ARTICLE

Feasibility of Regional Connectivity Projects in Energy and Transportation: The Collision of Microfoundations and Geopolitical Considerations

Kenan ASLANLI *

Abstract

The article aims to examine two basic arguments: (a) the feasibility of regional connectivity projects and initiatives in energy and transportation areas depends not only on geopolitical considerations and power competition but also on microfoundational parameters such as technicalities, human behavior, random decisions, networks, and institutional, informational, socioeconomic, and financial dimensions; (b) the microfoundations of the energy and transportation connectivity projects and initiatives enable actual power diffusion from states to non-state actors such as private companies that have accumulated technical capacity and resources. The article investigates the feasibility of tangible connectivity projects in transportation and energy such as the Middle Corridor, the International North-South Transport Corridor, the Zengezur Corridor, the Northern Sea Route, the Nabucco Gas Pipeline, and the Trans-Caspian Gas Pipeline from the perspective of the collision between microfoundations and geopolitical considerations. Even though connectivity projects and initiatives in energy and transportation have different prerequisites and components for feasibility, both incorporate exogenous geopolitical and endogenous microfoundational parameters. The article argues that social scientists researching connectivity in energy and transportation sectors as an epistemic community commonly concentrate on the geopolitical perspective, frequently overlooking the microfoundations of regional projects and initiatives.

Keywords

Connectivity, microfoundations, energy, oil-gas, transportation, geopolitics

* Assistant Professor, Ankara Yıldırım Beyazıt University, Department of International Relations, Ankara, Türkiye. E-mail: kaslanli@aybu.edu.tr. ORCID: 0000-0003-2270-0852.

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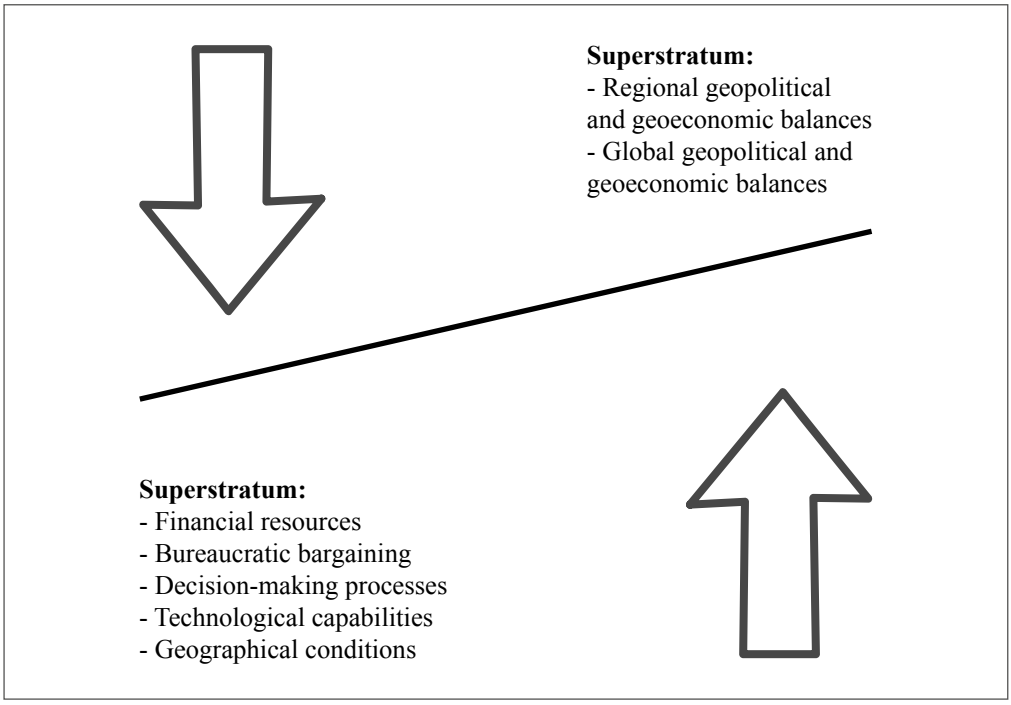
Introduction

Nowadays, the global political and economic power shift "from the West to the rest," the strategic competition between the U.S., China, Russia, and the EU, and the geopolitical and geoeconomic moves of regional middle powers are becoming more prominent approaches in the analysis and study of the large energy and transportation projects and initiatives in the world, especially in the Eurasian geography. This approach involves looking at connectivity projects in energy and transportation from the top, meaning from the layer of global and regional power balances and power dynamics (top-down approach). However, there is another sublayer beneath the regional and global layer that directly affects the feasibility of connectivity projects in energy and transportation. The current article will reveal the importance of approaching the issue from this sublayer defined as the "microfoundations" based on a bottom-up approach applying the case study analysis method based on qualitative and quantitative data from secondary sources.

The criteria that formed the basis in the selection of cases are as follows: (a) the case must be among the energy and transportation connectivity projects of the Eurasian geography where the bipartite concept of connectivity has emerged; (b) equal distribution of feasible and non-feasible cases with the discernible interaction of geopolitical and microfoundational factors; (c) evident reflection of one-sided and geopolitics-oriented narrative in the case's history with a neglect and overlooking of microfoundations; (d) the case should occupy a certain place in the relevant literature and media as a connectivity initiative/project that goes beyond the mere official declaration and serious efforts should have been made for its realization.

A macro perspective with the geopolitical overemphasis on regional energy and transportation connectivity can potentially lead us to overlook the specific microfoundational factors and components that determine, condition, and shape the feasibility and viability of connectivity initiatives. The emphasis on the lower layer or microfoundations does not mean denying the importance of the upper layer or regional and global geopolitical and geoeconomic concerns. What is intended to be accented here is that in order for connectivity projects in energy and transportation to move beyond being propaganda elements in official rhetoric and evolve into a realizable and applicable process, the parameters of both the lower and upper layers must be in balance and meet the appropriate conditions. Therefore, the implementation of energy and transportation connectivity projects and initiatives follows a system of parameters and prerequisites within a multilayered reality. (Fig. 1)

Figure 1. The Multilayered Structure of Connectivity Projects (proposed by author)



Theoretical Framework of the Microfoundations Approach to Connectivity Projects in Energy and Transportation

The concept of microfoundations used and defined in this article is not entirely identical to the concept of microfoundation used in microeconomics and management science. The concept of microfoundations used in the article entails the factors, parameters, conditions, and influences that are (1) smaller in scope and scale than regional and global processes; (2) directly related to the content and implementation of the connectivity project; (3) not directly political and more technical in nature; and (4) can sometimes establish organic interconnections with the upper layer or macrofoundations, and sometimes exist autonomously from the upper layer. This definition has been specifically developed and conceptualized for this article.

If we review the existing literature, according to Foss, "microfoundations refer to the search for a reductionist approach in social science and management theory that will enable what is happening at a certain aggregate, macro or collective level to be understood in terms of what is happening at lower levels."[1] In this

reductionist approach, lower-level entities, components, elements, and their relevant behaviors are taken as inputs and the mechanisms that transform these inputs into what is being explained at a higher level are emphasized. There is clearly a methodological individualism in this approach and the concept of microfoundations can be considered as a level dominated by individuals. The conceptual framework used in this article only partially accepts the conceptualization used in management science and microeconomics with the dimension of "explaining the macro with the micro." The article also adopts the concept of microfoundations as processes and parameters that emerge both at the individual level and at the level of companies and even states.

