



Divergent Digital Paths: A Comparative Study of Regulatory Frameworks and Participation in the Digital Silk Road between China and Nepal

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ABSTRACT

This article compares the digital regulatory systems and strategic responsibilities of China and Nepal in light of the Digital Silk Road (DSR) initiative. Nepal's regulatory ecosystem remains fragmented and capacity-constrained, driven by development priorities and digital inclusion goals, while China, the architect of the DSR, adopts a state-led, centralized model motivated by cyber sovereignty, data localization, and global technological influence. Some of the laws, including the Cybersecurity Law, the Personal Information Protection Law, and the Data Security Law, have firmly established China's digital governance and positioned technology as a tool for ideological control and geopolitical influence. Nepal's legal system, on the other hand, while ambitious, lacks consistency and enforcement authority. Its legal system is based on the Digital Nepal Framework, the Electronic Transaction Act (2006), and the Privacy Act (2018). While Nepal engages as a pragmatic party seeking connectivity, economic development, and geopolitical balance, this study highlights China's intentional export of digital infrastructure, standards, and surveillance technologies through the DSR. China's engagement is expansionary and strategic, while Nepal's is demand-based and cautious. The findings highlight the broader geopolitical and normative implications of the DSR, demonstrating how different national agendas, governance frameworks, and regional power dynamics affect not only technology but also digital connectivity.

Keywords: Digital Silk Road; Digital Law; Personal Information Protection Law; Digital Economy; Data Security Law

1. Introduction

The DSR was launched in 2015 as part of China's Belt and Road Initiative (BRI) to promote technological cooperation, e-commerce, and digital infrastructure across Asia, Africa, and Europe (Afzal 2024, Hussain, Hussain et al. 2024). As countries attempt to balance the promise of development with concerns about digital sovereignty and security, they express both support and skepticism regarding the DSR as a new arena of geopolitical and economic conflict (Gordon and Nouwens 2022, Afzal 2024). While both China and Nepal participate in the DSR, their starkly different political and economic environments make them an interesting subject for comparison (Karna and Gelal 2022). China has become a global leader in digital innovation, fueled by private IT giants such as Huawei and Alibaba, as well as state-owned enterprises (SOEs) (Melnik 2019, Afzal 2024). As a growing member of the DSR, Nepal, a landlocked

country in South Asia, is committed to improving connectivity and transforming from a landlocked country to a land-linked country (Rana and Karmacharya 2014, Mahat 2021). The DSR aims to bridge the digital divide by exporting governance models, technical standards, and infrastructure. While the Chinese model places a heavy emphasis on state-led regulation and cyber sovereignty, Nepal's system remains fragmented, with foundational legislation such as the Privacy Act (2018) and the Electronic Transactions Act (2006) but a lack of a unified implementation plan (Maharjan 2023, Raut 2023).

The paper's primary argument is that while both countries are engaged in the same endeavor, China has adopted a centralized, sovereignty-driven digital strategy, while Nepal has adopted a development-focused yet decentralized model, influenced by institutional constraints. This comparative study demonstrates how the two countries' distinct governance systems and capacities have shaped their respective regulatory frameworks, objectives, and strategic engagement with the DSR.

This study begins by providing context by outlining the history of the DSR, China's contributions to digital infrastructure and governance norms, and Nepal's embrace of digital connectivity and inclusion. Given this broader context, this comparative study is situated within broader regional and geopolitical dynamics. This article specifically explores the following research question:

- How do the digital regulatory frameworks of China and Nepal, two countries participating in the DSR, differ?
- What do these differences reveal about the relationship between strategic objectives and governance models?

