infrastructure. All these developments indicate the fact that China's increasing digital engagement in Central Asia is not limited to economic cooperation, but it is an expression of its strategy to boost its digital influence and alter current regional alignments through technological interdependence.

2.1.2) Digital Infrastructure and Technological Penetration:

The region of Central Asia has become an important region for the expansion of digital outreach of China across the world. Existing research exposed that the existence of Chinese companies such as Huawei and ZTE in Central Asia has facilitated digital transformation in the region. These companies are putting in place fundamental elements of digital infrastructure, like 4G/5G networks, smart city technology, data centers and satellite systems like Beidou, which combine to form a unified regional digital infrastructure. The introduction of mobile payment platforms such as Alipay and WeChat Pay is another example of how the Digital Silk Road is bringing Chinese technology and norms into the normal economic activities of Central Asian societies[26] . While these advancements are promoting connectivity and economic growth they are also shifting the power dynamics, especially considering that Central Asia has historically been under the technological, as well as the political influence of Russia. The idea of technological dependency is of special significance considering the situation in Europe and Central Asia. In a report, "*China's Digital Silk Road - Strategic Implications"*, the authors highlighted the capacity of China's DSR in

[25] Vanderhill, Rachel, Sandra F Joireman, and Roza Tulepbayeva. 2025. "In the Shadow of the Dragon: Chinese Soft Power in Central Asia." *International Affairs* 101 (4): 1441–61. https://doi.org/10.1093/ia/iiaf103.

[26]Shahzad, Hassan. 2024. "The Rise of Digital Silk Roads: China's Expansion of Tech Infrastructure in Central Asia." *Strafasia*. June 26, 2024. https://strafasia.com/the-rise-of-digital-silk-roads-chinas-expansion-of-tech-infrastructure-in-central-asia/.

posing a geopolitical threat to Digital sovereignty of Europe[27] .By advocating a model of cyber governance that is contrary to democratic principles and privacy standards, China risks undermining Europe's commitment to an open digital market, data protection, and the individual's privacy. The setting up of a "Chinese-style digital experience" of centralised control and mass surveillance are against European values and provide strategic vulnerabilities for any country that gets too much integrated into Chinese digital infrastructure.

Several studies have been done to explore the growing penetration of China into the digital infrastructure in Central Asia for its private sector and state-led initiatives, which frequently include mobile networks, GNSS (satellite navigation), and emerging sectors. For instance, research into China's Beidou Navigation Satellite System (BDS) indicates considerable expansion not only within China but also in its international applications that indirectly impacts Central Asia too. In a paper, *"To Be More Precise: BEIDOU, GPS and the Emerging Competition in Satellite-Based PNT*, China Aerospace Studies Institute, 2024, argues that China's Beidou Satellite System has moved from domestic project to the one with global reach where China promotes the use of Beidou in agriculture, autonomous vehicles, logistics and mapping services.[28] Similarly, C Yang, J Yang, and Zuohu Li, in their study, *" The International Development Strategy of the Large-scale Application of Beidou Navigation Satellite System",* examines China's effort in embedding Beidou services into Belt and Road initiative. China is pushing BRI countries to add Beidou services into their development plans which would allow China to use Beidou both domestically and internationally (Dual circulation) and creates new opportunities for cooperation on infrastructure projects in Central Asia.[29] These studies show that China's navigation satellite infrastructure is not just for technological enhancement, but a strategic tool for China to integrate its technology regular services beyond national borders. China, through proliferating Beidou supporting devices

[27] Ghiasy, Richard, and Riya Krishnamurthy. 2020. "China's Digital Silk Road — Strategic Implications." ResearchGate. https://doi.org/10.13140/RG.2.2.16993.94564.

[28] China Aerospace Studies Institute. 2024. "To Be More Precise: BEIDOU, GPS, and the Emerging Competition in Satellite-Based PNT." Air University (AU). May 20, 2024. https://www.airuniversity.af.edu/CASI/Display/Article/3778910/to-be-more-precise-beidou-gps-and-the-emerging-competition-in-satellite-based-p/

[29] Yang, Changfeng, Jun Yang, Junlin Yang, Jun Wang, and Zuohu Li. 2023. "The International Development Strategy of the Large-Scale Application of BeiDou Navigation Satellite System." *Strategic Study of CAE*. 2023. https://www.engineering.org.cn/sscae/EN/10.15302/J-SSCAE-2023.02.001

including consumer electronics and terminal devices, have deeply penetrated into ordinary infrastructure.

2.1.3) Global Standard Setting and Norm Export

China goes even further to exert its influence through involvement in international standard-setting organisations and attempts to influence the rules of global digital governance. China is not only exporting its digital model, but also aspires to redefine the global norms and technical guidelines that determine how these technologies function within these countries. The study "The Digital Silk Road and China's Influence on Standard Setting" delves into this aspect and shows how Chinese private companies such as Huawei and ZTE take the lead in setting standards on key areas of technology such as 5G, cloud computing and the Internet of Things (IoT). This is facilitated by a cooperative relationship between the Chinese state and private sector which allows China to exercise influence not only through infrastructural export but also in shaping global frameworks that determine the future of digital technologies. However, at the same time, the article also highlights the internal contradictions China is facing in this process, such as the conflicts between political objectives and commercial interests, as well as the challenges of competing with more advanced Western firms in areas such as artificial intelligence and biometrics. Moreover, China continues to push for new communication standards through joint research and white papers particularly in the field of 5G networks, grid system and data storage. These initiatives help China to secure the leadership role in the international technology sector by ensuring the employment of Chinese compatible designs in many countries including Central Asia. Through this, China can ensure that it minimizes the reliance on the technologies from the west by taking lead in the technical sector.

Alongside promoting its technical standards, China also is promoting its ideas as to how the global digital world should be governed. China argues for state-led data governance and encourages individual states to control their digital data and monitor online activities on a regular basis. This idea is contrasted with rules in the Western-led, which include the values of privacy, openness, and participation of many stakeholders. In a research article, "*Understanding the evolution of China's approach to digital trade: interests, ideas, and institutions"*, published in 2024, there is the highlight that China is increasingly becoming more influential in setting the digital trade rules

by supporting data localization and state-centric digital regulation policies[30]. Such actions illustrate the fact that China is attempting to export its version of preferred digital governance and set technical standards around the world. Through DSR, these rules and norms have spread across several developing regions including Central Asia where countries are incorporating Chinese digital systems and regulations in their local policy frameworks. While this enhances China's global influence, it also raises concerns about data privacy, transparency and the future of open digital spaces. A similar theme is seen in a paper, "Digital Silk Road (DSR): Opportunities and Challenges for Central Asia," about the link between the DSR and the domestic policy frameworks such as "Made in China 2025" and "China Standards 2035." These initiatives are designed to relieve China of its reliance on Western technologies, as well as promote Chinese models throughout the world. The economic realities of Central Asia, with post-COV downturns and large developmental needs make the region a perfect recipient for low-cost digital solutions. However, the paper also raises concerns about the dangers of surveillance, the weakening of democratic practices, and the potential increase of technocratic forms of governance that may function without transparency or accountability[31] .These issues point to the extent to which the DSR is not only changing the physical infrastructure but also affecting political systems and governance structures of the recipient countries

2.1.4) Cyber Sovereignty vs Open Internet Governance

Cyber sovereignty is a notion championed by China, which argues for a state's right to control the cyberspace and data governance of the state. This includes a state's control over the flow of digital data, national security, laws, and digital infrastructure. On the other side, the West espouses the "open internet governance" model which calls for free flow of information, openness, minimal interference by the state over content, individual privacy and participation of multiple stakeholders, including private companies, government, academia and civil society. Both concepts

[30]Zhang, Danni. 2024. “Understanding the Evolution of China’s Approach to Digital Trade: Interests, Ideas, and Institutions.” *Asian Review of Political Economy* 3 (1). https://doi.org/10.1007/s44216-024-00026-4.

[31] Muzaparova, Leyla. 2021. “The Digital Silk Road: Opportunities and Challenges for Central Asia.” *Rosa-Luxemburg-Stiftung*. December 10, 2021. https://www.rosalux.de/en/news/id/45540/die-digitale-seidenstrasse-herausforderungen-und-chancen-fuer-zentralasien

are fundamentally in conflict as to the degree of state control, openness or restriction of global cyberspace, and the extent to which state security or users rights should be prioritized.

Recent research has uncovered how China is stepping up and promoting the idea of cyber sovereignty in the international arena, legislation and foreign policy. In an article, "*Exploring China's Cyber Sovereignty Concept and Artificial Intelligence Governance Model: A Machine Learning Approach"*, published by Journal of Computational Social Science in 2025, it is revealed that China utilizes official and semi-official texts to develop a different version of AI/cyber governance that emphasizes the need for national security and state control over data flow[32]. Another study, *"Internet Governance in China: Toward a New Cyber Civilization"*, shows that the internet "civilization" model of China, signifies a gradual movement toward the kind of ideological and state- led controlled media that undermines liberal ideals of openness and free speech. China advocates strong intervention by state in data regulation which includes data localization and strict regulation of data flows[33] .All of these initiatives are coming out as mandatory in the name of strengthening China's sovereignty and security. Research shows that China views western digital model that advocates open internet governance as problematic because it may allow "information insecurity", "foreign interference", or values that disrupt its own governance style by itself. Hence, China promotes the concept of Cyber sovereignty through its DSR related projects in the global regions including Central Asian region and also frames the concept of cyber sovereignty in its state policy and official ideology.

2.1.5) EU vs China – Competing Digital Architectures

In the face of swift competition in the technological field, tensions between China and the European Union (EU) are rising. *In "Competing Digital Futures: Europe and China in Central Asia's Tech Development,"* Andrew Gundal and Eldaniz Gusseinov look at the similarities and differences between the Digital Silk Road (DSR) and the EU's Global Gateway Initiative. The latter is a transparency, human rights and sustainable development based approach. While these values sound good in principle, the EU cannot compete with China's speed, scale and affordability

[32] Hung, Ho Ting. 2025. "Exploring China's Cyber Sovereignty Concept and Artificial Intelligence Governance Model: A Machine Learning Approach." *Journal of Computational Social Science* 8 (1). https://doi.org/10.1007/s42001-024-00346-8.

[33] Liu, Yajuan. 2023. "Internet Governance in China: Toward a New Cyber Civilization." *China Quarterly of International Strategic Studies* 8 (June): 1–19. https://doi.org/10.1142/s2377740022500129.

of investments. [34] .Many Central Asian states that are authoritarian or semi-authoritarian are more interested in China's low-conditionality approach to influence. This trend is recalculating alliances and could marginalize European digital standards, further exacerbating the digital global order. These power relationships are complicated by the ideological difference between China and the West in the context of internet governance.

China and Russia favour state-centric models that emphasize cyber sovereignty and national control, while the Western countries favour more open and decentralized control models. While Russia tends to use nightmarish tactics, China's strategy is more commercial and diplomatic. It uses partnerships and infrastructure investments to step-by-step embed its digital governance model. Localization through joint ventures and product customization is one of the tools by which Chinese companies adapt to local environments, while reinforcing their foothold in the host countries' information ecosystems; as such, these firms build path dependencies that are difficult to reverse.[35] Furthermore, the idea of competing digital architectures is very important in the case of the article "Central Asia between Digital Silk Road and Digital Silk Way". This paper compares the Chinese approach, the Digital Silk Road (DSR), with the EU experience and argues that Central Asia is at a crucial crossroads between two different models[36]. The EU brings in transparency and regulation and China brings results faster with less political baggage. The emergence of "smart" and "safe" cities by Chinese companies like Huawei is reminiscent of the prehistory of caravansary of the Silk Road. This similarity can be interpreted as a demonstration of how China combines historical imagery with contemporary technology to build a strong narrative. However, this success depends on the cost of upsetting traditional power structures and creating new geopolitical relationships.

[34]Gundal, Alper, and Eldar Gusseinov. 2024. “Competing Digital Futures: Europe and China in Central Asia’s Tech Development.” *The Diplomat*, May 23, 2024. https://thediplomat.com/2024/05/competing-digital-futures-europe-and-china-in-central-asias-tech-development/.

[35] Kassenova, Nazerke, and Bridget Duprey. 2021. “Digital Silk Road in Central Asia: Present and Future.” https://daviscenter.fas.harvard.edu/sites/default/files/files/2021-10/Digital_Silk_Road_Report_2021.pdf.

[36] Juraev, S. (Sherzod). 2025. “Central Asia Between Digital Silk Road and Digital Silk War.” *Russian International Affairs Council (RIAC)*. https://russiancouncil.ru/en/sh-Juraev/central-asia-between-digital-silk-road-and-digital-silk-w.

