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TOWARD A G20-LED GLOBAL INFRASTRUCTURE & CONNECTIVITY INITIATIVE

Dr. Peter J. Middlebrook, Amba Tadaa and Eleni Kubolli

(Geopolicity Inc.)

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Dr. Peter J. Middlebrook, Amba Tadaa and Eleni Kubolli
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Abstract

This paper examines whether connectivity can remain a domain of practical multilateral cooperation in an increasingly fragmented and multipolar international system. As geopolitical competition, economic nationalism, supply-chain restructuring, and rival infrastructure initiatives reshape the global economy, connectivity has become both a driver of development and an instrument of strategic influence. The paper argues that the central challenge facing the international community is no longer simply the absence of infrastructure initiatives, financing mechanisms, or technical standards, but the growing fragmentation of the global connectivity landscape itself. Competing platforms and corridors, are increasingly developing within separate geopolitical, institutional, and financial spheres. This creates risks of duplication, incompatible standards, regulatory divergence, inefficient capital allocation, and reduced development gains for countries seeking access to multiple markets and partners.

Using the India–Middle East–Europe Economic Corridor (IMEC) as a case study, the paper illustrates both the promise of cross-regional, multi-domain connectivity and the governance gaps that can undermine corridor-based cooperation in a contested international environment. The paper argues that while the G20 cannot govern global connectivity directly, its contribution lies not in building or financing infrastructure, but in reducing fragmentation by promoting dialogue, interoperability, transparency, evidence-sharing, and coordination across competing systems.

The G20 remains one of the few forums capable of convening advanced economies, emerging powers, major infrastructure financiers, multilateral development banks, and key regional actors within a common framework. As such, the paper concludes by proposing a G20 Connectivity Compact as a voluntary mechanism for advancing practical cooperation across the emerging global connectivity landscape.

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Abbreviations and Acronyms

ACUNS	Academic Council on the United Nations System
AI	Artificial Intelligence
AfDB	African Development Bank
ASEAN	Association of Southeast Asian Nations
BRI	Belt and Road Initiative
BRICS+	Brazil, Russia, India, China, South Africa Plus (expanded BRICS grouping)
DFI	Development Finance Institution
DPI	Digital Public Infrastructure
EU	European Union
FCDO	Foreign, Commonwealth and Development Office (United Kingdom)
G7	Group of Seven
G20	Group of Twenty
GDP	Gross Domestic Product
GCC	Gulf Cooperation Council
GI Hub	Global Infrastructure Hub
GICA	Global Infrastructure Connectivity Alliance
IEA	International Energy Agency
IMF	International Monetary Fund
IMEC	India–Middle East–Europe Economic Corridor
INSTC	International North–South Transport Corridor
IWG	Infrastructure Working Group
LAPSSET	Lamu Port–South Sudan–Ethiopia Transport Corridor
MDB	Multilateral Development Bank
MDBs	Multilateral Development Banks
OECD	Organisation for Economic Co-operation and Development
PGII	Partnership for Global Infrastructure and Investment
PIDA	Programme for Infrastructure Development in Africa
SCO	Shanghai Cooperation Organization
SDGs	Sustainable Development Goals
SOE	State-Owned Enterprise
UAE	United Arab Emirates
UN	United Nations
UN80	United Nations Reform / UN at 80 Initiative
UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
WTO	World Trade Organization

1. MULTILATERALISM & CONNECTIVITY IN A FRAGILE WORLD

The current international system is being defined by the interaction between geopolitical fragmentation and economic interdependence. As competing centers of power, each with alternative governance arrangements and rival connectivity initiatives emerge, infrastructure and connectivity have become central to both economic prosperity and geopolitical influence. At the same time, trade, investment, energy, data, and supply chains remain deeply interconnected across national borders. This chapter examines the changing global context, the growing importance of connectivity, the continuing relevance of the G20, and the central research questions that underpin the paper's analysis of connectivity governance in a fragmented and multipolar world.

1.1 THE CHANGING GLOBAL CONTEXT

The international system is undergoing the most significant periods of geopolitical, economic, and institutional realignment since the end of the Cold War. The post-1990 assumption that globalization would converge around a single economic model, a shared rules-based order, and an integrated global economy is being challenged by the emergence of multiple centres of power, competing political and economic visions, and growing strategic competition among major states (United Nations, 2024; World Bank, 2024). It is obvious today that modernization and westernization are no longer synonymous, with different models of development, governance, state-market relations, and international cooperation are competing for influence across regions and sectors.

