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The Geopolitical Repricing of AI Infrastructure: Energy, Risk, and Strategic Allocation

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Abstract

Geopolitical instability is increasingly affecting the development and deployment of artificial intelligence (AI) infrastructure by disrupting energy systems, semiconductor supply chains, and digital infrastructure networks. While existing research has explored geopolitical risk, digital sovereignty, and AI governance, little attention has been paid to understanding how geopolitical factors are integrated into the valuation and strategic allocation of AI infrastructure. This theory-building study introduces the concept of geopolitical repricing, defined as the process through which firms, investors, governments, and infrastructure operators revise their assessment of the economic value, risk profile, and strategic importance of AI infrastructure in response to geopolitical instability. Drawing on literature on geopolitical risk, AI infrastructure, digital sovereignty, geo-economics, and investment under uncertainty, the paper develops a four-stage analytical framework that links geopolitical shocks, transmission channels, revaluation, and strategic reallocation. The framework identifies three interconnected transmission channels: energy volatility, supply-chain disruption, and infrastructure vulnerability, and explains how their cumulative effects may influence valuation judgments, investment criteria, and infrastructure allocation decisions. The study further proposes a set of theoretically derived propositions and operational indicators to guide future empirical research. The paper contributes to the emerging political economy of AI by providing a conceptual explanation of how geopolitical instability may shape infrastructure valuation beyond the immediate effects of disruption. It lays the groundwork for future research on the connections between geopolitical factors, infrastructure strategies, and AI development.

Keywords: geopolitical repricing; AI infrastructure; geopolitical risk; energy and AI; sovereign AI; strategic allocation; digital infrastructure; political economy of AI



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1. Introduction

Artificial intelligence (AI) has evolved from simple algorithms to a complex system integrated into energy networks and global computational infrastructures. The rise of large AI models and cloud services has drastically increased the demand for computing power and electricity. Data centres are now significant consumers of global electricity, and AI workloads are expected to further amplify this demand [1,2]. AI systems are resource-intensive. Training large models can generate hundreds of tons of carbon dioxide emissions [3]. This challenges the idea that AI is a frictionless technology and highlights its dependence on physical resources.

AI systems are closely tied to energy markets, semiconductor production, and cloud services, making them susceptible to disruptions in these areas. Studies show that AI-

driven data centres exert pressure on electricity grids, affecting long-term energy planning and investments [4–6]. Data centres, therefore, are evolving from passive energy consumers to active players in energy systems, influencing infrastructure and resource allocation.

In 2026, tensions in the Strait of Hormuz underscored the vulnerability of global energy systems to geopolitical instability. This strait is crucial for energy transport, with around 20 million barrels of oil per day passing through in 2024, accounting for about 20% of global petroleum consumption [7]. Disruptions in this area led to reduced energy flows, increased market uncertainty, and heightened concerns over energy security and supply. While these events did not specifically target AI systems, they demonstrate how geopolitical shocks to critical energy and logistics infrastructure can affect the economic conditions on which AI relies.

Existing studies have examined how geopolitical risk affects supply chains, energy markets, and technological systems, typically treating advanced technologies, including artificial intelligence, as downstream sectors influenced by these dynamics rather than as infrastructures whose internal economic logic is fundamentally reshaped by geopolitical conditions [8,9].

This paper argues that geopolitical instability can have long-term effects on the economic dynamics of AI infrastructure. Drawing on research on geopolitical risk, AI infrastructure, energy systems, and digital sovereignty, we present a framework, “geopolitical repricing of artificial intelligence infrastructure”, that shows how such instability affects infrastructure costs, risk assessments, and strategic decision-making. Instead of seeing AI as a neutral technology, this view treats AI infrastructure as a strategic asset whose value depends on geopolitical factors.

The repricing mechanism is driven by three main factors: (1) Energy volatility affects the cost and feasibility of AI computation due to rising electricity demand in the sector. (2) Supply chain disruptions, especially in semiconductors and specialised inputs, create uncertainty in scaling AI systems. (3) The concentration of data centres and cloud regions makes AI systems vulnerable to geopolitical and security risks. These factors lead to higher computing costs, higher risk premiums, and changes in capital allocation toward redundancy and strategic control.

The focus on efficiency in digital infrastructure is shifting toward resilience and control, potentially fragmenting the global AI ecosystem. AI is moving from a globally integrated system to a more geopolitically segmented and strategically managed infrastructure. These dynamics are increasingly reflected in strategic responses by both states and firms, including investments in sovereign AI capabilities, diversification of infrastructure locations, and the alignment of AI development with national security and strategic autonomy objectives [10].

