

THE BELT AND ROAD INITIATIVE AND KAZAKHSTAN'S ECONOMIC MODERNIZATION: FROM TRANSIT HUB TO REGIONAL GROWTH ENGINE

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Abstract

Being initiated in 2013, the Belt and Road Initiative (BRI) has radically altered the economic geography of Eurasia as a result of extensive infrastructure and connectivity initiatives. Kazakhstan is at the center stage of this initiative because of its geographical location in between China, Russia and European market. The present paper looks at the impact of the development of infrastructure associated with the BRI on the economic modernization, change in logistics, and integration of the region trade in Kazakhstan. In contrast to the majority of the descriptive literature, this article constructs a theoretical framework using the modernization and dependency theories to operationalize them with specific measurable variables, such as infrastructure capacity, sectoral diversification, trade structure and external financial dependence. The study will be based on comparative analytical evaluation of economic transformation in Kazakhstan under the BRI engagement through secondary data of international institutions and national statistics of the country between 2013 and 2023. The results indicate that BRI infrastructure projects have enhanced greatly transportation efficiency and logistic capacity in addition to the moderate diversification of transport, manufacturing, and service industries. Nevertheless, structural risks still persist such as reliance on technology, dependence based on concentration of trading with China and lack of creation of value within the industries of a country. The research states that the long-term modernization trajectory of Kazakhstan is based on the reinforcement of institutional governance, the expansion of industrial capabilities, as well as the diversification of international relations. The paper is meaningful in the literature in that it represents a well-organized analytical study of the effect

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of BRI developmental effects, as opposed to a simple descriptive summary of infrastructure projects.

Keywords: Belt and Road Initiative, Kazakhstan, economic modernization, logistics, Eurasia, diversification

1. Introduction

Established in 2013, the Belt and Road Initiative (BRI) has become one of the most ambitious transcontinental growth initiatives of the 21st century. The BRI covers over 150 countries spread in Asia, Europe and Africa, and the objectives are to improve connectivity by building transport infrastructure, facilitating trade, and collaborating in finance.¹ Kazakhstan is strategically situated in the midst of this huge network. The country is located along the border of China, Russia, and the European Union, and it is the physical and economic linking point between the East and the West and, therefore, an essential land route of the Chinese dream of a new Silk Road.²

Alliance with China through the BRI has introduced a considerable investment in highways, railways, pipelines and logistics centers in Kazakhstan. The development of the transport system in the country has been revolutionized by such projects as Khorgos Gateway Dry Port, the Western Europe-Western China (WE-WC) Transport Corridor, and modernization of Aktau Port. Not only have these developments enhanced internal connectivity,³ but it has also made Kazakhstan a key transit and logistics center in the Eurasian trade. The Asian Development Bank (2023) reveals that over 30 percent of trade transit through Kazakhstan has risen since 2016 through 2022, which is a testament to the practicality of infrastructure-based development.

In addition to the infrastructural significance, the BRI also corresponds well with the domestic modernization plan of Kazakhstan. The national program of countries, Kazakhstan 2050, and the long-term plan of the government,⁴ Nurly Zhol (Bright Path), focus on the diversification of the economy, innovation and the modernization of the industry. These policies also aim to decrease the reliance on hydrocarbons, which previously made up more than 60 percent of export income in Kazakhstan (World Bank, 2022). The fact that

¹ Annabelle Gawer and Michael A. Cusumano, "Industry Platforms and Ecosystem Innovation," *Journal of Product Innovation Management* 31, no. 3 (2014): 417–433, <https://doi.org/10.1111/jpim.12105>.

² Richard Pomfret, "The Central Asian Economies in the Twenty-First Century: Paving a New Silk Road," *SLOVO* 33, no. 2 (2020): 2–4.

³ Amrit Tiwana, *Platform Ecosystems: Aligning Architecture, Governance, and Strategy* (Burlington, MA: Morgan Kaufmann, 2014), <https://doi.org/10.1016/C2012-0-06625-2>

⁴ Geoffrey G. Parker, Marshall W. Van Alstyne, and Xiaoyue Jiang, "Platform Ecosystems: How Developers Invert the Firm" (2016), <https://doi.org/10.2139/ssrn.2861574>

the BRI is all about being connected and being an industrial nation therefore supports the internal reform agenda of the country thus the partnership can be a catalyst to structural change.

Nevertheless, the BRI can also be applied to Kazakhstan, but not only in economics, but also in the political and strategic sphere.⁵ Although Chinese investment introduces the badly needed capital and infrastructure, it also increases economic interdependence that could limit policy autonomy of Kazakhstan. Critics also believe that BRI involvement may cause the asymmetric dependencies- that is, the developmental path of Kazakhstan is influenced by the financial and technological hegemony of China.⁶ The trade-off between the possibility of integration and the threat of dependency is one of the underlying policy issues.

Kazakhstan will also have stronger influence in the region due to its BRI participation in terms of international relations. Having turned into a transport center between China and Europe, Kazakhstan has become a regional growth driver of Central Asia. It is an active member of multilateral structures, including the Shanghai Cooperation Organization (SCO) and the Eurasian Economic Union (EAEU), which contributes to harmonization of trade and investments across the borders.⁷ With the further expansion of the BRI westward, the influence of Kazakhstan as a bridge between major economies of the Eurasian region should increase.⁸

This research discusses the complex effect of the BRI on economic modernization of Kazakhstan, with the view to three interrelated aspects, which are (1) transformation of infrastructure and logistics, (2) diversification of the economy beyond oil and gas, (3) the development of regional trade and integration. The research methodology of secondary research applies in synthesizing the findings of academic material, policy reports, and official data to assess the extent to which the BRI is affecting the path of the

⁵ Marshall W. Van Alstyne, Geoffrey G. Parker, and Sangeet Paul Choudary, "Pipelines, Platforms, and the New Rules of Strategy," *Harvard Business Review* (2016).

⁶ Nadine Staub, Karim Haki, Stefan Aier, and Robert Winter, "Governance Mechanisms in Digital Platform Ecosystems: Addressing the Generativity-Control Tension," *Communications of the Association for Information Systems* 51 (2022), <https://doi.org/10.17705/ICAIS.05137>.

⁷ C. Costabile, "Digital Platform Ecosystem Governance of Private Companies," *Technological Forecasting & Social Change* (2024).

