

Fragmented Connectivity in the Middle Corridor: National Interests vs. Regional Integration

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Abstract

Russia's 2022 invasion of Ukraine and the ensuing sanctions regime have elevated Eurasian transport corridors from efficiency projects to instruments of economic security and geopolitical risk management. This article examines why the rapid prioritization of the Trans-Caspian International Transport Route (the Middle Corridor) has not produced corridor-wide institutional integration and operational harmonization commensurate with its heightened strategic salience. Focusing on the Caspian segment, it develops the concept of fragmented connectivity, defined as the coexistence of expanding physical links and disjointed governance, yielding uneven rules, selective permeability, and persistent frictions at borders and modal interfaces. The study applies Gaens, Sinkkonen, and Vogt's spheres-and-logics framework to a qualitative comparative analysis of Kazakhstan, Azerbaijan, and Turkmenistan, tracing how policy instruments and operational practices are distributed across six connectivity spheres and shaped by distinct strategic logics. The analysis differentiates declared logics expressed in strategies and diplomatic narratives from enacted logics observable in procedures, pricing arrangements, documentation requirements, and screening practices. The article argues that fragmentation persists because strategic logics collide across spheres in implementation. Cooperative infrastructure upgrading is frequently offset by contestation over tariff-setting and rent capture. Cushioning through diversified partnerships dilutes incentives to align on binding rules, while security-driven compliance and risk management harden selective barriers, reducing end-to-end predictability. By linking domestic political priorities and national interest formation to corridor governance outcomes, the article contributes to connectivity scholarship and Asian security debates by showing how sanctions-era corridorization can generate contested ordering rather than integrated regional interdependence.

Keywords: *Middle Corridor, Trans-Caspian International Transport Route, connectivity politics, Central Asia, South Caucasus, regional integration, corridor governance.*

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Introduction

Russia's invasion of Ukraine in 2022 and the sanctions regime that followed have accelerated efforts to reroute Eurasian trade, transforming transport corridors into instruments of economic security and geopolitical risk management. In this context, corridor governance increasingly shapes supply-chain resilience, sanctions exposure, and the management of interdependence across Asia-Europe linkages. Connectivity, therefore, cannot be understood as infrastructure alone: the movement of goods depends not only on physical assets, but also on the rules, procedures, and access conditions that govern cross-border flows (Gaens et al., 2023a).

The Trans-Caspian International Transport Route (TITR), or Middle Corridor, has become central to these dynamics as an east-west route linking China and Europe through Kazakhstan, the Caspian Sea, and the South Caucasus (Kenderdine & Bucsky, 2021). Although its competitiveness depends on both infrastructure capacity and logistics performance (World Bank, 2023), the corridor remains operationally complex. Multiple border crossings, uneven customs and regulatory regimes, non-harmonized tariffs and charges, and weak corridor-level enforcement of interoperable standards continue to generate friction, delays, and uncertainty.

Existing studies have identified the strategic importance of the Middle Corridor, its logistical constraints, and its growing relevance in the post-2022 environment. However, they have not adequately explained why increased geopolitical salience has not translated into corridor-wide institutional integration and operational harmonization, particularly across the Caspian segment. This unresolved gap raises a central question: why does a route of rising strategic value continue to function through fragmented rather than integrated forms of connectivity?

In analytical terms, the outcome to be explained is the degree of corridor-wide institutional integration and operational harmonization in the Caspian segment of the Middle Corridor. This outcome is observed through the presence or absence of stable end-to-end rules, harmonized tariff practices, interoperable documentation systems, coordinated customs and border procedures, predictable access conditions, and repeatable cross-border operational routines. Low integration is therefore not understood merely as a lack of physical infrastructure, but as a condition in which rules, procedures, pricing arrangements, screening practices, and implementation capacities remain uneven across national segments. The main explanatory focus is the configuration of national connectivity strategies. These strategies are operationalized through corridor-relevant policy instruments and practices across six spheres: infrastructural, economic and financial,

institutional, knowledge, societal action, and security connectivity. The article examines whether these practices are shaped primarily by cooperation, copying, cushioning, contestation, containment, or coercion, and how these logics interact across spheres. Fragmentation is expected where cooperative infrastructure development or integrative rhetoric is offset by enacted practices that preserve national discretion over tariffs, standards, procedures, access, or security screening. On this basis, the article has three objectives. First, it conceptualizes fragmented connectivity as a governance condition in which expanding physical links coexist with disjointed rules, procedures, and access conditions. Second, it explains why the Middle Corridor's post-2022 strategic salience has not led to deeper corridor-wide institutional integration and operational harmonization. Third, it compares Kazakhstan, Azerbaijan, and Turkmenistan to show how national connectivity strategies generate, reproduce, or mitigate fragmentation across different spheres of corridor governance.

Two research questions guide the study: 1) Why has the Middle Corridor's increased geopolitical significance not produced deeper institutional integration and operational harmonization? 2) How do national connectivity strategies across different connectivity spheres generate, reproduce, or mitigate fragmented connectivity?

To answer these questions, the article applies the spheres-and-logics framework developed by Gaens et al. (2023a), which treats connectivity as a form of strategic action across multiple domains and captures how actors can expand some linkages while restricting others.

The article proposes that fragmentation persists because strategic logics diverge across spheres and collide in implementation. Cooperative infrastructure development may be offset by contestation over pricing, rents, and control; hedging strategies may weaken incentives for rule alignment; and security-oriented risk management may harden selective barriers, reducing corridor predictability (Gaens & Sinkkonen, 2023). Empirically, the article evaluates whether national interest or regional integration better explains corridor implementation by comparing how Kazakhstan, Azerbaijan, and Turkmenistan translate the Middle Corridor into policy instruments and governance practices across key domains.

Analytical Framework: Spheres and Strategic Logics of Connectivity

Connectivity debates have moved beyond an infrastructure-centered view of corridors as neutral conduits for trade. Recent scholarship conceptualizes connectivity as a strategic and political phenomenon shaped by choices over which links are built, who is included, and which rules govern

cross-border flows (Gaens et al., 2023b). This perspective is particularly salient for Eurasia after 2022, where sanctions, compliance risks, and intensified route competition make governance as decisive as physical capacity.

Earlier approaches often equated connectivity with “hard” infrastructure. However, experience shows that corridors can expand materially while remaining operationally fragmented due to border procedures, tariff-setting, regulatory incompatibilities, uneven administrative capacity, and contested standards. This has driven attention to “soft” connectivity – institutions, norms, standards, and coordination mechanisms that determine whether infrastructure yields predictable flows (Gould et al., 2021). A multidimensional view also highlights that connectivity across trade, transport, finance, information, and people-to-people channels can generate complementarities while transmitting shocks and vulnerabilities (Gould et al., 2018; Gould et al., 2021). Corridors are therefore geopolitical objects assembled through networks, legal regimes, administrative routines, and security practices that can simultaneously enable mobility and structure competition (Flint & Zhu, 2019; Lobo-Guerrero, 2012).

Two refinements guide this article’s approach to the Middle Corridor. First, connectivity is treated as a dynamic of connection and disconnection: legal and territorial techniques can generate selective dis/connectivity through differentiated rules, implying that fragmentation may be governed rather than accidental (Opitz & Tellmann, 2012). Second, corridor politics operate across levels of agency: competition unfolds horizontally among states and initiatives and vertically across implementation, creating misalignment between integrative rhetoric and operational practice (Plagemann et al., 2021). Taken together, these refinements imply that corridor performance may be shaped less by the existence of assets than by how discretionary control over standards, procedures, and revenue practices is exercised at nodes and interfaces.

To operationalize these dynamics, the article adopts the spheres-and-logics framework developed by Gaens et al. (2023a). The framework is particularly well-suited to sanctions-era compliance and risk-screening pressures because it captures connection-building alongside bypass, exclusion, and conditional access (Gaens et al., 2023a; Silvan & Kaczmarek, 2023). It is structured along two orthogonal dimensions: connectivity spheres (where connectivity is pursued) and strategic logics (how and why it is pursued). Table 1 summarizes the six spheres used to map policy instruments and governance practices within cases, and Table 2 summarizes the six logics used to interpret orientations of action and to trace divergence and collision across spheres in implementation. The

framework, therefore, provides a structured basis for within-case analysis and cross-case comparison of how national connectivity strategies can reproduce (or mitigate) fragmented connectivity.