Conceptual Distinction: Geopolitical Repricing

Geopolitical repricing is distinct from related concepts in three key areas. Unlike geopolitical risk, which refers to uncertainty arising from political events [8], geopolitical repricing involves the systematic revaluation of AI infrastructure, integrating these risks into cost structures and investment decisions. Unlike resilience strategies that focus on organisational responses [9], repricing concerns the economic changes that drive them. Lastly, whereas digital sovereignty highlights control over infrastructure [11], geopolitical repricing explains why such control becomes economically rational in unstable conditions.

2. Methodological Approach

The objective of this study is to offer a theoretically grounded explanation of how geopolitical instability may impact the valuation and strategic allocation of AI infrastructure, in alignment with conceptual theory-building research [12].

The framework is based on an integrative review of literature across five key areas: AI infrastructure, energy systems, geopolitical risk, global supply chains, and digital sovereignty. Sources were chosen for their relevance to understanding the dependencies of AI systems, particularly regarding compute infrastructure, energy dependence, semiconductor supply chains, geopolitical risk transmission, and technology governance.

The analysis identified three main channels through which geopolitical instability impacts AI infrastructure: energy volatility, supply chain disruption, and infrastructure vulnerability. These channels formed the basis of a geopolitical repricing framework that shows how instability is reflected in costs, risk assessments, and strategic decisions.

The empirical validation of the proposed framework and its propositions will be a significant avenue for future research rather than a tested causal explanation.

3. Literature and Theoretical Positioning

3.1. *AI as Infrastructure: From Digital Tool to Material System*

Recent research views artificial intelligence (AI) as more than just algorithms; it is with physical, economic, and institutional systems [13]. Large AI models depend on energy-intensive computation, specialised semiconductor supply chains, and global data centre networks [14]. This perspective views AI as part of a broader “compute infrastructure,” emphasising that substantial computational resources are essential for achieving capabilities, scalability, and a competitive advantage, rather than just concentrating on algorithm development [13].

Training cutting-edge models, for example, requires significant computational resources, which are often concentrated in a limited number of companies and regions, leading to computing centralisation [15]. The high energy consumption of AI systems raises concern about their environmental and economic impact during large-scale model training and deployment [3]. Studies emphasise the connection between AI and energy systems, indicating that the expansion of data centres is increasingly influencing electricity demand, grid planning, and energy investment decisions [4,5].

The literature views AI as infrastructure but primarily considers its dependence as a technical issue, overlooking how geopolitical factors influence its economic value and strategic significance.

3.2. *Geopolitical Risk, Supply Chains, and Technology Systems*

A parallel body of literature explores how geopolitical risk affects economic systems, particularly in supply chains, energy markets, and international trade. Geopolitical risk increases uncertainty, disrupts production networks, and influences investment decisions [8]. Studies show that interconnected production systems are vulnerable to geopolitical shocks, leading to calls for reshoring, diversification, and resilience strategies [9].

The technology industry faces significant issues in semiconductor supply chains, which are geographically concentrated and strategically important. “Chip geopolitics” illustrates how export controls, trade restrictions, and geopolitical conflicts are affecting access to crucial technologies and disrupting global production networks [16,17]. Geopolitical stability is crucial for ensuring reliable access to essential energy resources like oil, gas, and electricity, which are increasingly important for digital infrastructure [18,19].

The literature mainly views technological systems like AI as passive victims of geopolitical shocks, rather than as infrastructures whose economic logic is actively reshaped by instability.

3.3. AI Governance, Sovereignty, and Strategic Competition

Governments are increasingly recognising the strategic importance of AI in global competition and investing heavily in its development to advance national security, economic competitiveness, and technological independence [20]. This focus has sparked the idea of “sovereign AI,” in which states aim to build and control their own AI infrastructure, data, and capabilities.

Scholars have studied the governance challenges of AI, focusing on accountability, transparency, and ethical oversight [21]. Frimpong and Botchwey highlight the need to better institutionalise AI governance roles and to address the disparity between formal governance frameworks and their practical application, including studies that map these roles [22]. On digital sovereignty, Farrel and Newman stress the crucial role of cloud computing, data localisation, and infrastructure ownership in geopolitical dynamics [11]. Control over digital infrastructure serves as a geopolitical tool, creating imbalances between states and firms.

The literature emphasises governance, control, and strategic competition; however, it does not explain how geopolitical instability may translate into changes in the economic valuation and allocation of AI infrastructure.

3.4. From Geopolitical Risk to Geopolitical Repricing of AI

The disjointed connection between geopolitical instability and economic systems is analysed via three main perspectives.

The first point is that significant studies examine how geopolitical risks disrupt supply chains, energy markets, and global production networks [8,9,18]. These studies show that geopolitical shocks heighten uncertainty, raise costs, and change investment patterns. However, they often treat these effects as external disruptions, without examining how such shocks are incorporated into the valuation of specific infrastructures, such as AI.