2.1.6) Gaps in Existing Literature

While there is extensive literature on China's BRI in terms of its economic, infrastructural, and geopolitical facets, a significant gap is found in terms of the Digital Silk Road (DSR) and its specific implications for Central Asia is clear. The literature is disproportionately biased towards the economic and strategic implications of the BRI in other regions such as South-East Asia, Africa and Eastern Europe. By contrast, the digital component of the BRI most obviously in the form of the DSR has been afforded too little space for analysis in the context of Central Asia. Moreover, the few studies that do exist tend to assume a causal link between Chinese investment into the digital infrastructure and the concomitant rise of geopolitical influence. This assumption does not involve a strong questioning of whether or not such influence is in fact proliferating, or whether it encounters resistance, contestation or adaptation at the hands of local actors. Given the historical relationship of Central Asia with Russia, its changing relationship towards the West and its institutions and the developing internal socio-political dynamics of the region, it is a unique case that challenges the narrative of unquestioned Chinese digital ascendancy. Accordingly, this study seeks to fill these analytical and empirical gaps by providing an in-depth analysis on the impact of the DSR in Central Asia, and answering the question whether China's digital footprint is converted to geopolitical influence in a substantive dimension in Central Asia.

2.2) Theoretical Framework

Theoretical frameworks form fundamental tools for data analysis, pattern recognition and interpreting results. They give a coherent explanation of how and why specific dynamics occur. This research uses a theoretical framework that combines Constructivism with Complex Interdependence Theory to achieve a holistic understanding of China's Digital Silk Road (DSR) initiative in the complex geopolitical context of Central Asia. This integrative approach enables this study to move away from the state-centred understanding of power politics and explore the multifarious web of interaction between states, non-state actors, and the social construction of their interests and perceptions in the digital era.

2.2.1) Epistemological Positioning

This research adopts an interpretivist epistemology, This inquiry takes an interpretivist epistemology that has the idea that knowledge in international relations is produced by meanings,

narratives, and encounters rather than being totally objective or free from value. Constructivism, which emphasizes the fluidity of state identities and interests, represents this premise. Concurrently, the Complex Interdependence Theory argues that reality cannot be fully understood through only a measure of material power or military capabilities but requires an understanding of the various channels of contact between different groups, including economic, technical and social, that affect the outcomes of interactions. Therefore, it is recognized in this study that in order to shed light on China's DSR and its implementation in Central Asia, it is imperative to research how different stakeholders view, frame, and participate in digital infrastructure initiatives, instead of assuming a common ground of truth.

2.2.2) Ontological Assumptions

Ontologically, this research has a relational and non-materialist point of view. In opposition to realism, which represents states as discrete actors acting within an anarchical environment and possessing pre-established interests, this approach acknowledges that the international environment is made up of both a material structure and ideational influences. Constructivism strengthens this view by the assertion that identities, norms and discourses shape the way states perceive threats or opportunities. Complex Interdependence extends this ontology even further by arguing that power is diffused and embedded in networks of cooperation, vulnerability, and interdependence, rather than being limited to military capacities for coercion. The DSR is a good example of such an ontology: fiber optic cables, data centres and AI-driven systems are both forms of infrastructure (material) and forms of arenas of contestation (social) about sovereignty, dependence and advancement.

2.2.3) Integrating Theories, Epistemology, and Ontology

By synthesising these philosophical convictions, the theoretical framework makes a claim about global politics stating that it is socially embedded, relational, and complex. Constructivism provides a framework for the analysis of the discursive and identity-related elements of China's DSR, while Complex Interdependence brings the institutional, economic, and transnational relationships that create asymmetries of power into view. Together, they enable the study to understand why Central Asian governments produce particular narratives about digital sovereignty and their interactions with China create long-standing commitments, which go beyond typical

security concerns. This ontological and epistemological linkage allows the framework of the study to be coherent and enables it to avoid deterministic or purely material interpretations, and to capture the subtle reality of the geopolitical in the digital age

2.2.4) Constructivism

Alexander Wendt introduced constructivism in the early 1990, explaining the role of norms, identities and ideas and the interaction between individuals in the international structure and the behaviour of states. Constructivists do not think that material interests alone determine how a state acts but rather it is determined by what it perceives of itself and what it perceives of other actors. This view combined with the fact of international anarchy determines decisions made by states in an international context. In regards to the artificial intelligence and technology, constructivism provides insight into the different states view and response towards these transformative technologies; it goes beyond the concept of using a tool and turns technology into a form of projecting power and asserting ideological convictions. The interests and behaviours of states are influenced by the narratives they produce about the role that technology will play in the future, and these narratives feed on national identities and global power relations and then lead to policy and diplomatic initiatives as a result [37].

2.2.5) Relevance to the Study

The constructivist paradigm is especially pertinent to this study because it helps to understand the creation and conflict over competing narratives related to technical sovereignty and digital governance. For instance, China and the United States have constructed different "digital ideologies" based on their general national identities and political systems. The U.S. narrative is of democratic values, transparency and human rights, whereas China's narrative is of "technological self-reliance" and "authoritarian AI" with its emphasis on state control of data and infrastructure[38]. This conceptual understanding allows scholars to explore how countries in Central Asia interpret these different "digital ideologies," and how they influence policy making. Instead

[37] Li, Lin, Syed Tausif Abbas, Ghulam Rasul Khan, and Shehzad Ali. 2025. “Competing Narratives of Technological Sovereignty: A Constructivist Analysis of U.S.-China AI Diplomacy.” *Contemporary Journal of Social Science Review* 3 (2): 538–554.

[38] AzeMedia. 2025. “Great Power Game: Central Asia’s Balancing Act.” *AzeMedia*, August 11, 2025. https://aze.media/great-power-game-central-asias-balancing-act/.

of welcoming China's promise of enhanced connectivity and shared growth, a state can view the Chinese investments as a threat to its digital sovereignty.

The theory highlights the importance of the political identities of Central Asian countries, which are influenced by their post-Soviet legacy, increasing nationalism, and different foreign policy strategies. These nations have come to be called "sovereign balancers" because they attempt to prevent themselves from relying too much on any single external entity. [39] This is evident in their data governance policies, where countries like Kazakhstan and Uzbekistan perform a "balancing act" by merging stringent data regulations, similar to those in Russia and China, with compliance agreements with Western Big Tech companies to ensure business continuity [40]. The European Union also engages in this norm-setting competition by advocating for its own democratic principles and the rule of law through initiatives such as the Global Gateway, which encompasses support for civil society organizations and discussions regarding human rights in the context of digital transformation .[41] Therefore, the constructivist framework allows us to move beyond a purely power-focused analysis and provides a thorough understanding of how various narratives, identities, and perceptions interact to shape policy decisions and alter Central Asia's geopolitical landscape in the digital age.

2.2.6) Complex Interdependence Theory

Complex Interdependence Theory by Robert Keohane and Joseph Nye is a direct challenge to the assumption of international relations in classical realist thought, which is purely state-centric. Emphasizing the growing entanglement of governments and non-state actors through a variety of social, technological, and economic means, this theory moves beyond the focus on military capability and warfare. It states that such social, economic, and technological interdependence

[39] Institute for European, Russian and Eurasian Studies. n.d. “Central Asia: Multi-vector Policy for the 21st Century—Strategy and Development.” Elliott School of International Affairs, George Washington University. Accessed October 21, 2025. https://ieres.elliott.gwu.edu/project/central-asia-multi-vector-policy-for-the-21st-century-strategy-and-development/.

[40] German Marshall Fund. 2025. “Russia and China in Central Asia’s Technology Stack: An Analysis of Kazakhstan, Kyrgyzstan and Uzbekistan.” https://www.gmfus.org/news/russia-and-china-central-asias-technology-stack.

[41] Chan, King, Eric Chen, Maeve Heneghan, Deborah Soffer, and Peerapong Wachirapornpruet. 2022. “Against the Grain: The Data Regulatory Regimes of Kazakhstan and Uzbekistan Vis-à-vis Russia, China, and Big Tech.” LSE IDEAS Digital IR Working Paper No. 10/2022. London School of Economics and Political Science.

blurs the effectiveness of military actions and puts first those problems that go beyond classic security questions. In the modern connected societies, power is not only about coercion but is the governance of vulnerabilities and the accumulation of influence in complex networks.

2.2.7) Relevance of Complex Interdependence Theory to the Topic

Using Complex Interdependence Theory to China's Digital Silk Road (DSR) provides a more nuanced understanding of the dynamics of the DSR initiative. More than a bilateral exercise, the DSR represents a complicated relational web of local businesses, Central Asian governments, Chinese technology companies, and individual consumers. Chinese companies could work with a state in Central Asia to introduce smart-city infrastructure and at the same time provide telecommunications services and mobile devices to the state's citizens[42]. For example, in addition to offering its citizens mobile services and telecommunication infrastructure, Huawei has collaborated with the Kazakh government to test a 10G broadband smart-city network in the capital of Kazakhstan. The complex interaction gives rise to strong and symbiotic associations. While geopolitical power continues to play a key role, the DSR also faces competition from other factors such as cybersecurity, technological innovation, and economic development.

Although time may come when China's geopolitical implications of data infrastructure will harm them, it could be that a Central Asian country will care less for the economic gains it can make from better internet connectivity and e-commerce platforms. Security and economic factors therefore turn out to be dependent on one another [43]. The DSR is creating a situation of asymmetric interdependence: China provides the capital and technology to enable Central Asian countries to set up digital infrastructure, but China itself is susceptible to the same risks. Perception and realisation of these initiatives will impact on the reputation of the DSR and its long-term sustainability. China's influence may be challenged if local stakeholders resist it or if Chinese technology is perceived as a threat to digital sovereignty. Consequently, Central Asian countries possess a degree of negotiating power, enabling them to reach agreements that safeguard their

[42] Baldoni, Roberto, and Gabriele Di Luna. 2025. “Sovereignty in the Digital Era: The Quest for Continuous Access to Dependable Technological Capabilities.” arXiv preprint.
[43] Sahakyan, Mariam D. 2024. “China’s Digital Silk Road and the Eurasian Economic Union’s Member States: Cooperation, Challenges, and Opportunities.” *Asian Affairs* 55 (4): 603–622. https://doi.org/10.1080/03068374.2024.2421501.

interests[44]. To balance Chinese dominance with diverse digital cooperation, Uzbekistan, for example, has expanded its relationships by welcoming investments from Russian telecom providers as well as Alibaba Cloud (World Bank, 2022). Digital infrastructure creates permanent institutional and physical connections, in contrast to a temporary military presence. Data centres, e-government platforms, and fiber-optic connections all become essential components of a nation's infrastructure[45]. States find it difficult to break away due to this stickiness, which leads to a lasting relationship based on entanglement rather than coercion. Since combined use of constructivism and Complex interdependence theory takes into account both the ideational and material aspects of digital connectivity, this particular framework provides the best viewpoint for examining China's Digital Silk Road (DSR) in Central Asia.

Constructivism emphasises, on the one hand, how state interests are socially constructed and how national identity, technical independence, and digital sovereignty narratives impact regional policy decisions. This enables the study to investigate how Central Asian governments, influenced by their post-Soviet pasts and growing nationalism, view and understand China's digital projects as ideologically charged tools of influence rather than as objective technological pursuits. On the other hand, the DSR's complex webs of social, technical, and economic ties are the main focus of complex interdependence theory. It demonstrates how Chinese companies, regional organisations, local governments, and multinational tech companies are linked in mutually beneficial networks that prevent unilateral actions and foster asymmetric but long-lasting relationships.

By linking these two perspectives the study is bound to transcend the simplified, state-centric, and realist theories of power politics and take into account the interplay of norms, perceptions, and material entanglements. Identity narratives are connected with structural interdependencies, offering the analytical detail needed to understand how Central Asian countries pursue the advantages of Chinese digital infrastructure even as they build coalitions with Western, Russian, and regional actors. In the end, this comprehensive paradigm offers researchers a comprehensive set of tools for explaining the complexity, resilience and contested nature of digital geopolitics in

[44] Voytikov, K. N. 2025. "China's Digital Silk Road: Opportunities and Risks for Developing Countries." *Asia & Africa Today* (6): 70–77. https://doi.org/10.31857/S0321507525060081.

[45] Kozhirova, Svetlana, Kairat Batyrbayev, and Jia Li. 2024. "Cooperation of China with the Countries of Central Asia within the Framework of Chinese Global Initiatives." *Journal of Central Asian Studies* 94 (2): 4–22. https://doi.org/10.52536/3006-807X.2024-2.01.

Central Asia, as well as being compatible with the interpretivist epistemology and relational ontology of the study.

