



# The Weaponization of Interdependence in International Politics: Mechanisms, Implications, and Strategic Responses

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## Abstract

The increasing interconnectedness of the global economy has transformed economic, financial, technological, and informational networks into critical components of contemporary international politics. While globalization has traditionally been associated with cooperation and mutual benefits, recent developments have revealed that interdependence can also generate significant vulnerabilities and asymmetrical dependencies. In this context, the concept of weaponized interdependence has emerged as an important framework for understanding how states utilize their positions within global networks to pursue political and strategic objectives. This study examines the phenomenon of weaponized interdependence and its implications for contemporary international relations. Drawing upon Complex Interdependence Theory, network theory, and the framework developed by Farrell and Newman, the study analyzes the mechanisms through which financial, technological, trade, and energy networks can be transformed into instruments of coercion and influence. The research adopts a qualitative descriptive-analytical approach and examines selected contemporary cases, including U.S.-China strategic competition, sanctions against Russia, and competition over semiconductors and critical minerals. The findings indicate that states occupying central positions within global networks possess significant advantages that enable them to influence, monitor, and constrain other actors through non-military means. The study further demonstrates that weaponized interdependence has expanded the strategic importance of network centrality, technological leadership, and control over critical infrastructures. Moreover, it contributes to the fragmentation of globalization and encourages policies aimed at resilience and strategic autonomy. The study concludes that weaponized interdependence has become a defining feature of twenty-first-century international politics, transforming globalization into an increasingly important arena of strategic competition and network-based power.

**Keywords:** Weaponized interdependence; Globalization; Network power; Economic statecraft; Strategic competition; Geo-economics; Multipolarity; International political economy

## Introduction

The contemporary international system is experiencing a profound transformation in the nature and exercise of power. While traditional approaches to international relations have historically emphasized military capabilities, territorial control, and material resources as the principal sources of state power, the accelerating processes of globalization have introduced new dimensions of influence rooted in economic, financial, technological, and informational interconnectedness. Over the past several decades, globalization has facilitated the emergence of highly integrated

networks that connect states, multinational corporations, financial institutions, technological platforms, and global supply chains in unprecedented ways. These networks have reshaped patterns of cooperation and competition among states, creating new opportunities for economic growth while simultaneously generating new forms of vulnerability and dependence [1]. The expansion of global interdependence was initially interpreted through a predominantly optimistic lens. Liberal scholars argued that increasing economic integration would reduce incentives for conflict and encourage peaceful cooperation among states. The growing interconnectedness of markets, institutions, and societies

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was expected to strengthen mutual interests, raise the costs of confrontation, and contribute to greater international stability. Within this intellectual tradition, economic interdependence was viewed as a mechanism capable of mitigating power politics and fostering a more cooperative international order. Such expectations gained particular prominence following the end of the Cold War, when globalization appeared to be creating a world characterized by expanding trade, technological innovation, and institutional cooperation [1,2].

One of the most influential contributions to the study of interdependence was provided by Robert Keohane and Joseph Nye through their theory of complex interdependence. Challenging the assumptions of classical realism, Keohane and Nye argued that interstate relations could no longer be understood solely through the prism of military power and security competition. Instead, they emphasized the existence of multiple channels of interaction among societies, the growing importance of economic and transnational issues, and the declining effectiveness of military force in addressing many contemporary challenges. Their framework highlighted how interdependence creates reciprocal effects among actors while also generating asymmetries that may influence bargaining outcomes and political behavior [1]. Although the theory of complex interdependence recognized the existence of unequal dependencies, it was largely developed within a context where globalization was perceived as an expanding force for cooperation. However, the international environment of the twenty-first century has revealed a more complex reality. Rather than eliminating power politics, globalization has transformed the mechanisms through which power is exercised. The increasing concentration of economic and technological activities within a limited number of global networks has enabled certain states to occupy strategically advantageous positions. These positions provide access not only to economic benefits but also to significant instruments of influence and coercion [3]. The emergence of global financial systems, digital communication infrastructures, technological ecosystems, and highly specialized supply chains has created network structures characterized by unequal distributions of power. In many cases, a small number of actors control critical nodes within these networks, allowing them to influence the flow of goods, services, information, technology, and capital across borders. Consequently, access to global networks has become a strategic asset, while exclusion from such networks can impose severe political and economic costs. The growing centrality of network structures has therefore transformed globalization from a purely economic phenomenon into a significant arena of geopolitical competition [3,4].

This transformation became increasingly visible through a series of international developments during the past two decades. Financial sanctions emerged as one of the most widely used instruments of

statecraft, enabling governments to exert pressure on adversaries without resorting to military force. Similarly, technological restrictions, export controls, and limitations on access to critical infrastructures have become important tools for pursuing geopolitical objectives. The increasing use of such measures demonstrates that economic interconnectedness can serve not only as a source of mutual benefit but also as a mechanism of strategic leverage. As a result, interdependence is no longer viewed exclusively as a force promoting cooperation; it is increasingly understood as a potential source of coercion and vulnerability [3]. In response to these developments, Henry Farrell and Abraham Newman introduced the concept of “weaponized interdependence,” which has become one of the most influential frameworks for understanding power in the contemporary international system. According to their argument, states occupying central positions within global economic and information networks possess unique opportunities to exploit these networks for strategic purposes. By controlling critical nodes and chokepoints, states can monitor activities, collect information, restrict access, and impose significant costs on other actors. In this sense, network centrality becomes a source of geopolitical influence that can be employed to advance national interests and shape international outcomes [3]. Farrell and Newman identify two principal mechanisms through which weaponized interdependence operates. The first is the “panopticon effect,” which refers to the ability of states to obtain information and monitor transactions occurring within global networks. The second is the “chokepoint effect,” which involves the capacity to restrict or disrupt access to essential networks and infrastructures. Together, these mechanisms illustrate how states can transform structural positions within global networks into instruments of coercive power. Consequently, power in the contemporary international system increasingly derives not only from military capabilities or economic size but also from the ability to control and manipulate networked forms of interdependence [3]. Recent geopolitical developments provide compelling evidence of the growing relevance of weaponized interdependence. The strategic rivalry between the United States and China has increasingly centered on technological competition, semiconductor production, telecommunications infrastructure, and advanced manufacturing capabilities. Similarly, Western sanctions imposed on Russia following the Ukraine crisis have demonstrated the effectiveness of financial networks as instruments of coercion. In addition, competition over rare earth elements, critical minerals, digital platforms, and supply chain resilience has highlighted the strategic importance of controlling key components of the global economy. These developments suggest that economic and technological networks have become central battlegrounds in contemporary power politics [4,5].

The rise of weaponized interdependence also raises important questions concerning the future of globalization and international order. As states become increasingly aware of the vulnerabilities associated with asymmetric dependence, many have adopted policies aimed at reducing exposure to external pressures. Concepts such as strategic autonomy, economic resilience, friend-shoring, decoupling, and supply chain diversification have gained prominence within national security and economic policy debates. These trends indicate that states are actively seeking to balance the benefits of interconnectedness against the risks of coercion, potentially reshaping the structure of the global economy in the process [5]. Despite the growing significance of weaponized interdependence, important theoretical and analytical questions remain unresolved. Existing debates continue to examine the conditions under which interdependence becomes a source of coercive power, the mechanisms through which network centrality translates into political influence, and the implications of these developments for different categories of states. Furthermore, there remains a need to integrate insights from international relations theory, international political economy, and network analysis in order to provide a more comprehensive understanding of how globalization is transforming contemporary power relations. Against this backdrop, the present study examines weaponized interdependence as an emerging framework for understanding power, vulnerability, and coercion in international politics. The study investigates the theoretical foundations of the concept, analyzes the principal mechanisms through which interdependence is weaponized, and explores its implications for globalization, international order, and state behavior. By doing so, it seeks to contribute to the broader scholarly debate concerning the transformation of power in an increasingly interconnected world and the evolving relationship between globalization and geopolitics.