Digital sovereignty and strategic competition examine how states and firms seek to control data, cloud infrastructure, and technological capabilities [11,20]. While emphasising power and geopolitical positioning, it lacks an in-depth explanation of the economic mechanisms that drive these shifts. The framework aligns with new geo-economic views that highlight how states leverage economic, technological, and infrastructure resources for strategic competition [23]. In this context, AI infrastructure is not just a tech asset; it plays a crucial role in the broader geo-economic landscape, where energy systems, semiconductor supply chains, and computational capacity have strategic importance.

Third, the literature on AI infrastructure views AI as a resource-intensive system reliant on compute power, data centres, and specialised hardware [5,14]. This perspective acknowledges technical constraints but generally sees infrastructure as a capacity limit rather than a strategic asset whose value is influenced by geopolitical factors.

Together, these strands reveal a significant gap: existing research explains disruptions without addressing revaluation, sovereignty without valuation logic, and infrastructure dependence without strategic repricing. What is missing is a cohesive understanding of how geopolitical instability may alter the economic valuation of AI infrastructure.

Geopolitical scholarship emphasises the need to update traditional frameworks in light of technological change, economic interdependence, and new forms of strategic competition [24]. This shifting landscape is particularly significant for AI infrastructure, which relies on energy systems, semiconductor supply chains, data centres, and computational capacity, leading to new vulnerabilities and economic risks. This paper introduces the idea of geopolitical repricing, explaining how geopolitical instability can affect the valuation and strategic allocation of AI infrastructure.

This proposed framework builds on existing scholarship by summarising key literature streams that inform the concept of geopolitical repricing. The framework also resonates with broader arguments that asset values are shaped not only by economic fundamentals but also by institutional and political arrangements that influence how risks, rights, and future expectations are assessed [25]. From this perspective, geopolitical instability may alter the valuation of AI infrastructure by changing the institutional conditions under which strategic assets are evaluated and governed.

Table 1 outlines the focus of each literature, its limitations in addressing AI infrastructure under geopolitical instability, and how the geopolitical repricing perspective adds value.

Table 1. Literature Foundations of the Geopolitical Repricing Framework.

Literature Stream	Main Focus	Limitation	Contribution of Geopolitical Repricing
Geopolitical Risk	Uncertainty from political events	Focuses on shocks	Explains infrastructure revaluation
AI Infrastructure	Compute, energy, hardware	Technical dependence	Explains strategic value shifts
Digital Sovereignty	Control and autonomy	Political focus	Explains economic rationale
AI Governance	Oversight and accountability	Institutional focus	Explains infrastructure allocation effects

Table 1 highlights key insights from existing research on geopolitical risk, AI infrastructure, digital sovereignty, and AI governance.

Geopolitical repricing stresses valuation over disruption, control, or resilience. Existing literature discusses how geopolitical events create uncertainty [8] and how organisations adapt to disruptions [9]. It also examines states' desire for control over data and technology [11,20]. However, these perspectives fall short of explaining how geopolitics influences economic decisions regarding AI infrastructure. The geopolitical repricing framework suggests that instability alters how firms, investors, governments, and infrastructure operators evaluate future AI-related risks and returns. Investing in redundancy, domestic computing, infrastructure diversification, and sovereign capabilities can be a rational choice not only to minimise costs but also to reduce perceived risks associated with future geopolitical events [23]. Thus, geopolitical repricing connects geopolitical risk to strategic infrastructure decisions.

The concept of geopolitical repricing brings these elements together by examining how geopolitical instability influences economic valuation, risk assessment, and the strategic allocation of AI infrastructure.

4. The Geopolitical Repricing Mechanism

4.1. Defining Geopolitical Repricing in AI Infrastructure

Geopolitical repricing of AI infrastructure refers to the process by which firms, investors, governments, and infrastructure operators reassess the economic value, risk profile, and strategic significance of AI infrastructure amid geopolitical instability. This concept encompasses more than mere fluctuations in infrastructure costs; it entails integrating geopolitical considerations into valuation methodologies, investment criteria, and resource allocation decisions. This repricing changes how we evaluate and prioritise AI infrastructure compared to other investments and strategic assets.

In this study, valuation encompasses how decision-makers evaluate the expected benefits, risks, resilience, and importance of AI infrastructure. Geopolitical repricing should be seen as a process rather than just a market price change. It involves integrating geopolitical factors into infrastructure planning, investment decisions, supply-chain strategies, energy procurement, and governance. This may result in altered investment criteria, initiatives for sovereign computing, diversified infrastructure strategies, and changes in capital allocation priorities.

Geopolitical repricing exhibits several distinctive characteristics. Firstly, it signifies a long-term structural adjustment rather than a temporary reaction to isolated geopolitical shocks, thereby influencing decisions related to infrastructure investment, deployment, and system design over time. Secondly, it directly incorporates geopolitical risk into economic and operational decision-making, introducing additional uncertainty into infrastructure planning, financing, and resource allocation. Thirdly, it facilitates a systematic reallocation of resources, shifting the focus from purely efficiency objectives to resilience, redundancy, and strategic control, thereby reflecting broader shifts toward “just-in-case” approaches within global production and infrastructure systems [9]. These characteristics differentiate geopolitical repricing from conventional disruption by emphasising enduring alterations in the valuation and strategic importance of AI infrastructure.