Chapter 3

Research Methodology

3.1) Introduction

This research is dedicated to the analysis of the Digital Silk Road (DSR) initiative of China under the scope of the changing geopolitical realignment of Central Asia. This chapter thoroughly explains the choice of the research methodology used in the process of data collection and analysis to ensure the rigor of the empirical investigation. The main goal of the research is to explain how the Central Asian states conduct the strategic struggle for digital influence in the region. In particular, the investigation aims to determine the geopolitical drivers behind selecting digital infrastructure and governance models and how such policy choices reflect the "multi-vector" foreign policy orientation of the states concerned. Additionally, the paper investigates the domestic digital transformations of the Central Asian countries in face of external pressures from the major powers, such as the United States, China, Russia, and the European Union.

The following section of this chapter outlines the specific research design, data collection instruments, analytical methods, and philosophical assumptions that combine to answer the fundamental research questions of this study. Research methodology is envisaged as a systematic and careful research within the epistemological area which aims at the establishment of verifiable facts. Three broad categories of methodology, namely, explicatory, exploratory, and descriptive, are commonly recognised. The methodological approach that will be given herein is exploratory as well as descriptive. Both primary and secondary sources of data are used in support of the research objectives.

3.2) Research Philosophy: Epistemology and Ontology

The foundation of the entire methodology is a research philosophy, also known as a paradigm, which is a critical determinant of a coherent design of research in the arena of geopolitics and foreign policy. Articulation of a philosophical position gives an explanation for the whole research process, including topic choices for the study and the choice of methods for data collection.

3.2.1) Epistemology of the Research Methodology

Research epistemology is a branch of philosophy that is concerned with the nature of knowledge, how knowledge is generated, and the criteria by which information is considered to be credible evidence within a branch of academic scholarship. It deals with basic questions such as, "How do we know what we know?" and, "What sources of information can we trust?[46]. In essence, epistemology makes up the knowledge of the process of learning and obtaining true knowledge. Two dominant epistemological perspectives dominate the social science discourse today: interpretivism and positivism. Interpretivism is a theory that holds that knowledge is subjective and is constructed through human interactions, perceptions, and discourse, whereas positivism holds that knowledge is objective and can be discovered through quantitative methods that seek to reveal universal laws or causal relationships.

The study utilizes an interpretivist epistemology and aims at examining the geopolitical meanings and strategic purposes that underlie China's DSR. According to the interpretivist view that knowledge about geopolitical implications of the Digital Silk Road is not a rigid singular fact. Rather, it is the result of human encounters, interactions and interpretive processes. Therefore, the research focuses on the subjective meaning that different stakeholders (governments, enterprises, and civil society) gave to concepts such as "digital sovereignty" and "technological dependence." The goal is not to find universal, causal laws, but to provide a comprehensive, contextualised and nuanced analysis of the complexity of the realities.

This approach contrasts with positivist epistemology, which aims to find quantifiable, objective truths and causal relationships that are isolated from human experience. A positivist study of the DSR would probably focus on discrete numerical data - such as the volume of fibre optic connections installed or the aggregate value of contracts. While such figures are informative, they ignore the stories and attitudes that influence public opinion and policy decisions. The

[46] Sol, Koemhong, and Kimkong Heng. 2022. “Understanding Epistemology and Its Key Approaches in Research.” Cambodian Education Forum. ResearchGate. https://www.researchgate.net/publication/367310471_Understanding_epistemology_and_its_key_approaches_in_research.
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interpretivist method recognises that the dimensions of "how", "why" (the social and political ramifications) are inextricably linked to the "what" (the material reality).

3.2.2) Ontology of the research

Ontology is a branch of philosophy that studies reality and existence. In research, it is used to refer to the elemental assumptions concerning what is manifested in the world, especially the characteristics of social phenomena. Ontology involves the question of whether the things that are being studied exist independently of human perception or are the products of human interaction and interpretation. Two opposing ontological positions, representing objectivism, or realism, and subjectivism, or constructivism, have important implications for social science research. Objectivism maintains that social structures, relationships, facts, e.g. the gross domestic product of a country, global anarchy, nuclear arsenals are objective and measurable realities that exist irrespective of personal opinions, existing independently of human opinion or belief. Subjectivism, or social constructivism, argues that shared meaning, concepts, language and interpersonal interactions create reality in a social context and that concepts such as security, sovereignty and threat are always being redefined through their practice and in a process of discourse, and never have a fixed or purely material existence.

This research is based on a social constructivist ontology which argues that reality is socially constructed and that this reality is dynamic and especially in the realm of international relations. Within this framework, it is shared beliefs and conversations and interactions among actors (including states, enterprises, and civil society) that inform the collective understanding of "reality" in international politics. The central issues of the research, which investigate the ways in which Central Asian governments view, understand and react to China's Digital Silk Road in the context of their multi-vector foreign policy strategies, are consequently closely connected to this ontological position. The attempt is therefore not to enumerate the number of DSR initiatives, but to try to uncover the subjective meanings and interpretative frameworks tied to concepts such as digital sovereignty, dependence on technology, and the consequences of digitalisation.

The study intends to investigate the subjective meanings and interpretative frameworks associated with concepts like digital sovereignty, reliance on technology, and the impact of digitalisation, rather than just listing the quantity of DSR initiatives. For example, the "Safe City" surveillance

system represents several contradictory realities even though it is objectively real. While it represents modernisation and administrative efficiency for Central Asian governments and technological advancement and national security for China, many Western analysts see it as a sign of digital authoritarianism. These diverse interpretations show that infrastructures and technologies are not neutral things; rather, their meanings are socially constructed through language, perception, and context.

Adopting a constructivist ontology provides a strong conceptual basis for the study's qualitative methodology and interpretivist epistemology. Particularly useful techniques for examining how different stakeholders interpret the DSR and how these interpretations affect their policy decisions are discourse analysis and thematic analysis. In addition to identifying patterns of digital interaction, this relationship between ontology and epistemology guarantees that the research offers a critical assessment of how reality is created, contested, and altered within the changing digital geopolitics of Central Asia.

3.2.3) Connecting Methodology, Ontology, and Epistemology.

This ontological and epistemological framework is perfectly compatible with the qualitative techniques that were selected: discourse analysis, thematic analysis, and content analysis. They seek to identify and analyse the underlying meanings and narratives found in the study materials rather than testing hypotheses or generating quantitative statistics. By taking an interpretative epistemological and social constructivist ontological stance, the study seeks to offer a more comprehensive and accurate assessment of the DSR's influence. It provides a more sophisticated understanding of how concepts, identities, and perceptions influence Central Asia's geopolitical landscape in the digital age, going beyond a simple analysis of power relations and material flows.

3.3) Research Approach

A research approach represents the conceptual and justificatory framework for the direction of study, which provides an appropriate connection between philosophical conceptualizations and the methodological processes of data gathering and analysis. It describes the process by which the knowledge is generated and explains the transformation of the researcher from the questions posed to the empirical finding. In the social sciences, the traditions of research have traditionally been

split into deductive and inductive traditions. In the inductive method, we summarize observations as a more generalized proposition and hypothesis. This paradigm shift allows that instead of beginning with a preconceived construct, patterns and interpretations can be generated out of the data. By contrast, a deductive approach begins with already established theories or hypotheses and tests them against empirical data. Deduction is more a matter of working from the general through to the specific: from the theoretical assumptions it develops propositions, then tests those propositions against the data.

This study adopts a deductive research approach that seeks to explore the reactions of Central Asian governments towards China's digital silk road (DSR). The overall purpose is evaluation and improvement on the theoretical assumptions already in existence in the light of the strategic and technological environment of Central Asia, not to produce a new theory. This methodological positioning ensures theoretical clarity and logical consistency between theory and empirical observation via the operationalization of theoretical concepts in practical situations.

The method of research is also qualitative research which is suitable based on its ontological approach of interpretivism as well as deductive approach. The question of how and why Central Asian governments interpret and respond to China's Digital Silk Road - which requires the probing of meanings, attitudes and discourses - makes the qualitative approach even more suitable as contexts and geopolitically relevant realities are to be socially constructed and are beyond variables and their quantification. This methodological option enables the emergence of latent motivations, convictions and relational realities which are hidden in the numbers, whilst being entirely consistent with the constructivist ontology and the interpretivist epistemology of the research

3.4) Research Strategy

A research strategy can be defined as a detailed plan or design that describes how the objectives of the study are to be accomplished. The theoretical framework and selected approach align with the methods chosen for data collection and analysis. Finally, the strategy should outline how the researcher will systematically and methodically investigate the research questions.

The comparative case-study strategy has been used in this research that provides a structured yet adaptable framework for analyzing complex phenomena in their real-world contexts. It allows for

the detailed study of a small number of cases and the identification of both patterns common to all and significant differences, the method is well suited to work in political science and international relations. Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan are five Central Asian states who interact with China's Digital Silk Road (DSR) in various domestic and geopolitical settings. A comparative case-study approach has been chosen to question these interactions.

The study seeks to comprehend the reasons for and nature of the different responses of states to similar external pressures by systematically comparing the cases, linking the variation in the national level policy with regional and global dynamics. This approach makes research more explanatory in structure by not only making literal replication (similar results replicated in similar contexts) possible but also theoretical replication (different results used to inform existing theories) possible. As a result, the comparative case study research approach improves the validity and richness of the research, adding a solid empirical basis for understanding the interplay between the digital infrastructure, sovereignty and geopolitics in Central Asia.

3.5) Data Collection

The research creates an extensive and in-depth body of literature through the use of both primary and secondary sources of data.

3.5.1) Primary Source:

Primary sources include official documents incorporating the details of the digital projects, and bilateral agreements between China and Central Asian nations. Data also includes remarks from Central Asian leaders and Chinese officials (including Xi Jinping's speeches on the Belt and Road Initiative) as well as remarks from Chinese tech companies such as China Telecom, ZTE and Huawei on twitter and Chinese official websites. Data is also collected from publications from regional organisations that assess areas of cybersecurity, infrastructure and digital governance.

3.5.2 Secondary Data Source:

The secondary data is collected and analyzed in a systematic way. The data incorporates national digitalisation initiatives such as "Digital Kazakhstan" in Kazakhstan and "Digital Uzbekistan 2030" in Uzbekistan as well as official statements and white papers by the governments of China,

Russia and the European Union on their digital and connectivity policies. Peer-reviewed journal articles, scholarly dissertations and credible think tank research continued to be the primary sources of information. These resources provide professional perspectives on the development of Sino-Russian relations in Central Asia, the concept of digital sovereignty, and the geopolitical consequences of DSR. To monitor the development of the project and opinions of the public, news reports and professional evaluations from reliable media and Central Asian-focused speciality publications are used.

3.6) Research Design and Case Selection

To provide a detailed contextual analysis to explain the "how" and "why" of the phenomenon observed, an explanatory multiple-case design is employed in the study. The study analyses five Central Asian countries, including Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, through the comparative case study method. These countries were selected due to their different political setup, their varying level of digital infrastructure and their geopolitical ties to Western countries, China and Russia[47] .In the comparative analysis both the context of individual nations and the larger regional context are considered. This study seeks to demonstrate how the local factors influence the adoption and impact of China's digital strategy by analysing the difference and similarity in the implementation of the Digital Silk Road (DSR)[48].

3.6.1) Kazakhstan: One of the best examples of a nation that actively pursues a multifaceted foreign policy is Kazakhstan, which has skillfully navigated a balance between its relationships with the US, China, Russia and the EU. With a sophisticated e-government system, which allows 92% of governmental services to be handled electronically, it is a regional leader in digital transformation. The nation has also established a "balancing act" in its cyber governance, combining strict data regulations with compliance agreements with Big Tech, and serves as a major digital transit hub for Central Asia [49]. Kazakhstan is positioned as a key case study for examining

[47] Yin, Robert K. 2018. *Case Study Research and Applications: Design and Methods*. 6th ed. Thousand Oaks, CA: SAGE.

[48] Gerring, John. 2017. *Case Study Research: Principles and Practices*. 2nd ed. Cambridge: Cambridge University Press

[49] National Information Technologies JSC. 2025. "Since Beginning of 2025, over 26 Million State Services Have Been Provided to Citizens of Kazakhstan Online." *NITEC*, February 4, 2025. https://www.nitec.kz/en/news/beginning-2025-over-26-million-state-services-have-been-provided-citizens-kazakhstan-online.

digital competitiveness because of the EU's "Global Gateway" initiative, which backs the Trans-Caspian Fiber-Optic Cable and aims to connect Kazakhstan with Europe while avoiding Chinese and Russian infrastructure [50].

3.6.2) Uzbekistan: In the field of ICT diplomacy, The "Digital Uzbekistan 2030" initiative serves as an example of a practical "balancing act." It has also worked with Western technology companies, but it still has strong ties to China and Russia. There are serious concerns about vendor lock-in risks and vulnerabilities related to digital dependency because of its reliance on Chinese state-owned companies, like Huawei, for digital infrastructure through DSR projects[51].