⁸ Marlene Laruelle, "The US Silk Road: geopolitical imaginary or the repackaging of strategic interests?" *Eurasian Geography and Economics* 56, no. 4 (2015): 360-375, doi:10.1080/15387216.2015.1098555

development of Kazakhstan.⁹ It is also analyzed in the light of modernization theory, which views BRI as a force of industrial transformation, and dependency theory, which points at the possible dangers of external dependence.

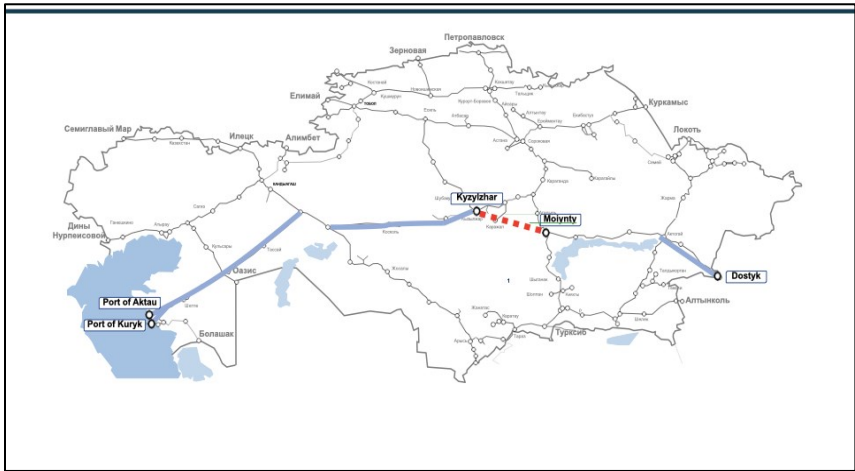


Figure 1 Map of BRI routes through Kazakhstan, showing Khorgos Gateway, WE–WC Corridor, and Aktau Port

1.1 Research Contribution

Although most of the available literature mostly explains the building of infrastructure within the Belt and Road Initiative, comparatively few give a systematic analysis evaluation of how such projects can affect the overall economic transformation in Kazakhstan. Much of the literature is either geopolitical implications or an isolated infrastructure project, and there is little knowledge of the structural connection between connectivity investments, economic diversification and dependency risk.

The research has a contribution to the literature in three ways.

To start with, it empirically measures modernization and dependency theories by defining the indicators of economic change that can be quantified such as infrastructure capacity, sectoral diversification, trade pattern and financial exposure to foreign partners. In such a method the theoretical perspectives are made to be empirical instead of being conceptual.

⁹ Geoffrey G. Parker, Marshall W. Van Alstyne, and Sangeet Paul Choudary, *Platform Revolution: How Networked Markets Are Transforming the Economy and How to Make Them Work for You* (New York: W. W. Norton & Company, 2016).

Second, the paper combines several institutional data points, such as the ones of the World Bank, the Asian Development Bank, and the national statistics of Kazakhstan, to deliver a systematic analysis of the economic trends in the period between 2013 and 2023. Through this combination, the analysis will triangulate evidence and prevent the buildup on one institutional narrative.

Third, the study offers a combined view of infrastructure building, industrial diversification as well as trade integration in one framework. This gives the opportunity to understand more thoroughly whether the Kazakhstan participation in the BRI can be considered one of the ways towards sustainable modernization or a re-entry into the structural economic dependence.

2. Literature Review

The study of the Belt and Road Initiative (BRI) has grown exponentially since its introduction, as academics specializing in economics, political science, and regional studies assess its complex consequences. The BRI is widely perceived as an improvement system of connectivity, investment and regional integration.¹⁰ Nevertheless, its application in the various national settings has produced varied economic and political results. In the example of Kazakhstan, the literature shows optimism on the modernization of its economy and its apprehension on the possibility of dependency and risks on governance.

2.1 The BRI and Eurasian Connectivity

The academic literature places Kazakhstan in the context of the Eurasian connectivity agenda to a large extent. According to Pomfret (2020), Kazakhstan is geographically located to be an essential part of the overland silkways Economic Belt. New rail corridors that connect China to Europe through Kazakhstan have greatly shortened freight times, up to 50 percent shorter than transportation by sea.¹¹ The Khorgos Gateway which is commonly referred to as the dry port of the steppe is also a symbol of this change which enables the transfer of China-Europe goods within rail systems to be done with efficiency.¹² Such infrastructural developments have taken Kazakhstan above a landlocked country to a land-linked transit center.¹³

Some studies however argue that connectivity in itself does not guarantee sustainable development. According to Zhao (2019), transport corridors are

¹⁰ Peterson K. Ozili, "Embedded Finance: Assessing the Benefits, Use-Case and Risks," *Journal of International Development and Emerging Economies* 2, no. 2 (2022): 108.

¹¹ X. Chen and Y. Lin, "The Impact of the Belt and Road Initiative on Trade and Transport Connectivity," *Journal of Asian Economics* 67 (2020): 10117.

¹² E. Demir, "The Technological Shift towards Embedded Payments," *Future Business Journal* 10, no. 1 (2024), <https://doi.org/10.1186/s43093-024-00409-2>.

¹³ Marlene Laruelle, ed., *China's Belt and Road Initiative and Its Impact in Central Asia* (Washington, DC: GW's Central Asia Program and Nazarbayev University, 2018).

usually pass-through spaces that are not significantly served except by external parties, unless under the assistance of industrial and logistic ecosystems.¹⁴ Equally, Cooley (2019) cautions that in the absence of domestic value addition, the economic multiplier effects of BRI infrastructure is not much. The same issue is reflected in the opinions of the Asian Development Bank (2023), which states that Kazakhstan needs to consolidate its own industries in order to use the new transport routes to their advantage.

2.2 Economic Diversification and Industrial Transformation

The problem of resource dependency has always been mentioned in the literature on the economic modernization of Kazakhstan. Ever since gaining independence, Kazakhstan has been depending on oil, gas and mineral exports, which means that it is prone to the outside shocks. According to scholars like Kalyuzhnova (2020), diversification into manufacturing, agriculture, and logistics is the key to the long-term resilience.¹⁵ The BRI provides a chance to facilitate this transition through the investments in industrial parks and modernization of infrastructure. In the case of the Khorgos-Eastern Gate Special Economic Zone (SEZ), it has received interest in manufacturing and warehousing companies in China, Europe, and Russia.¹⁶

However, studies point out that the results of industrialization are still unequal. Dave (2021) also notes that in Kazakhstan, a majority of BRI-related investments continue to focus on transport and energy industries but not high-value manufacturing.¹⁷ The dependence on Chinese financing and technology is very high thus constraining the capacity building at local level and the fact that they employ imported labor slows down the spillovers in employment. Consequently, the contribution of the BRI towards structural diversification has been small to date. According to the scholars, effective modernization will rely on institutional reforms, the improvement of investment climate, and the mechanisms of technological transfer that will lead to the increase in local productivity.¹⁸

2.3 Governance, Transparency, and Debt Concerns

There is another body of literature that looks at the aspect of governance of the BRI. Hurley et al. (2019) dispute by stating that although Chinese development financing addresses the dire needs in the infrastructure, it might

¹⁴ R. Kopperapu, *Embedded Finance: How Non-Financial Companies Are Integrating Financial Services* (2025).