### Research problem

The expansion of globalization has generated unprecedented levels of interconnectedness among states, markets, and societies. Traditional perspectives on interdependence assumed that increasing economic integration would foster cooperation, reduce conflict, and promote stability within the international system. However, contemporary developments have revealed that interdependence can also create asymmetrical relationships that enable powerful states to exploit their positions within global networks for strategic and coercive purposes. The increasing use of financial sanctions, technological restrictions, export controls, and supply chain disruptions demonstrates that economic and technological interconnectedness has become a significant source of geopolitical leverage. Despite the growing prominence of weaponized interdependence in contemporary international

politics, scholarly debates continue regarding the mechanisms through which global networks are transformed into instruments of coercion and influence. Furthermore, questions remain concerning the implications of weaponized interdependence for globalization, international order, and the strategic behavior of states. Accordingly, the central problem addressed by this study is the transformation of interdependence from a mechanism of cooperation into a potential instrument of political coercion within an increasingly networked international system.

### Research questions

To address this problem, the study seeks to answer the following main research question:

How does weaponized interdependence transform global economic and technological networks into instruments of political influence and strategic coercion in contemporary international politics?

This central question generates several subsidiary questions:

1. What are the theoretical foundations of weaponized interdependence within the broader literature of international relations?
2. How do states exploit asymmetrical interdependence to achieve geopolitical objectives?
3. What are the principal mechanisms through which global networks become instruments of coercive power?
4. How has weaponized interdependence altered traditional understandings of power and influence in international politics?
5. What are the implications of weaponized interdependence for globalization and the contemporary international order?
6. How can states reduce vulnerabilities arising from asymmetric dependence within global networks?

### Research objectives

The study aims to achieve the following objectives

1. To examine the theoretical evolution of the concept of interdependence in international relations.
2. To analyze the emergence of weaponized interdependence as a contemporary framework for understanding power and coercion.
3. To identify the major mechanisms through which states exploit economic, financial, technological, and informational networks.
4. To investigate the impact of weaponized interdependence on international political and economic relations.
5. To assess the implications of weaponized interdependence for the future of globalization and international order.
6. To explore strategic options available to states seeking to reduce vulnerabilities associated with asymmetric interdependence.

## Research propositions

The study is guided by the following propositions:

Proposition 1: States occupying central positions within global economic and technological networks possess greater capacity to employ interdependence as an instrument of coercion and influence.

Proposition 2: The increasing importance of network structures has expanded the range of non-military tools available for exercising power in international politics.

Proposition 3: Weaponized interdependence contributes to the fragmentation of globalization by encouraging policies aimed at economic resilience, strategic autonomy, and supply chain diversification.

Proposition 4: Small and middle powers are more vulnerable to the coercive effects of asymmetric interdependence unless they diversify their economic and technological partnerships.

## Significance of the study

The significance of this study derives from both its theoretical and practical contributions:

1. From a theoretical perspective, the study contributes to the growing literature on power transformation in international relations by examining the intersection of globalization, network theory, and international political economy. It also seeks to advance scholarly understanding of how interdependence can function simultaneously as a source of cooperation and coercion.
2. From a practical perspective, the study addresses an increasingly important phenomenon shaping contemporary international politics. Understanding the dynamics of weaponized interdependence is essential for policymakers seeking to enhance national resilience, reduce strategic vulnerabilities, and adapt to an international environment characterized by intensifying geopolitical competition and growing dependence on global networks.

## Methodology

The study of weaponized interdependence requires a methodological approach capable of capturing the complex interactions between economic, technological, and political networks in contemporary international relations. Given the conceptual and theoretical nature of the phenomenon, this research adopts a qualitative analytical framework that facilitates an in-depth examination of the mechanisms through which interdependence is transformed into an instrument of coercion and influence. The methodology employed in this study is designed to explore the theoretical foundations of weaponized interdependence, analyze its principal mechanisms, and assess its

implications for power dynamics and state behavior within the contemporary international system. Accordingly, this section outlines the research design, methods of analysis, sources of data, analytical framework, and the scope and limitations of the study.

## Research design

This study adopts a qualitative research design based on a theoretical and analytical approach to investigate the phenomenon of weaponized interdependence in contemporary international politics. Given the conceptual nature of the research problem, the study does not seek to test causal relationships through quantitative methods. Instead, it aims to provide a comprehensive theoretical examination of how global economic and technological networks have evolved into instruments of political influence and strategic coercion. A qualitative design is particularly appropriate because the concept of weaponized interdependence remains a relatively recent development within the literature of international relations and international political economy. Consequently, understanding its underlying mechanisms requires a detailed analysis of theoretical arguments, institutional structures, and contemporary geopolitical developments rather than statistical measurement alone [6].

## Research Method

The study primarily employs the descriptive-analytical method. The descriptive dimension focuses on explaining the evolution of interdependence within international relations theory and identifying the major characteristics of weaponized interdependence. The analytical dimension examines how states utilize asymmetrical dependencies embedded within global networks to pursue strategic objectives and exercise influence over other actors.

In addition, the study incorporates elements of comparative case analysis by drawing upon selected contemporary examples from international politics. These cases are used to illustrate the practical manifestations of weaponized interdependence and demonstrate how network-based power operates in different political and economic contexts [7].

## Sources of data

The study relies exclusively on secondary sources obtained from scholarly and institutional publications. These sources include:

- Peer-reviewed journal articles in international relations and international political economy.
- Academic books and edited volumes.
- Reports published by international organizations.
- Government documents and policy papers.

- Publications issued by major research centers and think tanks.

The use of multiple sources enhances the reliability of the analysis and enables a comprehensive understanding of both the theoretical and practical dimensions of weaponized interdependence.

### **Analytical framework**

The analytical framework of the study integrates three complementary perspectives.

First, the study draws upon Complex Interdependence Theory developed by Keohane and Nye, which emphasizes the growing importance of non-military interactions and the increasing significance of economic and institutional linkages in international politics [1].

Second, the study adopts the Weaponized Interdependence Framework proposed by Farrell and Newman, which explains how states occupying central positions within global networks can exploit these structures to monitor, influence, and coerce other actors [2].

Third, the study incorporates insights from network theory, particularly the concept of network centrality, to explain how control over critical nodes and chokepoints generates political and economic advantages within the international system [8].

The integration of these perspectives provides a comprehensive framework for understanding the transformation of interdependence from a source of cooperation into a potential instrument of coercive power.

### **Scope and delimitations of the study**

Conceptually, the study focuses on the phenomenon of weaponized interdependence and its implications for contemporary international politics. Particular attention is devoted to economic, financial, technological, and informational networks that constitute the foundations of modern globalization.

Geographically, the study concentrates on major powers and influential actors within the international system, including the United States, China, Russia, and other strategically significant states.

Temporally, the analysis primarily covers developments occurring during the twenty-first century, with particular emphasis on the period following the global financial crisis of 2008 and the intensification of great-power competition during the 2010s and 2020s.

### **Research Limitations**

Several limitations should be acknowledged. First, the study relies on secondary sources and therefore does not include original empirical data collection. Second, because weaponized

interdependence is a relatively recent concept, some aspects of its long-term implications remain subject to ongoing scholarly debate. Third, the rapidly evolving nature of technological and economic competition may generate developments that extend beyond the temporal scope of this analysis.

Despite these limitations, the study provides a theoretically grounded and analytically rigorous examination of one of the most significant emerging concepts in contemporary international relations.

### **Theoretical Foundations of Interdependence**

The concept of interdependence occupies a central position within the study of international relations. As globalization deepened and cross-border interactions expanded, scholars increasingly recognized that relations among states could no longer be understood solely through the traditional lenses of military power and territorial competition. Economic exchange, technological connectivity, financial integration, and transnational networks have become essential dimensions of international politics, creating complex patterns of mutual dependence among state and non-state actors. Consequently, understanding the evolution of interdependence is essential for explaining contemporary transformations in global power structures and the emergence of weaponized interdependence as a new framework of coercion and influence.