Felin, Foss, and Ployhart argue that microfoundations can be considered as a level of analysis where lower units or components explain the content and change of large phenomena.[2] For example, the decision on a syndicated loan to any connectivity project in energy and transportation can be elucidated by the behavior or decisions of each participating lender. Felin, Foss, Heimeriks, and Madsen propose the following definition for the concept of microfoundations:

> …theoretical explanation, supported by empirical examination, of a phenomenon located at analytical level N at time t (N_t)…A baseline microfoundation for level N_t lies at level N-1 at time t-1, where the time dimension reflects a temporal ordering of relationships with phenomena at level N-1 predating phenomena at level N. Constituent actors, processes, and structures, at level $N\text{-}1_{t\text{-}1}$ may interact, or operate alone, to influence phenomena at level N_t…Actors, processes, and structures at level $N\text{-}1_{t\text{-}1}$ also may moderate or mediate influences of phenomena located at level N_t or at higher levels (e.g., $N+1_{t+1}$ to $N+n_{t+n}$).[3]

This means that the upper and lower layers of the phenomenon interact with each other equally, without one having superiority over the other; however, the elucidation of the changes and contents of the upper layers should engage lower layers of the phenomenon.

As an application of the microfoundations approach to the connectivity realm, the current article proposes a trial of a new analytical framework or perspective. The content, form, mode, and sustainable implementation of the connecting lines established between nodes "A" and "B" can be partly considered the output of the geopolitical processes and great power struggle over the connection lines or connectivity initiatives in transportation and energy (we have only two nodes in this simplified model). However, it also directly depends on the technological, economic, environmental, social, and political events and developments experienced at points "A" and "B":

$C = f(N)$

(where "C" is a connectivity and "N" is a node that can be more than two)

Connectivity in the field of energy and transportation are processes that occur between supply and demand points (nodes). Therefore, not only the geopolitical processes and emerging risks experienced in the connectivity lines and routes, but also the changes and transformations in the microfoundations at these supply and demand points significantly determine the fate of connectivity projects in the field of energy and transportation. The multilayer structure of energy and transportation connectivity incorporates multi-actor and multifactor reality and interaction between macro- and microelements.

The microfoundations approach anticipates the empowerment of companies, households, and individuals in addition to nation-states in the decision-making and fulfillment phases of the connectivity initiatives and projects. It partly overlaps with Nye's concept of "the diffusion of power from states to non-state actors."[4] Nye argues that states can't completely command "the structural power of market forces of supply and demand" under the framework of sensitivity and vulnerability interdependence.[5] As power diffuses alongside power transition "from the West to the rest," decision-making processes become more complex, actors' behavior becomes more chaotic, and the nature of power becomes more contextual. For example, we observe a strong presence not only of Western but also of Chinese construction companies and financial institutions involved in the implementation of connectivity projects in Eurasia. Another concrete example is the Channel Tunnel as a connectivity project between the UK and France that had a complex and multi-actor construction phase and project management system comprising ten private design and construction firms, five private banks, Deutsche Bahn, Eurostar, DB Schenker, Europorte, and railway undertakings.[6] This reality increases the number of actors with diverged interests and networking combinations in the various phases of connectivity projects such as the construction, project financing, and bureaucratic bargaining phases.

The growing role of social networks, propagation of capabilities in the age of globalization, and wider participation opportunities via information technologies diffuse the power from the realms of geopolitics and geo-economics to micro and less hierarchical layers of decision-making dominated by non-state actors. Also, people and their organized social systems often exhibit elements of randomness in their decisions and judgments rather than systematic patterns. The lack of power concentration, the existence of power diffusion, and the randomness in human decisions and judgments are crucial factors in microfoundations of connectivity that slowly crowd out and supersede geopolitical overemphasis.

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We can conclude from Nye's contributions that not only nation-states, but also non-state actors reproduce power from the function of the hub in connectivity and communication. This approach doesn't overlook the role of nation-states in connectivity initiatives even in the age of information technology and globalization. In fact, as a result of the "economies of scale" effect and the accumulated material resources, states have the whip hand over non-state actors. However, the microfoundations approach and the power diffusion environment envisage a gradual adjustment of power asymmetries between states and non-state actors in the connectivity realm.

In the International Relations (IR) discipline, foreign policy analysis (FPA) literature introduces the concept of microfoundations from the individualist or actor-specific perspective in the decision-making process. Hudson and Day argue that the deficient concentration on microfoundations through agent-based patterns in the agent-structure dichotomy will cause a theoretical vacuum and setback in the comprehension and elucidation of interruptions in phenomena from IR, foreign policy analysis, and the broader social science perspective.[7] Walker, Malici, and Schafer emphasize microfoundations as the "beliefs of individuals-as-actors," including the "belief systems and risk orientations" of leaders and small groups.[8] These definitions and explanations in the existing FPA literature are not sufficient and comprehensive for appropriately

operationalizing the concept of microfoundations in the connectivity realm. One of the techniques for the operationalization of the microfoundations concept in energy and transportation connectivity could be the decomposition of the phenomena into components and actor-specific sub-elements revealing particular variables.

The Components and Actors of Microfoundations in Connectivity

Microfoundations as micro-level factors could interrelate with macro factors (such as geopolitical, political, security, and strategic factors) and sometimes emerge autonomously in the realization of connectivity projects and initiatives such as transportation corridors, transportation networks, energy transmission lines, energy export infrastructure, and so-called energy hubs. The microfoundations of regional connectivity projects and initiatives in transportation and energy could potentially be as follows:

a) Supply and demand dynamics, the emergence of new supply and demand points in various economies, and expected business cycle-related crises in the supply and demand points (e.g., pitfalls of EU-China and EU-India trade and investment relations that can determine new energy and transportation corridors in Eurasia).

b) Behavioral patterns, the level of compliance, interactions, and bargaining processes between relevant bureaucratic structures and multifarious representatives of formal and informal networks, and interest groups overlapping with the "bureaucratic politics model" theory.[9] Also, we could take into account the role of transformations and changes in human and institutional behavior in connectivity projects and initiatives.

c) The realization of connectivity projects could be influenced by the socio-economic, technical, and financial feasibility of regional connectivity projects; financing mechanisms and the projects' timing; the condition of the central budgets (budget constraints), the government's procyclical or countercyclical fiscal policies, and the phases of the budget cycle.

d) The preferences, interactions, behavioral attitudes, key decisions, perceptions, and capacities of the private sector firms and other non-state actors regarding foreign trade and external financing, sensitivities towards risk-taking and cost-benefit balance, and technological changes and innovations.

e) Volatility in energy prices (e.g., oil prices); strategic transformations related to green energy and energy transition; and the impact of the hydrogen energy and the shale oil and shale gas revolution on connectivity projects such as dual-use oil-gas pipelines.

f) The increasingly complex structure of transportation networks in terms of modes (multimodal/unimodal/intermodal systems in sea, land, and air transportation) and the multi-stakeholder structure of the mega connectivity projects.