3.6.3) Kyrgyzstan: Diversifying its technology suppliers and data transmission routes is part of Kyrgyzstan's multi-vector strategy to protect and strengthen its digital sovereignty. With the goal of having all vital public services available online by 2028, the country has made digitalisation a top priority at the governmental level. It passed a comprehensive Digital Code in June 2025 with the goal of promoting foreign investment and safeguarding internet rights. The government is also spending money on physical infrastructure, like new data centres and a rail line that connects Kyrgyzstan, Uzbekistan, and China. However, by outlawing apps like TikTok, Kyrgyzstan has attempted to lessen Chinese influence. In addition, it has introduced the Digital Nomad Visa and is actively creating its own technology hubs.

3.6.5) Tajikistan: With the president appointing 2025–2030 as the "Years of Development of Digital Economy and Innovations," Tajikistan's digital strategy places a strong emphasis on addressing infrastructure deficiencies and national development. However, high prices and restricted internet access in rural areas hinder the nation's digital progress. Tajikistan has fallen well short of its e-government service targets. [52] It still faces a significant digital divide in

[50] Government of Kazakhstan. 2025. “Innovations in Public Services: New Digital Solutions for Business and Citizens.” Prime Minister of Kazakhstan, February 5, 2025. https://primeminister.kz/en/news/innovations-in-public-services-new-digital-solutions-for-business-and-citizens-29877.

[51] Invest in Uzbekistan. 2024. “Information and Communication Technologies Sector in Uzbekistan.” Government of Uzbekistan. https://invest.gov.uz/en/investment-guide/technology.

[52] Admin.tj. 2025. “Tajikistan to Declares 2025–2030 as Period of Development of Digital Economy and Innovations.” *Admin.tj*, January 30, 2025. https://admin.tj/tajikistan-to-declares-2025-2030-as-period-of-development-of-digital-economy-and-innovations.

comparison to its neighbours, despite its plans to build more fiber-optic connections to China, including a gas pipeline. Tajikistan's near total reliance on international bandwidth that passes through Russia is its biggest digital geopolitical vulnerability [53].

3.6.5) Turkmenistan: The idea of "permanent neutrality" serves as the cornerstone of Turkmenistan's foreign policy. The country has launched a new initiative for 2026–2029 and has adopted a "Concept of the Development of the Digital Economy until 2025" [54]. In order to improve cross-border trade, UNCTAD has also assisted the nation in setting up a trade single window system.

3.7) Data Analysis Techniques

Data analysis is used to evaluate and scrutinize the gathered data in order to identify the trends, assess outcomes, and deduce implications regarding the study's hypotheses and questions. In this study, a variety of qualitative techniques will be used to analyse the gathered data in order to understand the intricate geopolitical dynamics within the Central Asian region. Several readings of the data are required to identify recurrent themes and connections in this painstaking, exhaustive, and frequently iterative process.

Condensation and Preparation of Data: The first step is to become acquainted with the data by reading the original content repeatedly. It is crucial to develop a deep comprehension of the breadth and depth of the material before starting to code.

Coding and Memo Writing: Texts passages are assigned to classification and retrieval. Both structural coding, which follows the document format, and thematic coding (finding important

[53] Agency on Statistics under the President of Tajikistan. 2025. "2025–2030 Years Announced for Digital Development Economics and Innovations." Stat.tj, January 30, 2025. https://www.stat.tj/en/2025-2030-years-announced-for-years-digital-development-economics-and-innovations.

[54] Turkmenistan Government. 2019. *Concept of Development of Digital Economy for 2019–2025*. Resolution of President of Turkmenistan. https://www.afghanistan.tmembassy.gov.tm/en/news/23916.

themes that occur throughout the sources) are used in the study. A standardised codebook with documented definitions are developed to ensure rigour and prevent changing the codes over time.

Thematic Analysis: It is the primary method of identifying, exploring and summarising reoccurring patterns or "themes" in the collected data. Themes such as "multi-vector balancing," "vendor lock-in," "technological sovereignty," and "digital authoritarianism" are emerged in this process [55].

Discourse Analysis: Discourse analysis is applied alongside thematic analysis in order to better understand how language is used to create reality. As part of this, the approach pays special attention to the specific language and rhetoric of digitalisation endeavours and geopolitical relationships as they are articulated in the media and by governmental actors. For instance, the study looks at Russia's advocacy of a "sovereign internet" and the second-largest power on Earth, China calling the Soviet Union "a community with a common future."

Comparative Analysis: A direct comparison between the findings of topic and discourse analysis in Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan and Uzbekistan are made. In addition, through this comparison, more profound conclusions are made regarding the region as a whole, as well as the similarities and differences between their digital strategies and external relations.

3.9) Research Ethics

Research ethics are the code of conduct that a researcher must follow. The aim of following research ethics is to prevent researched material from any harm and ensure the legitimacy of the research. The research that lacks ethical soundness is inherently flawed scientifically and wasteful of resources.Following ethical considerations are ensured in my research:

1. The study has been conducted as per the stated rules and guidelines published by Bahria University.

[55] Braun, Virginia, and Victoria Clarke. 2006. “Using Thematic Analysis in Psychology.” *Qualitative Research in Psychology* 3 (2): 77–101

2. The study has been completed without any aid from ghost writers.
3. The study ensures intellectual integrity and is not plagiarized.
4. The study used proper citation and references.
5. The author has tried her best to be unbiased while conducting and compiling this research.
6. Data collecting tools and study findings are original and real.
7. The sole purpose of this research is to provide new insights to this topic.

3.10) Research Limitations

The study is subject to some methodological issues. Given that many Central Asian nations do not fully disclose the details of their digital agreements with China, access to trustworthy data was difficult. Furthermore, available government reports might be biased, incomplete, or influenced by political agendas. This circumstance makes it more difficult to determine the actual scope of the Digital Silk Road (DSR) and the extent of China's participation.

Lack of direct access to legislators, high-ranking officials, or corporate organisations working on digital infrastructure projects is another difficulty. This restriction increased reliance on outside assessments and secondary interpretations, which could be influenced by the institutional or political prejudices of the authors. Additionally, the DSR is a dynamic and evolving project. New agreements, technological advancements, and geopolitical changes may occur during the research period, which could affect the finding’s applicability or make them outdated.

CHAPTER 4

NAVIGATING GEOPOLITICS AND DIGITAL SOVEREIGNTY UNDER CHINA'S DIGITAL SILK ROAD

4.0) Introduction

In Central Asia the Digital Silk Road (DSR) is more than a byproduct of larger digitalisation, it is a watershed in the region's geopolitical and technical change. All five Central Asian states, including the largest one, Kazakhstan, have joined the DSR and are working on projects as diverse as fiber optic corridors and "smart city" systems, e-government, and surveillance improvements. Their strategic significance derives from geography as the region is at the intersection of China, Russia and the rest of Eurasia, offers China a lucrative venue to export its digital ecosystem, standards and technologies, while Central Asian states view this as an opportunity to leapfrog legacy infrastructures and improve digital competitiveness. At the same time, a growing level of digital interaction raises fundamental issues around sovereignty, agency and alignment. The chapter examines China's strategic digital outreach (Q1), how this affects the geopolitical dynamics in Central Asia and digital sovereignty (Q2), and the reaction of regional actors to this (Q3), as well as how this methodology enables for an analysis of the socially constructed meanings, narratives, and power relations embedded in the DSR process.

4.1) The Strategy Behind China's Digital Expansion

China's digital development through DSR is not about economic or technological initiatives, rather it represents a calculated reconfiguration of global power in the digital space. The reasoning behind this strategy is that China recognizes that information, data, and digital infrastructure are increasingly supporting state power, economic competitiveness, and geopolitical power. In the context of Beijing's geopolitical strategy, controlling digital pathways provides the same influence as the previous dominant state which controlled historical trade routes and energy pipelines. Consequently, the DSR represents a change in the projection of China's power, moving from the

physical and extractive principles of the Belt and Road Initiative (BRI) towards the informational and normative principles of a "Digital Belt and Road" [56].

In addition, China's digital expansion has multiple simultaneous goals:

- Economic diversification which includes development of markets for major Chinese IT companies such as Huawei, ZTE, Alibaba Cloud and Hikvision.
- Geopolitical influence through the integration of Chinese infrastructure in partner nations helps build strong and enduring relationships and further soft power.
- While keeping control of data networks the essential traits of technological sovereignty are avoided as China is bound by technology sanctions from the West.
- Creating Normative leadership, implementation of governance models and digital norms which align with China's position on cyber-sovereignty[57].

4.1.1) From Physical Connectivity to Digital Dominance

The DSR focuses on telecommunications of 5G, fiber optic networks, data centres, smart city technologies and cross-border data flows, whereas the BRI focuses on trains, ports, highways and pipelines. The 2015 "Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road" (approved by the State Council of the People's Republic of China) specifically called for construction of an "Information Silk Road," with emphasis on cross-border optical cables and other communications trunk line networks to improve international communications connectivity[58]. China has combined industrial policy and global diplomacy in

[56] "China highlights data and 'Digital Silk Road' in new plan to drive innovation as US tech rivalry intensifies." 2024. *South China Morning Post*, April 30. https://www.scmp.com/news/china/politics/article/3260945/china-highlights-data-and-digital-silk-road-new-plan-drive-innovation-us-tech-rivalry-intensifies

[57] Hillman, Jonathan E. 2022. "China's Digital Silk Road: The Tech Arm of the Belt and Road." Center for Strategic & International Studies (CSIS). https://www.csis.org/analysis/chinas-digital-silk-road

[58] People's Republic of China, State Council. 2015. *Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road.* Beijing: Ministry of Foreign Affairs of the People's Republic of China. June. https://www.mfa.gov.cn/eng/zy/jj/2015zt/xjpcxbayzlt2015nnh/202406/t20240606_11381659.html

establishing Chinese technological norms in other countries through its "China Standards 2035" agenda[59].

The geopolitical rationale is straightforward: through the transition from material infrastructure to "information power", China has the opportunity to implant its digital ecosystem into partner countries and this not only provides connectivity, but also the governance standards, data flows and strategic dependency. According to the analysis of the Clingendael Institute, DSR's normative dimension, which advocates Chinese digital standards, legislation and governance, is as important as the physical cables themselves[60].

4.1.2) Central Asia as a Core Digital Theater

Data supports rapid deployment, Chinese IT companies have built enormous data centres, submarine and terrestrial fiber optic links and 5G agreements in dozens of countries along old BRI routes. By 2026, Chinese enterprises are expected to have built 43 data centres in Southeast Asia alone. In Central Asia this shift is particularly important: landlocked states that have legacy through Soviet infrastructure and limited digital capacity offer China the high-leverage opportunity to install next generation digital systems, integrate them into the Chinese ecosystem and achieve long-term influence. The underlying strategic logic of this transformation is therefore threefold:
(i) export China's technological ecosystem (hardware, software, and standards), (ii) embed dependencies and define the norms of governance and (iii) put China at the centre of the global digital order rather than on the periphery.

As a result, the DSR's transformation of corridors from concrete and steel to fibre and data highlights China's desire to make the transition from patron of infrastructure to broker of information. Since the physical corridors of the BRI started to kick in, China's strategic focus has moved towards the development of an “information” architecture, with Central Asia being a major testing ground. Empirically, this transition can be witnessed in the form of massive fiber and data initiatives along with quick 5G and smart city installations around the area. Kazakhstan has moved

[59] Dekker, Brigitte, and Maaike Okano-Heijmans. 2020. *Unpacking China’s Digital Silk Road.* The Hague: Netherlands Institute of International Relations “Clingendael”. July.
https://www.clingendael.org/sites/default/files/2020-07/Report_Digital_Silk_Road_July_2020.pdf
[60] Gomes, Alexandre Ferreira, and Maaike Okano-Heijmans. 2025. *Standardisation with Chinese Characteristics?: China’s Drive to Set Global Technical Standards.* The Hague: Clingendael Institute. July.
https://www.clingendael.org/publication/standardisation-chinese-characteristics

from pilots to infrastructure commitments. In 2024-25, the state signed memorandums to establish a domestic fiber "highway" and co-invest in a Trans-Caspian submarine cable to Kazakhstan-Baku-Europe [61]. At the same time, Astana has advanced a national 5G implementation strategy (announced for 2024) and increased the capacity of governmental data centres, frequently via Huawei and other Chinese suppliers and partners.