### **The evolution of interdependence in international relations**

The origins of interdependence can be traced to classical liberal thought, which emphasized the pacifying effects of commerce and economic exchange. Liberal thinkers argued that increasing economic interaction among nations would generate mutual benefits, reduce incentives for conflict, and encourage peaceful cooperation. Economic interconnectedness was viewed as a mechanism capable of promoting stability by raising the costs associated with war and fostering shared interests among states [1]. During the post-World War II era, rapid growth in international trade, foreign investment, and institutional cooperation strengthened the relevance of interdependence within international relations scholarship. The establishment of institutions such as the General Agreement on Tariffs and Trade (GATT), the International Monetary Fund (IMF), and the World Bank reflected growing confidence in the capacity of economic integration to contribute to international stability and prosperity. As economic globalization accelerated, scholars increasingly focused on the consequences of interconnectedness for state behavior and global governance [9]. Interdependence refers to situations in which actors are mutually affected by one another's actions and decisions. Such relationships

may involve varying degrees of reciprocity and asymmetry. While interdependence often generates mutual benefits, it can also create vulnerabilities when actors become dependent on resources, markets, technologies, or institutions controlled by others. Consequently, interdependence is not inherently harmonious; rather, it can produce both cooperation and competition depending on the distribution of capabilities and dependencies among actors [1]. The growing complexity of global interactions challenged traditional realist assumptions that viewed states as largely autonomous actors operating within an anarchic international system. Realist scholars emphasized military capabilities and national security as the primary determinants of state behavior. However, the expansion of transnational economic and social relations highlighted the limitations of purely state-centric approaches and encouraged the development of alternative theoretical perspectives capable of accounting for increasing interconnectedness [10].

### **Complex interdependence theory**

The most influential theoretical framework for understanding interdependence was developed by Robert Keohane and Joseph Nye in their seminal work *Power and Interdependence*. Their theory of complex interdependence represented a significant departure from realist assumptions and provided a more nuanced understanding of international politics under conditions of globalization [1]. According to Keohane and Nye, complex interdependence is characterized by three principal features. First, relations among societies are conducted through multiple channels, including interstate interactions, trans governmental relations, and transnational connections involving non-state actors. This means that states are no longer the sole participants in international affairs. Corporations, international organizations, advocacy networks, and other actors increasingly influence global outcomes [1]. Second, complex interdependence assumes the absence of a clear hierarchy among international issues. Unlike realist approaches that prioritize military security above all other concerns, complex interdependence recognizes that economic, environmental, technological, and social issues can be equally significant. Different issues may dominate policy agendas depending on the specific context and circumstances [1]. Third, military force becomes less useful in resolving many disputes among highly interconnected states. While military capabilities remain important, economic and institutional relationships often provide more effective means of achieving policy objectives. Consequently, power becomes multidimensional and extends beyond traditional military resources [1]. A particularly important contribution of complex interdependence theory is its distinction between sensitivity and vulnerability. Sensitivity refers to the degree to which changes in one actor's policies affect another actor

before adjustments can be made. Vulnerability, by contrast, reflects the costs incurred when alternatives are unavailable or difficult to obtain. States that are highly vulnerable within interdependent relationships may face significant disadvantages during political or economic disputes [1,11]. This distinction is crucial because it demonstrates that interdependence is rarely symmetrical. Some actors possess greater flexibility and alternative options than others. As a result, asymmetrical interdependence can become a source of bargaining power, enabling fewer dependent actors to influence the behavior of more dependent counterparts [1].

### **Asymmetrical interdependence and power relations**

The concept of asymmetrical interdependence represents one of the most important theoretical foundations for understanding weaponized interdependence. Although globalization has increased interconnectedness among states, the benefits and costs of these relationships are not distributed equally. Some states occupy more advantageous positions within global economic and technological systems, allowing them to exercise greater influence over others [1]. Keohane and Nye argued that asymmetries in dependence create opportunities for political leverage. States that possess alternative sources of supply, broader market access, or greater control over strategic resources may enjoy significant bargaining advantages. Consequently, power can emerge from unequal patterns of dependence rather than solely from military superiority [1]. Subsequent developments in international political economy expanded this insight by demonstrating how globalization generated highly concentrated networks characterized by uneven distributions of influence. Global financial systems, technological infrastructures, communication platforms, and supply chains often depend upon a limited number of critical actors and institutions. These structural characteristics create opportunities for certain states to transform economic relationships into instruments of political influence [12]. The increasing concentration of global networks around specific nodes and hubs has enhanced the strategic significance of network position. Actors occupying central positions enjoy privileged access to information, resources, and decision-making processes. As a result, network centrality itself becomes a source of power capable of shaping political and economic outcomes [8].

### **From complex interdependence to weaponized interdependence**

The emergence of weaponized interdependence reflects a significant evolution in the study of globalization and international power relations. While complex interdependence emphasized cooperation and mutual dependence, recent scholarship highlights the coercive potential embedded within global networks [2]. Farrell

and Newman argue that contemporary globalization has produced highly centralized networks in which a small number of states exercise disproportionate influence over critical infrastructures. These infrastructures include international financial systems, digital communication networks, technological platforms, and global supply chains. Because access to these networks is essential for participation in the global economy, states controlling key nodes can exploit their positions for strategic purposes [2]. The framework of weaponized interdependence identifies two primary mechanisms through which network power operates. The first is the panopticon effect, which allows states to monitor information and transactions flowing through global networks. The second is the chokepoint effect, which enables states to restrict or disrupt access to critical infrastructures and resources. Together, these mechanisms transform network centrality into a powerful instrument of geopolitical influence [2]. Unlike traditional forms of coercion that rely heavily on military force, weaponized interdependence operates through economic, technological, and informational channels. This transformation reflects broader changes in the nature of power within the contemporary international system. Increasingly, the ability to control networks, regulate access, and manipulate flows of information and resources has become as important as conventional military capabilities [2,3]. The concept of weaponized interdependence therefore bridges the fields of international relations, international political economy, and network theory. It provides a valuable analytical framework for understanding how globalization has simultaneously expanded opportunities for cooperation while generating new mechanisms of coercion and competition. As geopolitical rivalries intensify and technological competition accelerates, weaponized interdependence is likely to remain a defining feature of international politics in the twenty-first century (Figure 1).

### **Mechanisms of Weaponized Interdependence**

The transformation of interdependence into a strategic instrument of coercion is made possible through a series of mechanisms embedded within global economic, financial, technological, and informational networks. While globalization has increased connectivity among states and societies, it has also generated structural asymmetries that allow certain actors to exploit their positions within these networks for political and geopolitical purposes. As Farrell and Newman argue, the effectiveness of weaponized interdependence stems from the concentration of global flows through a limited number of critical nodes and chokepoints controlled by a small number of powerful states [2]. The mechanisms of weaponized interdependence operate through the ability of states to monitor, restrict, manipulate, or disrupt access to essential networks. These mechanisms enable governments to achieve strategic objectives without resorting to

conventional military force, thereby expanding the range of instruments available within contemporary statecraft. Four major mechanisms can be identified: financial networks, global supply chains and trade dependencies, technological networks, and energy interdependence.

### **Financial networks and economic coercion**

Among the most powerful manifestations of weaponized interdependence is the use of global financial networks as instruments of political influence and coercion. Contemporary financial systems are highly centralized and depend upon institutions, currencies, and payment infrastructures that facilitate the movement of capital across borders. Because these networks are concentrated around a limited number of financial hubs, states occupying central positions enjoy significant leverage over global economic transactions [2]. The central role of the United States within the international financial system provides a particularly significant example. The dominance of the U.S. dollar in international trade and finance, combined with the influence of American regulatory institutions, enables Washington to exercise considerable control over cross-border financial activities. This structural position allows U.S. authorities to monitor financial transactions, enforce sanctions, and restrict access to international markets [13]. A critical component of this system is the Society for Worldwide Interbank Financial Telecommunication (SWIFT), which facilitates communication among financial institutions worldwide. Although SWIFT is formally a private cooperative organization, its centrality within global finance has made it an important instrument in international sanctions regimes. Exclusion from SWIFT can significantly disrupt a country's ability to participate in global financial transactions, thereby imposing substantial economic costs [14]. Financial sanctions have become one of the most widely employed tools of contemporary economic statecraft. Unlike traditional military interventions, sanctions provide governments with a mechanism for exerting pressure while minimizing direct military confrontation. Through restrictions on banking systems, asset freezes, investment limitations, and access to international financial markets, states can impose significant economic burdens on targeted actors. Consequently, financial networks have emerged as one of the most effective channels through which interdependence can be weaponized [5].