Actors in the microfoundational approach towards connectivity can include individuals and various levels of organized entities such as bureaucratic organizations and companies.

Actors in the microfoundational approach towards connectivity can include individuals and various levels of organized entities such as bureaucratic organizations and companies. The preferences of the companies participating in the import and export processes is one of the most important factors in the connectivity projects and initiatives from the demand perspective. At the same time, projects' cost, the stages of business cycles, the quality of energy carriers, changes in supply-demand balance, energy transition, and technological transformation are important processes in the connectivity from the supply perspective. The behavior and preferences of companies and individuals can determine the demand for further connectivity and related infrastructure needs. For example, energy efficiency, which relates to the consumption behavior of individuals and companies, can influence or determine energy import volumes and pipeline policies in the EU countries ("More demand, More infrastructure, More connectivity" principle).

Another issue we can underline in the context of microfoundations is the capabilities of private companies and non-state actors. Significant capabilities and capacities in energy and transportation connectivity projects have been accumulated within private sector companies including consulting groups, R&D, and technological innovation centers. For example, it is the capabilities of this country's shale gas and oil companies, such as hydraulic fracturing and horizontal drilling, that elevated the U.S. to a leading position in oil and gas production and exports, in addition to investments and incentives. The increasing importance of the U.S. as an oil-gas exporter in transatlantic energy geopolitics is a consequence of the shale gas and shale oil revolution led by U.S. companies.[10]

The future of connectivity in energy and transport will depend on geopolitical processes as well as the capacity of companies to adopt technological innovations and solutions. Therefore, the analysis of the technological power and capacity of companies such as Allseas (Switzerland), a contractor in the offshore energy sector's connectivity projects (subsea pipeline installation), or Halliburton (U.S.), which provides services related to oil wells, is necessary. These companies have accumulated enormous technological capacity in energy and can influence the realization of connectivity projects such as Russia's Nord Stream 2 Gas Pipeline.[11]

The shape of the new energy and transportation connectivity reality under regionalization and fragmentation trends will also largely depend on the companies and the solutions that they will develop. The fact that global production centers such as the U.S., EU, and China choose their supply points from geographies close to them (nearshoring) causes connectivity projects to cluster in certain regions. Also, there is a shift in bilateral trade and investment preferences that influence long-term connectivity towards countries with similar geopolitical stances (friend-shoring.)[12] Firms' exit strategies to reduce costs and risks from a microfoundational perspective are principal factors in the regional trends towards nearshoring and friend-shoring driven by states' geopolitical preferences, which partly determine the future connectivity path.

Geopolitical Considerations of Connectivity Initiatives and Projects

The geopolitical considerations of connectivity projects and initiatives globally and especially, in the Eurasia region can be: (a) the geostrategic and geo-economic importance of the regions; (b) political, military, and security affairs among states; (c) regional "mega integration" initiatives; (d) global and regional power shifts; and (e) multipolar order formation and the rise of China. For connectivity projects and initiatives to be feasible, both geopolitical considerations and microfoundations must be in appropriate conditions. Although geopolitical conditions exist for the implementation of connectivity initiatives in the field of energy and transportation, micro factors such as project financing and logistics

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feasibility must also be in favor of the initiative (macro-micro conflict). Geopolitical considerations and microfoundational factors could also trigger each other, either accelerating or disrupting the connectivity project.

Connectivity initiatives in the field of energy and transportation are expected to strengthen bilateral and multilateral relations further through interdependence and outspread into other areas ("peace pipeline," complex interdependence, spillover effects). In terms of the feasibility of connectivity projects in energy and transportation, geopolitical issues pave the way for the projects, bring them to the public agenda, and cause revisions in the implementation process. At the same time, microfoundations determine the conditions for the implementation of projects, being at least as important and decisive as macrofoundations.

Connectivity in energy and transportation sometimes budges in a changing process within the triangle of geopolitics, microeconomics, and macroeconomics. For example, attacks on ships in the Red Sea, the Gulf of Aden, and the Bab el-Mandeb Strait during 2023-2024 could reflect the formidable geopolitical power struggle taking place on the U.S., China, Russia, and Iran axis (geopolitical dimension). As a result, global shipping companies such as Maersk and energy companies such as Shell stopped shipments via the Red Sea, directed their ships to the longer African route via the Cape of Good Hope, and automatically increased transportation costs (microeconomic dimension).[13] Ultimately, this process resulted in the rise of energy and food prices and the risk of spiraling inflation (macroeconomic dimension). In this case, the microeconomic dimension incorporates microfoundational factors through the preferences of logistics companies that actively interact with the geopolitical momentum and cycle.

The long-term project cycles of connectivity initiatives in the field of transportation and energy may not be fully synchronized with the political or geopolitical cycles of regional processes. For example, the specific project cycles of the Middle Corridor and the cycle of the U.S.-China competition in the Central Asia region may diverge. The motivation of global and regional powers in connectivity initiatives in the field of energy and transportation should coincide with the motivation of transit countries to diversify their export routes. For the Central Asian and Caucasus countries to export more fossil fuels, domestic consumption must be met from more renewable local resources. For this reason, investments by financial management funds or energy companies of the EU and Gulf countries come to the fore. Since the aggressive foreign investment policies of Gulf companies such as ACWA Power, Masdar, and

Mubadala coincide with the investment needs of energy-rich countries such as Azerbaijan and Kazakhstan, and the energy security interests of the EU and U.S., more fossil fuel exports can be possible.[14] On the contrary, cycle mismatch may prevent the realization of connectivity projects passing through problematic transit regions.

Connectivity projects in the field of energy and transportation increase the bargaining power and geopolitical importance of relatively weak transit states in the corridor building process. Although there is a great need for the connectivity project in the field of transportation and energy in terms of geopolitics, ultimately the institutional capacity of transit countries and the microfoundational feasibility parameters of the project may be decisive in the fulfilment process. For example, the Development Road Initiative between Iran and Türkiye will depend on Iraq's institutional capacity to implement multiyear megaprojects. The "Crossroads of Peace" initiative which Armenia proclaimed as the official declaration to unblock communications in the South Caucasus requires the availability of microfoundational factors and regional geopolitical unanimity. We can now multiply the number of case studies to reveal the clash and nexus between microfoundations and geopolitical considerations.

Feasibility of Connectivity Projects in Transportation: Microfoundations vs. Geopolitics

Parameters of Connectivity Projects in Transportation

When we analyze the parameters of connectivity in transportation proposed by international organizations, we can observe the interaction between microfoundational factors/indicators and geopolitical considerations. The World Bank (WB) developed trade-based transport modelling parameters to carve out forecasts and various scenarios on the freight flows where five groups of parameters were used including the global economic condition, and the factors of geopolitics, the global energy transition system, industrial development, and transport system parameters. Only five out of the model's 28 indicators are related to geopolitics while the remaining factors are related to microfoundations such as the availability of terminals and border crossing points.[15] Also, the industrial development component overlaps with the article's model envisaging connectivity as a function of the developments in the "nodes" of demand and supply between connectivity lines.