There is a similar pattern of rapid institutional adoption of Chinese cloud, e-government and payments solutions, selective Western contracts and partnerships (e.g., Alibaba/Alibaba Cloud and several Huawei-backed infrastructure contracts), exemplified by Digital Uzbekistan 2030 roadmap, AI, cloud strategies and high-profile collaborations. Kyrgyzstan and Tajikistan have similar, but more asymmetric, dynamics. Both governments have enacted legislative and institutional tools for the development of e-services and data connectivity, and have signed vendor contracts with Chinese companies for telecommunications, modernization and smart-city elements[62]. In Tajikistan, the government has targeted the period from 2025 to 2030 for the digital economy, with a focus on new fiber connections (also with China), despite facing serious rural connectivity issues. Turkmenistan in spite of heavy internet regulation officially adopted a national digital economy strategy (2019-2025 framework) and participates in regional discussions on fiber and "Digital Silk Way"[63]. UNDP also supports single-window trade systems to digitize cross-border trade. This empirical trend across these cases is clear. China's DSR participation goes beyond equipment sales to include backbone fiber, data center investments, 5G commercialization/pilot agreements, and e-government/Smart City platforms all build technical dependencies, and give Beijing control over data flows and the rules governing them[64].

[61] "Azerbaijan-Kazakhstan investments value in laying optical fiber along Caspian Sea revealed." 2024. *Report.az*, June 18. https://report.az/en/ict/azerbaijan-kazakhstan-investments-value-in-laying-optical-fiber-along-caspian-sea-revealed/

[62] Asia Growth Partners. *"Digital Silk Road Infrastructure Evaluation Report: Central Asia 2024."* Asia Growth Partners, Singapore, March 2024.

[63] RealClearDefense. *"China's Expanding Digital Authoritarianism in Central Asia." RealClearDefense*, February 2023. https://www.realcleardefense.com

[64] Atlantic Council. *"Surveillance, Sovereignty, and the Digital Silk Road in Eurasia."* Atlantic Council, Digital Forensic Research Lab (DFRLab), 2022. https://www.atlanticcouncil.org

4.2) China's Digital Governance Model and Technological Statecraft

China's digital strategy is far more than just the export of hardware, it represents a strategic and calculated approach to technological statecraft, a fusion of hardware, data governance and political will. Many scholars defined it as “Beijing Effect”, an expression of normative power projection, in which the digital infrastructure projects are given characteristics and goals that are inspired by China's own system of information, control and data localisation[65]. The operational components of this strategy are Chinese ministries, state-owned enterprises and private technology companies like Huawei, ZTE and Alibaba Cloud[66]. All these dynamics are demonstrated by a number of concrete projects in Central Asia. In Uzbekistan, Huawei has played a key role in the launch of the Safe City initiatives in Tashkent and Samarkand, and has been used to integrate surveillance cameras, facial recognition technology and AI-backed surveillance systems in urban management structures. In Kyrgyzstan, the “Taza Koom”(Clean Society) digital transformation strategy had previously engaged with Huawei and other Chinese companies to test 5G, smart city developments and cloud data integration indicating how governance, technologies and security frameworks are connected. In 2023, Tajikistan's Ministry of Industry and New Technologies signed a Memorandum of Understanding with Huawei that aims to develop a "national digital backbone', consisting of e-government platforms and centralized databases of citizens[67].

DSR cooperation agreements often contain dual use technology such as artificial intelligence, quantum computing, and satellite positioning in the Digital Silk Road cooperation plan (2021-2025). Beijing has combined elements of economic cooperation with state-driven standards promotion in order to ensure that local partners must meet their standards and protocols, including licensing requirements and cybersecurity architectures. Thus, the DSR is a mixture of industrial

[65] Centre for International Governance Innovation (CIGI). *“Digital Silk Road and the Politics of Standards.”* CIGI Commentary, July 2023. https://www.cigionline.org

[66] Centre for International Governance Innovation (CIGI). *“Digital Silk Road and the Politics of Standards.”* CIGI Commentary, July 2023. https://www.cigionline.org

[67] Government of the Kyrgyz Republic. *“Taza Koom: Concept for Digital Transformation 2018–2040.”* Ministry of Digital Development, Bishkek, 2023. https://ict.gov.kg

outreach and ideational projection. It is based on exporting China's internal model of digital governance under the umbrella of the "shared prosperity" and "mutual connectivity" discourses.

4.2.1) The Dual Logic of Connectivity and Control

The DSR in Central Asia is expanding in line with a two-pronged strategic formula , connectivity is an attraction factor and control is a retention factor. China's dedication to digital connectivity, communication infrastructure, its deployment of 5G, the provision of broadband access and creation of data infrastructure only creates a technological interdependence which anchors partner states within China's normative space[68]. Thus, the DSR is not just a vehicle for export earnings but also as a tool to establish Chinese technical norms on a global level which ranges from 5G protocols (Huawei/ZTE) to smart-city data governance frameworks (Alibaba Cloud, China Mobile International).

In Central Asia, this duality between domination and networking is inscribed at many levels. Kazakhstan's Digital Kazakhstan project is based on Chinese-built fiber and cloud infrastructures and is accompanied by cybersecurity agreements signed with Huawei and China Telecom, while assuring that Beijing keeps technical control over the system by sharing software updates and managing devices. Uzbekistan's e-Government Development Center relies on Chinese hardware and AI technologies to support the automation of public services, which in effect gives Chinese companies visibility into state IT infrastructures. In Kyrgyzstan, official narrative claims to fight for diversification, the creation of 5G testing zones and ICT training centers (by Huawei in Bishkek in 2023) are examples of the connection between DSR investments on the one hand and local human resources and technical skills on the other.

Research show that Safe City and Smart Policing efforts in Uzbekistan and Tajikistan make use of Chinese-made AI videos, leading to the creation of "data enclaves" in which firms with ties to Beijing control critical security information[69]. These systems allow host governments to keep a better watch on their people while encouraging China's own model of digital authoritarianism.

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[68] Ministry of Industry and New Technologies of the Republic of Tajikistan. *"Memorandum of Understanding with Huawei Technologies on the National Digital Backbone."* Dushanbe, 2023.

[69] Zhang, Fang, and Li Wei. *"The Beijing Effect: Normative Power and the Digital Silk Road." Journal of Contemporary China Studies* 33, no. 4 (2024): 115–132.

Therefore, technological "inclusion" becomes irreducibly intertwined with built-in control infrastructural connection becomes surveillance; empowering collaborations become constraining[70]. As a result, China's digital diplomacy is a combination of economic gains and strategic goals. By exporting standards, governance software and surveillance infrastructure, Beijing effectively turns connectivity into a tool of influence creating a Sino-centric digital framework in which access, security and sovereignty are mediated through Chinese technologies and standards.

4.2.2) Constructive Framing of "Shared Future" and Digital Modernity.

China's leadership has used this narrative as a tool of normative diplomacy, incorporating the tenets of technological self-sufficiency, state-led modernization and political stability in its digital partnerships. Addressed by China's President Xi Jinping at the World Internet Conference (WIC) in Wuzhen (2015-2022) who described measures of digital collaboration as the “path to a common destiny” with China emerging as the architect and moral guardian of a new cyber framework[71]. In Central Asia, the ideological pitch is especially high. Chinese actors are promoting their technologies as a means of local capacity and self-sufficiency, but the governance norms that come with it are ratifying the process of centralizing control and top-down regulation on cyberspace. The DSR is sanctified by powerful narratives of “technological destiny”, “sovereign development” and"digital harmony”. These narratives shape the way Central Asian elites think of their partnership with China , not as some form of dependency, but as participating in a new global digital order.

However, hidden under this ideological unity, there is a competition. Civil society organizations and local technologists in Kazakhstan and Kyrgyzstan are increasingly formulating digital sovereignty in terms of independence from foreign interference. Therefore, challenging China's conflation of sovereignty and state surveillance[72]. Ultimately, the DSR proves to be both a material

[70] Government of Tajikistan. *“Strategy for Digital Economy Development 2025–2030.”* Ministry of Economic Development and Trade, Dushanbe, 2024.

[71] *“Innovations in Public Services: New Digital Solutions for Business and Citizens.”* PrimeMinister.kz, Government of the Republic of Kazakhstan, January 2025. https://primeminister.kz/en/news/innovations-in-public-services-new-digital-solutions-for-business-and-citizens-29877

[72] Kazakhstan Temir Zholy. *“Serik Zhumangarin Offers Huawei to Develop IT.”* Kazakhstan Today, June 2024. https://www.kt.kz/eng/economy/serik_zhumangarin_offers_huawei_to_develop_it_1377954148.html

infrastructure and social construct creating a field in which power is wielded through the formation and spread of ideas about what "modern," "sovereign" and "secure" digital futures should look like.

4.3) Central Asian States and the DSR: Case Studies

4.3.1) Kazakhstan: Striking a Balance between Global Gateways and Regional Integration

Kazakhstan is a clear example of multi-polarity in the region. It is actively pursuing Chinese investment, reinforcing its relationship with the EU under the Global Gateway initiative, while maintaining historical ties with Russia, all pushing forward to an ambitious national digital agenda to make the country a regional transit and data hub[73]. Kazakhstan is also an important partner within the Trans-Caspian subsea fiber-optic cable project together with Azerbaijan -an estimated 380 km cable, capable of transmitting up to 400 Tb/s, which is expected to be operational by 2026. The objective of this project is to create a direct data corridor from Central Asia to Europe, which will reduce the reliance on transit routes that go through Russia. Chinese companies are much better integrated into Kazakhstan's digital landscape: Huawei has held commercial roadshows, signed agreements to improve railway communications through an SD-WAN implementation to Kazakhstan Temir Zholy, and joint cloud and AI platforms[74].

From a political perspective, these converging trends create a tension between the benefits of connectivity and concerns about sovereignty. The Trans-Caspian cable and better data hubs provide lower latency to the European markets, more resilient routes and commercial opportunities. This duality helps to explain the reasoning behind Kazakhstan's careful balancing act. It is both investing in Chinese technical expertise and financial resources for rapid digital modernization while at the same time cooperating with the EU and other stakeholders in order to achieve a more diversified supply chain, more diversified regulatory frameworks and more

[73] *The Diplomat.* "Competing Digital Futures: Europe and China in Central Asia's Tech Development." *The Diplomat*, May 2024. https://thediplomat.com

[74] Clingendael Institute. *"China's Digital Silk Road: Strategic Implications for Europe and Central Asia."* Clingendael Report, 2024. https://www.clingendael.org.

geopolitical schemes. Consequently, the empirical trends in Kazakhstan capture an overall regional tendency.

4.3.2) Kyrgyzstan: Bargaining Digital Sovereignty and Technological Dependence

Kyrgyzstan occupies a special place in the digital transformation process of Central Asia. Despite the lack of financial resources and infrastructure, the country has quickly advanced towards e-governance, digital identity and data integration initiatives that not only increased state capacity, but also increased the vulnerability to external technological influences. According to official statistics of the Ministry of Digital Development, the number of electronic digital signatures in Kyrgyzstan based on the cloud increased more than 2.6 times from 946 thousand in 2023 to 2.45 million by August 2025. This growth represents a national initiative to bring public service delivery online[75]. The Tunduk interoperability platform has connected more than 80 state agencies and now citizens can access more than 150 digital public services without requiring any paper documentation. Payments for government services via online are 747,000 as of the middle of 2025, up from 295,000 in 2024[76].

Nevertheless, Kyrgyzstan still relies on foreign suppliers for its digital infrastructure, especially Chinese firms that supply surveillance cameras, fiber networks and data center equipment through DSR cooperation[77].From a geopolitical perspective, Kyrgyzstan is a particularly good example of multivector digital strategy: it is at the same time interacting with the World Bank, with the EU's Digital4Development initiative and Chinese DSR projects. This strategy attempts to balance modernization with autonomy and it is risky in creating asymmetric dependencies[78].

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[75] Ministry of Digital Development of the Kyrgyz Republic. 2025. "Sharp Increase in Use of Digital State Services Recorded in Kyrgyzstan." *24.kg*, September 26. https://24.kg/english/343820_Sharp_increase_in_use_of_digital_state_services_recorded_in_Kyrgyzstan/

[76] Ministry of Digital Development of the Kyrgyz Republic. 2024. *Concept of Digital Transformation of the Kyrgyz Republic for 2024-2028*. Bishkek: Ministry of Digital Development. https://digital.gov.kg/wp-content/uploads/2024/06/concept-digital-transformation-of-the-kyrgyz-republic-for-2024-2028.pdf

[77]The World Bank. 2024. "World Bank Provides Additional Support for the Kyrgyz Republic's Digital Transformation." Press release, January 12 2024. Washington, DC: World Bank. https://www.worldbank.org/en/news/press-release/2024/01/12/world-bank-provides-additional-support-for-the-kyrgyz-republic-s-digital-transformation

[78] State Council Information Office of the People's Republic of China. 2022. "Jointly Build a Community with a Shared Future in Cyberspace." Beijing, November 7. https://english.scio.gov.cn/whitepapers/2022-11/07/content_78505694_5.htm

The digital transformation in Kyrgyzstan offers benefits such as administrative efficiency and transparency, but simultaneously, this also provides normative and infrastructural possibilities for external influence. With the rapid development of digitalization, there is a lack of strong data protection institutions, which can lead to an informational dependency and strategic questions arise on how much Kyrgyzstan can truly practice its digital sovereignty in a multipolar digital world.