### **Global supply chains and trade dependencies**

Global supply chains constitute another important mechanism of weaponized interdependence. Advances in transportation, communication technologies, and trade liberalization have enabled the fragmentation of production processes across multiple countries. While this structure has increased efficiency and reduced production costs, it has also generated significant dependencies

among states and industries [15]. Many contemporary industries rely on highly specialized supply chains involving critical components produced by a limited number of suppliers. This concentration creates vulnerabilities that can be exploited for strategic purposes. States controlling key stages of production or access to essential materials can use these positions to influence the behavior of other actors or impose economic costs during periods of political tension [16]. Export controls represent one of the most prominent instruments through which supply chain dependencies are weaponized. By restricting the transfer of critical technologies, materials, or industrial inputs, governments can hinder the economic and technological development of rival states. Such measures have become increasingly important in strategic sectors including semiconductors, telecommunications equipment, aerospace technologies, and advanced manufacturing [17]. The growing emphasis on supply chain security reflects the recognition that economic efficiency and national security are increasingly interconnected. Governments around the world have adopted policies aimed at reshoring production, diversifying suppliers, and reducing dependence on potentially vulnerable external sources. These developments illustrate how supply chains have become central arenas of geopolitical competition in the twenty-first century [18].

### **Technological networks and digital infrastructure**

Technological networks constitute one of the most rapidly expanding dimensions of weaponized interdependence. The digitalization of economic activity has created extensive networks connecting governments, businesses, and individuals through information and communication technologies. These networks facilitate the flow of data, information, and services across borders, making them essential components of contemporary economic and political life [19]. At the same time, the concentration of technological capabilities within a small number of countries and corporations has generated new forms of strategic dependence. Access to advanced semiconductors, cloud computing services, operating systems, telecommunications infrastructure, and digital platforms is increasingly critical for economic competitiveness and national security. Consequently, control over technological ecosystems provides significant opportunities for political influence and coercion [20]. Semiconductors represent a particularly important example. Modern economies depend upon advanced microchips for applications ranging from consumer electronics to military systems and artificial intelligence. Because the production of cutting-edge semiconductors is concentrated among a limited number of firms and countries, restrictions on access to these technologies can have profound economic and strategic consequences [21]. Digital infrastructures also enable the collection and analysis of vast quantities of information. States

possessing privileged access to communication networks can monitor transactions, gather intelligence, and influence information flows. These capabilities reflect what Farrell and Newman describe as the panopticon effect, whereby network centrality facilitates surveillance and information extraction on a global scale [2]. As technological competition intensifies, digital networks have become increasingly politicized. Governments are now treating technological leadership as a strategic asset, leading to greater regulation, export controls, investment screening mechanisms, and restrictions on foreign technology providers. These developments highlight the growing importance of technological interdependence as a source of power in contemporary international politics [22].

### **Energy interdependence and strategic leverage**

Energy has long been recognized as a source of political influence within international relations. However, contemporary patterns of energy interdependence illustrate how resource dependencies can function as mechanisms of weaponized interdependence. The production, transportation, and consumption of energy involve complex networks that connect producers, transit countries, and consumers through extensive infrastructures [23]. Dependence on imported energy resources can create significant vulnerabilities for states lacking sufficient domestic supplies. Conversely, major energy exporters may possess considerable leverage over dependent consumers. This asymmetry can be translated into political influence, particularly during periods of crisis or geopolitical tension [24]. Natural gas pipelines provide a notable example of energy interdependence. Because pipeline infrastructures often involve long-term investments and limited alternatives, they can create enduring relationships of dependence between producers and consumers. Control over supply routes and export volumes may therefore become an important source of geopolitical leverage [25]. The transition toward renewable energy is altering some dimensions of energy interdependence while simultaneously creating new dependencies. The production of batteries, solar panels, wind turbines, and other green technologies requires access to critical minerals such as lithium, cobalt, nickel, and rare earth elements. Consequently, competition over these resources is emerging as an increasingly significant aspect of international politics [26]. Energy interdependence demonstrates that globalization does not eliminate power asymmetries; rather, it often reorganizes them within new institutional and technological contexts. As states seek to enhance energy security and reduce external vulnerabilities, energy networks are likely to remain a critical arena of geopolitical competition.

### **The panopticon and chokepoint effects: the core logic of weaponized interdependence**

While financial, technological, trade, and energy networks operate through different institutional structures, they share a common logic identified by Farrell and Newman. This logic revolves around

two interconnected mechanisms: the panopticon effect and the chokepoint effect [2].

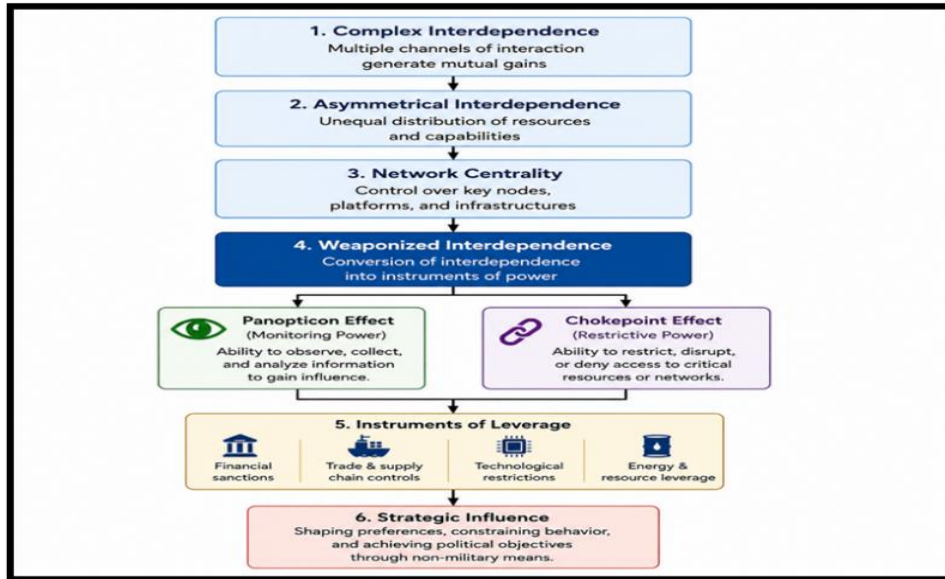


Figure 1: Conceptual Framework of Weaponized Interdependence. Source: Developed by the author based on Keohane and Nye [1] and Farrell and Newman [2].

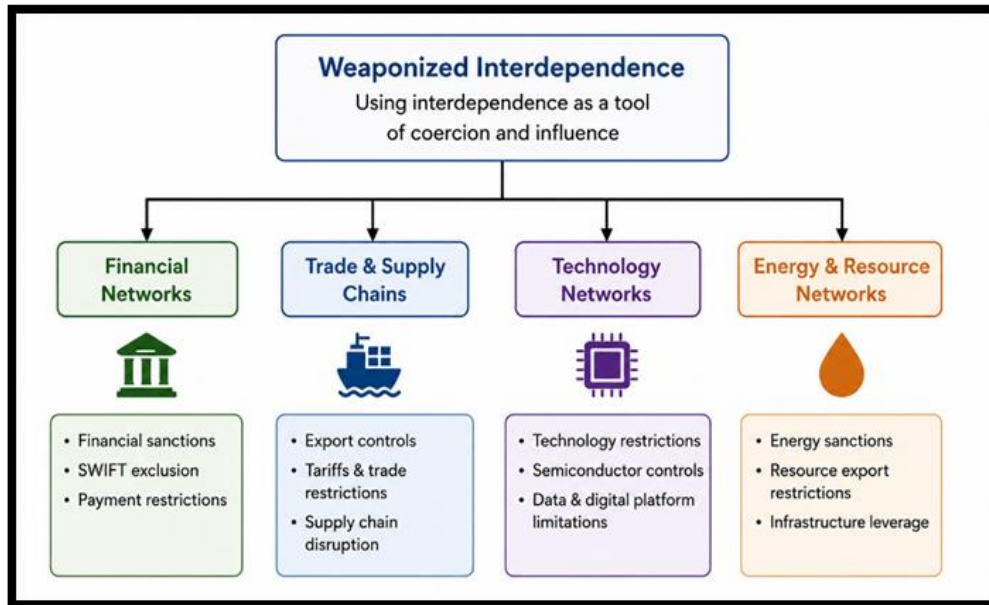


Figure 2: Main Mechanisms of Weaponized Interdependence. Source: Developed by the author.