¹⁵ Chhabra, "How Embedded Finance Will Erase Traditional Banks" (2025).

¹⁶ Asian Development Bank, *Kazakhstan: Khorgos-Eastern Gate Special Economic Zone – Development Update* (Manila: ADB, 2022).

¹⁷ K. W. Abdo, "Factors Influencing Intentions to Use Apple Pay," *International Journal of Mobile Payment Studies* (2025).

¹⁸ World Bank, *Kazakhstan: Promoting Productivity and Economic Diversification through Institutional Reform and Technology Transfer* (Washington, DC: World Bank, 2022).

also create the vulnerability of debts and decrease fiscal transparency.¹⁹ The debt exposure of Kazakhstan to China is moderate, being estimated as approximately 6 percent of total external debt in 2023, though there are fears that the nature of loan agreements and ownership of projects is obscure.²⁰ According to Transparency International (2023), accountability is complicated by the lack of transparency in large-scale infrastructure projects through disclosure of the partnership between a business and a government.²¹ Meanwhile, the comparatively strong institutional system of Kazakhstan makes it stand out of weaker economies. Kassenova (2019) claims that the program Nurly Zhol by the government has enabled the country to bargain more power over the selection and implementation of the projects. This two-track system, that is implementing the domestic policy of modernization along with BRI investing, is the practical mitigation of the external financing of the national priorities.²² The question has been to make sure that infrastructure projects do not become instruments of exclusive and localized growth and development, but become the instruments of inclusive growth and development.

2.4 Theoretical Perspectives: Modernization vs. Dependency

The literature demonstrates that there are two prevailing theoretical prismatic perspectives of understanding the experience of BRI in Kazakhstan.²³ The modernization approach considers the BRI to have a structural change by investment, industrialization and transfer of technology. It hypothesizes that the exposure to foreign capital and the foreign markets hastens the process of modernization and institutional reform.²⁴ In this perspective, the entry of Kazakhstan into trans-Eurasian supply chains is a good step towards the middle-income industrialization.

Dependency theorists, in contrast, put an emphasis on asymmetrical relationships between capital-exporting and capital-importing states.²⁵ Using

¹⁹ Nathaniel Tkacz, "Money's New Abstractions: Apple Pay and the Economy of Design," *Digital Culture & Society* 5, no. 2 (2019): 165–184, <https://doi.org/10.1080/1600910X.2019.1653348>.

²⁰ World Bank, *International Debt Statistics 2024* (Washington, DC: World Bank, 2024)

²¹ S. Q. Liu, "Apple Pay: Coolness and Embarrassment in the Service Encounter," *Journal of Retailing and Consumer Services* (2019).

²² J. H. Huh et al., "Perception of Security and Usability in Mobile Tap-and-Pay," *NDSS Symposium* (2017).

²³ F. Arkadan, "Transforming the Customer Experience of Using a Credit Card: The Apple Card Case," *Business Case Journal* (2023), <https://doi.org/10.1177/20438869221127321>

²⁴ W. W. Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto* (Cambridge: Cambridge University Press, 1960).

²⁵ Mark de Reuver, Carsten Sørensen, and Rahul C. Basole, "The Digital Platform: A

the works of Frank (1967) and Prebisch (1950), the authors state that infrastructure-based integration could recreate the hierarchical relationships in which the peripheral economies continue to be reliant on outside funding, markets, and technologies. With the example of Kazakhstan, it comes in the form of dependence on Chinese investments and lack of diversification in value-added industries. Other analysts opine that in case Kazakhstan fails to rise up to its own technological level, it may end up being a transit organ of the greater Chinese economy.

2.5 Research Gaps

Although there has been much commentary, much of the literature has not been integrated to estimate the effect of BRI projects on the combination of logistics, trade and industrial diversification of Kazakhstan (Gießmann, 2018).²⁶ Most of the current studies are sectoral, i.e., on transport or energy, without relating such transformations to the larger-scale effects of modernization. Furthermore, comparative studies of the experience of Kazakhstan with other Central Asian countries, including Uzbekistan or Kyrgyzstan, that may place the regional trends in dependency and cooperation into perspective are absent. The given work addresses these gaps by evaluating the changing role of Kazakhstan within the BRI through the synthesis of the secondary data and theoretical understanding whether this process is sustainable modernization or a new identity of dependency.

Table 1: Major BRI Projects in Kazakhstan (as of 2024)

Project Name	Sector	Estimated Investment (USD billion)	Primary Partners	Current Status (2024)	Key Benefits / Impact
Khorgos Gateway Dry Port	Logistics / Trade	1.9	Kazakhstan Temir Zholy, COSCO Shipping Lines	Operational since 2017	Reduces China–EU freight time by ~50%; facilitates multimodal transport; creates ~4,000 jobs locally.
Western Europe–Western China Railway	Transport Infrastructure	6.5	Kazakh Govt., China Exim Bank, ADB	Completed 2022 (phase I); phase II upgrading underway	Shortens freight transit by 10 days; boosts intra-regional trade flows and connectivity.

Research Agenda,” *Journal of Information Technology* 33, no. 2 (2018): 124–135.

²⁶ Sebastian Gießmann, “Money, Credit, and Digital Payment: Historical Perspectives,” *Journal of Historical Economics & Finance* (2018).

Aktau Port Modernization	Maritime Transport / Logistics	0.7	Kazakhstan Temir Zholy, China Communications Construction Co.	Completed 2021	Expands Caspian Sea export capacity by 40%; links BRI to Trans-Caspian Corridor.
Zhezkazgan–Beineu Railway Link	Rail Connectivity	1.5	Kazakh Govt., China Development Bank	Operational since 2016	Cuts east-west rail distance by 1,000 km; supports mineral exports and passenger mobility.
Khorgos–Eastern Gate SEZ	Industrial & Manufacturing Zone	0.6	Kazakhstan Invest Fund, Chinese Private Consortiums	Operational since 2019 (expanding)	Attracts light manufacturing and warehousing; promotes industrial diversification.
Almaty Ring Road (BAKAD)	Urban Transport / PPP Project	1.1	Kazakh PPP Center, China Civil Engineering Construction Corp.	Operational 2023	Reduces urban congestion by 40%; enhances logistics efficiency around Almaty hub.
Energy Pipeline Upgrades	Oil & Gas Transport	1.2	CNPC, KazMunayGas	Ongoing (2020–2025)	Improves pipeline capacity and safety; supports regional energy exports to China.