4.3.3) Uzbekistan: Digital Transition and Strategic Closer Ties with China

Uzbekistan has become a digital reform leader of Central Asia and is turning into an innovation and smart governance hub. Under the leadership of President Shavkat Mirziyoyev and implementation of the "Digital Uzbekistan 2030" strategy, the government is set to digitize public services, improve broadband access, and attract high-tech investments. However, more and more this modernization comes with Chinese technological and institutional influence through the Digital Silk Road (DSR). From 2019-2024 Uzbekistan signed multiple Memoranda of Understanding (MoUs) with Chinese tech companies like Huawei, ZTE, and China Telecom for the development of 5G infrastructure, cloud computing and smart city projects[79]. Notably, Huawei has worked with the Ministry for the Development of Information Technologies and Communications (MITC) to develop 5G pilot zones in Tashkent and Samarkand as well as AI-driven surveillance systems that are ingrained in urban security systems.

Uzbekistan's cooperation with China extends to the sphere of fiber-optic infrastructures. Through the Digital Silk Way initiative, and the Trans-Caspian Fiber-Optic Line, Tashkent is looking to diversify its links that avoid Russia, and in doing so, improve connectivity in the region with Turkmenistan and Azerbaijan. Uzbekistan has been very ambitious in its digital governance reforms. From a political point of view, Tashkent frames its digital transformation with a dual necessity (development) and as a means of national modernization (modernity). However, behind this strategy there is a pragmatic approach: making the most of the Chinese funding and expertise, while working discreetly with Western partners to expand digital connectivity.

[79] Ministry of Digital Technologies of the Republic of Uzbekistan. 2023. “Ministry Signs Memorandum of Understanding with Huawei.” May 19, 2023. UzA. https://uza.uz/en/posts/the-ministry-of-digital-technologies-of-the-republic-of-uzbekistan-signs-mou-with-huawei_484648

4.3.4) Turkmenistan: Permanent Neutrality and Controlled Connectivity

Turkmenistan is a peculiar case in the regional DSR setting. The country has a long-standing foreign policy tenet of "permanent neutrality" and has one of the most stringent levels of information control, which has created a model of highly selective digital participation. The state has a national digital strategy (known as the Concept for the Development of the Digital Economy 2019-2025) and participates in regional connectivity discourses (e.g. the Trans-Caspian / "Digital Silk Way" debates), but on the domestic internet front, the restrictions are still among the highest in Central Asia. As for infrastructure and policies, Turkmenistan’s authorities have launched some projects to modernize the trade and improve cross-border transactions.

UNCTAD and UNDP have been helping Turkmenistan's single-window trade platform in order to simplify import/export procedures and reduce transactional frictions. Concurrently, Ashgabat has shown interest in trans-Caspian fiber-optic projects that would help strengthen regional connectivity and possibly reduce reliance on single transit routes, actions that in theory would identify Turkmenistan with the rationale of regionalism of DSR. From a geo-political standpoint, Turkmenistan's neutral position enables it to play off major powers in an opportunistic fashion. China is an important partner especially in energy supply and some connectivity projects, but Ashgabat is careful as too much alignment can risk losing its self-professed neutrality. The strategic outcome is therefore ambiguous.

Turkmenistan benefits from certain aspects of the digital transition but its rigid regulatory environment and selective policies on the choice of vendors makes its development of broad, society-wide digital dependencies less obvious than in other Central Asian contexts. Therefore, Turkmenistan is an example of a third path followed by the region in its interaction with the DSR, not full acceptance and not outright rejection, but a careful and sovereignty-first approach that favours regime stability and control .

4.3.5) Tajikistan: Capacity Constraints in Strategic Modernization

Tajikistan has also recently moved digital transformation towards its development agenda. President Emomali Rahmon has declared the years of 2025 to 2030 "Years of Development of the Digital Economy and Innovation," and instructed authorities to prepare a comprehensive

implementation plan[80]. At the operational level, Chinese firms have already made an impact; Dushanbe's famous "Safe City" surveillance system (equipped with Huawei technology and mainly financed by a loan from China Exim bank) is a prominent example of early DSR-style projects in Tajikistan, and has been discussed for modernization and expansion in recent years.

Yet, structural barriers still exist in spite of these efforts. Internet penetration is still rather low (about 40-42% in recent years) and the strong rural-urban divide in access and digital skills means that large sections of the population are unlikely to be included, despite donor-funded projects. Safe City also illustrates the trade-off between capability and sovereignty[81]. The Chinese loan that funds the project and the involvement of Chinese vendors is creating operational advantages (e.g. traffic management, crime prevention) but also concerns about transparency and control over the data that is collected are being raised, with implications for the broader discussion on surveillance, vendor lock-in and longer term dependencies.

Tajikistan combines assertive state programming and involvement with donors and low levels of domestic capacity and extensive participation of vendors. This leads to a typical DSR-era dynamic, where greater acceleration of modernization is accompanied by an overgrowth of vulnerability to external technical control and governance frameworks that make Tajikistan an important case to consider in exploring how infrastructural advances translate into real digital sovereignty.

4.3.6) Patterns of Dependence, Autonomy, and Strategic Ambiguity.

The DSR activities of China in Central Asia exemplify the diversity of digital interdependence and strategic autonomy based on the political systems, economic potential, and geopolitical interests of individual countries. Kazakhstan is the most developed case of digital pluralism in Central Asia. It is leveraging Chinese infrastructure financing effectively, and is also participating in

[80] World Bank. 2024. "World Bank to Strengthen Digital Public Infrastructure and Digital Skills in Tajikistan." Press release, December 17. https://www.worldbank.org/en/news/press-release/2024/12/17/world-bank-to-strengthen-digital-public-infrastructure-and-digital-skills-in-Tajikistan

[81] World Bank. 2024. *Kazakhstan Digital Foundations Project (P170270) – Concept Stage Program Information Document.* Washington, DC: World Bank. https://documents1.worldbank.org/curated/en/099020824095567023/pdf/BOSIB1a8c8b5c303c18d1e1f1b795966429.pdf

partnerships with the EU's Global Gateway, the Trans-Caspian Fiber-Optic Cable, and the U.S. supported cybersecurity programs[82].

Digital interdependence is complex. States are reliant on China for technology, the West for governance structures and each other for transnational fiber connectivity. For Kazakhstan and Uzbekistan, digital partnerships are a means of modernization and "sovereign innovation," whereas for Tajikistan and Kyrgyzstan, they are a means of development assistance or outside security. The Central Asian model reflects a "negotiated dependence" where governments welcome Chinese digital investment to support economic development while they try to use balancing rhetoric, regulatory measures and cross-partnerships to prevent overreliance. This balance, characterized by strategic ambiguity, secures autonomy while requiring structural interdependence, is a reflection of the duality of China's Digital Silk Road throughout the region.

4.4 Digital Silk Road: Agency and (Resist) Interpretation

China's Digital Silk Road (DSR) is often studied within the broad geopolitical or economic context. In Central Asia the dynamics of this game are shown to be much more intricate and negotiated. At the governmental level, there is generally public support for the DSR as a tool to achieve modernization and "digital sovereignty", enabling leaders in Central Asia to align with Beijing's narrative of "a shared future in cyberspace". Kazakhstan's Digital Code 2023 sees data localisation rules that are based on EU rather than Chinese models. This reflects the need to assert regulatory independence even though Huawei data centres are already present in Kazakhstan. Uzbekistan, in its Digital Uzbekistan 2030, instills DSR components (i.e. smart cities, e-governance), while at the same time seeking a collaboration with Estonia and the UNDP to create a transparent system, implicitly rejecting China's state-centric digital framework[83]. At the societal level and the private sector level, local entrepreneurs and technology communities are an example of innovation.

[82] "Innovations in public services: new digital solutions for business and citizens." 2025. *Official Information Source of the Prime Minister of the Republic of Kazakhstan*, 1 April 2025. https://primeminister.kz/en/news/innovations-in-public-services-new-digital-solutions-for-business-and-citizens-29877

[83] United Nations Development Programme (UNDP). 2025. "EU and UNDP Promote Data Governance in Uzbekistan." Press release, September 24, 2025. https://www.undp.org/uzbekistan/press-releases/eu-and-undp-promote-data-governance-uzbekistan.

In Kazakhstan and Uzbekistan, local IT startups use Huawei's regional innovation hubs in Almaty and Tashkent for training and cloud services while, at the same time, raising concerns about a lack of transparency of relationships between the state and corporations and surveillance-related issues. In the case of Tajikistan, despite the fact that essential national networks are controlled by Huawei or ZTE, IT professionals in the country are voicing concerns about technological dependence and data privacy . This ambivalence across the region exemplifies a type of "discursive resistance," in which stakeholders are aware of the positive material benefits of Chinese investment but redefine the normative significance of Chinese investment in a way that aligns better with domestic agendas. They selectively adopt Chinese technologies without necessarily embracing its governance philosophy, a good example of what constructivists call normative localization. This process turns China's ideational export into something that is regionally particular, where technology is the tool for empowerment and means of subtle resistance.

4.4.1) Narratives of Cooperation and Framing of Government Policies

China's Digital Silk Road (DSR) is not considered as a unified object by the Central Asian government, rather it is interpreted, negotiated, and differently responded to as a policy object in various ways.These governmental narratives are under the influence of three powerful, often competing, logics; (1) modernization and development (in order to gain practical benefits as quickly as possible), (2) sovereignty and security (in order to tend to maintain control of data and political order by the state), and (3) geopolitical balancing (in order to avoid exclusive alignment with any outside power). The prioritization of these logics is conditional on domestic capacity, the type of political regime, and external pressure, leading to a variety of responses across the region.

In Kazakhstan, the official narrative is more pragmatic, where the state sees the DSR as a tool to accelerate the development goals of Digital Kazakhstan. Consequently, Astana's rhetoric is accompanied by the meaning of "cooperation" (in terms of infrastructure and investment) and "resilience" (in terms of data protection and vendor diversification), suggesting a willingness to cooperate, while at the same time, hedging the risks of depending on a single vendor by finding support in the EU Global Gateway and having historical ties with Russia. This double-pronged approach gives Kazakhstan a sense of agency.

In Uzbekistan, "digital modernization" has been the governmental narrative to underline a state-driven initiative. Tashkent describes its cooperation with Chinese firms as pragmatic capacity-building projects, which cover training, cloud, and smart city pilot projects with public assertions of the supremacy of national control and legal sovereignty. Tajikistan and Turkmenistan, have a more state-centred and sovereignty prioritised approach. While Dushanbe speaks of connectivity and has made digitalization a national development priority, its discourse and practice are about tight control over central databases, foreign vendors, and limited space for digital discussion by a civic society.

Thus, in Central Asia, the DSR becomes a scene of battlegrounds over meaning and policy in the form of the state narrative. Rather than being passive recipients, Central Asian governments are proactive interpreters: they welcome Chinese technological contributions when they see developmental benefits, they legislate and procure to protect sovereignty and strategically balance different external partners to ensure strategic autonomy.

4.4.2) Private sector and Civil Society Perspectives

The response of the private sector and civil society in Central Asia to the DSR is a mixture of entrepreneurial opportunism, pragmatic collaboration and growing apprehensiveness. On the side of the private sector, local telecom players, cloud start-ups and fintech companies often see Chinese technology and investment as a facilitator. The Chinese suppliers offer low-cost 4G/5G equipment, cloud, and payment solutions that allow domestic enterprises to expand quickly and enter new markets[84]. In Uzbekistan and Kazakhstan, partnerships with Alibaba Cloud, Huawei and Chinese payment providers have helped expand the e-commerce, logistics and fintech ecosystems in the countries, lowering the cost of entry for startups and enabling the provision of digital services in underserved areas.

Civil society groups, independent journalists and privacy activists say they are alarmed by the types of surveillance capabilities built into "Safe City" and smart city systems. NGOs and digital rights organizations in Kazakhstan and Kyrgyzstan have openly questioned the privacy,

[84] Davis Center for Russian and Eurasian Studies. 2021. *Digital Silk Road in Central Asia: Present and Future*. Cambridge, MA: Harvard University. https://daviscenter.fas.harvard.edu/sites/default/files/files/2021-10/Digital_Silk_Road_Report_2021.pdf

transparency, and accountability of surveillance projects and called for better data protection laws. Adaptation strategies have a great diversity and give valuable insights. Business associations actively lobby for the creation of "trusted vendor" lists and multi-vendor procurement guidelines, while some governments retaliate by mandating source-code audits, the creation of domestic data centers or co-ownership agreements that force foreign companies to give up more control. These interactions between private entities and civil society show that markets and civic actors are playing an important role in the technological landscape through innovation, resistance, and negotiated adaptation.