2. Regulatory frameworks of China's Digital Ecosystem

China's digital ecosystem is not simply the result of its rapid technological advancement, but the result of a highly organized, politically deliberate regulatory framework (Cheney 2019). Over the past 20 years, China has transformed from a passive consumer of technology to a major player in the global digital economy (Jiang and Murmann 2022, Afzal 2024). This transformation has been underpinned by a state-centric regulatory framework that incorporates goals such as political stability, economic growth, national security, and global competitiveness. From infrastructure and platforms to data and algorithms, China's digital ecosystem is regulated by a complex web of laws, policies, administrative regulations, and ideological oversight. China's long-term development goals are at the heart of its digital governance planning (Xu and Dai 2024). Major national initiatives such as the 13th and 14th Five-Year Plan outline how technology will impact government, the economy, and society, and incorporate the concept of a "Digital China" (Hong 2017). The 14th Five-Year Plan (2021-2025) places a high priority on cyberspace security, national data infrastructure, and the digital transformation of all industries (Liu 2022). The state considers digital governance to be essential to modernization and party control, not just a technical endeavor. The goal is to create a "digital government," "digital economy," and "digital society" that is in line with party principles (Guo, Zhang et al. 2024). Technology will be a tool for governance and development. In addition, it advances China's geopolitical goals by positioning China as a pioneer in the world's digital infrastructure, particularly through its DSR project.

The Cybersecurity Law is the cornerstone of China's digital legal framework, with comprehensive regulations on network operations, critical infrastructure protection, real-name registration, and national security assessments of digital services (Afzal 2024, Afzal, Yongmei et al. 2024). The law establishes the framework for the concept of "cyber sovereignty," which holds that governments have the right to regulate internet activity within their borders without



outside interference. Under the regulation, operators are classified as “network operators” or “critical information infrastructure operators” and are subject to strict reporting, security, and localization requirements. In a stark departure from Western approaches to data governance, the law also requires data localization, ensuring that sensitive and private information of Chinese residents is kept within China (Erie and Streinz 2021). In 2021, China passed two historic pieces of legislation, the Data Security Law and the Personal Information Protection Law (PIPL), which build on the Cybersecurity Law (Calzada 2022, Afzal 2024, Li and Chen 2024). China seeks to strike a balance between economic data flows, national interests, and personal privacy, which is reflected in these regulations. The PIPL is similar to the EU's General Data Protection Regulation (GDPR) but retains Chinese characteristics (Afzal 2024, Li and Chen 2024). It gives people control over their personal data, including the right to access, modify, and delete personal data, while also framing these rights in the national interest (PIPL 2021). Data processors must obtain consent, conduct impact assessments, and avoid cross-border transfers unless a national security assessment is met.

In contrast, the Data Security Law takes a more systematic approach. It divides information into "core data," "important data," and different levels of importance, requiring the government to regulate information that may have an impact on the economy, public interest, or national security (Data Security Law 2021). China has implemented algorithmic controls and revised its Anti-Monopoly Law (2022) to address the growing power of digital companies. The Cyberspace Administration of China (CAC) and the State Administration for Market Regulation (SAMR) have investigated digital giants such as Didi, Tencent, and Alibaba, and punished them for improper data handling, abuse of market dominance, and infringement of consumer rights (*Internet Information Service Algorithmic Recommendation Management Provisions* 2022). The Algorithm Recommendation Standards (2022) also require companies to ensure that algorithmic systems are auditable, fair, and explainable. In a country where automation is increasingly influencing consumption and conversations, the standards even give consumers the option to reject algorithmic recommendations (Anti-Monopoly Law 2022). China is also at the forefront of the world in terms of digital currency regulation. The digital RMB (e-CNY) is a Central Bank Digital Currency (CBDC) that aims to modernize payments, improve monetary policy management, and reduce dependence on the US dollar. Currently, the People's Bank of China (PBoC) is piloting the digital RMB (People's Bank of China 2021). Due to concerns about financial stability and the environment, China has also implemented strict bans on cryptocurrency mining and trading (Xie 2019). Because of the traceability and programmability of the digital yuan, the state has unparalleled control over transactions. The internet in China is not only a platform for commerce and social media, but also an ideological battlefield. The main agency responsible for regulating and controlling internet content is the Cyberspace Administration of China (CAC). Through initiatives such as “clear and bright”, the government removes “harmful” content including gossip, pornography, celebrity worship, and politically sensitive content (Straits Times 2024). Every online platform must encourage “positive energy” content, i.e. content that complies with the party's principles, implement a real-name system, and conduct content control (*Regulations on the Administration of Online Information Content Services* 2023).