Source: Compiled from Asian Development Bank (2023), World Bank (2022), Eurasian Development Bank (2024), and Kazakh Ministry of Industry and Infrastructure Development (2024).

Note: Investment values represent publicly reported estimates of major BRI-related infrastructure projects in Kazakhstan.

3. Theoretical Framework

This research study is analytically based on two theoretical perspectives known to be complementary and opposing to each other²⁷ modernization

²⁷ A. A. Al-Qudah et al., “Mobile Payment Adoption in the Time of the COVID-19

theory and dependency theory. These frameworks offer a multidimensional view through which one can analyze the role of Kazakhstan in the Belt and Road Initiative (BRI) the balance between hope in modernization and the potential issue of structural dependency.

3.1 Modernization Theory

The modernization theory holds that economic and social development occurs in a linear path of the traditional to industrial to post-industrial.²⁸ The model, akin to the one pioneered by Rostow (1960) proposes that national development can be fast-tracked by infrastructure investment, technological transfer, and integration into the global markets. In this paradigm, BRI is a revolutionary process that provides developing nations with material and institutional preconditions of modernization.²⁹

In the case of Kazakhstan, the modernization theory explains the BRI engagement as a strategic chance to break its out of the resource trap situation through diversifying its economy and intensifying connectivity. Better logistics, industrial capacities, and foreign investment, especially via projects, including the Western Europe-Western China Corridor and Khorgos Gateway are regarded as stimulus growth, innovation, and urbanization.³⁰ The theory therefore helps in the concept that the involvement of the BRI helps to make Kazakhstan more diversified and globally connected economy.³¹

3.2 Dependency Theory

On the other hand, dependency theory developed by Frank (1967) and Prebisch (1950) perceives development as being limited by structural imbalances between the core (the industrialized countries) and the periphery (the developing countries). In that regard, foreign investment and trade may permanently enshrine economic subordination as opposed to independence.³²

Pandemic,” *Technological Forecasting & Social Change* (2022b).

²⁸ Youngjin Yoo, Ola Henfridsson, and Kalle Lyytinen, “The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research,” *Information Systems Research* 21, no. 4 (2010): 724–735.

²⁹ Amrit Tiwana, Benn Konsynski, and Ashley A. Bush, “Research Commentary—Platform Evolution: Coevolution of Platform and Complements,” *Information Systems Research* 21, no. 4 (2010): 675–687.

³⁰ Richard Pomfret, The Central Asian economies in the twenty-first century: Paving a new silk road. *SLOVO*, 33(2), (2020): 2-4.

³¹ Michael A. Cusumano, Annabelle Gawer, and David B. Yoffie, *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power* (Boston: Harvard Business Review Press, 2019).

³² Nadine Staub, Karim Haki, Stefan Aier, and Robert Winter, “Governance Mechanisms in Digital Platform Ecosystems: Addressing the Generativity–Control Tension,” *Communications of the Association for Information Systems* 51 (2022), <https://doi.org/10.17705/1CAIS.05137>.

As utilized to the BRI, dependency theory has raised issues that Kazakhstan will end up being dependent on Chinese financing, technology, and markets leading to low local empowerment.

A number of articles (e.g., Hurley et al., 2019; Kassenova, 2020) warn that asymmetrical relationships may be strengthened by unequal bargaining power and obscure debt arrangements.³³ The transit position of Kazakhstan can bring about the short run benefits to the economy but restrain the formation of internal values, exposing the country to the external shocks and impact of a strategy.

3.3 Integrative Perspective

The research is integrative in nature whereby modernization theory would be used to evaluate the developmental potential of Kazakhstan and dependency theory to underscore structural risks. Such directions, combined, enable a subtle judgment:³⁴ does an infrastructure led by BRI serve as a contribution to sustainable modernization or replicate dependencies patterns? The integrated framework therefore becomes the balance of analysis between optimism and criticism--recognizing both the agency of Kazakhstan in determining its modernization path but also the systemic forces of asymmetry in the region.

Table: Operationalization of Theoretical Concepts

Theoretical Concept	Analytical Indicator	Measurement
Modernization	Infrastructure capacity	Growth in logistics infrastructure, transport corridors
Modernization	Economic diversification	Share of non-oil sectors in GDP
Modernization	Industrial development	Growth in manufacturing and logistics sectors
Dependency	External financial reliance	Share of Chinese loans in external debt
Dependency	Trade concentration	Share of China in total imports and exports
Dependency	Technological reliance	Presence of foreign firms in strategic sectors

³³ J. H. Huh et al., “Perception of Security and Usability in Mobile Tap-and-Pay,” *NDSS Symposium* (2017b).

³⁴ E. Demir, “The Technological Shift towards Embedded Payments,” *Future Business Journal* 10(1), (2024), <https://doi.org/10.1186/s43093-024-00409-2>.

The theoretical framework is brought into practical use in the form of quantifiable economic indicators that enable to assess the modernization and dependency processes. Modernization can be measured by infrastructure capacity, sectoral diversification, and industrial growth and structural dependency by the measurement of trade concentration, financial dependence, and technological reliance. These signs enable the paper to shift the debate on theories and give a structured analysis of the economic trend of Kazakhstan under the BRI.

4. Methodology

This paper will utilize the qualitative secondary research approach in an attempt to assess how the Belt and Road Initiative (BRI) impacted economic modernization in Kazakhstan.³⁵ The international development issues are especially suitable to the secondary research because there is no feasibility of a large-scale fieldwork over transnational settings due to the constraints imposed by logistical, financial, and access challenges. It enables the researcher to integrate and decode the available knowledge to come up with novel analytical perspectives in a theoretical context.