4.2. Operationalising Geopolitical Repricing

Geopolitical repricing is defined as a measurable change in the valuation, cost structure, and allocation of AI infrastructure due to geopolitical instability. It can be assessed using three types of indicators.

Cost-based indicators reflect changes in the economic conditions of AI infrastructure, including electricity price volatility in key data-centre regions, long-term power purchase agreement costs, semiconductor prices, hardware lead times, and cloud-compute pricing. Research shows that AI infrastructure is increasingly affected by energy constraints and computing costs [4–6].

Risk-based indicators reflect how geopolitical exposure affects investment and operational decisions. These include country-risk adjustments, supplier concentration risk, export-control exposure, sanctions risk, and geopolitical risk indices. Research shows that geopolitical instability increasingly impacts investment behaviour and strategic decision-making [8,14].

Allocation-based indicators highlight key changes in capital deployment, such as investments in sovereign computing, geographic diversification of infrastructure, redundancy-driven system design, and public funding for domestic AI capabilities. These trends are increasingly linked to digital sovereignty and control over strategic infrastructure [10,11].

Table 2 offers a preliminary operationalisation framework that connects the concept to measurable dimensions and potential empirical indicators.

Table 2. Preliminary Operationalisation Framework for Geopolitical Repricing of AI Infrastructure.

Dimension	Observable Indicator	Possible Measure
Energy Volatility	Electricity cost instability	Electricity price variance, power purchase agreement costs
Supply Chain Disruption	Hardware availability	GPU prices, semiconductor lead times, supplier concentration
Infrastructure Vulnerability	Infrastructure exposure	Data-centre concentration, cloud-region dependency

Table 2. *Cont.*

Dimension	Observable Indicator	Possible Measure
Risk Embedding	Geopolitical risk incorporation	Risk premiums, country-risk scores, insurance costs
Strategic Reallocation	Capital allocation shift	Sovereign AI spending, redundancy investment, infrastructure diversification

The indicators in Table 1 serve as examples, not a complete measurement model. They illustrate how geopolitical repricing can be studied through observable changes in infrastructure economics and strategic allocation.

4.3. Transmission Channels of Geopolitical Repricing

The repricing of AI infrastructure occurs through three key channels: energy volatility, supply chain disruption, and infrastructure vulnerability. These channels highlight the dependencies of AI systems and connect to existing literature, while integrating them into a cohesive framework.

4.3.1. Energy Volatility

AI systems consume significant energy, especially during training and deployment of large models [3]. The rapid growth of AI data centres is putting pressure on electricity grids and influencing infrastructure planning, highlighting the link between AI and energy systems [4,6].

Energy is becoming a critical constraint on digital infrastructure [4,5]. Geopolitical events in energy-producing regions can cause price volatility and uncertainty in electricity supply, which raises operational costs for data centres and cloud providers. Energy markets are sensitive to geopolitical risks, acting as a key channel for global instability [18]. Additionally, the concentration of high-density AI workloads in certain areas can strain local power grids and create capacity constraints, making energy considerations vital to AI infrastructure strategy [6].

Energy volatility influences where companies choose to operate, as they seek regions with stable, reliable power supplies. This creates a stronger link between AI infrastructure and energy systems, pushing AI into the realm of political economy.

4.3.2. Supply Chain Disruption

AI development depends on specialised, global supply chains, especially for semi-conductors and advanced computing hardware. These supply chains are geographically concentrated and sensitive to geopolitical issues [16,17].

Geopolitical tensions, including export controls, sanctions, and conflicts, can limit access to essential resources, extend lead times, and raise costs. This creates uncertainty in scaling AI and hampers the growth of computational capacity. These issues reflect the vulnerability of global value chains under geopolitical pressure [8,9].

Firms may respond by diversifying, stockpiling, and vertically integrating. Although these strategies build resilience, they also raise capital intensity and reduce efficiency, leading to a repricing of AI infrastructure.

4.3.3. Infrastructure Vulnerability

AI infrastructure is primarily found in data centres, cloud regions, and network ecosystems, which often cluster geographically. While this clustering can lead to cost

and connectivity benefits, it also risks overloading regional power systems and increasing vulnerability to local energy and infrastructure disruptions [1,15].

Recent studies emphasise the strategic value of controlling digital infrastructure and cloud systems [11]. In this context, AI infrastructure is seen as a crucial asset, with disruptions that could affect both the economy and security.