These shifts are reshaping patterns of trade, investment, energy, technology, and connectivity. China's Belt and Road Initiative (BRI), the expansion of BRICS+, the growing influence of the Shanghai Cooperation Organization (SCO), the European Union's Global Gateway, the G7's Partnership for Global Infrastructure and Investment (PGII), and a range of regional initiatives all reflect competing attempts to shape the emerging architecture of the global political economy (European Commission, 2021; White House, 2022). Africa, South Asia, the Middle East, Central Asia, and Latin America have become important arenas in which competing visions of connectivity, development, and market integration are being advanced.

Recent geopolitical developments have accelerated these trends. The disruption of traditional European energy relationships following Russia's invasion of Ukraine, the destruction of the Nord Stream pipelines, and the imposition of sanctions on Russia have contributed to a significant reorientation of global energy and trade flows. Russia has redirected trade eastward, strengthening economic linkages with China, India, and members of the SCO, while European economies have sought to diversify energy sources and trading relationships (IEA, 2024; UNCTAD, 2024). Simultaneously, Gulf economies are repositioning themselves as global logistics, investment, manufacturing, and energy transition hubs linking Europe, Asia, and Africa. India is emerging as both a major manufacturing centre and a pivotal geopolitical actor within diversified global supply chains, while Israel is gradually seeking deeper economic integration with Asia and the Gulf.[1]

More broadly, governments are prioritizing economic security, supply-chain resilience, strategic autonomy, and the diversification of critical dependencies. The COVID-19 pandemic, geopolitical tensions, disruptions to global shipping routes, semiconductor shortages, and energy market volatility exposed vulnerabilities within highly concentrated global supply chains. As a result, states are pursuing friend-shoring, near-shoring, and corridor-based strategies designed to reduce risk, secure access to critical inputs, and strengthen economic resilience (OECD, 2024; World Bank, 2024).

[1] The Abraham Accords, signed in 2020 between Israel, the United Arab Emirates, Bahrain, and subsequently joined by Morocco and Sudan, represent one of the most significant geopolitical realignments in the Middle East in decades. Beyond their political significance, the accords created new opportunities for regional trade, investment, logistics, energy cooperation, and infrastructure development. In many ways, IMEC has built upon the economic and connectivity foundations created by the Abraham Accords, linking India, the Gulf, Israel, and Europe through an integrated network of transport, energy, digital, and trade infrastructure.

At the same time, the geography of global connectivity is being shaped not only by governments, but also by investors, logistics operators, technology firms, port developers, energy companies, and financial institutions. Connectivity governance is therefore no longer solely a matter of interstate cooperation. It reflects the interaction of public and private actors whose investment decisions help shape the future architecture of global trade, energy, digital systems, and infrastructure.

1.2 WHY CONNECTIVITY MATTERS

In this evolving environment, connectivity has become one of the defining issues of international political economy. At its core, connectivity is about reducing the costs and frictions associated with the movement of goods, services, capital, energy, data, and people across borders. Throughout history, improvements in transport, communications, logistics, and trade facilitation have expanded markets, increased productivity, lowered transaction costs, stimulated investment, and contributed to economic growth and poverty reduction. From ports and railways to digital networks and energy interconnections, connectivity serves as a fundamental driver of economic efficiency, market integration, and shared prosperity (OECD, 2023; World Bank, 2023).

The benefits of connectivity extend far beyond physical infrastructure. Efficient transport corridors, integrated energy systems, interoperable digital networks, and streamlined regulatory frameworks enable countries to participate more effectively in regional and global markets. By reducing barriers to trade and investment, connectivity can enhance competitiveness, strengthen supply chains, expand economic opportunities, and support inclusive development. For many developing countries, improved connectivity remains essential for overcoming geographic constraints, accessing international markets, attracting investment, and accelerating structural transformation.

At the same time, connectivity has become intertwined with broader questions of economic security and geopolitical influence. Transport corridors, ports, railways, energy networks, undersea cables, digital platforms, and logistics systems represent important strategic assets. Governments are seeking to diversify trade relationships, strengthen supply-chain resilience, secure access to critical markets and resources, and reduce exposure to external shocks. As a result, infrastructure investment is increasingly linked to wider objectives relating to economic security, strategic autonomy, industrial policy, and regional influence.

Despite significant investment efforts, the world continues to face a substantial infrastructure financing gap, particularly across developing economies. Yet the challenge is no longer solely one of mobilizing capital. Equally important is ensuring that emerging connectivity initiatives interoperable, complementary, and capable of generating shared economic benefits rather than reinforcing fragmentation. As competing connectivity initiatives expand across regions and sectors, the effectiveness of the global economy will depend not only on the quantity and quality of infrastructure being built, but also on the degree to which these networks are connected, coordinated, and capable of supporting a more efficient, resilient, and prosperous international economic system (European Parliamentary Research Service, 2023).