In addition, China has issued guidelines for the ethical development of autonomous systems and artificial intelligence (AI). The Ministry of Science and Technology's 2021 standards emphasize responsibility, openness and human supervision. Ensuring that AI is in line with "socialist core values" and national interests is as important as building a strong system (Ministry of Science and Technology of China 2021). China's digital ecosystem is built on a unique legislative framework that prioritizes the state over markets and civil society. Goals of



digital sovereignty, national security, ideological conformity, and economic modernization are the driving forces behind this powerful and rapidly changing legislative framework. China's regulatory approach is proactive, preventive, and political rather than reactive. Ultimately, it operates under a top-down governance paradigm where technology supports the country's strategic goals, although it does include some elements of global standards (e.g., privacy and justice).

3. Regulatory frameworks of Nepal's Digital Ecosystem

Nepal's digital ecosystem is still developing and faces challenges such as international connectivity, institutional reform, legislative modernization and technological change (Bhattarai 2021). Nepal's digital regulatory framework is influenced by resource constraints, political changes, and the goals of digital inclusion and global integration, which is in stark contrast to China's highly centralized, state-led digital governance model. As Nepal increasingly aligns with global standards on data protection, cybersecurity and digital trade, its regulatory framework consists of a series of laws, national policies, institutional structures and strategic visions (Yaseen 2024). The Digital Nepal Framework (DNF), launched by the Ministry of Communications and Information Technology (MoCIT) in 2019, is the cornerstone of Nepal's digital transformation (Nepali 2021). The framework focuses on eight sectors, including agriculture, health, education, energy, tourism, finance, urban infrastructure and governance, as well as enabling factors such as innovation, cybersecurity and digital foundation (DNF2019). The DNF aims to reduce regional disparities, promote economic growth and enhance public services through the use of digital tools. However, due to institutional fragmentation and funding constraints, the framework is not legally binding and its goals remain at the vision level, making it difficult to implement them.

Nepal has introduced several foundations of laws and policies to manage the changing digital ecosystem (Bhattarai 2021). Among them, the Electronic Transactions Act (ETA) of 2006 laid the foundation and is widely regarded as Nepal's first digital law, addressing issues such as cybercrime, electronic record keeping, and digital signatures (Blythe 2008, Maharjan 2023). The ETA was progressive when it was passed but is now outdated as it lacks important measures on data protection, intermediary liability, or new technologies such as artificial intelligence. In addition, the Information Technology Policy (2015) and the Draft Cybersecurity Policy (2021) outline Nepal's digital development goals and cybersecurity priorities (NEPAL 2022). However, the effectiveness of these policies remains limited due to the lack of legislative enforcement mechanisms. In addition, the Telecommunications Act of 1997 is crucial for the regulation of telecommunications service providers through the Nepal Telecommunications Authority (NTA), which regulates licensing and service quality (Nepal Telecommunications Authority 2023). The comprehensive framework still needs significant updating to meet the needs of Nepal's expanding digital economy and comply with international norms.