The European Commission (EC) and the European Bank for Reconstruction and Development (EBRD) collaborated to prepare and publish a report in 2023

titled "Sustainable Transport Connections between Europe and Central Asia," in which authors identified and compared transportation corridors. The report evaluated transport corridors in Central Asia by applying five sustainability components under the framework of the "multi-criteria assessment" (MCA). These components were:

1) Country assessment (economic-fiscal outlook, political viability, legal-regulatory environment)

2) Traffic assessment (potential transit trade volumes, trade facilitation measures, non-tariff barriers)

3) Infrastructure assessment (capacity of the transport network, infrastructure performance and efficiency, planned upgrades)

4) Social-environmental assessment (environmental impact of route operations, commitment to sustainability, safety and security of route operations, environmental and social issues)

5) Economic integration assessment (domestic and regional connectivity enhancements) [16]

Only 10% of almost 50 subcriteria were related to political and geopolitical variables, while the remaining sub-indicators were directly related to the microfoundations of the connectivity corridors. For example, traffic assessment criteria cover microfoundational subcriteria such as mode of cargo transportation, number of border crossings, the presence of a "single window" system, the level of digitalization, and inspection and certification procedures. Country-level and infrastructure assessment criteria include subcomponents such as the enactment of treaties and conventions that envisage bureaucratic bargaining as a microfoundational parameter, institutional governance, regulations, procurement systems, time-cost equilibrium, and operational performance.

The Middle Corridor (MC)

Based on the MCA framework, the EC/EBRD report identified the total investment needed to substantially enhance the interoperability of the Middle Corridor (MC) transport network to be around €18.5 billion which requires collaboration with financial institutions. This investment will be allocated for microfoundational measures such as "the modernization of the railway and road

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networks, expanding the rolling stock, enhancing port capacity, improving border crossing points, and developing multimodal logistics centers and auxiliary network connections."[17] The MC represents the relevant case study on the clashes between geopolitical considerations and microfoundations.

The MC, a multimodal transportation route linking China with Europe through Kazakhstan, the Caspian Sea, Azerbaijan, and Georgia, has garnered higher focus after Russia's incursion into Ukraine. The Western actors considered the MC as an alternative corridor with China to diminish the logistical dependence on Russia. At the same time, the MC had a huge potential to diversify the export baskets of the corridor states such as Kazakhstan, Azerbaijan, and Georgia. Despite the growing interest by stakeholders in the MC after geopolitical processes in Eurasia, the WB report has identified a long list of technical barriers and challenges related to the microfoundations that decelerate the effectiveness and timely implementation of the corridor. These include:

1. The lack of corridor coordination/management systems
2. Restricted and fragmented digitalization in the ports
3. Problems in data and information exchange in the railways
4. Poor operational efficiency at ports and border crossing points
5. Bottlenecks at maritime services and rail networks
6. Shortage of vessels and errors in shipping documentation
7. High prices of transport and time unpredictability in deliveries
8. Lack of digital tracking systems for shipments
9. Critical issues with transshipment processes
10. Limited container shipping capacity on the Baku-Aktau route
11. Long cargo dwell times due to high wind speeds
12. Poor port-rail connections and challenges in last-mile delivery
13. Dropping level of the Caspian Sea and needs for port dredging
14. Poor quality of logistics centers in the transit states
15. Lack of internal transport links and capacity problems
16. Uncompetitive shipping rates and port tariffs for containers[18]

Notwithstanding that the WB predicted the tripling of cargo traffic throughout the MC via the Caspian Sea by 2030, this depends on the operational performance of the connectivity subsystems (land, maritime, and railway connections) related to the microfoundations. In 2019-2021, the Northern Corridor (NC) through Russia

and Belarus managed more than 86% of land traffic between China and Europe, whereas the MC only accounted for less than 1% of the total traffic capacity. In the best-case scenario, the MC is expected to surpass the NC in terms of EU-China transit volumes by 2030, with the MC handling 2 million tons and the NC handling 12.5 million tons of cargo.[19] The ongoing geopolitical developments alone don't guarantee the total shifting balance between the MC via the Caspian Sea and the NC via Russia and Belarus. Even if the geopolitical processes such as the Russia-Ukraine war and instability in the Red Sea basin bolster the MC, the sound microfoundations such as cost, duration, capacity management issues, and technical parameters of connectivity could favor the Northern Corridor from China to Europe.

The Northern Sea Route (NSR)

China officially declared the "Arctic or Polar Silk Road" initiative in 2017 as a part of the Belt and Road Initiative (BRI).[20] The "Polar Silk Road" or the Northern Sea Route (NSR) was an alternative connectivity initiative or transportation corridor between China and Europe using the Siberian coasts of the Arctic. Cargo or container shipments from the ports of Shanghai to Hamburg using the NSR can take 18 days, compared to 35 days for the traditional Middle East route through the Suez Canal, or 45 days if rerouted around the Cape of Good Hope.[21] The NSR initiative was launched due to a combination of factors. These include:

a) The microfoundational motivations of companies, such as saving time and reducing costs in cargo transportation, played a significant role in the initiative.

b) The repercussions of climate change, such as the melting of ice in the Arctic area, have unlocked new opportunities for ship navigation.

c) China's geopolitical motivations to bypass congestion in the Malacca Strait, and Russia's motivation to control an alternative transportation corridor between Asia and Europe, also promoted the initiative.

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facilities due to Western sanctions. Simultaneously, Yemen's Houthi rebel groups, supported by Iran militarily and technically, launched attacks on commercial ships in the Red Sea and the Bab el-Mandeb Strait in 2023-2024, making this route unsafe even for Chinese ships (despite some statements of "positive discrimination" by the Houthis in favor of Chinese ships).[22] When the transportation corridors via the Middle East were rendered insecure, the NSR came to the fore again by the Chinese, Russian, and even some Western and Asian states and private sector actors. However, certain underlying microfoundational factors regarding the NSR once again hindered the feasibility of this transportation corridor, in addition to the geopolitical rivalry between the West, China, and Russia. These include the following factors related to the microfoundations of the NSR:

a) Norway's Kirkenes port, which could be the European end of the NSR for Chinese cargo or container ships, does not have any reliable railway connections with Finland and the entire railway network of Europe. The governments of Finland expressed concerns on (i) the profitability of the railway connection with Kirkenes port; and (ii) the risks for the local ecosystem of indigenous Sami people in the region.[23]

b) There are some uncertainties for the Chinese logistics companies in the NSR. First, despite the melting ice in the Arctic, the schedules for the ship navigations are not predictable as they depend on climatic conditions. Second, Russia imposes high tariffs and service fees on Chinese ships for utilizing the services of icebreakers.[24]

c) Russia's Arctic development strategy that intended to promote the NSR is facing significant challenges. To maintain the planned levels of shipping (80 million tons) along the NSR, 200 ice-class vessels are urgently needed. Even in the absence of restrictions such as the threat of secondary sanctions, Korean and Chinese shipyards are currently loaded with orders until 2028-2029.[25]

d) The large Western transport and logistics companies disapprove to use of the NSR because of the further ecological risks such as emissions of black carbon and potential fuel spill accidents leading to the degradation of biodiversity.[26]

The example of the NSR clearly demonstrates that the nexus between geopolitical and microfoundational factors that determine the feasibility of connectivity initiatives and projects is not one-sided but, instead, that they interact with each other.