The panopticon effect refers to the ability of states controlling central network nodes to acquire information regarding transactions, communications, and interactions occurring within global systems. Access to information enhances strategic awareness, facilitates regulatory enforcement, and strengthens the capacity to influence the behavior of other actors. The chokepoint

effect refers to the ability of states to deny, restrict, or disrupt access to critical networks. By controlling essential nodes, governments can impose costs on targeted actors without employing military force. Financial sanctions, export controls, technology restrictions, and limitations on access to infrastructure all represent manifestations of the chokepoint effect. Together,



these mechanisms explain how globalization has generated new forms of power rooted in network centrality. Rather than reducing the significance of power politics, globalization has transformed the arenas through which power is exercised. In the contemporary international system, the ability to control and manipulate networks has become a defining feature of geopolitical influence and strategic competition (Figure 2).

## Contemporary Manifestations of Weaponized Interdependence

The growing significance of weaponized interdependence is most evident in the practical application of network-based power within contemporary international politics. While the previous section examined the mechanisms through which interdependence can be transformed into an instrument of coercion, this section explores how these mechanisms operate in practice. Recent geopolitical developments demonstrate that global economic, financial, technological, and resource networks have become central arenas of strategic competition. States increasingly employ their positions within these networks to influence the behavior of rivals, protect national interests, and shape international outcomes.

### The United States china strategic competition

The strategic rivalry between the United States and China represents one of the most significant examples of weaponized interdependence in the twenty-first century. Unlike traditional great-power competitions centered primarily on military capabilities, the U.S.-China rivalry increasingly revolves around technological leadership, economic influence, and control over critical global networks [2]. For several decades, economic interdependence between the two countries was viewed as a stabilizing force. Bilateral trade expanded rapidly, production networks became deeply integrated, and multinational corporations developed extensive cross-border supply chains. However, growing geopolitical tensions have transformed these economic relationships into potential sources of strategic vulnerability [27]. One of the most visible manifestations of weaponized interdependence has been the use of export controls targeting advanced technologies. The United States has imposed restrictions on the transfer of sophisticated semiconductor technologies, chip manufacturing equipment, and advanced computing capabilities to Chinese firms. These measures aim to limit China's technological advancement in sectors considered vital for economic competitiveness and national security, including artificial intelligence, quantum computing, and advanced military applications [21]. At the same time, China has sought to reduce its dependence on foreign technologies through initiatives designed to strengthen domestic innovation and technological self-sufficiency.

Beijing has invested heavily in semiconductor production, digital infrastructure, and strategic industries in an effort to mitigate vulnerabilities associated with external technological dependencies [28]. The U.S.-China case illustrates how technological networks can become instruments of geopolitical competition. Rather than promoting cooperation alone, interdependence has increasingly become a source of strategic leverage and vulnerability for both powers.

### Russia, western sanctions, and financial weaponization

The sanctions imposed on Russia following the annexation of Crimea in 2014 and their subsequent expansion after the outbreak of the Russia-Ukraine war in 2022 provide one of the clearest examples of weaponized interdependence in action. In this case, Western governments utilized their central positions within global financial networks to impose significant economic costs on Russia without direct military confrontation [29]. Financial sanctions targeted Russian banks, government institutions, corporations, and individuals. Restrictions on access to international capital markets limited Russia's ability to obtain financing and conduct international transactions. Furthermore, the partial exclusion of Russian financial institutions from SWIFT significantly disrupted cross-border payment operations and increased transaction costs [14]. The effectiveness of these measures demonstrates the strategic importance of financial network centrality. States occupying dominant positions within global financial infrastructures possess the capacity to regulate access, monitor transactions, and enforce compliance with international sanctions regimes. As Farrell and Newman argue, such capabilities reflect the chokepoint effect of weaponized interdependence, whereby control over critical nodes enables powerful actors to impose substantial costs on targeted states [2]. At the same time, the Russian experience highlights the limitations of weaponized interdependence. In response to sanctions, Moscow pursued alternative payment mechanisms, strengthened economic cooperation with non-Western partners, and sought to reduce dependence on Western-controlled financial infrastructures. These efforts demonstrate that targeted states may adapt to coercive pressures by diversifying economic relationships and developing alternative networks [30].

### Strategic minerals, rare earth elements, and resource dependencies

Resource dependencies constitute another important manifestation of weaponized interdependence. Contemporary technological industries depend heavily on critical minerals such as lithium, cobalt, nickel, graphite, and rare earth elements. These resources are essential for the production of semiconductors, batteries,

renewable energy technologies, defense systems, and advanced manufacturing equipment [26]. The concentration of production and processing capacities within a limited number of countries creates significant strategic vulnerabilities. China, for example, dominates several stages of the global rare earth supply chain, including extraction, processing, and refining activities. This position provides Beijing with considerable influence within industries that depend upon these materials [31]. The strategic significance of rare earth elements became particularly evident when concerns emerged regarding the potential use of export restrictions as a geopolitical tool. Policymakers in several countries recognized that excessive dependence on a single supplier could create vulnerabilities that might be exploited during periods of political tension. Consequently, governments have increasingly sought to diversify supply sources and establish more resilient resource networks [26]. The competition over critical minerals illustrates how resource interdependence can be transformed into a source of strategic influence. As the global transition toward renewable energy accelerates, access to critical materials is likely to become an increasingly important dimension of international competition.

### **Semiconductor supply chains and technological dependency**

Few sectors better illustrate the logic of weaponized interdependence than the global semiconductor industry. Semiconductors are fundamental components of modern economies and are essential for consumer electronics, telecommunications, artificial intelligence, military systems, and industrial production [21]. Despite their importance, semiconductor supply chains are highly concentrated and geographically fragmented. Different stages of design, manufacturing, equipment production, and assembly are distributed across a small number of countries and firms. This structure creates substantial interdependencies while simultaneously generating strategic vulnerabilities [32]. The United States maintains influence over critical intellectual property and advanced semiconductor technologies. Taiwan occupies a central position in advanced chip manufacturing, while other countries play essential roles in equipment production and materials supply. Because of this concentration, disruptions affecting any major node within the semiconductor ecosystem can have far-reaching global consequences [21]. Recent export restrictions targeting advanced chips and manufacturing equipment demonstrate how technological dependencies can be weaponized to achieve geopolitical objectives. These measures have reinforced the perception that control over critical technologies constitutes a

major source of strategic power in contemporary international politics [27].

### **Lessons from contemporary cases**

The cases examined above reveal several common patterns. First, weaponized interdependence is most effective when critical networks exhibit high levels of concentration and limited alternatives. Second, network centrality provides states with significant opportunities to influence the behavior of others through non-military means. Third, targeted states often respond by pursuing diversification, resilience, and strategic autonomy policies aimed at reducing dependence on external actors. Most importantly, these cases demonstrate that globalization has not diminished the importance of power politics. Instead, it has transformed the arenas in which power is exercised. Financial systems, technological ecosystems, supply chains, and resource networks have become central instruments of geopolitical competition, reflecting the growing significance of weaponized interdependence within the contemporary international order.

### **Implications of Weaponized Interdependence for International Politics**

The growing prevalence of weaponized interdependence has profound implications for international politics. The increasing ability of states to exploit economic, financial, technological, and informational networks for strategic purposes has fundamentally altered traditional understandings of power, security, and globalization. Rather than functioning solely as channels of cooperation and economic exchange, global networks have become important instruments through which states pursue geopolitical objectives and influence the behavior of other actors. Consequently, weaponized interdependence has emerged as a defining feature of contemporary international relations, reshaping the dynamics of power competition and transforming the structure of the international system.