Nepal's digital governance is handled by several key institutions, which are responsible for infrastructure management, policy implementation, and regulatory oversight. The NTA is the main regulator for mobile network operators and Internet service providers. It also manages the Rural Telecommunication Development Fund, which aims to provide network connectivity to underserved areas. The National Information Technology Center is responsible for government data center management, software integration between public entities, and e-governance efforts (National Information Technology Center 2023). As the main policy-making agency, Nepal's MoCIT is responsible for guiding the national cybersecurity and ICT development plan. Nepal is also working with foreign partners to form a National Cybersecurity Response Team to improve Nepal's cyber resilience and incident response capabilities. These institutions form the basis of Nepal's institutional backbone to oversee its digital transformation. Nepal is still



developing its cybersecurity strategy. Although the ETA and the Penal Code 2017 contain laws on cybercrime, there is currently no specific cybersecurity legislation. The Cybersecurity Policy, though developed in 2021, has not yet been implemented. The policy covers areas such as incident response, cyber hygiene, and protecting critical infrastructure (*Cyber Security Policy 2012*) Threats such as website defacements, data breaches, and disinformation are common in Nepal, but institutions are ill-prepared due to the lack of a national Computer Emergency Response Team (CERT) or mandatory breach reporting legislation (Awasthi, Saud 2025).

Nepal does not yet have a comprehensive data protection law. Nepal recognizes privacy as a fundamental right (*Constitution of Nepal 2015*), and the Privacy Act also provides some protections for how public and private organizations collect and use personal information (*Privacy Act 2018*). However, the Privacy Act lacks clear provisions on cross-border data transfers, the use of user profiles or biometric data, and lacks clear enforcement procedures and data subject rights (such as the right to erasure). Nepal has made significant progress in improving e-government and digitizing public services to improve efficiency, transparency, and accessibility. This is evidenced by the National ID Program, which established a unified digital identity system by issuing biometric-based digital ID documents linked to multiple government services. The launch of the *Nagarik* app in 2021 a one-stop mobile platform that integrates more than 40 government services, such as PAN registration, police clearance certificates, and academic certification—is another noteworthy development that has expanded citizens' access to public services (*Nagarik App Initiative 2021*). These initiatives are supported by the Government Integrated Data Center, which hosts Nepal's multiple e-government platforms and facilitates data security management across government entities. However, despite this progress, many obstacles remain. Issues such as low digital literacy, limited system interoperability, frequent technical glitches, and lack of user trust hinder the widespread adoption of e-government, especially in rural communities that are often excluded from digital services (World Bank 2022). For e-government in Nepal to be truly robust and inclusive, these issues must be addressed.

In recent years, Nepal has become more active in the global digital arena, demonstrating its growing understanding of the value of cross-border digital cooperation (Karna and Gelal 2022, Shrestha 2022). To support digital infrastructure development, enhance e-government capabilities and strengthen institutional capacity, Nepal has established partnerships with international organizations such as the United Nations Development Programme, the World Bank, the Asian Development Bank and the International Telecommunication Union. In order to diversify digital access and reduce dependence on a single supplier, Nepal has signed bilateral connectivity agreements with China and India, focusing primarily on cross-border fiber optic infrastructure development. Nepal has begun to participate in the larger DSR project, which provide opportunities for technical cooperation and digital business integration. In addition, Nepal is an active member of the South Asian Association for Regional Cooperation (SAARC) and the Bay of Bengal Multi-Sectoral Economic and Technical Cooperation (BIMSTEC) at the regional level. While these collaborations are encouraging, Nepal currently lacks a coherent data sovereignty plan and a complete digital diplomacy policy. This lack of strategic clarity exposes the country to a number of risks, including data governance deficiencies, over-dependence on foreign platforms, and digital colonialism the potential for foreign organizations to exert undue influence over Nepal's user data and digital infrastructure. Nepal must proactively develop policies that protect national interests while leveraging international opportunities to fully leverage the benefits of its international digital connectivity.