The Zengezur Corridor (ZC)

The Zengezur Corridor (ZC) initiative emerged after the 2020 Karabakh War to connect Azerbaijan and Central Asia with Türkiye[27] and EU countries via Armenia. In addition, transport routes to Russia and Iran can be activated in full integration with the corridor. The operation of the ZC would contribute to the interconnection between the East-West and North-South transport corridors, boosting the transit and logistics potential of the region.

One of the main dimensions and indicators of the regional energy and transportation initiatives from the microfoundational perspective is the availability of adequate financial resources for the realization of connectivity projects. In the case of the ZC, the resources of the financial institutions and the state budget of Azerbaijan ensure the smooth realization of the connectivity from the microfoundations aspect. The oil-gas revenues and traditional budget surplus of the state of Azerbaijan accelerated the realization of the infrastructure base of the ZC. The country has a strategic foreign exchange reserve of approximately US$70 billion, which corresponds to an expected GDP amount for 2024.[28] Approximately US$7 billion of financing has been allocated from the 2024 budget of Azerbaijan's government to the reconstruction of the infrastructure of the regions liberated from Armenian occupation in 2020, including the relevant infrastructure of the ZC.[29] Yet, the microfoundations are not sufficient for the timely completion of connectivity initiatives in transportation.

Despite the fact that strong microfoundations exist in the ZC initiative (e.g., access to financial resources, great incentives for private logistics companies to exploit the corridor, the existence of old railway and highway infrastructure that require only restoration in some areas), the negative impact of geopolitical considerations (e.g., Iran's direct opposition,[30] Georgia's indirect opposition, the discord between Russia and Armenia on the security of the connectivity) did not guarantee the smooth completion of the ZC initiative in 2020-2024. However, the presence of strong microfoundational ground could potentially accelerate consensus-based solutions that could pave the way for full implementation in the near future.

The International North-South Transport Corridor (INSTC)

An intergovernmental agreement on the forming of the International North-South Transport Corridor (INSTC) was signed between Russia, Iran, and India in 2000.[31] The Iranian portion of the INSTC connectivity project (Gazvin-Rasht-Enzali-Astara) could not be completed technically, financially, and

bureaucratically because of Iran's reluctant position and financial hurdles due to U.S. sanctions. However, there were favorable geopolitical conditions, especially, after the war in Ukraine that forced Russia to look for alternative connectivity routes. The lag in the development of the Iranian railway network does not allow for the delivery of containers at high route speeds under the INSTC. In 2023, the Russian state announced that it would allocate €1.3 billion in financing for the Rasht-Astara Iran railway connection project. The railway section Rasht-Astara, only 170 km in length, is needed to connect the land sections of the INSTC.[32] However, microfoundational factors such as bureaucratic interactions based on bargaining, the lack of access to financial resources, and technical challenges stemming from the restrictions by the sanctions on the resource-rich economies of Russia and Iran adjourned the full realization of the project.

Feasibility of Connectivity Projects in Energy: Microfoundations vs. Geopolitics

Parameters of Connectivity Projects in Energy

In the energy (oil-gas) sector, proposals for connectivity projects, such as the construction of new pipelines, usually arise in three situations: (a) when a sufficiently large supply of oil-gas surplus needs to be brought to market (unrealized supply); (b) when oil-gas resources are insufficiently or not available at all to a sufficiently large customer market (unmet demand); and (c) when a major oil-gas resource and a major market are close enough geographically to make it worthwhile financially or technically to connect (proximity-driven rationality). For the oil-gas pipeline to work as a value chain, each component that can be also classified as a microfoundation, must be in place. The necessary components or parameters of oil-gas pipelines as connectivity projects are as follows:

1. Oil-gas resource (Reserves)
2. Specific and definite oil-gas supplier (Seller)
3. Functional oil-gas realization platform (Market)
4. Specific and definite oil-gas consumer (Buyer)
5. Contract type for fossil fuel production from oil-gas fields (e.g., PSA vs. concession contract)[33]
6. Pipeline route determination and technical feasibility (Design/ Engineering)

7. The organization or company operating the pipeline on a daily basis (Operator)
8. Government authorizations for pipelines passing through transit countries (Permits)
9. The level of oil-gas prices (Quote)
10. Oil-gas transportation fee (Tariff)
11. Construction companies building the oil-gas pipeline (Constructor)
12. Financial institutions financing the oil-gas pipeline (Investor)[34]

The Trans-Caspian Gas Pipeline (TCGP) Project

The aforementioned microfoundational components for oil-gas pipelines, which are an example of an energy connectivity project, will be applied to the Trans-Caspian Gas Pipeline (TCGP) case that envisaged the export of Turkmen gas to Europe via the Caspian Sea, Azerbaijan, Georgia, and Türkiye. During the energy crisis that Europe faced after 2021, the export of Turkmenistan's gas to Europe was more frequently on the top official and public agenda. The TCGP project could be an important infrastructure for this purpose.

During the energy crisis that Europe faced after 2021, the export of Turkmenistan's gas to Europe was more frequently on the top official and public agenda.

1. Oil-gas resources (Reserves): Turkmenistan ranks fourth in the world after Russia, Iran, and Qatar with gas reserves of 13.6 trillion cubic meters as of 2020, which amount to more than 7% of the world's total known gas reserves while the reserve-production (R/P) ratio is considered 230 years.[35] Turkmenistan theoretically possesses adequate gas reserves to fill multiple pipelines in various directions including the potential TCGP. However, we do not know how much of Turkmenistan's gas resources it would be economically and technologically feasible to extract from underground and market abroad. Additionally, we must consider that the country's gas consumption increased by 120% during 2009-2022.[36] Increasing domestic gas consumption reduces the gas volumes that the country can sell abroad.

2. Specific and definite oil-gas supplier (Seller): The Turkmengaz State Company carries out the exploration, production, preparation, transportation, and processing of gas. Turkmengaz supplies gas from

large fields such as Dovletabat, Yashlar, Galkynysh, and Bagtyyarlyk to China, Russia, Iran, and even Azerbaijan.[37] However, China National Petroleum Corporation (CNPC) dominates Turkmenistan's gas sector as a major partner of Turkmengaz in upstream and midstream components.