Table 1

Connectivity spheres (domains of action)

Sphere	What it covers in corridor politics	Typical corridor indicators
Infrastructural	Physical and technical assets enabling movement	Ports/terminals/rail links; capacity upgrades; multimodal interfaces; maintenance regimes
Economic and financial exchange	Trade/logistics business environment and financing	Tariffs/fees; transit charges; service pricing; investment and financing arrangements; insurance/credit constraints
Institutional	Rules, procedures, and formal coordination mechanisms	Customs/transit procedures; documentation regimes; interoperability standards; corridor agreements; joint committees
Knowledge exchange	Data, digital systems, and technical know-how	Digital documentation/traceability; data-sharing; training/technical assistance; IT interoperability
Societal action	People-to-people, private sector, and societal linkages shaping corridor use	Business associations; stakeholder forums; labour/skills mobility; public–private coordination
Security	Risk management and securitisation affecting flows	Sanctions compliance; screening and inspections; risk profiling; security-related access conditions; chokepoint control

Note. The spheres follow Gaens et al. (2023a).

Table 2

Strategic logics (orientations of action)

Logic	Core meaning	Typical corridor indicators
Cooperation	Joint efforts to create connections for mutual benefit	Joint infrastructure planning; harmonised procedures; shared documentation/digital tools; sustained working arrangements
Copying	Adoption of external models/standards through emulation and learning	Alignment with external templates; technical assistance leading to adoption; diffusion of compliance/customs/interoperability models
Cushioning	Diversification to reduce dependency and preserve autonomy	Parallel routes/partnerships; diversified financing portfolios; redundancy-building; “resilience” framing
Contestation	Competitive efforts within shared space (hubs, routes, standards)	Tariff/fee rivalry; hub competition; unilateral route prioritisation; standard-setting rivalry; corridor branding competition
Containment	Bypass/restrict a specific actor while building alternatives	Targeted rerouting; exclusion from governance; legal/regulatory techniques producing selective dis/connectivity tied to a counterpart
Coercion	Conditional access/pressure to compel behaviour via asymmetry and chokepoints	“If/then” access conditions; punitive restrictions; leverage over critical nodes; explicit linkage of transit/access to compliance

Note. Compiled by the author based on Gaens et al. (2023a), Gaens and Sinkkonen (2023), and Silvan and Kaczmarek (2023), alongside the additional works cited in the text.

Methods

This study uses a qualitative, comparative multiple-case design to examine how national connectivity strategies shape corridor governance practices along the Trans-Caspian International Transport Route (TITR/Middle Corridor). Connectivity is treated as an institutional and strategic phenomenon embedded in cross-border rules and implementation practices rather than a purely technical condition (Gaens et al., 2023a). The unit of analysis is a corridor-relevant policy instrument or operational practice attributable to a focal actor, including tariff schedules and fees, customs procedures and documentation rules, interoperability decisions, coordination arrangements, screening practices, and access conditions.

Case selection: the Caspian core

The study compares Kazakhstan, Azerbaijan, and Turkmenistan as analytical cases forming the geographical and functional core of the Caspian segment. The cases share post-Soviet institutional legacies and strategic positions on east–west routes, while varying in institutional configurations, foreign-policy orientations, and participation in regional mechanisms. Selection follows a most-similar systems logic to examine how variation in institutional preferences and external alignments corresponds to different combinations of strategic logics and governance outcomes (Yin, 2014). Kazakhstan anchors the eastern approach to the Caspian; Azerbaijan links the Caspian crossing to the South Caucasus and Türkiye; Turkmenistan provides a theoretically relevant comparator because its neutrality doctrine, sovereignty-sensitive approach to external engagement, and more limited institutional embeddedness make it a critical case for assessing how selective participation affects corridor-wide integration.

Data: corpus, collection, and selection (2022–2025)

The empirical corpus covers 2022–2025, reflecting the corridor’s post-2022 reprioritization under sanctions-era rerouting pressures. Primary sources include: (a) national strategies, programmes, and regulations on transport, logistics, trade facilitation, and connectivity; (b) official releases and agency communications specifying implementation choices; and (c) corridor-level and initiative documents produced by relevant bodies and partners (including TITR-related materials and documents linked to TRACECA, the BRI, and the EU’s Global Gateway) used to trace institutional arrangements and partnership terms. To contextualize implementation, the corpus also includes

practitioner- and performance-oriented reports and descriptive indicators (from the World Bank, OECD, UN Comtrade, and national statistical agencies) that are used for triangulation rather than for econometric inference.

Documents were collected through systematic searches of official government and agency websites, corridor bodies and initiative portals, and major international organization repositories. Two inclusion criteria applied: (1) explicit reference to the Middle Corridor/TITR or corridor-relevant segments, with particular emphasis on the Caspian leg; and (2) specification of an instrument or practice with governance implications (procedures, tariffs/fees, documentation rules, interoperability decisions, operator arrangements, screening/compliance measures, or mobility-related rules). Items were excluded if they constituted purely descriptive media coverage without identifiable governance content, duplicative reprints, or materials lacking a discernible link to corridor implementation. For each case, included items were screened to identify discrete instruments/practices that could be coded consistently across spheres and strategic logics, with priority given to those with observable operational relevance (e.g., tariff schedules, procedural rules, documented coordination arrangements, implemented digital tools, and enforcement-related practices).

Operationalization and analytical procedure

The study operationalizes corridor politics using the spheres-and-logics framework (Gaens et al., 2023a). Each instrument/practice is coded for (1) its primary connectivity sphere (infrastructural; economic/financial; institutional; knowledge; societal action; security), (2) its dominant strategic logic (cooperation; copying; cushioning; contestation; containment; coercion), and (3) its indicated governance effect on corridor functioning as evidenced in implementation materials (connection, disconnection, or fragmentation) (Gaens et al., 2023a; Opitz & Tellmann, 2012). Coding follows observable indicators (e.g., harmonization and joint arrangements as cooperation; model adoption as copying; partner diversification as cushioning; rivalry over hubs/tariffs/standards as contestation; targeted bypass as containment; conditional access as coercion) and applies explicit boundary rules distinguishing cushioning from containment and coercion (Gaens et al., 2023a; Karjalainen, 2023).

Empirical material is analyzed using qualitative content analysis guided by a codebook. To address rhetoric–implementation gaps, coding distinguishes declared logic (strategies and official

statements) from enacted logic (implemented procedures and documented practices), prioritizing enacted logic for assessment while treating divergence as an indicator of implementation-level fragmentation (Gaens et al., 2023a; Plagemann et al., 2021). Analysis proceeds in two stages: within-case coding produces sphere–logic profiles for each country, followed by cross-case comparison to identify convergences, divergences, and recurring mechanisms. The comparative step follows analytic replication logic (Yin, 2014).

Trustworthiness and limitations

Trustworthiness was addressed through credibility, transferability, dependability, and confirmability, following Lincoln and Guba's (1985) criteria for qualitative research and recent social-science discussions of qualitative research quality (Creswell & Poth, 2024; Flick, 2023, 2024). Credibility was strengthened through triangulation across primary documents, corridor and initiative materials, descriptive indicators, and implementation-oriented sources. Where possible, claims were cross-checked across document types to reduce reliance on rhetorical sources, especially when distinguishing declared strategies from enacted practices.

Transferability was addressed through the case-selection logic and contextual description of the Caspian core, including the institutional and strategic differences among Kazakhstan, Azerbaijan, and Turkmenistan. The design aims for analytical rather than statistical generalization, identifying mechanisms that link combinations of spheres and logics to integrative or fragmenting governance outcomes in the Caspian core (Yin, 2014).