4. Comparative Study between China and Nepal on Regulatory Framework of Digital Ecosystem

4.1 Policy Objectives and Approach

China's digital ecosystem is strongly controlled, emphasizing cybersecurity, government control, and technological leadership on a global scale (Parzyan 2023). The government has developed comprehensive plans that emphasize national security, data as a factor of production, and the expansion of the digital economy, such as the 14th Five-Year Plan (2021-2025) and the New Generation AI Development Plan, which aims to achieve AI hegemony by 2030. To support the Communist Party's goals, including social stability and economic independence, policies place a heavy emphasis on innovation-driven growth while adhering to strict regulation. In developing countries, need to provide digital access and promote economic growth is the driving force behind Nepal's pursuit of a more decentralized regulatory strategy. To encourage inclusive digital transformation, the DNF 2019 lists 80 projects in eight areas, such as e-government and digital agriculture. Although the goal is to reduce the digital divide, enhance connectivity and support small-scale innovation, bureaucratic inefficiencies and budget constraints sometimes make implementation difficult. China's framework integrates the digital ecosystem into economic and national security policies in a proactive, state-driven, and internationally minded manner. Nepal's strategy is more passive, emphasizing inclusiveness and basic development, but lacks the coverage and execution capacity of the Chinese system.

4.2 Data Governance and privacy

Laws such as the Cybersecurity Law (2017), the Data Security Law (2021), and the PIPL (2021) are the cornerstones of China's strong data governance framework. These regulations set out requirements for data localization, government access to data for security reasons, and strict compliance by IT companies. To maintain internal control and avoid external influences, the government considers data a national resource and strikes a balance between innovation and regulation. For example, companies must store important data in China, and cross-border data transfers require permission. Data governance in Nepal is not perfect. Although the Information Technology Act (2020) and the Privacy Act (2018) regulate digital transactions and grant fundamental rights to personal data, the enforcement of these laws is lax. There is no comprehensive regulation on cybersecurity requirements and data localization. Nepal has prioritized developing digital services rather than controlling data flows, leaving gaps in privacy protection and increasing vulnerability to cyberattacks. Nepal's data governance is still in its infancy with minimal regulatory oversight, reflecting the early stages of its digital ecosystem, whereas China's data governance is strict and centralized, prioritizing state control and security.

4.3 Digital Infrastructure and Connectivity

With over 1.4 billion 5G connections and widespread internet coverage, the country has an advanced digital infrastructure. The government has made huge investments in projects such as the DSR encouraging IT exports and global connectivity. The convergence of IoT, AI and smart cities has received policy support, with state-owned enterprises such as Huawei at the forefront of innovation. The National e-Commerce Exhibition City Policy reflects efforts to integrate e-commerce into urban ecosystems (Yuan, Ji et al. 2024, Zhang, Tang et al. 2024). Nepal has only 34% of rural areas with internet access, and its digital infrastructure lags far behind. Expanding connectivity is a goal of the Telecommunications Act (1997) and other laws, but progress has been slow due to insufficient funding and difficult terrain. Although the government relies heavily on foreign funding and commercial telecom companies such as Ncell, initiatives such as the Nepal-China fiber link and 4G development are positive developments. Universal broadband access by 2030 is the DNF's goal, although implementation remains inconsistent.



Nepal faces difficulties in basic communications, which limits the development of its digital economy, while China has world-class infrastructure supporting a complex digital ecosystem.

4.4 Innovation and Digital Economy Support

Policies that provide R&D centers, tax incentives, and subsidies encourage innovation. Platforms such as Alibaba and Tencent thrive under controlled competition, while the Made in China 2025 project encourages technological self-sufficiency. Strict monitoring, such as a crackdown on internet companies, ensures that government goals are achieved. The digital economy has driven industrial development, and laws such as the National E-Commerce Demonstration Cities have fostered an e-commerce ecosystem. Although Nepal's digital economy is small, it is expanding, and e-commerce sites like Daraz are growing in popularity. Although the industry is still in its infancy, the DNF and IT policy (2015) encourage entrepreneurship through tax breaks and incubators. A lack of trained talent and venture capital hinders innovation. Nepal is trying to include rural areas in the digital economy through projects such as Smart Villages and is working on digital literacy and digitization of small and medium-sized enterprises. China's innovation ecosystem is mature, supported by the state, and internationally competitive, while Nepal's innovation ecosystem is still in its infancy, limited by resources and scale, and mainly focused on grassroots digitalization.