3. Functional oil-gas realization platform (Market): European countries that consumed an average of 566 billion cubic meters of gas annually in 2003-2023 can be considered as a potential market for the Turkmen gas. But the gas consumption decreased 2% in the European market between 2013 and 2023.[38] Moreover, although Europe will need Turkmen gas in the medium term to compensate for Russian gas,[39] EU states have committed to limiting their consumption of fossil fuels in the long term, considering urgent environmental considerations.[40]

4. Definite oil-gas consumer (Buyer): Suppliers, traders, and shippers that are responsible companies (e.g., OMV, MVV Trading, Uniper, Kelag, Engie, REPOWER, EBN) for "buying and selling gas at virtual or physical points on an energy trading platform or bilaterally with other traders,"[41] can act as a specific buyer of Turkmen gas in the European market. But their active participation in the gas import transactions with Turkmenistan depends on other microfoundations such as gas volumes, prices, transit fees, and other related determinants that will determine private companies' behavior.

5. Contract type for fossil fuel production from oil-gas fields (PSA vs. concession contract): The State Agency for Management and Use of Hydrocarbon Resources of Turkmenistan and the CNPC signed a PSA for the Bagtyyarlyk gas field in 2007 for more than 30 years.[42] However, the conditions of the production sharing aren't clear for major gas fields of Turkmenistan and therefore, it is challenging to evaluate the "free gas reserves" at Turkmengaz's disposal which the company can canalize to export.

6. Pipeline route determination and technical feasibility (Design/ Engineering): A detailed feasibility study of the TCGP project has not yet been conducted with the participation of energy companies. Therefore, the pipeline's precise route hasn't been determined yet. Meanwhile, the EC announced the TCGP as a "project of common interest" (PCI) describing it as follows: "[An] [o]ffshore pipeline in the Caspian Sea with a length of 300 km and an ultimate capacity of 32 billion cubic meters annually."[43] The Trans Caspian Resources Inc. proposed the connectivity project of

the 78-kilometer Trans-Caspian Interconnector between Turkmenistan and Azerbaijan.[44]

7. The company operating the gas pipeline on a daily basis (Operator): The operator company will be identified when the pipeline initiative will proceed into the tangible realization stage. Turkmengaz can insist to function as a project operator, or it can hand out this function to the foreign companies. It depends on the share of foreign companies in the project, finance conditions, and the tough negotiations among domestic and external actors.

8. Government authorizations for pipelines passing through transit countries (Permits): The heads of state of the Caspian Sea littoral countries signed the "Convention on the Legal Status of the Caspian Sea" in Aktau in August 2018. However, the Convention has not resolved fundamental geopolitical disputes regarding the legal status of the Caspian Sea.[45] The environmental clauses in the Convention require all littoral states to reach a consensus on key underwater infrastructure projects.[46] The continuous disputes among littoral states on the seabed deteriorated the determination of a clear transit route for the Turkmen gas in the Caspian Sea. The production and transportation of the gas from the Dostluq oil-gas field shared between Turkmenistan and Azerbaijan will require finance, technology, leadership, and bureaucratic negotiations in addition to the geopolitical context.

9. The level of oil-gas prices (Quote): Gas prices can be determined daily in spot markets, or through long-term gas sales agreements between the Turkmen state-owned gas firms and potential buyers in the European market. It is uncertain how Turkmen authorities will behave with Western consumers in terms of gas pricing. But we know that Turkmenistan had a series of gas conflicts with Iran and Russia to determine and revise gas prices,[47] and EU states don't intend to sign long-term gas purchase contracts with gas-exporting countries.

10. Oil-gas transportation fee (Tariff): The gas transportation fee or tariff will be defined in the realization phase, but it will be subject to long and non-easy negotiations between the Turkmen government, state-owned oil-gas companies, and transit countries' governments and companies. The gas exporting process often is accompanied by consecutive conflicts among seller, buyer, and transit countries on the transit fees.

11. Construction companies building the oil-gas pipeline (Constructor): Constructor companies have not been identified yet, because of uncertainties in the project's implementation. But the performance of these companies will determine the high-quality and on-time completion of the pipeline project. The volume of Turkmen gas to be exported, the capacity of the new pipeline, and who will build this new pipeline are points of uncertainty.

12. Financial institutions financing the oil-gas pipeline (Investor): It is not yet clear which states, private companies, and international financial institutions (IFIs) will finance the TCGP. To gain access to the financial resources, the TCGP project should be technically and economically justified. IFIs are now less enthusiastic about financing oil and gas infrastructure projects because of commitments to limiting GHG emissions.

Table 1: Feasibility of Energy Project in Terms of Connectivity Parameters' Certainty

Parameters	Trans-Caspian Gas Pipeline (TCGP) Project
1. Gas reserves	Medium certainty
2. Gas seller	High certainty
3. Gas market	Medium certainty
4. Gas buyer	Low certainty
5. Contract type (PSA)	Medium certainty
6. Route, design/engineering	Medium uncertainty
7. Operator company	High uncertainty
8. Permits and licenses	High uncertainty
9. Gas prices	Medium uncertainty
10. Transportation fee tariff	High uncertainty
11. Constructor company	High uncertainty
12. Investor (public/private)	High uncertainty
Final assessment: Non-feasible connectivity project because of the high and medium uncertainty of 7 out of 12 connectivity parameters	

We can conclude that the future of the TCGP project depends not only on the geopolitical power struggle in the Caspian Sea, Caucasus, and Central Asia among global and regional players.[48] It also depends on the scale of China's gas imports from Turkmenistan, the trends in gas demand of the EU and Türkiye, Turkmenistan's increasing domestic gas demand, the capacity of gas export pipelines, and the availability of capacity-enhancing investments from financial actors. Issues concerning the microfoundations of the project (see Table 1), such as the level of ongoing uncertainties regarding the project financing, the change in the gas volumes that can be supplied by this pipeline, and the portion of the Turkmen gas reserves that can be extracted with technical and economic feasibility, are at least as important as geopolitical processes in the region.[49]

The Nabucco Gas Pipeline (NGP) Project

Also, the Nabucco Gas Pipeline (NGP) project can be examined as a relevant case to reveal the interaction between microfoundations (project financing) and geopolitical matters. The NGP project was undertaken in the early 2000s to reduce Europe's dependence on Russian gas by creating a new route for gas from the Caspian Sea region to Europe. The proposed NGP project was intended to stretch approximately 3,300 kilometers across multiple countries, with the route transiting through Türkiye, Bulgaria, Romania, Hungary, and Austria. However, unfavorable geopolitical conditions and several adverse microfoundational factors contributed to its failure including,

- political differences and bureaucratic bargaining processes within and among participating sides;
- lack of consensus and common approach towards the pipeline among private sector actors;
- financial problems (the initial cost estimates for the pipeline were around €5 billion, but had risen to €17 billion in the later stage;[50]
- lack of gas suppliers (expected gas sources such as Azerbaijan, Turkmenistan, and potentially Iraq and Iran were uncertain);
- geopolitical and economic competition from other gas pipeline projects (e.g., the Trans Adriatic Pipeline);
- uncertainties in transit issues including transit fees;
- technological complexities and environmental challenges;
- regulatory hurdles such as the EU's energy directives aimed at separating the generation, transmission, and supply of energy.