An explicit coding scheme with boundary rules and an audit trail of coding decisions supported dependability. The coding procedure specified the connectivity sphere, dominant strategic logic, and governance effect of each corridor-relevant policy instrument or operational practice. Confirmability was strengthened by prioritizing observable instruments and documented practices over interpretive claims and by cross-checking claims across multiple source types where possible. A specific limitation concerns Turkmenistan. Compared with Kazakhstan and Azerbaijan, Turkmenistan provides fewer publicly accessible policy documents, implementation reports, tariff materials, and agency-level communications. This asymmetry affects the comparative analysis in two ways. First, the Turkmenistan case is treated more cautiously, with claims limited to practices that can be corroborated through official releases, corridor-level materials, international organization reports, or documented bilateral and trilateral initiatives. Second, the smaller volume

of available evidence is not itself interpreted as evidence of lower corridor activity. Rather, limited transparency is treated as both a methodological constraint and, where substantively relevant, an institutional feature of the case that affects observability, external coordination, and corridor-level predictability.

To reduce evidentiary bias, the study avoids making symmetrical claims where the source base is asymmetrical. Kazakhstan and Azerbaijan allow for a more detailed reconstruction of policy instruments and enacted practices. In contrast, Turkmenistan is analyzed primarily through observable external interfaces, participation in bilateral or trilateral mechanisms, documented mobility and border practices, and international organization reporting. As a result, findings concerning Turkmenistan should be read as analytically indicative rather than exhaustive.

Results

This section presents the comparative findings on how Kazakhstan, Azerbaijan, and Turkmenistan implement connectivity-related policies along the Middle Corridor's Caspian segment. Using the six-sphere/six-logic framework, it maps corridor-relevant instruments and operational practices to identify where linkages are expanded, conditioned, or restricted across domains, and how these configurations are associated with integrative or fragmenting governance effects (Gaens et al., 2023a). The empirical focus is the overland–maritime interface around the Caspian Sea, where corridor performance depends on interoperable procedures and coordination across multiple jurisdictions.

The results are organized in three steps. First, a cross-case snapshot summarizes the distribution of coded practices across spheres and strategic logics, providing an overview of national orientation patterns. Second, within-case sections trace how key instruments and practices operate in each country and how they shape corridor-relevant procedures, pricing, interoperability choices, coordination arrangements, and screening/access conditions. Third, the section synthesizes cross-case similarities and differences to identify recurring implementation patterns in the Caspian core and their implications for corridor-level harmonization.

Infrastructural connectivity: interoperability, bottlenecks, corridorization

Infrastructural upgrading is the most visible area of progress along the Middle Corridor, yet the pattern of implementation also illustrates how nationally oriented hub strategies can reproduce

fragmentation. Since 2022, corridor governance has shifted from largely parallel investment toward selective coordination (most clearly on the Kazakhstan–Azerbaijan–Georgia axis), but integration remains uneven and heavily interface-dependent.

A key cooperative step was the June 2023 Kazakhstan–Azerbaijan–Georgia agreement aimed at reducing delays, removing bottlenecks, and optimizing tariff practices (Astana Times, 2023; Eurasian Rail Alliance Index, 2025). A related move toward corridorization is the institutionalization of one-stop operations. In October 2023, the railway companies of Kazakhstan, Azerbaijan, and Georgia agreed to establish a joint organization for Middle Corridor cargo; the joint operator Middle Corridor Multimodal was registered at the Astana International Financial Center to offer integrated services and guaranteed delivery times (Omirgazy, 2023; Eurasian Rail Alliance Index, 2025). Together, these initiatives indicate an attempt to package intermodal movement into a single operational interface, reducing segmentation associated with multiple national operators and fragmented contracting (Astana Times, 2023; Eurasian Rail Alliance Index, 2025).

At the same time, the Caspian overland-maritime interface remains a binding constraint. Corridor assessments estimate current capacity at around 6 million tonnes per year (approximately 80,000 TEU) with plans to increase it to 10 million tonnes by 2027, while identifying seaport constraints and rail bottlenecks as primary limiting factors (Eurasian Rail Alliance Index, 2025). The maritime leg compounds these constraints: adverse weather can suspend port operations, and vessel shortages have repeatedly limited throughput (Eurasian Rail Alliance Index, 2025). Volumes reportedly rose to 4.5–4.8 million tonnes in 2024, yet growth has occurred alongside persistent port, fleet, and transshipment constraints that sustain congestion and delay risks (Ismayilova, 2025; Eurasian Rail Alliance Index, 2025). The key analytical point is that capacity expansion does not automatically ensure reliability: frictions tend to concentrate at crossings and handover nodes, where scheduling, interoperability, and repeatable procedures must align across jurisdictions (Eurasian Rail Alliance Index, 2025; Ismayilova, 2025).

Upgrading is therefore pursued through targeted elimination of pinch points rather than new construction alone. The Roadmap (2022–2027) prioritizes port expansion and rail modernization, including projects at Kuryk and Aktau, the expansion of Baku-Alat capacity, and measures to increase Baku-Tbilisi-Kars throughput (Eurasian Rail Alliance Index, 2025). The second phase of the Port of Baku expansion and fleet augmentation (including additional ferries) is framed as a

complementary measure to alleviate pressure at the Caspian–Caucasus interface (Urciuolo, 2024; Eurasian Rail Alliance Index, 2025). This underscores a recurrent infrastructural mechanism of fragmentation: investments are nationally planned and financed, while binding constraints emerge at cross-border interfaces, where synchronization requires jointly stabilized schedules, shared operational standards, and predictable handover routines (Urciuolo, 2024; Eurasian Rail Alliance Index, 2025).

Turkmenistan illustrates how infrastructural investment can coexist with selective corridor participation, generating “parallel branch” outcomes rather than corridor-wide consolidation. Ashgabat has invested in Caspian port infrastructure and maintains bilateral engagement with Azerbaijan, but has been comparatively less embedded in corridor-wide coordination mechanisms, often favoring ad hoc arrangements (TRACECA, 2024). A TRACECA-facilitated trilateral working group (Azerbaijan-Kazakhstan-Turkmenistan) signals progress toward practical coordination on port stay times, procedures, and fleet capacity. However, integration remains contingent on voluntary, issue-specific cooperation rather than on binding corridor-level management (TRACECA, 2024). In this setting, infrastructural connectivity can expand while fragmentation persists if interface rules are not stabilized through shared, repeatable routines (TRACECA, 2024; Eurasian Rail Alliance Index, 2025).

Alongside cooperation, infrastructural development is also shaped by cushioning and contestation. Partner diversification and external engagement can expand sponsorship options but may also intensify competition over standards and corridor branding (Abbasova, 2024; Urciuolo, 2024). Contestation remains salient where states compete over transit revenues and centrality, encouraging a proliferation of hubs and sub-corridors that can amplify interface coordination problems (Eurasian Rail Alliance Index, 2025). Overall, the binding constraint is less a lack of investment than the tension between hub strategies and corridor-wide requirements for synchronized capacity and interoperable operations at interfaces.

Economic and financial connectivity: tariffs, fees, financing, and rent capture

Economic and financial connectivity remains a primary source of fragmentation because end-to-end performance depends on pricing governance and the ability to package corridor services across multiple operators and jurisdictions. Corridor assessments and private-sector-oriented reporting indicate that predictable end-to-end tariffs, harmonized fees, and standardized documentation

remain only partially realized, constraining competitiveness even as infrastructure improves (Eurasian Rail Alliance Index, 2025; OECD, 2023; OECD, 2025).