Geopolitical crises can heighten the perceived and actual vulnerabilities of AI systems, leading to risks such as physical damage, cyberattacks, and operational disruptions. In response, organisations are focusing on redundancy, decentralisation, and sovereign infrastructure, reflecting the wider trend toward digital sovereignty and control over infrastructure [20].

The three transmission channels are interconnected and can influence each other. For example, geopolitical disruptions in semiconductor supply chains can heighten infrastructure vulnerability by creating reliance on a few suppliers. Likewise, energy insecurity can increase risks for data centres and impact the reliability of computing infrastructure. These vulnerabilities can worsen the effects of energy shocks and supply-chain issues by diminishing system flexibility and resilience. Thus, the combined impact of these channels can exceed the effects of any single one considered separately.

4.4. The Repricing Mechanism

The interaction of these channels leads to a cumulative repricing effect, which can be represented by a straightforward model with four sequential stages:

- (1) *Geopolitical Shock*
- (2) *Transmission*
- (3) *Revaluation*
- (4) *Strategic Reallocation*

The four-stage structure resembles shock-transmission models in international political economy, which have unique applications to AI infrastructure. This infrastructure relies heavily on large-scale compute capacity, specialised semiconductor supply chains, reliable energy systems, advanced data centres, and concentrated technological ecosystems. Unlike traditional infrastructure, AI systems require continuous interaction among these components to ensure effective training, deployment, and scaling. Geopolitical disruptions can impact not only costs but also the strategic value, substitutability, and future viability of AI infrastructure. This framework emphasises how geopolitical instability influences the valuation and strategic allocation of AI infrastructure, rather than just focusing on disruption effects.

Stage 1: Geopolitical Shock:

A geopolitical event, such as conflict, sanctions, or strategic competition, disrupts energy markets, supply chains, and infrastructure [8].

Stage 2: Transmission:

Transmission channels are crucial for AI infrastructure because AI systems rely on energy supply, specialised semiconductors, and centralised cloud and data centres. Disruptions in any of these areas can impact both operational performance and long-term investment decisions.

Stage 3: Revaluation (Core Mechanism):

Stage 3 is the core of the framework, emphasising that geopolitical instability influences how decision-makers view the future value and risks of AI infrastructure. This revaluation happens when geopolitical factors are factored into investment criteria and resource allocation decisions. The framework differentiates between disruptions, which

may cause cost increases, and repricing, which occurs when these disruptions change how key players assess the long-term importance of AI infrastructure.

Repricing is driven by three main factors. First, geopolitical instability can heighten concerns about future operational stability, raising awareness of supply chain disruptions, energy insecurity, or concentrated risks. Second, it may reveal strategic dependencies by exposing vulnerabilities to the reliance on foreign providers or technologies. Third, it can shift expectations around future policy measures, such as export controls or industrial policies. These factors can lead firms, investors, and governments to reevaluate the long-term risks and rewards of AI infrastructure investments.

The repricing process also aligns with real options theory, which indicates that uncertainty can shift investment behaviour by enhancing the value of flexibility, diversification, and strategic delay [26]. In times of geopolitical instability, investments in redundancy, infrastructure diversification, and sovereign capabilities are seen not only as resilience measures but also as responses to shifting perceptions of future risks and strategic options.

Importantly, not every geopolitical event leads to valuation changes. Temporary disruptions might increase costs without affecting long-term assessments. Repricing occurs only when geopolitical issues become significant enough to affect investment strategies and valuation standards. In this way, geopolitical repricing is a process of evolving economic assessment, not just a reaction to short-term cost shifts.

The framework not only explains but also predicts how geopolitical instability affects infrastructure valuation and strategic allocation. Specifically, increased geopolitical exposure, supply-chain concentration, energy dependence, and strategic vulnerability are likely to increase the likelihood of geopolitical repricing effects.

Stage 4: Strategic Reallocation:

Organisations and governments may respond by augmenting investments in infrastructure redundancy, pursuing sovereign AI capabilities, diversifying infrastructure assets geographically, and aligning AI development with broader national security objectives. Collectively, these measures indicate a shift from efficiency-driven optimisation towards resilience-oriented infrastructure strategies.

Illustrative Contemporary Examples

The proposed mechanism is conceptually derived; however, several recent developments illustrate how geopolitical instability may influence AI infrastructure through the channels identified in the framework.

The 2026 conflict involving the U.S., Israel, and Iran, along with disruptions in the Strait of Hormuz, revealed how sensitive global energy markets are to geopolitical instability. With about one-fifth of global oil trade passing through this strait, concerns about energy security led to rapid increases in energy prices, insurance costs, and changes in investment strategies. Additionally, export controls on semiconductors and related technologies have highlighted vulnerabilities in AI supply chains [16,17]. There is also a noticeable rise in sovereign AI initiatives across Europe, the Middle East, and Asia, emphasising investment in domestic computing power and control over AI infrastructure [10,20]. These trends show that geopolitical factors are increasingly influencing decisions around AI infrastructure.