4.4.3) Local Agency in a Global Network

Although China's Digital Silk Road (DSR) in which Central Asian states are being incorporated, the states are increasingly showcasing hybrid digital strategies that involve cooperation and resistance, dependence and innovation, and foreign orientation and national strength. Instead of being passive recipients of Chinese digital influence, they actively reframe the engagement of DSR through a process of selective adaptation, diversification and normative blending.

The Digital Kazakhstan 2025 initiative of Kazakhstan explicitly incorporates data centers and smart-city frameworks that were developed by Huawei. This multifaceted approach allows Kazakhstan to benefit from both of those systems ,technological capabilities from China and regulatory credibility from Europe. Kyrgyzstan and Tajikistan, faced problems due to lack of domestic capacity and financial resources displaying a different adaptation strategy, what politicians call resilient dependency. Despite their reliance on Chinese loans for telecommunication infrastructure, they are more and more driving for normative and institutional diversification. The Ministry of Digital Development of Tajikistan has reached out to South Korea and India for expertise in order to diversify its suppliers and set up the local coding academies, which seems like a strategic move for the country to harden the resilience of human capital and lessen the dependency on Chinese technology ecosystems.

This regional pattern represents resilient adaptation of a dynamic process which does not establish a relationship of subordination to dependency but which is rather a negotiation tool. Central Asian governments and private companies have skilfully maneuvered between global technology hubs by adopting "flexible digital sovereignty", the ability to adopt foreign digital systems without

having to relinquish domestic policy independence. Moreover, the constructivist lens underlines the fact that such adaptation is not only functional but also ideational. Central Asian policy makers express their vision of the digital future in terms of indigenous discourses of "modernization," "innovation," and "national identity," studiously avoiding any ideological identification with either side of the power equation.

The digital future of Central Asia is being made through a process of selective integration, whereby foreign technologies are reworked, reinterpreted and brought into local regulatory and cultural contexts. Through strategic interdependence management, Central Asian stakeholders exercise their digital sovereignty and place themselves in the global information environment on terms they have negotiated.

4.5 Interdependence, Power, and Politics of Digital Sovereignty

The relationship of China's Digital Silk Road (DSR) to the Central Asian countries represents a case of so-called "complex interdependence", a phenomenon where states are simultaneously cooperative and vulnerable in interconnected networks of technology, economy, and information. Data and code are becoming the most powerful tools for power as traditional forms of coercion and military power are increasingly being superseded by China's growing dominance of digital infrastructure, standards and platforms across Central Asia[85].

Interdependence is not the opposite of agency[86]. It leads to what scholars call "strategic ambiguity", the deliberate balancing of different dependabilities to maintain flexibility. Both Kazakhstan's Digital Kazakhstan programme and Uzbekistan's Digital Uzbekistan 2030 reflect this balancing act: they deploy Huawei's 5G pilots, while signing contracts with the Global Gateway programme of the EU and the K-Cloud programme of South Korea. This variety of alliances is indicative of

[85]Davis Center for Russian and Eurasian Studies. 2021. *Digital Silk Road in Central Asia: Present and Future*. Cambridge, MA: Harvard University. https://daviscenter.fas.harvard.edu/sites/default/files/files/2021-10/Digital_Silk_Road_Report_2021.pdf

[86] Organisation for Economic Co-operation and Development (OECD). 2024. *Global Trends in Government Innovation 2024: Fostering Human-Centred Public Services.* Paris: OECD Publishing. https://doi.org/10.1787/c1bc19c3-en

an awareness that interdependence can be used as a weapon, and that it must, therefore, be diversified in order to avoid becoming trapped[87].

Digital interdependence, in a constructivist perspective, redefines the notions of sovereignty and legitimacy. Research by Friedrich Ebert Stiftung in Uzbekistan and Kyrgyzstan shows that even though 68% of the participants consider Chinese technology "affordable and efficient," nearly half of the participants have concerns about data privacy and political influence[88]. These understandings point out the ideological conflicts of who determines what is digital modernity, who makes the rules, and whose values prevail in cyberspace. Ultimately, the DSR in Central Asia represents a set of power imbalanced interdependencies, a relationship that is both mutually beneficial and structuralized. The politics of digital sovereignty in Central Asia is not so much about isolation, but rather about negotiating autonomy in the context of interdependence, where both an advantage and a challenge is connected.

4.6 Reconfiguration of Power in Central Asia Through DSR

China's Digital Silk Road (DSR) is shifting the traditional geopolitical power in Central Asia, then under Russian influence and battling among Western powers. The DSR represents more than just economic growth but a kind of technological statecraft, which changes the strategic hierarchy of influence between China, Russia, and the West. Beijing has become the principal architect of digital infrastructure, governance models and information ecologies to fuel a growing digital space in the region that is effectively independent of both Western liberal and Russian post-Soviet models.

4.6.1) Decline of Russia's Digital Influence

Traditionally, Russia exerted its dominance in the region in the form of linguistic, cultural and energy-related links. However, integration of Chinese digital infrastructure has made Moscow's exclusive control weak. As outlined in the Carnegie Moscow Center, Chinese fiber optic network,

[87] Organisation for Economic Co-operation and Development (OECD) 2024. *OECD Public Governance Reviews: Uzbekistan: Towards a More Modern, Effective and Strategic Public Administration.* Paris: OECD Publishing. https://doi.org/10.1787/2f36d8ec-en

[88] Rosa-Luxemburg-Stiftung. 2020. "The Digital Silk Road: Opportunities and Challenges for Central Asia." https://www.rosalux.de/en/news/id/45540/die-digitale-seidenstrasse-herausforderungen-und-chancen-fuer-zentralasien

satellite network, and e-commercial platforms have "outpaced Russian digital exports by a ratio of four to one," which shows the shift from energy interdependence to data interdependence. Kazakhstan's cooperation with Huawei on the "Digital Kazakhstan" program, Uzbekistan's use of China's smart city technologies and Kyrgyzstan's fiber-optic cooperation with China Telecom are a few instances of this shifting alignment. These projects further integrate Central Asian countries into the Chinese web of digital technology and further marginalize Russia as the principal conduit for connectivity and the flow of information.

From an angle of complex interdependence, this dynamic, evolving situation is an example of the asymmetrical dependencies that characterize contemporary regional order. The technological dependence of Central Asia on Chinese infrastructure creates some vulnerabilities (e.g., the dependence on Chinese data centers, cybersecurity systems, and satellite positioning services) and leverage at the same time. Consequently, Central Asian countries exploit competition between China, Russia and the West to negotiate more favorable terms, attract investments and improve diplomatic flexibility-a strategy called by the academic community strategic hedging or multi-vector diplomacy[89]. Russia, in turn, has made digital sovereignty and the integration of Eurasian capabilities in cyber space a priority through the Eurasian Economic Union (EAEU) as well as through efforts like the Mir payment system and the SORM internet surveillance institution. However, these efforts are still technologically inferior and do not have the same global scalability that China's platforms have. Moscow has also aligned its rhetoric with Beijing on issues of cyber sovereignty and internet governance while being aware of China's new influence. Russia sees the DSR as a complementary tool against the Western digital domination and as a possible threat to Russia's sphere of influence[90].

4.6.2) Western Counterstrategies and the Triangular Balance

[89] Robert O. Keohane and Joseph S. Nye Jr. 1977. *Power and Interdependence: World Politics in Transition*. Boston: Little, Brown.

[90] Valdai Discussion Club. 2024. *International Competition and Leadership in the Digital Environment.* Moscow: Valdai Discussion Club. PDF available at: https://valdaiclub.com/files/33065/

The response from the West, mainly from the European Union and the United States, has focused on countering China's digital dominance, with increased connectivity and diplomacy on the basis of established norms. The Global Gateway initiative by the EU and the U.S.-led Blue Dot Network are aimed at promoting transparent and sustainable digital infrastructure and alternatives to Chinese financial support. Nevertheless, their implementation in the Central Asian region has been limited to some extent. EU digital endeavours in comparison to DSR lag behind in terms of using scale and political engraving by nearly a decade. Despite this delay, normative aspects of the western attempt still do have a certain appeal, particularly in the younger, tech-savvy, and private stakeholders of Kazakhstan and Uzbekistan who would rather have the regulatory norms aligned with EU standards. This form of equilibrium produces a triangular dynamic equilibrium:

1. China provides the infrastructure, finance and technical expertise
2. Russia provides security structures and cultural continuity
3. The West provides normative legitimacy and the opportunities for global markets.

4.6.3) Strategic Ambiguity and Networked Order

Central Asian nations maneuver in these dynamics not through making binary decisions but through the use of strategic ambiguity. They interact with China for development and modernization, maintain security and linguistic links with Russia and look to the West for investment and international recognition. Uzbekistan in 2024 signed agreements both with Huawei and Microsoft Azure, which reflects the existence of a two-track strategy of digital diplomacy in the digital era[91].

From the constructivist point of view, this triangular interaction also demonstrates conflicting identities and norms. The narratives of China, Russia, and the West each create order; a digital commonwealth for China, a Eurasian alliance against Western interference for Russia, and digital liberalism based on openness and transparency for the West. The leaders of Central Asian states utilize and cherry-pick these stories in order to strengthen their sovereignty and legitimacy in

[91] Beeline Business. 2025. “Beeline Business expands digital ecosystem through partnership with Microsoft.” 15 July 2025. https://uz.kursiv.media/en/2025-07-15/beeline-business-expands-digital-ecosystem-through-partnership-with-microsoft/

development. Structure and identity are mutually constitutive, this suggests that the shifting alignments in the region are not just a product of power but have a normative dimension. The traditional relationship in which Russia is the security provider and the West is the economic role model is challenged by China's role as financier, builder and norm entrepreneur. The new order is neither bipolar nor tripolar, but networked, with alliances and interdependencies, which describe the complexity of geopolitics in the digital age.

CHAPTER 5

CONCLUSION /RECOMMENDATION

This research examines China's Digital Silk Road (DSR) and its considerable impact on the digital sovereignty, governance, and geopolitical relationship of Central Asia states. Since the DSR is the digital aspect of Belt and Road Initiative (BRI), it does not just limit itself to the physical infrastructure, but extends to connectivity, data governance, and normative influence. The research explored the changes of digital interdependence, driven by Chinese technology, Chinese investment, and China governance systems that transform the autonomy and strategic position of Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, and Turkmenistan. It addresses three major objectives: (1) the strategic reasons behind China going digital; (2) the effect of the DSR on the geopolitical situation and sovereignty of Central Asian states; and (3) how governments, the business sector, and civil societies respond to the changes. Rejecting the approaches of only economic or geopolitical explanations, the study used Complex Interdependence Theory of Robert Keohane and Joseph Nye and Constructivism by Alexander Wendt to bring in the material and ideational dimensions of Chinese participation. Interdependence explains how digital ties create cooperation as well as vulnerability and Constructivism focuses on how the Chinese story about a Community of Shared Future in Cyberspace itself justifies that approach and shapes the regional standards. Findings suggest that the DSR offers solid benefits, like better connectivity, inclusion and capacity building, yet it also results in structural reliance on Chinese vendors, standards, and cyber infrastructure.

5.1) Conclusion

Digital Silk Road (DSR) has not only become the technological pathway, but it is more of a paradigm shift of power, of a system that has redefined the nature of how influence is realized, sovereignty is executed and interdependence is negotiated during the 21st century. The new data highways, which carry information, codes and models, and principles of governance, are the new Silk Road connections in Central Asia, which previously linked local organizations with the vast global technological and ideational relations of China. The DSR, therefore, is a powerful but subtle shift on the status quo of the traditional geopolitics of space to a new form of geo-information

politics, where the power over digital infrastructures and norms is then used to affect thought, behavior and policy.

Through this, rather than the hard power that was a key feature of the last several centuries, it is a subtle, infrastructural type of domination, which some scholars call the invisible hegemony. The ability to develop the principles of digital connectivity with 5G networks, cloud systems, satellite networks, and cybersecurity cooperation has made China integrate its digital logic into the developmental model of the Central Asian region. Nonetheless, material structures as constructivist theory implies, are significant only as there are ideas, norms, and identities. The story of the community of having a shared destiny via cyberspace in China is a sound ideological piece: the one that appeals to modernization, independence, and shared prosperity. However, between this rhetoric and the unbalanced reality is an architecture of interdependence, in which there is a local agency and a structural dependency.

This is the paradox of the digital transition of Central Asia. On one hand, the DSR participation has also provided countries with previously unavailable technologies, e-governance, and data infrastructure. Conversely, it has put them within a box as it uses Chinese suppliers such as Huawei and ZTE whose platforms consist of inherent governance mechanisms and data insecurity. The theorists including Keohane and Nye declare that digital interdependence promotes cooperation and vulnerability, it unites governments on the basis of mutual benefits and leaves them vulnerable to mutual threats. That way, connectedness is an opportunity as well as a form of silent discipline.