Cooperation is most visible in facilitation initiatives and negotiated tariff products. Kazakhstan and Azerbaijan pursue simplification and border-logistics improvements (including CAREC-linked efforts), with harmonized documentation and digital instruments (e-CMR, eTIR, unified consignment notes) framed as tools to reduce paper-based frictions and uneven compliance (Urciuolo, 2024). Testing of digital consignment notes on the Baku-Tbilisi-Kars section similarly signals incremental movement toward administrative interoperability (Urciuolo, 2024). Cooperation also appears in tariff schedules approved for defined routes and periods (for example, a 2024 tariff of \$3,948 per FEU on the Altynkol-Aktau-Baku (Alat)-Batumi-Constanta route (Eurasian Rail Alliance Index, 2025). At the same time, these arrangements reveal a structural vulnerability: pricing governance depends on recurring multi-actor bargaining rather than an integrated tariff authority, leaving predictability sensitive to discretion and renegotiation (Eurasian Rail Alliance Index, 2025). External finance and corridor investment signaling, therefore, heighten the importance of converting projects into interoperable services rather than parallel national expansions (European Commission, 2024).

Turkmenistan illustrates how discrete bargains can enable flows without producing corridor-wide economic rules. The 2022 gas swap among Turkmenistan, Iran, and Azerbaijan supports monetization and diversification without new pipelines, but does not translate into stable corridor-wide governance for transit and logistics (Asadova, 2023). More broadly, bundling energy-linked cooperation with connectivity agendas can raise strategic value without yielding uniform operational rules for corridor services.

Cushioning is pronounced as corridor states hedge through diversified external linkages under partially incompatible trade-policy frameworks. Kazakhstan combines EAEU membership with WTO accession and extensive ties with the EU and China; Azerbaijan remains outside the EAEU and the WTO; and Turkmenistan avoids trade bloc commitments and relies on bilateral contracting (Muratova et al., 2023; Campion, 2025). While diversification reduces vulnerability, it complicates common economic regimes: tariff structures and regulatory commitments remain only partially compatible across the Caspian core. Copying is visible in the diffusion of e-CMR/eTIR templates, but uneven administrative and technical readiness means partial adoption can reproduce fragmentation rather than resolve it (Urciuolo, 2024; OECD, 2025).

Contestation remains a major driver of pricing fragmentation and rent capture. Divergent tariff schedules and alignments generate variation in rules and costs (Aituar & Kemelbayeva, 2022). Corridor reporting notes complaints about high tariffs on the Caspian Sea, limited transparency, and frequent price changes (Eurasian Rail Alliance Index, 2025). The same reporting contrasts a \$3,269-per-FEU composite index for EAEU transit with the \$3,948-per-FEU TITR tariff example, underscoring continued exposure to cost-based competition and price-sensitive rerouting (Eurasian Rail Alliance Index, 2025). Hub competition also extends to investment attraction through distinct incentive regimes (e.g., Alat FEZ exemptions), while domestic economic-security measures (temporary restrictions, controls, episodic closures) can disrupt predictability for operators (Urciuolo, 2024; Horák, 2023). In hydrocarbon-rich political economies, rent governance and transparency shape both investor expectations and the credibility of pricing commitments (Öge, 2015).

Containment and coercion emerge when connectivity is framed as reducing specific actors' roles in transit, and when external leverage over routes reshapes bargaining positions under sanctions-era compliance pressures (Urciuolo, 2024; Silvan & Kaczmarek, 2023). Against this background, pushes for a single operator and more uniform tariffs can be read as attempts to reduce the vulnerability created by fragmented pricing power (Eurasian Rail Alliance Index, 2025), and are supported by digital tracking initiatives aimed at lowering administrative friction and improving traceability (Ismayilova, 2025). Guidance-oriented work similarly emphasizes that profitability depends on addressing practical barriers, such as informal fees and coordination gaps (Caspian Policy Center, 2024; OECD, 2025).

Overall, the evidence indicates that economic and financial connectivity oscillates between facilitating integration and maintaining nationally retained autonomy over pricing and revenue practices. This configuration sustains fragmented connectivity by keeping end-to-end predictability contingent on bargaining cycles, uneven transparency, and differential implementation capacity across corridor interfaces (Eurasian Rail Alliance Index, 2025; OECD, 2025).

Institutional connectivity: agreements, corridor bodies, enforceability

Institutional connectivity is the sphere in which fragmented connectivity is most structurally reproduced. There is no single regional organization encompassing Kazakhstan, Azerbaijan, and

Turkmenistan with the authority to underpin a shared regulatory regime for the Middle Corridor. Instead, governance is mediated by layered organizations, conventions, corridor bodies, and bilateral instruments that only partially overlap. The result is incremental problem-solving under durable institutional pluralism, limiting the corridor's capacity to stabilize rules, pricing, and schedules end-to-end (OECD, 2023; OECD, 2025; Eurasian Rail Alliance Index, 2025).

This pluralism is rooted in divergent alignments and sovereignty preferences. Kazakhstan participates in multiple Eurasian and Asian institutions, while Azerbaijan and Turkmenistan have avoided Russian-led alliances and deep unions; Turkmenistan's neutrality doctrine constrains delegation to corridor-level bodies and encourages bilateral control (Tskhay & Buranelli, 2020). Variation in external alignment and willingness to delegate authority supports hedging and autonomy but complicates the emergence of a single corridor "rulebook," helping explain why Ashgabat tends to prefer bilateral instruments over corridor-wide delegation (Horák, 2012; Yapıcı, 2017).

Cooperation is most visible in corridor-specific and minilateral arrangements. The International Association Trans-Caspian International Transport Route (TITR), established in 2017 by Kazakhstan, Azerbaijan, and Georgia, aims to harmonize procedures, tariffs, and marketing, while summit diplomacy has reinforced commitments to digitalization and interoperability (Eurasian Rail Alliance Index, 2025; Shegirbayev, 2024). The June 2023 Kazakhstan–Azerbaijan–Georgia agreement to reduce delays and optimize tariff-setting further illustrates cooperation to improve operational performance (Eurasian Rail Alliance Index, 2025). The 2018 Convention on the Legal Status of the Caspian Sea reduced legal uncertainty relevant to maritime governance. However, it does not constitute operational corridor governance for end-to-end transport performance (Kachalova, 2019). External partner engagement adds a further layer through sectoral dialogues and partnership instruments, for example, the EU–Azerbaijan high-level transport dialogue (Abilov & Hajiyevev, 2022).

Despite these instruments, corridor governance functions more as coordination than authority. Outcomes depend on repeated bargaining across agencies and borders rather than enforceable corridor-wide rules, making harmonization vulnerable to discretion and renegotiation (Eurasian Rail Alliance Index, 2025). This helps explain why institutional reform efforts tend to favor corridor "packaging" solutions, such as one-stop governance and more uniform tariffs through

operator arrangements like Middle Corridor Multimodal – rather than delegation to a supranational rule-setting body (Eurasian Rail Alliance Index, 2025).

Copying and cushioning reinforce this pattern. Digital reforms such as Kazakhstan’s Keden system and the Digital Trade Corridor platform can reduce frictions at specific nodes, but limited cross-border customs cooperation produces duplication and longer crossings; multi-track alignments and Turkmenistan’s bilateralism further limit corridor-wide institutionalization (OECD, 2025; Tskhay & Buranelli, 2020; Eurasian Rail Alliance Index, 2025). Contestation persists through overlapping arenas and dense bilateral agreements that fragment the legal landscape operators face and sustain uneven enforcement as a de facto pressure point (Feyziyeva, 2022; OECD, 2025). Overall, the evidence indicates that cooperation without enforceable delegation remains a structural mechanism reproducing fragmented connectivity in the Caspian core of the Middle Corridor (Shegirbayev, 2024; OECD, 2025; Eurasian Rail Alliance Index, 2025).

Knowledge connectivity

Core finding. Knowledge connectivity – cross-border exchanges of expertise, technical know-how, and data practices, which help explain why physical upgrading does not automatically produce a coherent corridor service. Where information systems, operational know-how, and professional capacity remain uneven, fragmentation persists through variable service quality, weak cross-border coordination, and higher uncertainty premiums in routing decisions.