Figure 1 outlines the proposed geopolitical repricing framework, highlighting a four-stage process that shows how geopolitical instability affects AI infrastructure systems, valuation assessments, and strategic investment and allocation decisions.

As illustrated in Figure 1, geopolitical repricing is conceptualised as a cumulative process rather than a direct consequence of individual geopolitical events. Geopolitical shocks are transmitted through three interconnected channels—energy volatility, supply-chain disruption, and infrastructure vulnerability—which may reinforce one another and collectively alter the conditions under which AI infrastructure is developed and deployed. The frame-

work proposes that the combined effects of these channels influence how firms, investors, governments, and infrastructure operators assess the future risks, value, and strategic importance of AI infrastructure. This revaluation process subsequently shapes strategic allocation decisions, including investments in resilience, diversification, redundancy, and sovereign technological capabilities.

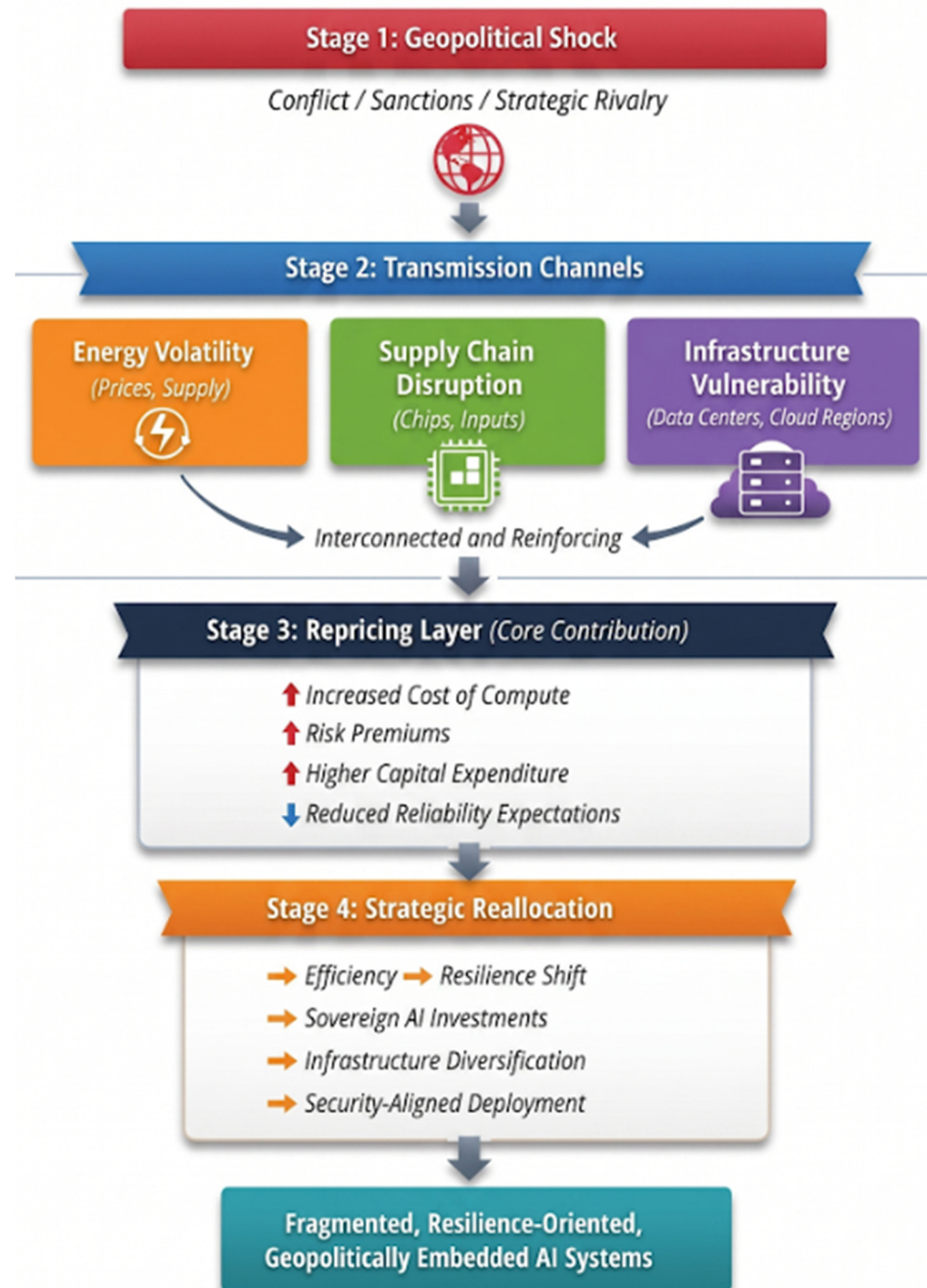


Figure 1. The Geopolitical Repricing Framework for AI Infrastructure. Developed by the Authors (2026).