4.5 Regulatory Challenges and Enforcement

China struggles to strike a balance between control and innovation. Inadequate regulation in developing sectors such as AI raises ethical questions, while overregulation risks stifling creativity, as seen in tech regulation actions in 2021. The CAC and the National Medical Products Administration (NMPA) have enormous powers and strong enforcement. Compliance costs are high, especially for international businesses that need to navigate complex regulations. Nepal has problems with regulatory consistency and enforcement. Overlapping responsibilities across departments (e.g., NTA, MoCIT) lead to regulatory chaos. Corruption and lack of technical knowledge weaken enforcement of regulations. For example, while there are cybersecurity laws but rarely enforced, endangering the ecosystem. Nepal's problems stem from underdevelopment and insufficient institutional capacity, while China's problems stem from excessive power, complex systems, and strict enforcement.

4.6 International Influence and Cooperation

China actively influences international digital norms through projects such as DSR and participation in standard-setting organizations. It exports IT infrastructure to developing countries such as Nepal while promoting its governance model or cyber sovereignty. However, interoperability remains limited as its methodology sometimes conflicts with Western standards. Nepal is a beneficiary of international digital cooperation, relying on assistance from China, India, and multilateral organizations such as the World Bank. The Nepal-China fiber optic link reflects China's influence, while Nepal maintains a balance with India and the West to avoid over-dependence. Although its regulatory structure is somewhat in line with international norms (such as the WTO's e-commerce regulations), its active international participation is constrained by local capabilities. Nepal is a passive player that needs external assistance to develop its ecosystem, while China is a global digital leader that is exporting its model.

4.7 Social and political context and consequences

The Chinese Communist Party emphasizes maintaining control over society and information, which is reflected in its policies. The use of surveillance tools also supports this goal. With billions of internet users and a developed digital economy, China's policies are aimed at managing its tech giants while maintaining its position as the world's leading IT country. Conflicts between the US and the European Union arise from China's attempts to



counterbalance Western models of digital governance through the DSR and data localization laws. Public complaints can be addressed through policies such as PIPL, which are designed to address data abuse in the private sector, while government surveillance undermines confidence in privacy guarantees. While political uncertainty and budget constraints have limited the effectiveness of policy implementation, they are consistent with democratic values that focus on transparency and individual rights. Nepal's policy approach is more modest, prioritizing connectivity over governance, stemming from its smaller digital economy and low internet penetration of 40%. Initiatives such as the TikTok ban demonstrate Nepal's reluctance to accept foreign digital domination, thereby striking a balance between the interests of China and India. Despite growing privacy concerns, public participation in digital policy remains limited by low digital literacy and limited internet access. Nepal's democratic framework emphasizes rights but struggles in practice, while China's authoritarian environment encourages control-oriented policies. Nepal's regulations reflect its early digital development stage, while China's policies take full advantage of its economic and technological scale. Nepal's strategy is regionally oriented with little international impact, while China's tactics have global geopolitical implications.