A first mechanism is digital visibility: the ability of shippers and operators to track, trace, and coordinate movements across segments. Azerbaijan Railways’ monitoring tools are framed as reducing information asymmetries, while diagnostics indicate persistent weaknesses in logistics service quality, tracking and tracing, and timeliness alongside uneven IT deployment (Ismayilova, 2025; Danelia, 2024). OECD likewise links competitiveness to digitalized customs and trade-facilitation reforms, while stressing that incomplete adoption and uneven implementation constrain corridor-wide gains (OECD, 2025). This is also consistent with recent research on Kazakhstan’s digital transformation, which shows that the country’s information-space development depends not only on technological expansion but also on institutional capacity, digital governance, and the uneven dynamics of implementation (Yskak et al., 2025). Post-2022 corridor diplomacy increasingly promotes integrated technological solutions as a governance fix, but their

effectiveness depends on cross-border uptake and inter-agency coordination rather than on stand-alone projects (Guliyev, 2022; OECD, 2025).

A second mechanism is corridor intelligence: modeling and benchmarking used to diagnose bottlenecks and justify investment priorities. GIS-based and comparative route assessments shape how reliability is defined and communicated, while also enabling competitive positioning through metrics and standards (Biró & Vasa, 2024; Nurseit, 2025). A third mechanism concerns skills and organizational learning. This emphasis is consistent with recent research on Kazakhstan's higher education and institutional development, which highlights the role of intellectual capital, human resources, and university–industry–government interaction in strengthening innovation ecosystems and national competitiveness (Tarman et al., 2026; Torebekova et al., 2026). Corridor analyses highlight training and capacity building as prerequisites for translating “soft infrastructure” into operational improvements, with academic and professional networks supporting longer-term convergence; practitioner commentary emphasizes that weak administrative capacity can prevent agreements from being implemented in practice (Gasimli, 2025; Tüfekçi et al., 2025).

In framework terms, cooperation and copying are most visible in training objectives and diffusion of digital templates, but uneven readiness can reproduce fragmentation through partial interoperability and duplicated routines (OECD, 2025). Cushioning appears in diversified technology partnerships, while contestation can emerge when data, standards, and benchmarks become bargaining resources that shape corridor branding and perceived reliability (Biró & Vasa, 2024). Overall, knowledge connectivity mediates between infrastructure and performance: uneven interoperability, analytics capacity, and learning sustain fragmented connectivity even as material upgrading advances.

Societal action connectivity

Societal action connectivity captures the people-centered channels through which corridor projects become socially embedded – mobility regimes, labor and skills, professional networks, and the narratives that legitimize or contest “connectivity.” In the Middle Corridor, it is best assessed through the Kazakhstan-Azerbaijan-Turkmenistan triad, as corridor reliability depends on whether cooperation becomes routine across the Caspian space rather than remaining dense only in selected

bilateral ties. Empirically, societal action connectivity remains uneven, reproducing fragmentation even where other spheres show upgrading.

Societal action connectivity is comparatively advanced along the Kazakhstan-Azerbaijan axis, where repeated interaction among corridor-relevant communities and organizational platforms reduces day-to-day coordination costs. TITR-related stakeholder coordination structures and sustained working groups help routinize interaction between agencies and logistics communities, enabling informal troubleshooting that complements formal agreements. However, these spillovers are not corridor-wide: dense Kazakhstan-Azerbaijan social embedding does not ensure similar routines across the Turkmenistan segment.

Within the triad, Turkmenistan functions as the thin link. OECD stakeholder evidence reports mobility obstacles for transit through Turkmenistan, including long visa processing times, high fees, short validity periods, and restrictive transport rules, as well as cabotage restrictions and mandatory “hauler change” procedures at the border (OECD, 2025). These frictions discourage the routinized use of corridor segments that rely on stable cross-border labor mobility, thereby weakening corridor-wide reliability. In framework terms, autonomy-protecting restrictions can have containment-like effects by limiting the emergence of a corridor-wide operational community.

Human capital and integrity conditions further shape outcomes. Recent research on regional standards-based vocational training in Kazakhstan’s labor market similarly emphasizes that work performance and innovation skills depend on the alignment of training practices with sectoral and regional development needs (Mambetova et al., 2025). OECD stakeholders identify shortcomings in documentation handling and communication capacity among some drivers and highlight training and language courses as remedies (OECD, 2025). Integrity risks also raise the social costs of routine cross-border work: OECD evidence reports redundant controls and references to informal payments affecting drivers (OECD, 2025). These practices increase perceived arbitrariness and undermine trust even where infrastructure is present.

Copying through digital documentation is a potential convergence pathway. UNECE eTIR enables secure exchange of transit data between customs systems, and the UNECE eCMR framework enables electronic consignment notes, both of which can reduce paperwork burdens and support more standardized routines – conditional on interoperable implementation and skills uptake (UNECE, n.d.; UNECE, 2008). OECD evidence points to incremental progress toward

cooperation and copying (including discussions on easing mobility and clarifying permit rules), but diffusion remains uneven, and partial uptake can reproduce corridor-level unevenness (OECD, 2025; Urciuolo, 2024). Finally, societal embedding depends on contested narratives: pro-corridor claims about opportunity coexist with critiques emphasizing rents and distributional or environmental concerns, thereby shaping the political space for liberalization and routinization (Aguilar, 2025).

Summary. Overall, societal action connectivity remains uneven across the triad. Kazakhstan and Azerbaijan benefit from thicker networks, but mobility restrictions and operational frictions around Turkmenistan constrain the emergence of a corridor-wide operational community, reinforcing fragmented connectivity (OECD, 2025).

Security connectivity: compliance, screening, and conflict risk

Core finding. Security connectivity concerns how corridor participants manage risks arising from cross-border linkages, including sanctions compliance, risk screening, conflict-related disruptions, and the protection of critical infrastructure. Since 2022, this sphere has become constitutive of the Middle Corridor's strategic value as demand has been rerouted amid war, sanctions, and reputational risk. Under these conditions, corridor reliability depends on whether participants can approximate a shared security environment through predictable rules, aligned screening, and crisis coordination (Mahmudov, 2025; Yagubzade, 2025). OECD corridor work links enforcement practices (risk management, screening frictions, and informal fees) to competitiveness outcomes (OECD, 2023; OECD, 2025).

A first mechanism is sanctions-risk rerouting. The corridor is framed as an alternative that bypasses sanctioned Russian territory and reduces exposure to politically vulnerable routes (Yagubzade, 2025; Claessen, 2026). This supports cooperation insofar as multiple governments and firms benefit from stabilizing an alternative pathway. However, it also embeds contestation, as expansion intersects with competition over influence, standards, and alignment in sanctions-era routing (Claessen, 2026). Framing the corridor as a bypass of Russia further ties security to corridor branding and route choice (Chitorelidze, 2024).

A second mechanism concerns conflict-linked vulnerability in the South Caucasus. Debates over routes such as Zangezur illustrate securitization, in which connectivity governance becomes entangled with control over access and leverage (Biró & Vasa, 2024). In framework terms,

contestation can shift toward containment or coercion when access conditions become exclusionary or imposed, raising uncertainty even when corridor assets remain intact (Biró & Vasa, 2024). Regional security analyses after 2023 similarly point to dynamics that can raise perceived risk around transport corridors and affect planning horizons (Dadparvar & Parto, 2026).

A third mechanism is de-risking and compliance capacity. European interest in the corridor is linked to resilience, but its viability depends on credible monitoring to prevent sanctions evasion and diversion, tying performance to screening quality (Yagubzade, 2025). Where compliance is uneven, security connectivity produces selective permeability; some flows move while others face tightened procedures or reputational barriers, reinforcing fragmentation through differentiated access conditions (Yagubzade, 2025). The EU's Global Gateway framing and investment signaling illustrate how security and resilience objectives are increasingly attached to corridor finance and conditionality expectations (European Commission, 2024).

A fourth mechanism concerns spoiler incentives and resilience. Because the corridor competes with other Eurasian routes, some actors may seek to hinder or politicize its development, increasing the value of redundancy, contingency planning, and crisis communication (Papava, 2025). This fosters cushioning through diversification and redundancy, but can also sustain contestation as security measures become politicized (Mahmudov, 2025; Biró & Vasa, 2024).