### **The transformation of power in international relations**

One of the most significant implications of weaponized interdependence is the transformation of the concept of power itself. Traditional theories of international relations, particularly realism, emphasized military capabilities, territorial control, and material resources as the primary foundations of state power. While these elements remain important, contemporary globalization has expanded the sources through which influence can be exercised [10]. In an increasingly interconnected world, power is no longer derived solely from the possession of military assets or economic wealth. Instead, it increasingly stems from a state's position within global networks and its ability to regulate access to critical

infrastructures, technologies, financial systems, and information flows. States occupying central positions within these networks possess unique opportunities to shape international outcomes without necessarily resorting to military force [2]. This transformation reflects the emergence of what some scholars describe as “network power.” Unlike traditional forms of power that depend upon direct coercion, network power operates through control over the structures that facilitate global interaction. The ability to grant or deny access to financial systems, technological

platforms, supply chains, and communication networks provides states with new instruments of influence that can often be more effective and less costly than military intervention [20]. Consequently, contemporary power competition increasingly revolves around the control of networks rather than the control of territory alone. This shift has expanded the strategic significance of economic and technological infrastructures, making them central components of national power and international competition (Table 1).

**Table 1:** Traditional Power versus Network-Based Power.

Dimension	Traditional Power	Network-Based Power
Main Resource	Military Capabilities	Network Centrality
Primary Arena	Territory and Borders	Global Networks
Main Instruments	Military Force	Sanctions, Controls, Restrictions
Objective	Territorial Control	Behavioral Influence
Cost	High	Relatively Lower
Visibility	Direct	Often Indirect
Examples	Military Intervention	Financial Sanctions, Technology Restrictions
Source: Developed by the author based on Keohane and Nye [1], Farrell and Newman [2], and Nye [11].		

**Table 2:** Future Trends of Weaponized Interdependence.

Emerging Trend	Key Characteristics	Expected Strategic Impact
Intensifying Great Power Competition	Expansion of geoeconomic and technological rivalry	Increased use of network-based coercion
Technological Weaponization	Controls on advanced technologies and innovation ecosystems	Greater importance of technological sovereignty
Data and Digital Governance	Competition over data flows and digital infrastructures	Expansion of digital influence and surveillance capabilities
Fragmentation of Globalization	Growth of de-risking, friend-shoring, and selective decoupling	Emergence of competing economic and technological blocs
Economic Security Policies	Integration of economic resilience into national security strategies	Stronger focus on supply chain security and critical infrastructure protection
Strategic Resource Competition	Growing demand for critical minerals and energy resources	Increased geopolitical competition over resource networks
Source: Developed by the author based on Farrell and Newman [2], Blackwill and Harris [53], Baldwin [52], and Farag [37].		

Table 1 illustrates the fundamental transformation in the nature of power within contemporary international politics. While traditional power was primarily associated with military capabilities and territorial control, network-based power increasingly derives from the ability to influence access to critical economic, technological, and informational infrastructures. This transformation helps explain the growing relevance of weaponized interdependence as a central feature of twenty-first-century international relations.

### The reconfiguration of globalization

Weaponized interdependence has also challenged many of the assumptions associated with globalization. For several decades, globalization was widely perceived as an irreversible process that would promote economic integration, reduce political tensions, and strengthen international cooperation. However, recent developments have demonstrated that interconnectedness can generate vulnerabilities as well as opportunities [9]. The growing

use of economic sanctions, export controls, technological restrictions, and investment screening mechanisms has contributed to a gradual politicization of global economic relations. States increasingly evaluate economic interactions through the lens of national security, leading to a closer integration of economic and strategic considerations [18]. As a result, globalization is undergoing a process of transformation rather than simple expansion. Governments are placing greater emphasis on resilience, strategic autonomy, and supply chain security. Concepts such as “decoupling,” “de-risking,” “near-shoring,” and “friend-shoring” have become central components of policy discussions in many countries [33]. These developments suggest that the future of globalization may be characterized by selective integration rather than universal openness. Economic networks are likely to become increasingly fragmented along geopolitical lines, creating a more complex and competitive international environment.

### **Implications for the international order**

The rise of weaponized interdependence has significant implications for the contemporary international order. Since the end of the Cold War, the liberal international order has relied heavily on open markets, international institutions, and global economic integration. However, the increasing use of network-based coercion has raised questions regarding the sustainability of this model [34]. The strategic exploitation of global networks may weaken trust among states and encourage greater competition over critical infrastructures and technologies. As governments become more concerned about vulnerabilities associated with dependence on external actors, they may adopt policies aimed at reducing exposure to foreign influence. Such efforts can undermine the openness and predictability that have traditionally characterized the liberal economic order [35]. Furthermore, weaponized interdependence may contribute to the emergence of competing economic and technological blocs. Major powers are increasingly seeking to establish alternative financial systems, technological ecosystems, and supply chain networks capable of reducing dependence on rivals. These developments could accelerate the transition toward a more fragmented and multipolar international system [36]. The effects of these transformations are not confined to the global level. Regional orders are increasingly influenced by shifts in the distribution of power and the growing strategic importance of economic and technological networks. As multipolarity expands, regional actors are adapting to new patterns of competition and cooperation shaped by the interaction between global rivalries and local security dynamics. In this context, network-based forms of influence are becoming increasingly relevant to the restructuring of regional orders, particularly in strategically significant regions such as the Middle East [37]. This transition reflects not only shifts in the distribution of material

capabilities but also changes in the mechanisms through which power is generated and exercised. Economic networks, technological infrastructures, financial systems, and digital platforms increasingly function as channels of power conversion, enabling states to transform structural positions into strategic influence. Consequently, fragmented multipolarity and weaponized interdependence appear to be mutually reinforcing features of the evolving international order [38]. In this context, international institutions face growing challenges in maintaining cooperation and managing disputes. The effectiveness of global governance mechanisms may be reduced as geopolitical rivalries increasingly shape economic and technological interactions.

### **Implications for small and middle powers**

While major powers often possess the resources necessary to exploit network structures, small and middle powers frequently face greater challenges in adapting to weaponized interdependence. These states are often more dependent on external markets, technologies, financial systems, and strategic resources, making them particularly vulnerable to external pressures [39]. The concentration of global networks around a limited number of powerful actors can constrain the policy autonomy of smaller states. Economic sanctions, technological restrictions, and disruptions to supply chains may have disproportionate consequences for countries with limited alternatives and fewer domestic capabilities [2]. At the same time, weaponized interdependence does not necessarily imply helplessness for smaller actors. Many states have responded by pursuing diversification strategies, strengthening regional partnerships, investing in domestic capabilities, and participating in multilateral institutions. Such measures can enhance resilience and reduce vulnerability to external coercion [40]. The experience of middle powers demonstrates that strategic adaptation remains possible even under conditions of increasing geopolitical competition. Rather than aligning exclusively with a single major power, many middle powers pursue diversified partnerships and flexible foreign policy strategies designed to maximize autonomy while minimizing vulnerability. Such approaches enable them to navigate competing networks of influence and reduce the risks associated with asymmetric dependence [41]. For middle powers in particular, strategic flexibility has become increasingly important. By maintaining diversified economic relationships and avoiding excessive dependence on any single actor, these states may be better positioned to navigate an international environment characterized by intensifying geopolitical competition.

### **Security implications in the twenty-first century**

Weaponized interdependence has expanded the concept of security beyond its traditional military dimensions. Economic stability,

technological sovereignty, energy security, cybersecurity, and supply chain resilience are increasingly regarded as essential components of national security [42]. The ability of external actors to disrupt financial transactions, restrict technological access, manipulate information flows, or interfere with critical infrastructures has demonstrated that vulnerabilities within global networks can generate significant security risks. Consequently, governments are increasingly integrating economic and technological considerations into national security strategies. This broader understanding of security reflects the changing nature of threats in the twenty-first century. Rather than relying exclusively on military confrontation, states can now achieve strategic objectives through economic and technological means. As a result, the distinction between economic policy and national security policy has become increasingly blurred.

### **Toward a new era of geopolitical competition**

Taken together, these developments suggest that weaponized interdependence represents a major transformation in the practice of international politics. Globalization has not eliminated power competition; rather, it has altered the mechanisms through which competition occurs. Financial systems, technological ecosystems, digital infrastructures, supply chains, and resource networks have become critical arenas of geopolitical rivalry. The contemporary international system is therefore characterized by a paradox. The same interconnected networks that facilitate cooperation and economic prosperity also create opportunities for coercion and strategic competition. This dual nature of interdependence is likely to remain a defining feature of international politics for the foreseeable future, shaping both the opportunities and challenges facing states in an increasingly interconnected world.