4.1 Research Design and Rationale

The study is an exploratory-descriptive study that incorporates both content analysis and thematic synthesis. The research is not based on primary data collection but incorporates data of various reliable secondary sources such as:

- Peer-reviewed academic articles from journals such as *Eurasian Geography and Economics* and *Central Asian Survey*
- Institutional and policy reports from the **Asian Development Bank (ADB)**, **World Bank**, and **Eurasian Development Bank**
- Government publications from Kazakhstan's **Ministry of Industry and Infrastructure Development**
- Statistical datasets from the **World Trade Organization (WTO)** and the **National Statistics Committee of Kazakhstan**

The design will provide an overall view of the impact of the BRI on trade, logistics, and economic diversification. It is an interpretive approach; it does not attempt to make causal measurements but seeks to appreciate the patterns, relationships, and implications.³⁶

³⁵ Geoffrey G. Parker, Marshall W. Van Alstyne, and Xiaoyue Jiang, "Platform Ecosystems: How Developers Invert the Firm" (2016), <https://doi.org/10.2139/ssrn.2861574>.

³⁶ A. Hein et al., "Digital Platforms and Ecosystems: Mechanisms of Value Creation," *Electronic Markets* (2019), <https://doi.org/10.1016/B978-0-12-408066-9.00001-1>

4.2 Data Collection and Analysis

The data collection process involved three systematic steps.

1. **Identification:** The references were located using academic databases (Scopus, JSTOR, Google Scholar) published in 2013 (launch of BRI) to 2024.
2. **Categorization:** Sources were grouped under thematic-based categories- (a) infrastructure and logistics, (b) economic diversification, (c) governance and policy and (d) regional trade.
3. **Interpretation:** The thematic content analysis was used to determine convergent and divergent results among studies. Such a qualitative synthesis made cross-validation of trends possible as well as policy implications to modernize Kazakhstan.

The theoretical framework that was used in the analysis would be as discussed above.³⁷ The modernization theory was used to know the progress in diversification and infrastructure-based growth and the dependency theory to determine the debt, governance and external influence. This two-lens deepened analytical intensity and provided rigor of concept.

4.3 Limitations

Though institutional datasets are the most informative type of data on BRI related investments and economic indicators at hand, the use of official reporting can create bias in reporting. In order to overcome this weakness, the research triangulates data on several sources such as educational documents, autonomous research on the policy, and international financial bodies. In the instances where feasible, the data points were cross-verified using at least two sources in order to increase the level of reliability and limit the level of institutional bias.³⁸

In the end, this methodological construction provides a good basis of evaluation of the changing economic transformation in Kazakhstan in the framework of the BRI, and at the same time gives a balance between the depth of analysis and the credibility of the findings.

³⁷ J. Hurley, S. Morris, and G. Portelance, "Examining the Debt Implications of the Belt and Road Initiative," *China Economic Review* (2019).

³⁸ C. Leong, K. Andrews, and S. K. Sia, "Fintech and the Transformation of Financial Services," *Journal of Management Information Systems* (2020).

5. Findings and Analysis

5.1 Overview of Kazakhstan's BRI Engagement

Kazakhstan has become one of the most strategic participants in the Belt and Road Initiative (BRI) since it became part of the Initiative in 2013. Geographically situated at the center of the Eurasia, the country is the border of China and Russia,³⁹ which is why it is the center of the overland corridors of the BRI. The main overland routes that connect Western China to Europe are approximately 3,000 km and pass over Kazakhstan.⁴⁰ According to the government, transport, logistics, and industrial cooperation projects implemented within the framework of the BRI have reported an investment of more than USD 24 billion between 2015 and 2023.⁴¹

The BRI projects in which Kazakhstan is involved can be related to its national development strategy called Nurly Zhol (Bright Path), focusing on modernization of the infrastructure, diversification of the economy, and more advanced connectivity. The strategic combination of these initiatives indicates the effort of Kazakhstan to become a transformed country, which is no longer reliant on resources but a regional logistics and industrial center.⁴²

5.2 Infrastructure and Connectivity

The main pillar of the BRI engagement of Kazakhstan is infrastructure. The significant projects like the Khorgos Gateway and the Aktau Port expansion and Western Europe-Western China (WE-WC) highway corridor have significantly minimized freight time and costs.⁴³ As it is stated by the World Bank (2023) data, the time taken by freight transport traveling through Kazakhstan between Lianyungang (China) and Duisburg (Germany) through the sea route made 45 days and carried out using the land path made 15 days. This has made Kazakhstan one of the crucial transit points between the Asian and European market.

³⁹ Christoph Zott, Raphael Amit, and Lorenzo Massa, "The Business Model: Recent Developments and Future Research," *Journal of Management* 37, no. 4 (2011): 1019–1042.

⁴⁰ Richard Pomfret, "The Central Asian economies in the twenty-first century: Paving a new silk road," *SLOVO*, 33(2), (2020): 2-4.

⁴¹ Government of Kazakhstan, "Kazakhstan and China Signed 58 Commercial Documents Worth over USD 24 Billion," press release, June 16, 2025.

⁴² Annabelle Gawer, "Digital Platforms and Ecosystems: Remarks on the Dominant Design," *Industry & Innovation* (2022), <https://doi.org/10.1080/14479338.2021.1965888>.

⁴³ T. A. Sanner, "Governing Digital Platform Ecosystems for Social Options," *Information Systems Journal* (2025).

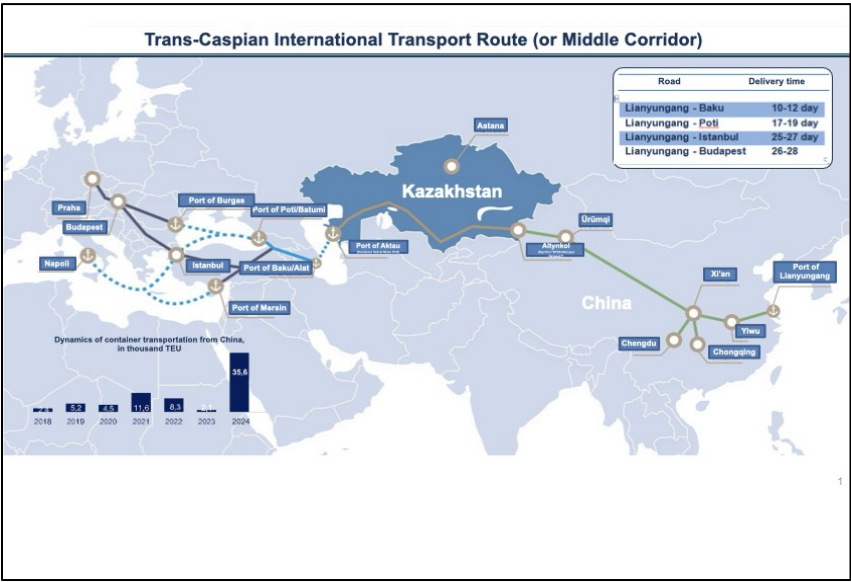


Figure 2 “Map of BRI Corridors Across Kazakhstan”

Transport efficiency benefits are not the only infrastructural advantages.⁴⁴ The development of industrial regions like Pavlodar, Karaganda and Almaty by BRI projects has promoted the setting up of industries in and around the logistics corridors by both domestic and foreign companies. These changes have been in tandem with the premise of modernization theory that infrastructural growth causes industrial spillovers and city expansion.