Summary. Security connectivity tightens the link between governance and performance: cooperation incentives coexist with contestation rooted in sanctions-era alignment and conflict geographies. Fragmentation is reproduced when screening, compliance capacity, and crisis coordination remain uneven, generating differentiated access and higher uncertainty costs despite rising demand (Claessen, 2026; Yagubzade, 2025).

Discussion

This section synthesizes the sphere-led findings by identifying how connectivity initiatives generate fragmentation when strategic logics collide across domains. Fragmentation is treated not as residual “incompletion” but as a patterned outcome of strategic interaction: cooperation, cushioning, copying, and contestation coexist (and often undermine one another) across infrastructural, economic, institutional, societal, knowledge, and security spheres (Gaens et al., 2023a; Plagemann et al., 2021; Opitz & Tellmann, 2012).

Mechanism 1: Infrastructural cooperation and economic contestation. Capacity building and selective operational coordination coexist with price competition and rent capture. Since 2022, actors have pursued bottleneck removal, one-stop concepts, and service bundling, yet tariff bargaining and fee rivalry reintroduce uncertainty premiums and weaken incentives for corridor-wide optimization (Astana Times, 2023; Eurasian Rail Alliance Index, 2025; Urciuolo, 2024).

Mechanism 2: Institutional thinness and selective implementation. Coordination platforms exist, but without enforceable authority, predictability remains contingent on repeated bargaining across borders and agencies (OECD, 2025; Eurasian Rail Alliance Index, 2025). Implementation gaps, especially in customs cooperation, turn reforms into “islands” of interoperability rather than corridor-wide routinization (OECD, 2025).

Mechanism 3: Copying without convergence. Templates (e-CMR, eTIR, unified consignment notes) diffuse faster than the capacity to implement them uniformly. Uneven readiness makes the least interoperable segment the binding constraint, reproducing fragmentation through partial interoperability and duplicated routines (Urciuolo, 2024; OECD, 2025).

Mechanism 4: Cushioning that protects autonomy but weakens rule-pooling. Diversification of partners, routes, and alignment functions as a form of rational risk management under sanctions-era uncertainty, yet it reduces incentives to pool authority over tariffs, standards, mobility regimes, and risk governance (Gould et al., 2018; Gould et al., 2021; Plagemann et al., 2021; OECD, 2025).

Mechanism 5: Security-driven selective permeability. Screening and compliance controls generate differentiated openness across cargo, operators, and financing channels, producing fragmentation by category rather than by geography alone (Opitz & Tellmann, 2012; OECD, 2025). In a sanctions-risk environment, security governance becomes constitutive of corridor performance rather than an external constraint (Gaens et al., 2023a).

System effect. Across spheres, progress in one domain (infrastructure or digital tools) is repeatedly offset by countervailing logics in adjacent domains (rent competition, selective implementation, autonomy-preserving hedging, and security screening), producing a corridor that is strategically salient yet institutionally disjointed (Gaens et al., 2023a; Opitz & Tellmann, 2012; Högselius, 2022).

The evidence supports a qualified conclusion: integration remains a consistent diplomatic frame, but national interests more reliably govern implementation, especially where integration would require pooling authority or redistributing rents. Cooperative initiatives (bottleneck reduction,

operational coordination, and one-stop packaging) signal an integrative intent in which throughput gains can be achieved without constraining discretion at key nodes.

However, the corridor's integration-producing levers remain only partially realized. Pricing governance depends on recurring negotiation rather than a stable corridor-level authority; institutional architecture remains layered; and uneven digital uptake yields "islands" of interoperability rather than routinized corridor-wide procedures. These patterns sit uneasily with strong regional-integration expectations because integration requires rule-bound predictability beyond bilateral bargaining.

Domestic political economy and the sanctions-era risk environment reinforce this outcome. Hub-building incentives raise the opportunity cost of pooling authority over tariffs and interface governance, while compliance and reputational exposure increase the value of autonomy and flexible alignment. Societal constraints – uneven mobility rules, professional standards, and integrity environments – further limit routinized corridor-wide cooperation. The adjudication, therefore, is not that integration is absent, but that it remains selective and conditional: it advances where consistent with national strategies for centrality and revenue, and stalls where it would constrain the instruments through which states manage risk and capture rents.

A further mechanism concerns power asymmetry among corridor actors. Fragmentation is not produced only by divergent preferences among formally equal states; it is also shaped by unequal control over strategic nodes, institutional participation, information, and external partnerships. Kazakhstan and Azerbaijan possess stronger corridor-shaping capacity because they are more deeply embedded in TITR-related coordination mechanisms and occupy central positions in the east–west operational chain. This interpretation is consistent with recent research on Kazakhstan's middle-power agency in Eurasian regional security governance, which shows that institutional adaptation under conditions of great-power asymmetry often depends on agenda-setting, coalition-building, and selective procedural institutionalization rather than on the creation of fully integrated supranational authority (Batyrbayev et al., 2025). Kazakhstan's role as the eastern Caspian anchor makes its infrastructure, customs, tariff, and rail-logistics choices central to the corridor's performance. At the same time, Azerbaijan's position at the Caspian–South Caucasus interface gives it leverage over maritime-to-rail continuity and onward access to Georgia and Türkiye. Turkmenistan, by contrast, has infrastructural relevance but more limited institutional

embeddedness, which reduces corridor-wide predictability and makes its participation more dependent on bilateral or issue-specific arrangements.

Power asymmetry also appears in the role of external actors. EU investment signaling, Chinese logistics interests, Türkiye's connectivity strategy, Russian route competition, and sanctions-related compliance expectations do not affect all corridor states equally. These external pressures can incentivize cooperation, but they can also reinforce selective alignment and autonomy-preserving strategies. As a result, fragmented connectivity should be understood not only as a coordination failure but also as an outcome of asymmetric bargaining power across nodes, institutions, information environments, and external partnerships.

Conclusion

This article set out to explain why the Middle Corridor's heightened strategic salience after 2022 has not produced corresponding institutional integration and operational harmonization. The Middle Corridor's renewed prominence, therefore, raises a central question for Asian security and international affairs: why does heightened strategic salience not translate into corridor-wide institutional integration and operational harmonization? This article addressed the puzzle by applying the spheres-and-logics framework developed by Gaens et al. (2023a) to examine how corridor actors construct, govern, and, at times, constrain connectivity across the infrastructural, economic and financial, institutional, knowledge, societal action, and security domains.

The core conclusion is that fragmented connectivity in the Middle Corridor is best understood as a politico-institutional outcome generated by strategic interaction rather than as a residual consequence of incomplete infrastructure. Material upgrades and selective service coordination have advanced, but they are embedded in governance arrangements that remain institutionally thin and dependent on repeated bargaining across jurisdictions. Across spheres, corridor performance is shaped by collisions among strategic logics. Cooperation in infrastructure and corridor packaging is frequently offset by contestation over hub status and rent capture. Cushioning via multi-vector partnerships can strengthen resilience while complicating interoperable rule-making. Copying through digitalization and the diffusion of standards is constrained by uneven implementation capacity and cross-border uptake. Security-linked risk management introduces selective permeability, which can exacerbate administrative frictions under sanctions-era compliance pressures. Societal action dynamics further condition outcomes: where mobility

regimes, professional standards, and integrity environments remain uneven, routinized corridor-wide cooperation is difficult to sustain.

These findings carry three implications. First, in the context of connectivity scholarship, the Middle Corridor demonstrates the value of treating connectivity as a strategic phenomenon that combines connection-building with selective disconnection across domains, rather than as a linear expansion of networks. Second, for Eurasian regionalism, the corridor illustrates how national-interest strategies can generate partial integration without consolidation: integration advances where it does not materially constrain discretion over rents, standards, and critical interfaces, making fragmentation a durable equilibrium rather than a transitional phase. Third, for policy, the corridor's competitiveness depends less on incremental capacity additions than on governance reforms that stabilize end-to-end predictability – more transparent and durable tariff regimes; enforceable documentation and interoperability standards; interoperable digital systems with cross-border data-sharing; predictable mobility conditions for corridor workers; and credible compliance governance that reduces discretionary frictions.