Ultimately, the pipeline project faced such a complex combination of financial, political, market, and technical issues that the project's economic and strategic

viability was seriously questioned. The mismatch between geopolitical momentum and the project-level cycle led to the failure of the energy connectivity project.

Conclusion

This article has applied the case study analysis method and unlocked the solid patterns of various transportation and energy projects and initiatives in terms of divergence between geopolitical momentum and microfoundational factors. The impact of technological and environmental factors on connectivity projects in the field of energy and transportation was also considered. In the energy realm, the TCGP and NGP projects can be considered as an example where we could observe that geopolitical conditions and microfoundations (financing, gas reserves, status of gas fields) collide with each other. In the transportation sector, the MC, the INSTC, the ZC, and the NSR, as the relevant cases, revealed the importance of congruence between the superstratum and the substratain the multilayer reality of connectivity.

Table 2: Feasibility of Energy and Transportation Connectivity Projects and Initiatives in Eurasia

Project/Initiative	Geopolitical Considerations	Microfoundations	Feasibility
Middle Corridor (MC)	+	+ -	feasible
Northern Sea Route (NSR)	+	-	non-feasible (partly)
Zengezur Corridor (ZC)	+ -	+	feasible
North-South Transport Corridor (INSTC)	+	+ -	feasible
Trans-Caspian Gas Pipeline (TCGP)	+ -	-	non-feasible (partly)
Nabucco Gas Pipeline (NGP)	-	-	non-feasible (fully)

Explanatory and Methodological Note: In this attempt at subjective evaluation, (+) means geopolitical considerations or microfoundational dimension are in favor of the project/initiative, while (-) means geopolitical considerations or microfoundational dimension are not in favor of the project/initiative.

Table 2 summarizes the probationary and tentative feasibility assessment of energy and transportation connectivity projects and initiatives vis-à-vis the conflicted interaction between microfoundations and geopolitics. Geopolitical cycles and microfoundational factors favored some projects and initiatives, simultaneously making these connectivity lines relatively feasible (MC, ZC, INTSC). For some other energy and transportation connectivity projects/initiatives, geopolitical matters and microfoundational elements collided and desynchronized, making these endeavors relatively non-feasible (NSR, TCGP, NGP).

Microfoundations can lead to power diffusion and power penetration in connectivity projects and initiatives from states to non-state actors such as companies, various interest groups, and individuals. Academics and analysts working on connectivity in energy and transportation as an epistemic community adopt a more geopolitical perspective on the issue. The representatives of private sector companies in this field highlight the technical feasibility and cost-benefit aspects of huge connectivity projects. Representatives of bureaucratic systems give priority to issues such as organizational interests and the "superior interests" of the state. The level of harmony between interacting bureaucrats, private sector representatives, and other non-state actors of the supplier, transit (or corridor), and recipient countries is also key to the feasibility of regional connectivity initiatives in the field of energy and transportation.

Endnotes

1 Kirsten Foss & Nicolai J. Foss, *Economic Microfoundations of Strategic Management: The Property Rights Perspective*, Cham: Palgrave Macmillan, 2022, p. 27.
2 Teppo Felin, Nicolai J. Foss & Robert E. Ployhart, "The Microfoundations Movement in Strategy and Organization Theory," *The Academy of Management Annals*, Vol. 9, No. 1 (2015), pp. 12–14.
3 Teppo Felin, Nikolai Foss, Koen Heimeriks & Tammy L. Madsen, "Microfoundations of Routines and Capabilities: Individuals, Processes, and Structure," *Journal of Management Studies*, Vol. 49, No. 8 (2012), pp. 1351–1374.
4 Joseph Nye, *The Future of Power*, New York: Public Affairs, 2011, p. 15.
5 Ibid., p. 64.
6 "Connectivity Across Borders: Global Practices for Cross-Border Infrastructure Projects (Reference Guide)," *Global Infrastructure Hub RAMBOLL*, February 2021, p. 49, https://www.gihub.org/connectivity-across-borders/ (Accessed: 05.05.2024).
7 Valerie Hudson & Benjamin Day, *Foreign Policy Analysis: Classic and Contemporary Theory*, London: Rowman & Littlefield, 2020, p. 9.
8 Stephen Walker, Akan Malici & Mark Schafer (eds.), *Rethinking Foreign Policy Analysis: States, Leaders, and the Microfoundations of Behavioral International Relations*, New York: Routledge, 2011, pp. 17–27.
9 Hayden J. Smith, "Bureaucracy, the Bureaucratic Politics Model, and Decision-Making during Crisis," *Oxford Research Encyclopedias*, April 20, 2022, https://oxfordre.com/politics/display/10.1093/acrefore/9780190228637.001.0001/acrefore-9780190228637-e-1618 (Accessed: 13.05.2024)
10 Paul Dabbar, "US Energy Superpower Status and a New US Energy Diplomacy," *Hoover Institution*, February 13, 2024, https://www.hoover.org/research/us-energy-superpower-status-and-new-us-energy-diplomacy (Accessed: 28.07.2024).
11 Stuart Elliott, "Nord Stream 2 Pipelayer Allseas Suspends Operations on US Sanctions," *S&P Global*, December 21, 2019, https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/122119-nord-stream-2-pipelayer-allseas-suspends-operations-on-us-sanctions (Accessed: 23.07.2024).
12 "Global Trade Update. Special Insight: Trade and Industrial Policy," UNCTAD, July 2024, https://unctad.org/system/files/official-document/ditcinf2024d2.pdf (Accessed: 01.08.2024).
13 Helene Hofman, "The Ongoing Ripple Effects of Red Sea Shipping Disruptions," *Maersk*, July 9, 2024, https://www.maersk.com/insights/resilience/2024/07/09/effects-of-red-sea-shipping (Accessed: 01.08.2024).
14 "ACWA Power, Masdar, and SOCAR Team up for 500MW Renewable Energy Projects in Azerbaijan," ACWA Power, November 8, 2023, https://www.acwapower.com/news/acwa-power-masdar-and-socar-team-up-for-500mw-renewable-energy-projects-in-azerbaijan/ (Accessed: 19.07.2024).
15 "The Middle Trade and Transport Corridor: Policies and Investments to Triple Freight Volumes and Halve Travel Time by 2030," The World Bank, November 27, 2023, https://www.worldbank.org/en/region/eca/publication/middle-trade-and-transport-corridor (Accessed: 01.08.2024).