5. China as an Architect of the DSR and Nepal as a strategic Participant

As the architect of the DSR, China's participation is based on a complex strategy that blends geopolitical, economic, and technological goals. China primarily sees the DSR as a way to demonstrate its global technological superiority by creating and exporting digital infrastructure including 5G networks, submarine cables, and surveillance technology to partner countries. This strategy uses state-owned enterprises such as Huawei, China Mobile, and ZTE, as well as private technology giants such as Alibaba and Tencent, to build a comprehensive digital ecosystem covering telecommunications, e-commerce, artificial intelligence, and cloud computing. Achieving independent control over core technologies, exporting excess capacity, influencing global technology standards, and enhancing geopolitical power through digital diplomacy and infrastructure deployment are all part of China's strategic goals for the DSR. For example, China has gained significant geopolitical power in key regions such as the Indo-Pacific region and expanded its economic influence by controlling important submarine cables and deploying surveillance technology (Hossain 2024, Panda 2025, Tiwari 2025). In addition, China's digital policy aims to build a China-centric technological order by promoting the norm of "cyber sovereignty" and placing state control and authoritarian governance models above liberal democratic digital standards (Tiger, Raymond and Sherman 2024). China has invested huge sums of money between 2017 and 2022 (about \$23 billion in the Indo-Pacific alone) and reached bilateral agreements with nearly 40 countries to provide funding, capacity building, and infrastructure development as part of its deliberate promotion of DSR (Chakma and Dai 2022). By integrating its operations into the digital economies and governance structures of partner countries, China has formed a strategic technology layout, thereby increasing political influence and economic dependence (Suttmeier, Yao et al. 2009, Grimes and Sun 2014). China also hopes to expand its control over future digital infrastructure by developing new patent systems and Internet protocols.

Conversely, Nepal's motivation for participating in the DSR lies in its strategic need to expand partnerships beyond its traditional neighbors, its geopolitical position, and its own development needs. Nepal's participation as an opportunity to strengthen important physical and digital infrastructure, enhance connectivity, and reduce dependence on Indian transit and digital routes (Bhattarai 2021, Pokharel 2024). The Nepal-China fiber optic line was put into operation in early 2018, reflecting Nepal's willingness to use the DSR to strengthen digital communications sovereignty and economic autonomy. Nepal's strategic engagement aspires



from its desire for economic growth, infrastructure modernization, and enhanced regional connectivity through projects such as the Kerung-Kathmandu railway and power transmission line under the Trans-Himalayan Connectivity. The Government of Nepal envisions the DSR as a way to promote trade and access to international markets, helping it transform from a landlocked country to a land-linked country (Yaseen and Phattanasin 2025). Nepal also sees the DSR as a tool to balance geopolitical influence in the region by establishing closer ties with China and claiming strategic autonomy. However, Nepal's participation faces many obstacles, including political uncertainty, concerns about the sustainability of Chinese debt as loans rather than grants, and internal discussions on sovereignty and openness in project management. Unlike China's expansionist geopolitical orientation, Nepal's approach is more pragmatic, focusing on addressing infrastructure deficiencies and using the DSR as a means to achieve economic development. Nepal's strategy demonstrates a cautious acceptance, weighing the advantages of Chinese investment and digital infrastructure with domestic governance dynamics and geopolitical sensitivities.

While digital connectivity and infrastructure development are critical to both China and Nepal, the two countries' strategic approaches are very different. China's DSR architecture aims to influence the global digital order by exporting technologies that are closely tied to surveillance capabilities and influencing international standards along authoritarian paradigms. Nepal's engagement, on the other hand, focuses on using the DSR to bridge infrastructure gaps, improve national connectivity, and promote economic development while reducing dependence on external resources. In pursuit of global technological hegemony, China's investments are supported by large amounts of state funding, centralized designs, and a vision of putting "techno-nationalism" into practice. Nepal, on the other hand, is committed to negotiating implementation plans, assessing the political and economic impacts of loans and grants, and operating in a complex and changing domestic and regional environment. In this dynamic, Nepal is more of a donor and pragmatic participant than a policymaker or visionary architect. Furthermore, Nepal's concerns about sovereignty and the potential risks of over-dependence on Chinese technology conflict with China's strategic expansion of digital surveillance and data control; Nepal has shown reluctance to fully embrace China's digital governance model in the absence of clear transparency and safeguards. China uses the DSR as a geopolitical tool, while Nepal hopes to balance its relations with China and India in order to benefit from development. As an extension of the DSR establishes China's global leadership in digital infrastructure by providing cutting-edge technologies to developing countries. China consolidates its economic hegemony and geopolitical power in Asia, Africa, and Latin America by controlling important digital infrastructure and data flows. By offering an affordable, state-centric digital alternative to the Western framework, the initiative also demonstrates soft power, encourages countries to rely on digital technologies, and shifts global technology governance in China's favor. As an important participant in DSR Nepal benefits from the improvement of digital infrastructure which enhance connectivity and open up new economic opportunities by expanding the coverage of digital services and e-commerce. Nepal can offset India's dominance in the region and promote strategic geopolitical coordination by strengthening its ties with China. In addition, the use of Chinese digital payment platforms and systems such as Alibaba and WeChat Pay can enhance financial inclusion and enable more people, especially small and medium-sized enterprises and rural communities, to participate in the digital economy. As the architect of the DSR, China has the geopolitical goal of changing global digital standards, hoping to use its financial and technological prowess to increase its influence in the Indo-Pacific region and beyond. As a participant, Nepal has carefully managed its geopolitical position while trying to leverage Chinese investment to support its economic and digital growth. However, Nepal's