The findings also show that corridor integration depends not only on shared strategic interest, but on how asymmetrical control over nodes, rules, information, and external partnerships is negotiated among corridor actors.

The Middle Corridor is therefore likely to expand as a strategically salient but structurally fragmented corridor unless corridor-level governance evolves from coordination toward enforceability. For Asian security and international affairs, this underscores that corridor governance (standards, screening, documentation, and institutional authority) has become a key arena for ordering interdependence across Asia–Europe linkages.

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References

- Abbasova, V. (2024, September 24). China partners with Kazakhstan, Azerbaijan, Georgia on Middle Corridor initiative. *Caspian News*. <https://caspiannews.com/news-detail/china-partners-with-kazakhstan-azerbaijan-georgia-on-middle-corridor-initiative-2024-9-24-56/>
- Abilov, S., & Hajiyev, B. (2022). The European Union–Azerbaijan high-level transport dialogue: A timely reaction to the structural changes? *Journal of Eurasian Studies*, 13(1), 32–41. <https://doi.org/10.1177/18793665211054516>
- Aguiar, P. (2025). *The Middle Corridor: A route born of the new Eurasian geopolitics*. Geopolitical Monitor. <https://www.geopoliticalmonitor.com/the-middle-corridor-a-route-born-of-the-new-eurasian-geopolitics/>
- Aituar, A., & Kemelbayeva, S. (2022). The effects of changes in tariff rates on imports: Evidence from Kazakhstan. *The Economy: Strategy and Practice*, 17(2), 178–189. <https://doi.org/10.51176/1997-9967-2022-2-178-189>
- Asadova, N. (2023). Relations between Azerbaijan and Turkmenistan in the use of energy resources of the Caspian Sea. *Eastern Studies*, (2), 113–118. <https://doi.org/10.59849/2957-3882.2023.2.113>
- Astana Times. (2023, June). *Kazakhstan, Azerbaijan, Georgia to set up joint logistics company to facilitate cargo transportation process*. <https://astanatimes.com/2023/06/kazakhstan-azerbaijan-georgia-to-set-up-joint-logistics-company-to-facilitate-cargo-transportation-process/>
- Batyrbayev, K., Dyussembekova, M., Kozhirova, S., & Nechayeva, Y. (2025). Middle Powers and Institutional Adaptation in Regional Security Organizations: The Case of the Shanghai Cooperation Organization. *Journal of Social Studies Education Research*, 16(4), 201–225. <https://jsser.org/index.php/jsser/article/view/7000/759>
- Biró, D., & Vasa, L. (2024). Unveiling the strategic significance of the Middle Corridor in global trade and geopolitical dynamics. *The Economy: Strategy and Practice*, 19(2), 70–83. <https://doi.org/10.51176/1997-9967-2024-2-70-83>
- Campion, J. (2025, September 1). *U.S.–Turkmenistan rapprochement: Energy, neutrality, and digital geopolitics*. The Times of Central Asia. <https://timesca.com/u-s-turkmenistan-rapprochement-energy-neutrality-and-digital-geopolitics/>
- Caspian Policy Center. (2024). *How to maximize the Middle Corridor: A guide to infrastructure priorities, barriers, and investments*. https://api.caspianpolicy.org/media/ckeditor_media/2024/05/29/how-to-maximiize-the-middle-corridor.pdf

- Chitorelidze, S. (2024). *Geopolitics of transportation: The Middle Corridor – Trans-Caspian International Route bypassing Russia*. Civic IDEA. <https://civicidea.ge/wp-content/uploads/2024/07/MiddleCorridor.pdf>
- Claessen, K. (2026). *Connectivity and competition in the South Caucasus: Geography as a source of power*. International Centre for Defence and Security. https://icds.ee/static/icds_analysis_connectivity_and_competition_in_the_south_caucasus_koen_claessen_january_2026.pdf
- Creswell, J. W., & Poth, C. N. (2024). *Qualitative inquiry and research design: Choosing among five approaches* (5th ed.). SAGE Publications.
- Dadparvar, S., & Parto, A. (2026). New actors in arms procurement in the South Caucasus: The Azerbaijan–Armenia arms race after the dissolution of the Republic of Artsakh. *Journal of Eurasian Studies*. Advance online publication. <https://doi.org/10.1177/18793665261416945>
- Danelia, S. (2024). The Middle Corridor in current geopolitical turbulence. *Canadian Journal of Research, Society and Development*, 1(2), 2–9. <https://doi.org/10.62910/setsrb57>
- Eurasian Rail Alliance Index. (2025). *The Trans-Caspian International Transport Route and other promising corridors in Central Asia* (Special report). https://index1520.com/upload/medialibrary/c1a/h914jj1ibcbwxh7n7a9iix89eilcb8ta/en310125_TITR.pdf
- European Commission. (2024, January 30). *Global Gateway: EU and Central Asian countries agree on building blocks to develop the Trans-Caspian Transport Corridor* [Press release]. Directorate-General for International Partnerships. https://international-partnerships.ec.europa.eu/news-and-events/news/global-gateway-eu-and-central-asian-countries-agree-building-blocks-develop-trans-caspian-transport-2024-01-30_en
- Feyziyeva, G. (2022). Azerbaijan's growing role in Europe's gas security. *International Journal of Social Political and Economic Research*, 9(2), 63–70. <https://doi.org/10.46291/ijospervol9iss02pp63-70>
- Flick, U. (2023). *An introduction to qualitative research* (7th ed.). SAGE Publications.
- Flick, U. (Ed.). (2024). *The SAGE handbook of qualitative research quality*. SAGE Publications.
- Flint, C., & Zhu, C. (2019). The geopolitics of connectivity, cooperation, and hegemonic competition: The Belt and Road Initiative. *Geoforum*, 99, 95–101. <https://doi.org/10.1016/j.geoforum.2018.12.008>
- Gaens, B., & Sinkkonen, V. (2023). Contentious connectivity: The USA, Japan, and the Free and Open Indo-Pacific. *East Asia*, 40, 265–291.

- Gaens, B., Sinkkonen, V., & Vogt, H. (2023a). Connectivity and order: An analytical framework. *East Asia*, 40(3), 209–228. <https://doi.org/10.1007/s12140-023-09401-z>
- Gaens, B., Sinkkonen, V., & Ruokamo, A. (2023b). Introduction to the special issue: Theory and practice of connectivity in the Indo-Pacific—Spheres, logics, and regional dynamics. *East Asia*, 40, 195–207. <https://doi.org/10.1007/s12140-023-09411-x>
- Gasimli, V. (Ed.). (2025). *The Middle Corridor: Navigating current realities and embracing future prospects*. Târgu Mureş University Press.
- Gould, D. M., Kenett, D. Y., & Panterov, G. (2018). *Multidimensional connectivity: Benefits, risks, and policy implications for Europe and Central Asia* (Policy Research Working Paper). World Bank. <https://documents1.worldbank.org/curated/en/580411526052786851/pdf/WPS8438.pdf>
- Gould, D. M., Kenett, D. Y., & Panterov, G. (2021). Multi-dimensional economic connectivity: Benefits, risks, and policy implications. *International Journal of Finance & Economics*, 26(4), 6110–6127. <https://doi.org/10.1002/ijfe.2111>
- Guliyev, V. (2022). *The rising significance of the Middle Corridor*. Baku Dialogues. <https://bakudialogues.idd.az/articles/the-rising-significance-of-the-middle-corridor-18-10-2022>
- Högselius, P. (2022). The hidden integration of Central Asia: The making of a region through technical infrastructures. *Central Asian Survey*, 41(2), 223–243. <https://doi.org/10.1080/02634937.2021.1953963>
- Horák, S. (2012). The elite in post-Soviet and post-Berdymukhammedov Turkmenistan: Does political culture form a leader? *Demokratizatsiya: The Journal of Post-Soviet Democratization*, 20(4), 371–385.
- Horák, S. (2023). Turkmenistan in Eurasian railway geopolitics. *Central Asian Survey*, 42(1), 171–190. <https://doi.org/10.1080/02634937.2022.2085663>
- Ismayilova, A. (2025, October 2). *The Middle Corridor in current geopolitical turbulence* (Policy brief). Institute for Development and Diplomacy. https://idd.az/media/2025/10/02/idd_policy_brief_-_aybeniz_ismayilova_-_2_october_2025.pdf
- Kachalova, A. V. (2019). Future trends in Caspian littoral states five-side economic cooperation. *Post-Soviet Issues*, 6(2), 165–174. <https://doi.org/10.24975/2313-8920-2019-6-2-165-174>
- Karjalainen, T. (2023). European norms trap? EU connectivity policies and the case of the Global Gateway. *East Asia*, 40(3), 293–316. <https://doi.org/10.1007/s12140-023-09403-x>