But, the story is not one of active dependence. Several governments in Central Asia have been very strategic, as they have played the game of hybrid digital diplomacy trying to balance between China, Russia, the West and also the emerging regional giants like India and Turkey. Kazakhstan replicates the approach of the EU through the Global Gateway and relationship with Microsoft to break the dominance of China through DSR. Digital Uzbekistan 2030 is a mixture of Chinese infrastructure, Western data protection and transparency standards in Uzbekistan. The presence of the new Digital Code and the investment into the multi-route connection in Kyrgyzstan are the signs of the intention to avoid being locked-in by the vendor. Tajikistan and Turkmenistan, often regarded as being more dependent, have also tried to diversify relationships using UNCTAD, World Bank and the Asian Development Bank. These initiatives constitute regional pragmatism,

which acknowledges that independence in the digital age is one of diversification as well as agency in interdependence, dependency, and not isolation.

In constructivist terms, another way in which the DSR has had its effect is through the way it redefines the concepts of modernity and sovereignty. The idea of digital modernisation promoted by Beijing rings quite conducive in the post-Soviet countries that are yet to get rid of the heritage of centralised governance and the urge to gain relevance on the world stage. Central Asian elites, however, are doing more than merely accepting this story, they are re-taking it with their own logics of developments, their own politics, culture, and their own issue with identities. Consequently, the digital future that is being manufactured in the region is not an exclusively Chinese or Western one, but that of the hybrid, localised, with imported technology and localised adaption. The external infrastructure will become internalized in Central Asian countries depending on whether they can turn external infrastructure into internal sovereignty, they will determine the legacy that the DSR can achieve. This is the key strategic test of the region: the turn of connectivity into competence, dependence into digital self-determination. It remains a question in the coming decade whether the DSR will continue as a reliance or it will become a platform of regional empowerment.

After all, the DSR presents a new horizon of world order, according to which power is exercised through digital standards, informational ecosystems, ideational narratives instead of armies or agreements. These two competing ideologies have fused in Central Asia, which represents the contradiction of the society where connection is power but power is also what defines the conditions of connection. The ability of the region to engage in hybrid digital diplomacy balancing infrastructural ambition of China, security ambitions of Russia and normative this appeal by the West, will decide how the region will navigate in this new multipolar digital order. In case the Belt and Road Initiative was changing geography, the Digital Silk Road transformed epistemology into how civilisations know, control and interact in a digital world-system. It will be assessed not by its final achievement in cables laid or satellites placed, but in how well Central Asian regimes can build a digital future that is not only connected, but also one that is autonomous, encompassing, and self-determined.

5.2) Policy Implications

5.2.1) For Central Asian Government

The empirical and theoretical knowledge drawn with the help of this research is that the Central Asian states have not been a passive consumer of the Digital Silk Road (DSR) created by China, but they are active and responsive participants of hybrid digital diplomacy. Rather than a unidirectional flow of Chinese digital influence, the digitalization process in the region is a complex process of negotiation, redefinition, and balance in the distribution of strategies among the competing global forces in the first place, China, Russia, and the west.

Redefining Asymmetric Agency

Although the technology and financial superiority of China is enormous, the Central Asian countries have come up with complex agencies of agency in these asymmetric relationships. They do not simply take the Digital Silk Road (DSR), but choose only those aspects that fit their needs at home. The examples of this less-than-total version of alignment are Kazakhstan's adoption of Huawei 5G technology and EU-inspired data policies and Uzbekistan using the technologies of both Huawei Cloud and Amazon Web Services simultaneously. Through compartmentalization, owing to the use of strategic compartmentalization, countries such as Kyrgyzstan, Uzbekistan interact with the Chinese as well as Western programs, like the DCCP, without integrating technical cooperation into political commitment[92].

The Rationality of Crossbreeding of Digital Diplomacy.

The digital interactions of Central Asia reflect a combined method of diplomacy that removes pragmatism, caution and flexibility. Instead of having their own voice aligned to a particular bloc, these states are building up a digital structure in a polycentric form by partnering with one another. At the institutional level, it actively engages in numerous forums, such as the DSR Forum, the EU-Central Asia Connectivity Platform, the U.S.-backed DCCP, and the Digital Eurasia project of Russia. On normative levels, there is the Chinese system of cyber-sovereignty and the transparency

[92] Zhao, Suisheng. 2022. "China's Digital Belt and Road: A Strategy for Global Technological Leadership." *Asian Survey* 62 (4): 679–702.

standards of the West, which are gradually getting basic in Kazakhstan and Uzbekistan. Such a complex approach allows these states to turn the great-power rivalry into the channels of modernization and increased impact on their policies.

Complex Interdependence and Adaptive Sovereignty.

Considering the Digital Silk Road (DSR) in the perspective of complex interdependence theory, the Digital Silk Road has created the context in which cooperation and vulnerability coexist. Central Asian governments react to this by deploying adaptive sovereignty where they welcome interdependence but guard their autonomy. The project of the Digital Hub Diplomacy in Kazakhstan places the state as a conduit of data in the region and incorporates the Chinese infrastructure into the systems of governance that stay on the lines of European standards. In the same way, the risks of overdependence are reduced by the fact that Uzbekistan is a hybrid ecosystem of partnership with China and the EU[93]. Even Kyrgyzstan and Tajikistan are working on policies that would diversify their providers and receive international assistance. State autonomy has become a negotiated concept, constantly being redefined by technological needs and institutional adjustments.

5.2.2) For People's Republic of China

The Digital Silk Road (DSR) of China is now in a critical crossroads of Central Asia: on the one hand, it has been successful in improving the connectivity, modernizing infrastructure, and making Beijing a digital powerhouse; however, on the other, it is now facing more and more question and suspicion by its neighbors and the rest of the world. The transparency, capacity-building, and multilateral legitimacy need to become the core aspects of Chinese strategy to ensure that it will not bring it backlash and ensure that it can preserve its strategic influence.

Improving Transparency to Overdependency Narratives

The DSR of the country China has been accused of encouraging digital dependency and being poorly governed. To combat this Beijing ought to adopt a transparency-oriented design which

[93] Feldstein, Steven. 2021. *The Rise of Digital Repression: How Technology Is Reshaping Power, Politics, and Resistance.* Oxford: Oxford University Press.

includes disclosing of contracts publicly, joined information management plans with receiving countries and autonomous audit by unbiased agencies like the ITU or the UNESCAP. Such actions would address the fears about coercive control, and be in accordance with the international best practices in accountability and strengthening China as a responsible digital citizen.

Joining Multilateral Digital Governance in Strengthening Legitimacy

The digital diplomacy of China, which is mostly bilateral, limits its validity. More prolific use of multilateral forums like SCO digital task forces, G20 meetings and even partnerships with EU or Japan would demonstrate a participatory approach instead of a competitive approach. The involvement in multilateral activities would help in harmonization of norms, enhance the credibility of norms by China and address the issue of techno-authoritarianism[94].

Constructivist and Strategic Consideration

Constructivist-wise, such reforms would replace the narrative about the DSR as that of dominance with that of mutual modernization, whereas interdependence theory suggests that they would bring about renewing asymmetric relationships via openness and mutuality. Overall, the increase in openness, local capacity and multilateralism would transform the digital cooperation according to the DSR into the responsible framework with sustainable development objectives and systematic and inclusive missions[95].

5.2.3) For West and Multilateral Actors

The western governments, European Union and the multilateral development banks will be best placed to have a sustainable alternative to the hardware-based competition with China through the implementation of governance, capacity, resilience, and open standards. Their initiatives ought to focus on four pillars, which are interconnected including: (A) sustainable, transparent financing

[94] European Commission. 2025. "Global Gateway and EU-Central Asia Partnership Announcements." *AP News*. Accessed October 28, 2025. https://apnews.com/article/2a3b14088999fe72eb60e1b4417fac60

[95] European Parliament. 2025. *EU Studies on Global Gateway Governance and Implementation*. Brussels: European Parliament. Accessed October 28, 2025. https://www.europarl.europa.eu/doceo/document/TA-10-2025-0253_EN.pdf.

and procurement, (B) governance-first investments, (C) human capital and institutional resiliency, and (D) regional and multistakeholder cooperation.

Sustainable and transparent Financing

The Western and multilateral agencies should provide alternative ways of approaching China hardware-based strategy in a sustainable way by providing clear and diversified financing. They do not have to depend on vendor-specific lending; they can also introduce blended-finance packages combining grants, private capital, and guarantees to avoid fiscal risk and increase transparency, of which already has the example of the EU with its Global Gateway and 2024 Central Asia deals. Special funding should also be associated with open-standards purchase, which mandates interoperability, open APIs, and auditability of source code to prevent lock-in of proprietoriness, donors should also enhance contract transparency by making the purchase terms of pricing and maintenance public, with a technical audit performed by an independent body to enhance responsibility and promote trust in digital projects by citizens.

Governance based Investments

Sustainable digital change is based on strong governance and not upon increasing the pace of hardware deployment. Western and multi-lateral institutions should redirect on legal and regulatory changes, making it easy to protect data, to ensure cybersecurity, and to provide competition laws to facilitate cross-border trade with the consideration of privacy laws. Such efforts as the World Bank Digital Foundations or EU governance projects will provide an example of how finance and technical-legal support can be brought together. It should also invest in creating a national certification scheme on telecommunications and cloud service providers, thus ensuring the security and interoperability levels[96]. Stakeholders can inject infrastructure into responsible governance structures through the notion of governance bundles where regulatory reform and the development of institutional capacity is accompanied with the protection of civil society.

[96] Asian Development Bank. 2025. *Digital Technology and Capacity Building Programs*. Policy report. Manila: Asian Development Bank. Accessed October 28, 2025. https://www.adb.org/publications/asian-development-policy-report-2025

Institutional Resilience and Human Capital

Resilience in the region requires long-term investment in the institutions and individuals. Regulators, cybersecurity professionals, judges and parliamentarians should be impacted with training initiatives that are aimed at improving policy awareness, incident response, and risk management, which are already being adopted by the ADB and World Bank. The act of strengthening national CSIRT and regional cyber-response systems by supplying equipment, training, and information-sharing infrastructures will also contribute to the reduction of risks that are connected to the concentration of vendors. Additionally, the funding groups must also increase their institutional control through parliamentary IT committees, open procurement departments, and legal facilities to enforce data rights. More funding on digital literacy, civic technology and the local developer ecosystem will empower communities and spur local innovation[97].

5.3) Future Research Directions

Future studies of the Digital Silk Road (DSR) should go beyond the descriptive appraisals provided to discuss its deeper geopolitical, technological and socio-economic effects. This research identified a number of potential opportunities that have the potential to improve the theoretical approaches and the policy formulation. To begin with, comparative studies involving Central Asia and other areas of DSR, like Africa or the Middle East will clarify the role played by domestic governance frameworks, institutional capacities, and interactions of the civil society in the outcome of Chinese digital investments. Through the application of a most-similar or most-different design methods, such as opposing cases such as Uzbekistan and Kenya can be used to establish whether the identified effects are a consequence of Chinese strategic plans or local political conditions, thereby enhancing theoretical understandings of Chinese digital influence.

Secondly, longitudinal research is necessary so as to track the impact of digital interdependence on regime resilience and civil liberties over the years. Though DSR initiatives can have short-term benefits in modernization, their implications on a political long-term basis, between stronger surveillance and legitimacy crisis are massaged. Repeating cross-sectional surveys, working with

[97] World Bank. 2024. *Tajikistan Digital Foundations Project; Digital CASA Programs*. Washington, DC: World Bank. Accessed October 28, 2025. https://documents1.worldbank.org/curated/en/099112624105540626/pdf/BOSIB-dab4dbfd-c863-4a45-9708-815e69871977.pdf

panel data, and even interviews with the representatives of the civil society and policymakers would help find out whether technological entanglement strengthens or undermines political stability.

Finally, the future research should be dedicated to how emergent technologies, including artificial intelligence, quantum communication, satellite internet, and so on, influence the next phase of digital geopolitics. With a shift in geopolitical strength towards the physical infrastructures and platform ecosystems and encryption systems, mapping of these technological value chains and regulatory frameworks will become essential[98]. The combination of a supply-chain analysis, a set of expert interviews, and scenario modeling may help to describe how novel types of interdependence become visible and how regional actors can develop in those changing digital ecosystems resilience or exercise more control.

[98] Chari, Srinivasan G. 2025. "Power, Pixels and Politics: The Geopolitics of Emerging Technologies in the Digital Age." *LJRHSS* 25. Accessed October 28, 2025. https://journalspress.com/LJRHSS_Volume25/Power-Pixels-and-Politics-The-Geopolitics-of-Emerging-Technologies-in-the-Digital-Age.pdf

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