### **Strategic Responses to Weaponized Interdependence**

The growing prevalence of weaponized interdependence has compelled states to reconsider the foundations of their economic, technological, and security strategies. As governments increasingly recognize the vulnerabilities associated with asymmetric dependence on external actors, they have adopted a range of measures designed to enhance resilience, reduce exposure to coercion, and strengthen their capacity to operate within an increasingly competitive international environment. These responses reflect a broader shift in international politics, where managing vulnerability has become as important as maximizing economic efficiency. The strategic responses to weaponized interdependence can be broadly categorized into diversification strategies, economic resilience initiatives, strategic autonomy policies, and regional or multilateral cooperation mechanisms.

### **Diversification as a risk-reduction strategy**

One of the most common responses to weaponized interdependence is diversification. States seek to reduce excessive dependence on a single supplier, market, technology provider, or financial institution by expanding the range of available alternatives. Diversification does not necessarily eliminate dependence; rather, it reduces vulnerability by ensuring that critical functions can continue even if one channel becomes unavailable [35]. The logic underlying diversification is closely linked to the distinction between sensitivity and vulnerability identified by Keohane and Nye. While states may remain interconnected, increasing the availability of alternative partners reduces the costs associated with disruptions and therefore limits the effectiveness of coercive measures [1]. In practice, diversification has become increasingly visible in trade policy, energy security strategies, and technological development programs. Governments are actively seeking new suppliers, encouraging domestic production of critical goods, and strengthening economic relationships with a broader range of partners. Such measures are intended to reduce exposure to geopolitical risks while maintaining the benefits of international economic integration.

### **Building economic resilience**

Beyond diversification, many governments have adopted policies aimed at enhancing economic resilience. Resilience refers to the capacity of states, institutions, and economies to absorb external shocks, adapt to changing circumstances, and recover from disruptions without experiencing severe long-term consequences [43]. The concept has gained increasing importance following a series of global crises, including the global financial crisis, the COVID-19 pandemic, supply chain disruptions, and geopolitical conflicts. These events exposed the vulnerabilities created by highly concentrated production networks and excessive reliance on external sources for critical goods and services [44].

Economic resilience strategies typically include:

- Strengthening domestic industrial capabilities.
- Developing strategic reserves of essential commodities.
- Investing in critical infrastructure.
- Enhancing cybersecurity protections.
- Supporting innovation and technological development

These measures aim to ensure that national economies can withstand external pressures and maintain essential functions during periods of crisis or geopolitical confrontation.

### **Strategic autonomy and national capability development**

The pursuit of strategic autonomy has emerged as one of the most significant responses to weaponized interdependence. Strategic autonomy refers to the ability of a state to make independent political, economic, and security decisions without excessive

dependence on external actors [45]. Although complete self-sufficiency is neither feasible nor desirable in an interconnected global economy, governments increasingly seek greater control over sectors considered vital to national security. These sectors often include advanced technologies, telecommunications infrastructure, energy systems, defense industries, and critical supply chains. The European Union, for example, has increasingly emphasized strategic autonomy in response to concerns regarding technological dependence, supply chain vulnerabilities, and geopolitical competition. Similarly, major powers such as the United States and China have implemented industrial policies designed to strengthen domestic technological capabilities and reduce external dependencies [46]. Strategic autonomy does not imply isolation from the global economy. Rather, it reflects an effort to balance participation in global networks with the preservation of national flexibility and resilience. In this sense, strategic autonomy represents a middle ground between complete dependence and economic nationalism. For middle powers in particular, strategic autonomy often depends upon the ability to diversify external partnerships while maintaining sufficient flexibility to engage with competing centers of power. This approach reduces exposure to coercive pressures and enhances room for maneuver within an increasingly fragmented international environment [41].

### **Technological sovereignty and innovation capacity**

Technological dependency has become one of the most important dimensions of weaponized interdependence. Consequently, many states have prioritized technological sovereignty as a strategic objective. Technological sovereignty refers to the ability to develop, access, and maintain critical technologies without excessive reliance on external actors [47]. Governments increasingly recognize that advanced technologies such as semiconductors, artificial intelligence, quantum computing, cloud infrastructure, and cybersecurity capabilities are essential not only for economic competitiveness but also for national security. As a result, substantial investments have been directed toward research and development, innovation ecosystems, and domestic technological industries. The global competition for technological leadership reflects a broader understanding that control over innovation increasingly determines a state's position within international networks. Countries capable of generating advanced technologies enjoy greater strategic flexibility and reduced vulnerability to external restrictions.

### **Regional and multilateral cooperation**

Although weaponized interdependence often encourages states to reduce vulnerabilities, it does not necessarily lead to isolationism. In many cases, governments have responded by strengthening

regional and multilateral cooperation arrangements designed to distribute risks and enhance collective resilience [48]. Regional organizations can provide member states with alternative markets, shared infrastructure, coordinated regulatory frameworks, and collective bargaining power. Such arrangements help reduce dependence on dominant external actors while preserving the benefits of economic integration. Similarly, multilateral institutions continue to play an important role in promoting transparency, dispute resolution, and policy coordination. Although geopolitical tensions have challenged aspects of global governance, international cooperation remains an important mechanism for mitigating vulnerabilities and managing the risks associated with weaponized interdependence.

### **Balancing efficiency and security**

One of the most important policy dilemmas created by weaponized interdependence concerns the balance between economic efficiency and national security. Globalization has historically prioritized efficiency by encouraging specialization, open markets, and integrated supply chains. However, these same characteristics can create strategic vulnerabilities when critical sectors become overly dependent on external actors [35]. Governments therefore face difficult choices regarding the optimal balance between openness and resilience. Excessive emphasis on efficiency may increase exposure to coercion, while excessive focus on security may reduce economic competitiveness and innovation. The challenge for policymakers lies in developing strategies that preserve the benefits of globalization while minimizing the risks associated with asymmetric dependence. The future trajectory of international economic relations will likely depend on how effectively states manage this balance. Those capable of combining openness, resilience, innovation, and strategic flexibility will be better positioned to navigate the increasingly complex landscape of contemporary international politics.

### **Toward a resilient interdependence**

The responses examined above suggest that states are not seeking to eliminate interdependence altogether. Rather, they are attempting to reshape it in ways that reduce vulnerability and enhance resilience. The objective is not complete disengagement from global networks but the creation of more balanced and sustainable forms of interconnectedness. This emerging approach may be described as "resilient interdependence," whereby states continue to benefit from globalization while simultaneously developing mechanisms to mitigate the risks associated with network-based coercion. As weaponized interdependence becomes an increasingly prominent feature of international politics, the pursuit of resilient interdependence is likely to become a central objective of national and international policymaking.

## Future Trends in Weaponized Interdependence

The evolution of weaponized interdependence is closely linked to broader transformations occurring within the international political and economic system. As technological innovation accelerates, geopolitical competition intensifies, and global networks become increasingly complex, the mechanisms and implications of weaponized interdependence are likely to expand significantly. The future international environment will not be characterized by the disappearance of interdependence, but rather by the emergence of new forms of interconnectedness that simultaneously create opportunities for cooperation and avenues for coercion. Several trends are likely to shape the future trajectory of weaponized interdependence during the coming decades.

### Intensifying great power competition

One of the most significant drivers of future weaponized interdependence is the intensification of strategic competition among major powers. The rivalry between the United States and China is increasingly extending beyond traditional military and diplomatic domains to encompass technology, finance, trade, infrastructure, and digital governance [49]. As competition expands into these areas, both powers are likely to continue utilizing their positions within global networks to advance strategic objectives and limit the capabilities of rivals. Export controls, investment restrictions, technological standards, sanctions, and industrial policies will likely become increasingly prominent instruments of statecraft. Consequently, weaponized interdependence is expected to remain a central feature of great-power competition throughout the twenty-first century. Moreover, emerging powers may increasingly adopt similar strategies as they seek to enhance their influence within global networks. This trend could contribute to a more competitive and fragmented international environment characterized by overlapping spheres of economic and technological influence.

### The expansion of technological weaponization

Technological networks are likely to become the most important arena of weaponized interdependence in the coming years. Emerging technologies such as artificial intelligence, quantum computing, advanced semiconductors, cloud infrastructure, biotechnology, and cybersecurity systems are rapidly becoming strategic assets with profound economic and security implications [50]. Control over technological ecosystems increasingly determines a state's ability to compete economically, innovate effectively, and maintain national security. As a result, governments are expected to intensify efforts to secure technological advantages and reduce dependence on external suppliers. Future geopolitical competition may therefore focus less

on traditional industrial production and more on technological innovation, intellectual property, data governance, and digital infrastructure. Access to advanced technologies is likely to become a critical determinant of power within the international system.