16 “Sustainable Transport Connections between Europe and Central Asia,” EBRD, June 30, 2023, https://www.ebrd.com/news/publications/special-reports/sustainable-transport-connections-between-europe-and-central-asia.html (Accessed: 23.07.2024).
17 Ibid.
18 “The Middle Trade and Transport Corridor: Policies and Investments to Triple Freight Volumes and Halve Travel Time by 2030,” The World Bank, November 27, 2023.
19 Ibid.
20 Erdem Lamazhapov, Iselin Stensdal & Gorild Heggelund, “China’s Polar Silk Road: Long Game or Failed Strategy?” *The Arctic Institute*, November 14, 2023, https://www.thearcticinstitute.org/china-polar-silk-road-long-game-failed-strategy/ (Accessed: 11.06.2024).
21 “Picking through the Ice: The Polar Silk Road,” *The Economist*, June 22, 2024, https://www.economist.com/china/2024/06/19/china-and-russia-have-chilling-plans-for-the-arctic (Accessed: 24.07.2024).
22 Sam Dagher & Mohammed Hatem, “Yemen’s Houthis Tell China, Russia Their Ships Won’t Be Targeted,” *Bloomberg*, March 21, 2024, https://www.bloomberg.com/news/articles/2024-03-21/china-russia-reach-agreement-with-yemen-s-houthis-on-red-sea-ships (Accessed: 26.07.2024).
23 “Picking through the Ice.”
24 Ibid.
25 Igor Serebryaniy, “Arktika stanovitsya dalshe i dorozhe,” *Ekspert*, April 4, 2024, https://expert.ru/ekonomika/arktika-stanovitsya-dalshe-i-dorozhe/ (Accessed: 11.06.2024).
26 “MSC to Avoid the Northern Sea Route due to Black Carbon Concerns,” *Riviera News*, April 8, 2021, https://www.rivieramm.com/news-content-hub/news-content-hub/msc-to-avoid-northern-sea-route-64869,
(Accessed: 30.06.2024).
27 Burcu Aracıoğlu & Soner Esmer, “The Effects of Zangezur Corridor on Turkey’s Eastern Mediterranean Ports Hinterland, *Denizcilik Araştırmaları Dergisi: Amfora*, Vol. 2, No. 4 (2023), pp. 1-16.
28 “Expectations for the End of 2023 and Macroeconomic Forecasts for 2024,” The Ministry of Finance of Azerbaijan, 2023, https://www.maliyye.gov.az/scripts/pdfjs/web/viewer.html?file=/uploads/static-pages/files/65426bc58efc7.pdf, (Accessed: 18.06.2024).
29 “Annual Report on the Implementation of the 2023 State Budget of Azerbaijan,” The Ministry of Finance of Azerbaijan, 2024, https://www.maliyye.gov.az/scripts/pdfjs/web/viewer.html?file=/uploads/static-pages/files/6682702853f54.pdf, (Accessed: 18.06.2024).
30 “Iran’s Leader Vows Stronger Ties with Armenia,” *Iran International*, July 30, 2024, https://www.iranintl.com/en/202407300680, (Accessed: 01.07.2024).
31 Yasir Rashid, “*İran*’in Transit Ulaşım Koridoru Diplomasisi: INSTC ve İTİ,” in Kenan Aslanlı (ed.), *İran: Ekonomi, Enerji, Ulaştırma ve Altyapı*”, Ankara: İRAM, 2023, p. 189.
32 “Na proyekt zh/d uchastka Resht - Astara vydelili mezhgosudarstvennyy kredit v €1,3 mlrd,” *TASS*, May 17, 2023, https://tass.ru/ekonomika/17767315, (Accessed: 13.07.2024).
33 The type of contracts (production sharing agreement [PSA], concession contract, service contract) signed between the state within whose borders the oil-gas fields are located and foreign investors and private producers can determine the parameters of the pipelines through which fossil fuels will be exported.

34 Jerome Guillet, "How to Get a Pipeline Built? Myth and Reality," in Adrian Dellecker & Thomas Gomart (eds.), *Russian Energy Security and Foreign Policy*, Oxon: Routledge, 2011, pp. 58–73.
35 "BP Statistical Review of World Energy Data," Energy Institute, 2024, https://www.energyinst.org/statistical-review/resources-and-data-downloads, (Accessed: 18.06.2024).
36 Ibid.
37 "About the State Concern Turkmengaz," Turkmengaz, 2024, https://turkmengaz.gov.tm/about-us (Accessed: 18.06.2024).
38 "BP Statistical Review of World Energy Data", Energy Institute, 2024, https://www.energyinst.org/statistical-review/resources-and-data-downloads (Accessed: 18.06.2024).
39 "Where Does the EU's Gas Come From?" The Council of the EU & The European Council, 2024, https://www.consilium.europa.eu/en/infographics/eu-gas-supply/#0 (Accessed: 18.06.2024).
40 "Reducing Carbon Emissions: EU Targets and Policies," European Parliament, October 27, 2023, https://www.europarl.europa.eu/topics/en/article/20180305STO99003/reducing-carbon-emissions-eu-targets-and-policies (Accessed: 06.07.2024).
41 "Full Members," EASEE-gas, 2024, https://easee-gas.eu/membership-segments (Accessed: 12.07.2024).
42 "Bagtyyarlyk: Project at the Samandepe and Altyn Asyr Fields," Neftegaz.ru, May 4, 2014, https://neftegaz.ru/tech-library/mestorozhdeniya/142135-bagtyyarlyk-proekt-na-mestorozhdeniyakh-samandepe-i-altyn-asyr/ (Accessed: 28.07.2024).
43 "Gas Pipeline to the EU from Turkmenistan and Azerbaijan, via Georgia and Turkey (Trans-Caspian Gas Pipeline)," European Commission, December 31, 2020, https://ec.europa.eu/energy/maps/pci_fiches/PciFiche_7.1.1.pdf (Accessed: 29.07.2024).
44 "American Company Presented the Project of the Trans-Caspian Interconnector," *Barrel*, October 29, 2022, https://caspianbarrel.org/en/2022/10/american-company-presented-the-project-of-the-trans-caspian-interconnector/ (Accessed: 04.05.2024).
45 Kenan Aslanli, "Hazar Denizi'nin Jeopolitik ve Jeoekonomik Konumu: Enerji, Taşımacılık, Hukuk ve Çevre Boyutları," *İRAM Analiz*, October 2018, p. 11, https://www.iramcenter.org/uploads/files/Hazar_DeniziYnin_Jeopolitik_ve_Jeoekonomik_Konumu.pdf (Accessed: 12.06.2024).
46 "Konventsiya o pravovom statuse Kaspiyskogo moray," *Kremlin.ru*, August 12, 2018, http://kremlin.ru/supplement/5328 (Accessed: 28.07.2024).
47 Kenan Aslanli, *Russia's Foreign Energy Policy: Resources, Actors, Conflicts*, London: Routledge, 2023.
48 Pravesh Kumar Gupta, "Geopolitics of Trans–Caspian Gas Pipeline," *Vivekananda International Foundation*, January 20, 2020, https://www.vifindia.org/article/2020/january/20/geopolitics-of-trans-caspian-gas-pipeline (Accessed: 19.07.2024).
49 Kenan Aslanlı, "Türkiye'nin Doğal Gaz Jeopolitiğinde Stratejik Önemi," *Anadolu Ajansı*, September 4, 2023, https://www.aa.com.tr/tr/analiz/gorus-turkiye-nin-dogal-gaz-jeopolitiginde-stratejik-onemi/2982742 (Accessed 11.06.2024).
50 Elgun Jafarov, *Failure of the Nabucco Pipeline Project: The Role and Interests of Azerbaijan*, unpublished MA thesis, Brno: Masaryk University, 2016, p. 44.