In comparison with other BRI participants, Chinese financial exposure in Kazakhstan is still moderate. Eurasian Development Bank (2024) claims that loans issued by circumstances of China constitute about 6-7 percent of the total amount of the external debts of Kazakhstan, however, Chinese corporations are linked with a bigger portion of the contracts of financing and building of infrastructure projects. This difference between financial and project exposure matters as infrastructural projects, it is common to find mixed financing arrangements such as multilateral development banks, sovereign funds, and also government-business partnerships.⁴⁵

⁴⁴ J. H. Huh et al. Why people adopt Apple Pay: perceived security & usability. *NDSS Symposium*, (2017c).
⁴⁵ Eurasian Development Bank, *Cooperation of Multilateral Development Banks in Emerging Markets and Developing Countries: New Opportunities* (2026).

5.3 Economic Diversification and Industrial Modernization

One of the objectives of BRI participation in Kazakhstan has been to diversify the economy, that is, to stop relying on hydrocarbons and to diversify into manufacturing,⁴⁶ logistics and services. The proportion of non-oil in the GDP of the Kazakhstan grew by 41 percent compared to 32 percent between 2014 and 2023, partly owing to the infrastructure-led industrialization and integration of logistics.⁴⁷

Table 2: Sectoral Contribution to Kazakhstan’s GDP, 2014–2023

Sector	2014	2018	2023	% Change
Oil & Gas	45%	41%	37%	-8%
Manufacturing	10%	13%	15%	+5%
Transport & Logistics	6%	9%	11%	+5%
Agriculture	5%	6%	7%	+2%
Services	34%	36%	39%	+5%

Source: Compiled from World Bank, ADB, and Kazakhstan National Statistics (2023).

Note: Sectoral shares are reported as percentage contributions to GDP.

This diversification helps the modernization theory on the assumption that infrastructural investment increases industrial transformation. Multinational corporations in warehousing, e-commerce, and distribution have also been attracted to the logistics hubs like Khorgos - Eastern Gate. The free economic zones have seen the co-investment of Chinese and European companies that have boosted the supply chain integration and export capabilities.⁴⁸

However, dependency theory has a retort: a good part of the manufacturing growth is assembly-oriented, and it utilizes imported technology and components. The local innovation and the ability to conduct research and development are also low and that presents a challenge to sustainable modernization. In addition, a high concentration of Chinese state-owned

⁴⁶ S. U. Lee, L. Zhu, and R. Jeffery, “Data Governance for Platform Ecosystems,” *Technological Forecasting & Social Change* (2017), <https://doi.org/10.48550/arXiv.1705.03509>.

⁴⁷ International Monetary Fund, “Executive Board Concludes the 2023 Article IV Consultation with the Republic of Kazakhstan” (2024).

⁴⁸ A. A. Al-Qudah et al., “Apple Wallet Mobile Payment System Adoption: Empirical Evidence,” *International Journal of Electronic Commerce Studies* (2022a).

enterprises in the ownership of projects decreases the control of Kazakhstan on revenues and technological transfer.

5.4 Trade Dynamics and Regional Integration

The trade system of Kazakhstan has been greatly transformed in the BRI system. The amount of transport through Kazakhstan to Europe via rail expanded by a sixfold between 2013 and 2023.⁴⁹ The export to China became diversified (metals, chemicals, agricultural products) which is the sign of the gradual transition to non-energy exports.

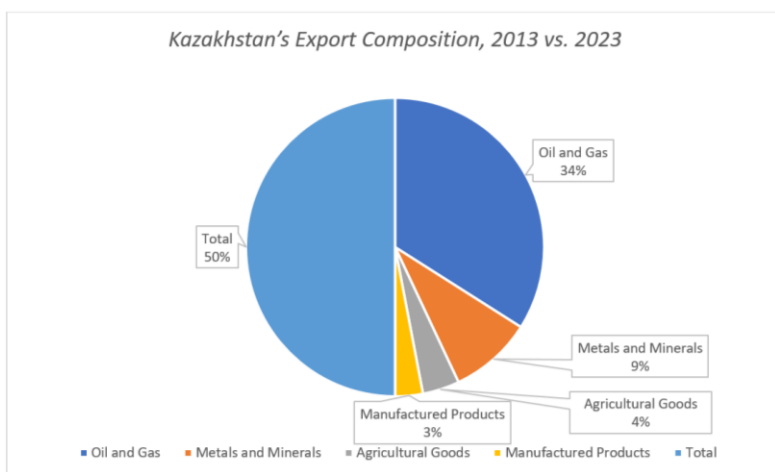


Figure 3 Kazakhstan's Export Composition, 2013 vs. 2023

BRI has also boosted the inclusion of Kazakhstan to the Eurasian Economic Union (EAEU) and Shanghai Cooperation Organization (SCO). Since the BRI corridors coincide with EAEU infrastructure agendas, Kazakhstan enjoys the harmonies of customs processes, and extended transit treaties. The connectivity of the region strengthens its future identity as the logistics gateway of Eurasia.⁵⁰

Nevertheless, there are still high risks of trade dependency. China supplies more than 30 percent of imports into Kazakhstan, and very little of the exports are of high value. This disparity might be the weakness to market shifts and

⁴⁹ Trans-Caspian International Transport Route, "Wikipedia," 2026.

⁵⁰ Youngjin Yoo, Ola Henfridsson, and Kalle Lyytinen, "The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research," *Information Systems Research* 21, no. 4 (2010): 724–735.

changes in Beijing policies. Dependency theorists believe that this imbalance is a manifestation of a neo-mercantilist form, according to which China obtains more value than the infrastructure and resources of Kazakhstan.