### Data and digital networks as strategic resources

The growing importance of data represents another major trend shaping the future of weaponized interdependence. In the digital age, data has emerged as a strategic resource comparable to oil, finance, and technology. Governments and corporations increasingly rely on data for economic activity, technological innovation, national security, and governance [51]. States that control major digital platforms, communication infrastructures, and data-processing capabilities possess significant opportunities to influence information flows and shape digital ecosystems. Consequently, future forms of weaponized interdependence may increasingly involve competition over data access, digital standards, cybersecurity capabilities, and information infrastructures. The strategic significance of data is likely to encourage governments to adopt stronger regulatory frameworks, data localization policies, and digital sovereignty initiatives. These developments may further reshape the structure of global digital networks.

### Fragmentation of globalization

A major implication of weaponized interdependence is the potential fragmentation of globalization. While complete economic decoupling remains unlikely due to the depth of global interconnectedness, the future may witness increasing segmentation of international economic networks [35]. Many governments have already adopted policies aimed at reducing strategic vulnerabilities through supply chain diversification, domestic production incentives, and regional economic partnerships. Concepts such as de-risking, friend-shoring, and selective decoupling suggest that globalization is entering a new phase characterized by greater geopolitical considerations [52]. This transformation may lead to the emergence of parallel technological ecosystems, alternative payment systems, competing trade networks, and regionalized production structures. Although economic integration will continue, it is likely to become more selective and politically conditioned than in previous decades.

### The rise of economic security as national security

Another important trend involves the growing convergence between economic policy and national security strategy. Traditionally, economic policy focused primarily on efficiency, growth, and competitiveness, while security policy concentrated on military threats. However, weaponized interdependence has blurred these distinctions [53]. Governments increasingly

recognize that vulnerabilities within supply chains, financial systems, technological infrastructures, and digital networks can create national security risks. Consequently, economic resilience, technological sovereignty, and critical infrastructure protection are becoming integral components of national security planning. This shift is likely to encourage closer coordination among economic, technological, and security institutions. Future national security strategies will increasingly incorporate economic and technological dimensions alongside traditional military considerations. (Table 2).

Table 2 summarizes the principal trends expected to shape the future evolution of weaponized interdependence. Together, these developments indicate that geopolitical competition is increasingly shifting toward the control of networks, technologies, data, and strategic resources. As a result, states are likely to place greater emphasis on resilience, diversification, and economic security in order to manage the risks associated with asymmetric dependence.

### **Adaptation and the search for resilient interdependence**

Despite the challenges associated with weaponized interdependence, states are unlikely to abandon globalization altogether. The economic benefits generated by international trade, investment, innovation, and cooperation remain too significant to ignore. Instead, governments are increasingly pursuing strategies aimed at balancing openness with resilience [43]. The future international system may therefore be characterized by what can be described as “resilient interdependence.” Under this model, states continue to participate in global networks while simultaneously implementing safeguards designed to reduce vulnerabilities and enhance strategic flexibility. Resilient interdependence is likely to involve diversified supply chains, stronger domestic capabilities, regional cooperation mechanisms, and increased investment in critical technologies. Such measures seek to preserve the advantages of interconnectedness while minimizing exposure to coercive pressures.

### **Future outlook**

The future of weaponized interdependence will ultimately depend on the interaction between technological innovation, geopolitical competition, and institutional adaptation. As globalization continues to evolve, the ability to control networks, manage vulnerabilities, and secure strategic resources will become increasingly important determinants of international influence. Rather than replacing traditional forms of power, weaponized interdependence is likely to complement and reinforce them. Military strength, economic capacity, technological leadership, and network centrality will increasingly operate together as interconnected dimensions of power. Consequently, understanding weaponized interdependence will remain essential for explaining

the dynamics of international politics in the decades ahead. The international system is therefore entering a period in which the management of interdependence will become as strategically important as the management of military capabilities. States that successfully adapt to this reality will be better positioned to navigate an increasingly interconnected yet increasingly competitive world.

### **Conclusion**

The contemporary international system is undergoing a significant transformation in the nature and exercise of power. The accelerating expansion of globalization has created dense networks of economic, financial, technological, and informational interdependence that connect states and societies in unprecedented ways. While these networks have generated substantial opportunities for cooperation, economic growth, and global integration, they have simultaneously produced new forms of vulnerability and asymmetrical dependence. As a result, interdependence has evolved from a mechanism primarily associated with mutual benefit into a potential instrument of political influence and strategic coercion. This study examined the concept of weaponized interdependence as an emerging framework for understanding contemporary power relations in international politics. Drawing upon the theoretical foundations of complex interdependence and network theory, the study demonstrated that globalization has not diminished the importance of power politics. Rather, it has transformed the mechanisms through which power is exercised. States occupying central positions within global economic and technological networks increasingly possess the ability to monitor, influence, and constrain the behavior of other actors through non-military means. The analysis revealed that weaponized interdependence operates through multiple mechanisms embedded within financial systems, global supply chains, technological infrastructures, and energy networks. These mechanisms enable states to exploit structural asymmetries and transform network centrality into a source of geopolitical leverage. The study further demonstrated that contemporary cases including the strategic rivalry between the United States and China, the use of financial sanctions against Russia, and competition over semiconductors and critical minerals provide compelling evidence of the growing importance of network-based forms of power. The findings of the study support the central proposition that states occupying dominant positions within global networks possess greater capacity to employ interdependence as an instrument of coercion and influence. The research also confirms that economic and technological interconnectedness has expanded the range of non-military tools available to states, thereby altering traditional understandings of power in international relations. Furthermore,

the study indicates that weaponized interdependence is contributing to the gradual transformation of globalization through the promotion of diversification strategies, strategic autonomy initiatives, and efforts to enhance economic resilience.

The implications of these developments extend beyond great-power competition. Small and middle powers are increasingly confronted with the challenge of managing vulnerabilities arising from asymmetric dependencies while maintaining access to the benefits of global integration. Consequently, resilience, diversification, technological development, and strategic flexibility are becoming essential components of national security and foreign policy planning. From a theoretical perspective, the study contributes to the growing literature on international political economy and network-based power by highlighting the dual nature of interdependence as both a source of cooperation and a source of coercion. The concept of weaponized interdependence provides an important analytical bridge between traditional theories of international relations and emerging debates concerning globalization, technology, and geopolitical competition. Looking ahead, the significance of weaponized interdependence is likely to increase as technological innovation accelerates and strategic competition intensifies. Future conflicts may increasingly revolve around access to data, digital infrastructures, critical technologies, advanced manufacturing capabilities, and strategic resources rather than solely around military confrontation. In this context, the management of interdependence will become a central dimension of international politics and an essential determinant of national power. Ultimately, the study argues that the future international order will not be defined by the end of globalization but by the transformation of globalization itself. States will continue to rely upon global networks, yet they will increasingly seek to reshape these networks in ways that reduce vulnerability and enhance resilience. Understanding this evolving relationship between interconnectedness and coercion is therefore essential for explaining the dynamics of international politics in the twenty-first century.

### Policy recommendations

Based on the findings of this study, several policy recommendations can be proposed:

- States should diversify economic, technological, and supply chain partnerships to reduce excessive dependence on single actors.
- Governments should invest in domestic technological capabilities and critical infrastructure to strengthen national resilience.
- Policymakers should integrate economic security considerations into broader national security strategies.

- Regional and multilateral cooperation mechanisms should be strengthened to mitigate vulnerabilities arising from asymmetric interdependence.
- International institutions should develop new frameworks for governing critical networks and managing the risks associated with weaponized interdependence

### Directions for Future Research

Future studies may examine:

- The relationship between artificial intelligence and weaponized interdependence.
- The role of digital platforms in shaping network-based power.
- The implications of weaponized interdependence for developing countries.
- Comparative analyses of resilience strategies adopted by middle powers.
- The impact of emerging technologies on the future evolution of network coercion.

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