The key innovation of this framework is Stage 3 (Revaluation), where these pressures are factored into economic decision-making. This stage emphasises a permanent shift in how value is defined in AI infrastructure, moving beyond viewing geopolitical instability as a temporary issue. Costs are recalibrated, geopolitical risk is integrated into investment strategies, and capital allocation prioritises resilience and security.

Recent developments highlight the integration of geopolitical factors in AI infrastructure decisions, including sovereign AI investment initiatives, a focus on domestic computing capacity, semiconductor export restrictions, and heightened energy security considerations in data centre planning. While these do not provide direct evidence of geopolitical repricing, they clearly show that geopolitical concerns are influencing AI infrastructure choices.

4.5. Propositions

The framework generates a set of theoretically derived, potentially testable propositions regarding the effects of geopolitical instability on AI infrastructure. These propositions do not assume universal or deterministic relationships. Instead, they specify context-dependent expectations whose effects may vary according to levels of geopolitical exposure, infrastructure reliance, supply-chain concentration, energy dependence, and strategic vulnerability. Their purpose is to provide a structured basis for future empirical research to identify the conditions, mechanisms, and boundaries under which geopolitical repricing emerges.

P1: (Energy Channel): Higher levels of geopolitical instability are expected to be associated with greater energy price volatility and supply uncertainty, which may increase the operational costs of AI infrastructure.

P2: (Supply Chain Channel): Higher levels of geopolitical tension are expected to be associated with greater disruption in access to critical AI hardware and semiconductor supply chains, thereby constraining AI infrastructure expansion.

P3: (Infrastructure Vulnerability): Increased geopolitical risk is expected to be associated with greater investment in infrastructure redundancy, security, and geographic diversification.

P4: (Repricing Effect): AI infrastructure operating under conditions of elevated geopolitical risk is expected to exhibit higher infrastructure costs, greater incorporation of risk considerations into investment decisions, and increased emphasis on resilience-oriented strategies.

P5: (Strategic Reallocation): As geopolitical risk increases, AI-related investment decisions are expected to shift from efficiency-oriented optimisation toward resilience-, sovereignty-, and security-oriented allocation priorities.

Together, these propositions illustrate the analytical and predictive strengths of the framework. From an analytical perspective, they break down geopolitical repricing into discernible mechanisms that link geopolitical shocks to infrastructure decisions. Predictively, they outline the anticipated responses of organisations amid rising geopolitical instability, establishing a basis for future hypothesis testing using data on infrastructure investments, energy markets, supply chain indicators, and geopolitical risk measures.

4.6. Contribution of Framework

The geopolitical repricing framework enhances current studies by explaining how geopolitical instability impacts AI infrastructure. It builds on previous research on AI infrastructure, geopolitical risk, and digital sovereignty by treating geopolitical forces as key drivers of economic change within AI systems. By integrating energy, supply chains, and infrastructure vulnerability into a single model, the framework provides a clear foundation for analysing the political economy of AI and sets the stage for future empirical research.

Beyond introducing a new conceptual explanation, the framework provides an analytical lens for anticipating how different geopolitical conditions are likely to influence AI infrastructure decisions. By identifying observable transmission channels, specifying operational indicators, and deriving theoretically testable propositions, researchers and policymakers are enabled to analyse when geopolitical instability is likely to alter infras-

structure valuation and strategic allocation. Rather than predicting specific geopolitical events, the framework predicts the organisational and investment responses expected to emerge as geopolitical exposure increases.

5. Implications for Governance, Strategy, and AI Development

Geopolitical repricing carries significant implications that extend beyond theoretical considerations. Current research on AI governance, digital infrastructure, and geopolitical risk has traditionally developed in isolation, addressing ethical oversight, technical capacity, and macro-level instability separately [21].

It is increasingly evident that geopolitical instability is now impacting the economic and strategic frameworks of AI systems. This change calls for a reassessment of governance and strategy. If AI infrastructure is being affected by geopolitical factors, then current frameworks—developed under the assumptions of global integration, stable supply chains, and cost efficiency—may no longer suffice. Thus, there is a need to connect structural changes to institutional and organisational responses to achieve a comprehensive theoretical understanding [8].

5.1. Implications for AI Governance

The geopolitical shift in AI infrastructure poses three main challenges to current AI governance methods.