5.5 Socioeconomic and Governance Implications

To the extent beyond economics, BRI projects have impacted the urban development, employment, and governance in Kazakhstan.⁵¹ According to the calculations made by the government, infrastructure related to BRI created more than 100,000 employment opportunities in the period between 2015 and 2023, primarily in the construction and logistics sectors.⁵² Almaty, Aktobe, and Shymkent are urban centers which are fully modernizing, and new transport terminals, industrial groups, and service networks are appearing.

Still, there are opinions regarding transparency and governance. According to reports published by the Transparency International (2022), there is a lack of public control over BRI contracts, which may cause certain inefficiency and rent-seeking activities. Also, sustainability issues have been called into question due to environmental challenges e.g. land degradation that is caused by highway expansion.

5.6 Analytical Synthesis

The results indicate a two-way dynamic as per the theoretical framework of the study. In terms of modernization, it is evident that BRI has initiated faster modernization of Kazakhstan to a logistic-based-economy, as opposed to the resource-based-economy. Trade, industrial diversification, and infrastructure can be taken to be indicators of quantifiable advancement to the leadership of regional growth.⁵³

Nonetheless, in dependency perspective, structural imbalances, i.e., financial, technological and trade-based are threats of economic subordination and low local empowerment. The long-term success of the modernization of Kazakhstan, therefore, depends on the strategic reforms of the governance, modernization of technologies and the multilateral relationship outside of China-focused expanse.

6. Discussion

The results show that the process of Kazakhstan entering the Belt and Road Initiative (BRI) has changed the developmental path of the state

⁵¹ Sebastian Gießmann, "Money, Credit, and Digital Payment: Historical Perspectives," *Journal of Historical Economics & Finance* (2018).

⁵² Feng, J., "The Belt and Road Initiative: Assessing Employment, Social Dynamics, and Environmental Impacts," *Eurasian Science Review* 2, no. 8 (2025): 32–40.

⁵³ Nadine Staub, Karim Haki, Stefan Aier, and Robert Winter, "Governance Mechanisms in Digital Platform Ecosystems: Addressing the Generativity–Control Tension," *Communications of the Association for Information Systems* 51, (2022), <https://doi.org/10.17705/ICAIS.05137>.

fundamentally.⁵⁴ The way the nation is evolving into a transit state and an area of emerging regional development is a case in point as to the potential opportunities and dangers of transnational infrastructure-based modernization. Based on the modernization and dependency theories, this section explains these patterns within the framework of structural, political, and economic dynamics.

6.1 Infrastructure as a Catalyst for Modernization

The infrastructural transformation of Kazakhstan under the BRI is a manifestation of a modernization trajectory which is instigated by connectivity and inflows.⁵⁵ Better transport corridors, industrial belts and logistic centers have reduced the cost of transactions as well as increasing regional integration. The Khorgos Gateway and the Western Europe Western China (WE-WC) highway, is one of the brightest illustrations of the power of infrastructure to encourage the trade, create the employment and promote investment.⁵⁶

The developments described in terms of modernization theory, bring Kazakhstan nearer to the take-off phase⁵⁷ when physical and institutional modernization in the country preconditions the process of self-sustained growth.

The combination of BRI and domestic Nurly Zhol program in Kazakhstan is a good example of successful policy convergence. The focus on infrastructure first by the government has paid off with the visible dividends such as diversification of the export pathways and the growth of the logistic services.⁵⁸ Another way that has facilitated urbanization is through the connection of big cities and industrial areas that BRI has made, and this has led to labor mobility and to the growth of the service sector. These results confirm the modernization story that the investment in infrastructure leads to economic and social changes.

⁵⁴ J. H. Huh et al., "Perception of Security and Usability in Mobile Tap-and-Pay," *NDSS Symposium* (2017b).

⁵⁵ F. Arkadan, "Transforming the Customer Experience of Using a Credit Card: The Apple Card Case," *Business Case Journal* (2023), <https://doi.org/10.1177/20438869221127321>.

⁵⁶ Michael A. Cusumano, Annabelle Gawer, and David B. Yoffie, *The Business of Platforms: Strategy in the Age of Digital Competition, Innovation, and Power* (Boston: Harvard Business Review Press, 2019).

⁵⁷ W. W. Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto* (Cambridge: Cambridge University Press, 1960).

⁵⁸ Al- A. A. Al-Qudah et al., "Mobile Payment Adoption in the Time of the COVID-19 Pandemic," *Technological Forecasting & Social Change* (2022b).

6.2 The Persistence of Structural Dependency

This optimism is however curbed by the dependency theory perspective. The dependence of Kazakhstan on Chinese funding, technology and markets puts the issue of asymmetric interdependence into question.⁵⁹ Though infrastructure building has helped the growth, a lot of the value chain is externalized: Chinese companies are dominant in engineering, procurement, and building contracts; local companies are commonly left with the subordinate role.

This trend echoes the thesis by Andre Gunder Frank (1967) that the periphery economies can still modernize structurally but be reliant on external flows of capital and technology.

The dependency mechanisms are also represented in debt exposure and trade concentration. The increased presence of China in the importation basket of Kazakhstan especially machinery, electronics and construction materials restricts the development of local capacity.⁶⁰ Besides, concentration of trade within the Chinese corridors limits the strategic independence of Kazakhstan in Eurasian transport system. These institutional relations pose a threat of establishing an economic geography that is neo-colonial in that the modernization of Kazakhstan is conditional to the interest of the external actors.

6.3 Balancing Agency and External Influence

The leadership of Kazakhstan has tried to hedge these threats using its multi-vector foreign policy, which encourages a balanced relationship with China, Russia, European Union and America. Such diplomatic pragmatism adds strength to the agency of Kazakhstan in the framework of the BRI, as it allows the country to use rivalry among the powerful states to its benefit and secure the best investment terms.⁶¹

This agency highlights the fact that dependency is negotiable and not only fixed, that is, states can renegotiate their positions in world value chains by institutional changes, by adopting technology, and by diversifying.

The attempts of Kazakhstan to enhance regional integration to the Eurasian Economic Union (EAEU) and Trans-Caspian International Transport Route (TITR) reflect the search of independence in the system of interconnection.⁶² These support initiatives dispersion of transport corridors and discourage

⁵⁹ J. Hurley, S. Morris, and G. Portelance, "Examining the Debt Implications of the Belt and Road Initiative," *China Economic Review* (2019).

⁶⁰ E. Demir, "The Technological Shift towards Embedded Payments," *Future Business Journal* 10, no. 1 (2024), <https://doi.org/10.1186/s43093-024-00409-2>.

⁶¹ Mark de Reuver, Carsten Sørensen, and Rahul C. Basole, "The Digital Platform: A Research Agenda," *Journal of Information Technology* 33, no. 2 (2018): 124–135.