participation raises questions about its possible economic dependence and whether it will emulate China's authoritarian digital governance practices. This connection highlights the larger dynamic between China's expectations for the world and smaller countries' ability to weigh risks and benefits within the framework of the DSR.

6. Nepal's Strategic Assessment

Nepal's digital governance, supported by initiatives like the DNF, the ETA, and the Privacy Act, has primarily focused on expanding digital access, improving service delivery, and encouraging digital inclusion. However, implementation of these concepts has been uneven and slow. The slow and uneven implementation of Nepal's own digital regulations is a major flaw in its strategy. This gap is attributed to insufficient institutional capacity, frequent political changes that hinder policy continuity, a lack of financial and technical resources to implement regulations, and reliance on external partners for digital infrastructure development (Akbar, Hussain et al. 2025). Furthermore, legal changes often lag behind technological development, leading Nepal to be more reactive than proactive in building its digital governance system. These difficulties explain why even carefully designed frameworks like the DNF and the Privacy Act have not been fully implemented. While Nepal remains committed to strengthening digital connectivity, the restrictions make it harder to establish and maintain standards, limiting its ability to negotiate with China and other important technology exporters.

7. Conclusion

As this comparative analysis demonstrates, despite both China and Nepal participating in the DSR, they pursue distinct digital development trajectories, influenced by their respective political structures, institutional capacities, and strategic agendas. China maintains a comprehensive, unified, and proactive digital regulatory system grounded in strict data control, cyber sovereignty, and a global perspective. Laws such as the Personal Information Protection Law, the Data Security Law, and the Cybersecurity Law strengthen state authority while encouraging technological leadership and expanding power through the export of digital standards and infrastructure. In contrast, Nepal's framework, which prioritizes digital inclusion and basic connectivity over strategic control, still suffers from disarray and capacity constraints. Nepal's regulatory initiatives, governed by the DNF, the Electronic Transactions Act, and the Privacy Act, are not well coordinated or adequately enforced. One of the study's key findings is that Nepal's slow adoption of important policies is due to a combination of institutional weaknesses, political instability, lack of technical resources, and dependence on external partners for infrastructure construction. As a result, Nepal is more reactive than proactive in determining its digital destiny.

The results show that Nepal continues to tread cautiously, pursuing economic development, digital access, and geopolitical balance, while China is using the DSR to export its governance model and technical norms. This emphasizes that participating in the same project does not guarantee consistent results; rather, the national context significantly influences the adoption, implementation, and coordination of digital initiatives with broader government goals. Building institutional capacity, updating legislation to align with international cybersecurity and data protection standards, and safeguarding strategic autonomy within the alliance are all essential conditions for Nepal's future development. China, in turn, needs to address global concerns about data localization and surveillance, while balancing innovation with a strict regulatory framework. Ultimately, this research demonstrates that the DSR is a flexible framework, but its participants perceive it differently. China sees it as a weapon of strategic statecraft, while Nepal views it as a development path subject to governance constraints.

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