1. The governance framework should extend beyond algorithmic accountability and ethical oversight to also address infrastructural resilience and geopolitical risk management. Current frameworks primarily focus on fairness, transparency, and explainability [21,27]. While these elements are important, they overlook systemic vulnerabilities related to energy dependence, supply chain concentration, and infrastructure exposure. Governance must include infrastructure-level risk assessment and stress testing for geopolitical disruptions.
2. Geopolitical repricing highlights the need for strong institutional capacity and clear roles in AI governance. As infrastructure risks increase, organisations must define responsibilities for managing geopolitical exposure and ensure coordination between technical, operational, and strategic functions. Evidence shows that having formal AI governance roles alone does not guarantee effective oversight, especially when authority, resources, and integration are lacking. Therefore, governance frameworks should shift from merely assigning roles to enhancing functional capabilities.
3. The repricing dynamic emphasises the need for sovereign and regional AI governance models. Geopolitical influences on infrastructure choices will push states to prioritise control over data, computing resources, and networks, resulting in greater fragmentation of global AI systems [20]. This creates new governance challenges, such as interoperability issues, regulatory differences, and conflicting standards across jurisdictions.

5.2. Implications for Strategic Allocation and Firm Behaviour

Geopolitical repricing changes how firms approach AI investment and infrastructure strategy. Whereas decisions have traditionally prioritised cost efficiency, scalability, and access to global resources, firms may increasingly adopt risk-adjusted approaches that balance efficiency with resilience amid geopolitical uncertainty. This may involve investing in infrastructure redundancy to ensure operational continuity, diversifying geographic exposure to reduce regional concentration risks, securing long-term energy supply arrangements to mitigate energy volatility, and reassessing dependence on critical suppliers and supply chains. Such adjustments reflect a broader shift from “just-in-time” efficiency models toward more resilience-oriented and strategically diversified infrastructure strategies [9].

5.3. Implications for AI Development Pathways

At a systemic level, geopolitical shifts will significantly influence the future trajectory of artificial intelligence development.

Higher energy costs, supply constraints, and infrastructure risks could hinder the global scaling of AI by increasing costs and complicating coordination. These factors create barriers for smaller companies and limit the growth of computing capacity. Additionally, the environmental impact of AI infrastructure raises sustainability concerns that could influence the future of AI development, especially as regulations and societal pressures around resource use become stricter [2].

The development of resilience-focused AI architectures, such as distributed systems, energy-efficient models, and modular designs, is likely to accelerate. This represents a shift from maximising performance to optimising within constraints, aligning with trends in technology adaptation in resource-limited settings.

Geopolitical changes might lead to a fragmented global AI ecosystem as different states and regions create their own infrastructure, standards, and governance. While this can improve local security and control, it may also decrease interoperability and lead to resource duplication.

Lastly, the growing integration of AI with security and strategic goals raises critical questions about balancing innovation and control. As AI plays a larger role in geopolitical competition, its development will be influenced as much by strategic factors as by technology.

5.4. Summary of Implications

Geopolitical instability is likely to impact AI infrastructure by affecting costs, risks, and strategic decisions. Consequently, governance and investment strategies will focus more on resilience, diversification, and control. This underscores the growing interplay among AI development, infrastructure economics, and geopolitical factors.

6. Conclusions

This paper presents the concept of geopolitical repricing to explain how geopolitical instability affects the valuation and strategic allocation of AI infrastructure. It suggests that firms, investors, governments, and infrastructure operators may adjust their risk assessments and long-term valuations of AI assets due to persistent uncertainty stemming from geopolitical events. The framework links geopolitical shocks to valuation through energy volatility, supply chain disruption, and infrastructure vulnerability, making investments in resilience, diversification, and sovereign capabilities more attractive amid geopolitical uncertainty.

The framework has specific limitations. The proposed relationships are particularly relevant in contexts with significant geopolitical risk, dependence on energy-intensive computing, concentrated supply chains, and strategic reliance on AI infrastructure. Not all geopolitical events lead to repricing, and not all cost increases affect infrastructure valuations; repricing occurs only when geopolitical issues are sufficiently prominent to influence investment decisions.

The study is primarily conceptual and does not provide empirical evidence for the scope or impact of geopolitical repricing. It has not been validated through case studies or quantitative analysis, so the propositions should be viewed as theoretical expectations rather than established facts.

The framework provides valuable insights by elucidating the mechanisms and conditions through which geopolitical instability can affect AI infrastructure. Rather than treating geopolitical events as isolated incidents, it establishes a structured approach to

anticipate potential changes in infrastructure valuation, investment priorities, and strategic allocation decisions. Although conceptual, it offers analytical and predictive insights into how geopolitical instability affects AI infrastructure decisions. It suggests that greater geopolitical exposure will lead to more attention to geopolitical risk in infrastructure valuation, increased investments in redundancy and sovereign AI capabilities, and a shift from efficiency-focused strategies to resilience-oriented resource allocation. These expectations are formalised in the propositions of this paper, offering a basis for future empirical testing in various geopolitical contexts.

Future research could test this framework using infrastructure investment data, geopolitical risk indicators, and sector-specific analyses of AI deployment to better understand when geopolitical repricing occurs and to refine its applicability in different contexts.

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