⁶² J. Hurley, S. Morris, and G. Portelance, "Examining the Debt Implications of the Belt and Road Initiative," *China Economic Review* (2019).

reliance with any partner. So, although the dependency theory emphasizes structural limitations, the changing strategy of Kazakhstan is characterized by adaptive modernization-accomplishment of making use of external resources and resilience development on domestic level.

6.4 Governance, Sustainability, and Social Dimensions

The quality of governance is the key to the sustainability of BRI-driven modernization. It is essential to promote transparency and public accountability in order to make sure that investment of infrastructure generates long-term national good instead of rent-seeking or elite capture.⁶³

The key to whether BRI investments will contribute to inclusive development or not will be the strengthening of institutional capacity, anti-corruption implementation, and project evaluation mechanisms.

BRI-type projects have also helped in creating employment opportunities, city regeneration, and enhanced mobility, although they have initiated localized processes like environmental degradation and biased regional development, socially.⁶⁴ By including elements of environmental protection and community involvement in the project planning process, it is possible to make the BRI consistent with the sustainable-development priorities of Kazakhstan.

6.5 Synthesis

In general, the discussion has shown that modernization and dependency have a dialectical relationship. The BRI has definitely boosted the infrastructure development and diversification of the Kazakh economies confirming the fundamental assumptions of modernization theory. However, in its inability to match the dominance of foreign capital and lack of domestic technological capability, there are dependency issues.⁶⁵

The effectiveness with which Kazakhstan will be able to institutionalize its reforms, stimulate local innovation, and establish fair partnership relations with the rest of the Eurasian integration process will eventually define its success in the transformation between the transit hub and a regional growth engine.

⁶³ Geoffrey G. Parker, Marshall W. Van Alstyne, and Xiaoyue Jiang, "Platform Ecosystems: How Developers Invert the Firm" (2016), <https://doi.org/10.2139/ssrn.2861574>.

⁶⁴ Annabelle Gawer and Michael A. Cusumano, "Industry Platforms and Ecosystem Innovation," *Journal of Product Innovation Management* 31, no. 3 (2014): 417–433, <https://doi.org/10.1111/jpim.12105>.

⁶⁵ Nadine Staub, Karim Haki, Stefan Aier, and Robert Winter, "Governance Mechanisms in Digital Platform Ecosystems: Addressing the Generativity–Control Tension," *Communications of the Association for Information Systems* 51 (2022), <https://doi.org/10.17705/1CAIS.05137>.

6.6 Structural Implications of Infrastructure-Led Development

Despite the fact that BRI infrastructure has enhanced tremendously the transit capacity of Kazakhstan, infrastructures themselves do not ensure long-term industrial transformation. Development economists tend to highlight that logistics corridors can only produce long-term economic gains when backed by production capacity and technological advancement in the home country and effective institutional regulation. Infrastructure developments have clearly helped in the case of the Republic of Kazakhstan in improving connectivity and transit trade though the domestic manufacturing industry is still relatively low in comparison with the resource industries.

This trend indicates that Kazakhstan is at the middle of the Eurasian supply chains. The nation enjoys logistic and transportation services at a high level but gets little value in a more technological production or research-based companies. Consequently, the BRI is a factor contributing to modernization in the form of better connection, but the more essential transformation of the economic system is not finalized.

As a dependency relationship, this dynamic is a typical situation in the models of infrastructure-led development where the peripheral economies specialize in the transport, extraction or assembly activity at the same time that the technological and financial control is concentrated in more developed economies. The challenge facing policy in Kazakhstan is thus not only to increase infrastructure but also to create industrial ecosystems domestically that will be able to capture more value in global supply chains.

7. Conclusion

The involvement of Kazakhstan in the Belt and road initiative has radically transformed the economic landscape of the country through consolidation of logistics infrastructure and improved its status in the Eurasian trade patterns. Connection has been enhanced by the creation of big transport corridors, dry ports and industrial zones which have enabled moderate advancement in economic diversification.

Nevertheless, the results demonstrate that the increase in infrastructure does not necessarily result in the deep structural modernization. Despite the advantages that have been enjoyed by Kazakhstan in the form of better transit trade and logistics services, there is a relative paucity of higher-value manufacturing and technological capacity. Simultaneously, the process of trade concentration and financial involvement in China has its issues concerning the long-term dependency process.⁶⁶

⁶⁶ Annabelle Gawer and Michael A. Cusumano, "Industry Platforms and Ecosystem Innovation," *Journal of Product Innovation Management* 31, no. 3 (2014): 417–433, <https://doi.org/10.1111/jpim.12105>.

The way forward to the developmental path of Kazakhstan hence lies in its capacity of translating transit benefits to the expansion of industrial and technological potential. Policies that enhance the capacity of domestic production power, increase international relations and enhance the transparency of governance will be vital in ensuring that BRI engagement contributes to sustainable modernization and not to reinstate structural dependency.⁶⁷

8. Policy Recommendations

In order to enhance the BRI results and decrease dependency, Kazakhstan ought to:

8.1 Diversify Partnerships

Diversify the China investment by involving EU, Japan, South Korea and Gulf states. It can be facilitated through joint ventures and public-sponsored relationships to facilitate technology movement and less dependence on financing within a specific country.⁶⁸

8.2 Build Industrial Capacity

Increase investment in value-added sectors, and close to logistic centres, promote innovation, research, and training of skills to advance along the technology ladder.

8.3 Promote Governance and Transparency.

Adopt open bidding, independent audits, and periodic business reviews of costs and benefits to eliminate corruption and accountability.

8.4 Build Strength in Regional Multilateralism.

Take advantage of the Eurasian Economic Union, the SCO, and the Trans-Caspian networks as an instrument to diversify the economic connections and strengthen the role of Kazakhstan as a connective hub (Van Alstyne et al., 2016).

8.5 Embed Sustainability

Incorporate environmental and social impact assessment, advance green technologies, and make projects consistent with the Sustainable Development 2050 strategy.

These actions will help Kazakhstan convert the involvement in BRIs into a channel of sustainable and independent modernization of the entire Eurasia.

⁶⁷ S. Q. Liu, "Apple Pay: Coolness and Embarrassment in the Service Encounter," *Journal of Retailing and Consumer Services* (2019).

⁶⁸ Peterson K. Ozili, "Embedded Finance: Assessing the Benefits, Use-Case and Risks," *Journal of International Development and Emerging Economies* 2, no. 2 (2022): 108.

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