- Kenderdine, T., & Bucsky, P. (2021). *Middle Corridor: Policy development and trade potential of the Trans-Caspian International Transport Route* (ADBI Working Paper No. 1268). Asian Development Bank Institute. <https://www.adb.org/sites/default/files/publication/705226/adbi-wp1268.pdf>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.
- Lobo-Guerrero, L. (2012). Connectivity as the strategization of space: The case of the Port of Hamburg. *Distinktion: Journal of Social Theory*, 13(3), 310–321. <https://doi.org/10.1080/1600910X.2012.697860>
- Mahmudov, F. (2025). *Why Europe is turning to the Middle Corridor*. Caspian Post. <https://caspianpost.com/opinion/why-europe-is-turning-to-the-middle-corridor>
- Mambetova, A., Mendaliyeva, S., Amaniyazova, G., & Akkenzheyeva, A. (2025). A qualitative study on the perceived contributions of regional standards-based vocational training to work performance and innovation skills in the Kazakhstan labor market. *Journal of Social Studies Education Research*, 16(3), 128–169. <https://jsser.org/index.php/jsser/article/view/6720/745>
- Muratova, M., Sadri, H., Medeubayeva, Z., & Issayeva, A. (2023). The EU and Kazakhstan in the latest geopolitical and geoeconomic conditions: New dimensions of partnership. *Journal of Eurasian Studies*. Advance online publication. <https://doi.org/10.1177/18793665231215799>
- Nurseiit, N. (2025). Attractiveness and prospects of the Middle Corridor for cargo transportation between Europe and Asia. *Journal of Eurasian Studies*, 17(1), 167–182. <https://doi.org/10.1177/18793665251388115>
- OECD. (2023). *Realising the potential of the Middle Corridor*. OECD Publishing. <https://doi.org/10.1787/635ad854-en>
- OECD. (2025). *Enhancing the competitiveness of the Trans-Caspian Transport Corridor in Central Asia*. OECD Publishing. https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/11/enhancing-the-competitiveness-of-the-trans-caspian-transport-corridor-in-central-asia_e989025f/f261e7fa-en.pdf
- Öge, K. (2015). Geopolitics and revenue transparency in Turkmenistan and Azerbaijan. *Eurasian Geography and Economics*, 56(1), 89–110. <https://doi.org/10.1080/15387216.2015.1057756>
- Omirgazy, D. (2023, December). *Kazakhstan plans to boost volume of cargo transit from China to Europe by 2029*. The Astana Times. <https://astanatimes.com/2023/12/kazakhstan-plans-to-boost-volume-of-cargo-transit-from-china-to-europe-by-2029/>

- Opitz, S., & Tellmann, U. (2012). Global territories: Zones of economic and legal dis/connectivity. *Distinktion: Journal of Social Theory*, 13(3), 261–282. <https://doi.org/10.1080/1600910X.2012.724432>
- Papava, V. (2025). *The Middle and Zangezur corridors: Alternatives, or mutually complementary*. <https://www.coreacad.org/upload/file/20250914/6389340983450501816257595.pdf>
- Plagemann, J., Datta, S., & Chu, S. (2021). The paradox of competing connectivity strategies in Asia. *Third World Quarterly*, 42(10), 2265–2281. <https://doi.org/10.1080/01436597.2021.1941846>
- Shegirbayev, O. (2024). Kazakhstan within the framework of the OTS and the EAEU: Comparative analysis. *Russia and New States of Eurasia*, (4), 152–165. <https://doi.org/10.20542/2073-4786-2024-4-152-165>
- Silvan, K., & Kaczmarek, M. (2023). Russia's approach to connectivity in Asia: From cooperation to coercion. *East Asia*, 40, 317–334. <https://doi.org/10.1007/s12140-023-09404-w>
- Tarman, B., Bokayev, B., & Torebekova, Z. (2026). (2026). Policies, Intellectual Capital, and Competitiveness in Higher Education Institutions of Kazakhstan. *Journal of Culture and Values in Education*, 9(1), 183-224. <https://doi.org/10.46303/jcve.2026.9>
- Torebekova, Z., Bokayev, B., Zhakypova, F., Bakhtiyarov, A., & Utepkaliyeva, B. (2026). Assessing the Global Competitiveness of Kazakhstan's Higher Education System: A Triple Helix Approach to Innovation and Institutional Development. *Journal of Social Studies Education Research*, 17(1), 256–275. <https://www.jsser.org/index.php/jsser/article/view/7169/774>
- TRACECA Permanent Secretariat. (2024). *A trilateral working group between Azerbaijan, Kazakhstan and Turkmenistan on improving connectivity in the Caspian Sea has begun its work*. TRACECA. https://traceca-org.org/ir/news/single-news/n/a_trilateral_working_group_between_azerbaijan_kazakhstan_and_turkmenistan_on_improving_connectivity/
- Tskhay, A., & Buranelli, F. C. (2020). Accommodating revisionism through balancing regionalism: The case of Central Asia. *Europe-Asia Studies*, 72(6), 1033–1052. <https://doi.org/10.1080/09668136.2020.1779184>
- Tüfekçi, Ö., Bayrak, M., & Uslu, H. (2025). Connectivity and corridors: Türkiye's Middle Corridor vision through international trade. *Perceptions: Journal of International Affairs*, 29(2), 120–147.
- UNECE. (2008). *Additional protocol to the Convention on the Contract for the International Carriage of Goods by Road (CMR) concerning the electronic consignment note (eCMR)*.

- United Nations Economic Commission for Europe. <https://unece.org/DAM/trans/conventn/e-CMRe.pdf>
- UNECE. (n.d.). *eTIR international system / eTIR procedure documentation*. United Nations Economic Commission for Europe. Retrieved May 20, 2026, from <https://unece.org/transport/etir>
- Urciuolo, L. (2024). *The Middle Corridor initiative: Where Europe and Asia meet*. European Institute for Asian Studies. <https://eias.org/wp-content/uploads/2024/03/Briefing-Paper-The-Middle-Corridor-Initiative-Where-Europe-and-Asia-Meet.docx.pdf>
- World Bank. (2023). *Middle trade and transport corridor: Policies and investments to triple freight volumes and halve travel time by 2030*. <https://www.worldbank.org/en/region/eca/publication/middle-trade-and-transport-corridor>
- Yagubzade, K. (2025). *Middle Corridor: Shoring up Germany's economic security*. Geopolitical Monitor. <https://www.geopoliticalmonitor.com/middle-corridor-shoring-up-germanys-economic-security/>
- Yapıcı, U. (2017). From positive neutrality to Silk Road activism? The continuities and changes in Turkmenistan's foreign policy. *Journal of Balkan and Near Eastern Studies*, 20(3), 293–310. <https://doi.org/10.1080/19448953.2018.1385273>
- Yskak, O., Seitakhmetova, N., Zhandossova, S., & Nurov, M. (2025). Regression analysis of digitalization in Kazakhstan: Mathematical modeling of information space dynamics. *Journal of Social Studies Education Research*, 16(3), 170–208. <https://jsser.org/index.php/jsser/article/view/6433>
- Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). SAGE Publications.