1.3 WHY THE G20 STILL MATTERS

Great power competition and multilateral disengagement often coexist with deep economic interdependence and pragmatic cooperation. The fluid nature of contemporary international relations demonstrates that geopolitical rivalry and economic cooperation increasingly operate simultaneously rather than sequentially.[2] While political tensions may disrupt diplomatic relationships, states, businesses, and

[2] This is illustrated by the United States' approach to the G20 under the second term of the Trump administration, notably declining to participate in the 2025 G20 Summit in Johannesburg, South Africa, creating uncertainty around U.S. commitments to multilateral economic cooperation. Yet within a year, senior U.S. political and business leaders were actively pursuing renewed economic

investors remain deeply interconnected through trade, investment, supply chains, energy markets, and technology ecosystems. The challenge for multilateral institutions is therefore not to eliminate disagreement, but to provide mechanisms through which cooperation can continue despite it.

The emergence of alternative governance arrangements, including the expansion of BRICS+, the growing influence of the Shanghai Cooperation Organization (SCO), and a proliferation of regional and issue-specific coalitions, has led some observers to question the future relevance of the G20. Yet despite growing geopolitical tensions and institutional fragmentation, the G20 remains the most comprehensive forum for international economic cooperation. Collectively, G20 members account for approximately 85 per cent of global GDP, 75 per cent of international trade, and around two-thirds of the world's population (G20, 2024; World Bank, 2024). With the admission of the African Union as a permanent member in 2023, the G20 now incorporates representation from every major region of the world.

While the G20 does not itself direct or control the major connectivity initiatives (the BRI, Global Gateway, Partnership for Global Infrastructure and Investment, IMEC, and other regional corridor programs all operate through different institutional arrangements, financing mechanisms, strategic interests, and political coalitions) it nonetheless occupies a unique position because it includes many of the principal actors behind these initiatives, including the United States, China, India, Russia, the European Union, Saudi Arabia, Brazil, South Africa, and the African Union.

At the same time, the G20 should not be viewed as a cohesive bloc. It is better understood as an umbrella forum that brings together states with divergent, and sometimes competing, geopolitical interests. Strategic rivalries underpinned by competing approaches to trade, technology, development finance, and energy security, as well as differing perspectives on global governance itself, have exposed significant fractures within the international system. These developments highlight the reality that today's world is simultaneously hyper-globalized and fragmented, characterized by deep economic interdependence alongside growing geopolitical competition.

Yet it is precisely because these divisions exist that the G20 remains important. Unlike more homogeneous groupings such as the G7, BRICS+, the SCO, or most regional organizations, the G20 remains the only major global forum that simultaneously includes the world's leading advanced economies, emerging powers, major infrastructure financiers, multilateral development bank shareholders, and key regional actors within a single institutional framework. Its continued relevance rests on several distinctive comparative advantages:

- ***Bridging Competing Systems.*** The G20 provides one of the few platforms where advanced economies, emerging powers, BRICS members, Western economies, Gulf states, and major developing countries can engage within a common framework despite often divergent interests.

- ***Coordinating Cross-Domain Connectivity.*** Modern connectivity extends beyond physical infrastructure to encompass transport, logistics, energy systems, digital networks, supply chains, data infrastructure, financial systems, and regulatory frameworks. Few institutions possess a mandate broad enough to facilitate dialogue across these interconnected domains.

- ***Reducing the Costs of Fragmentation.*** As competing infrastructure and connectivity initiatives proliferate, the risks of duplication, incompatible standards, regulatory divergence, inefficient capital allocation, and geopolitical rivalry increase. The G20 provides a platform through which greater interoperability, transparency, and coordination can be encouraged.

engagement with China, underscoring the extent to which geopolitical competition, economic interdependence, and pragmatic cooperation coexist within the contemporary international system.

- ***Convening Global Capital.*** The G20 includes the world's largest economies, sovereign wealth funds, multilateral development bank shareholders, export credit agencies, institutional investors, and infrastructure financiers. As a result, it remains uniquely positioned to support dialogue around infrastructure financing, investment priorities, and opportunities for co-financing.

- ***Facilitating Collective Bargaining and Coalition Building.*** Although it does not negotiate binding agreements, the G20 serves as an important platform for agenda-setting, coalition-building, and consensus formation. Through its influence on multilateral development banks, international financial institutions, regional organizations, and development partners, its impact extends well beyond its formal membership.

- ***Stabilizing Fragmentation.*** In an increasingly mercantilist and fragmented international economy, the G20 helps preserve dialogue, coordination, and cooperation across competing geopolitical and economic blocs, reducing the risk that strategic competition evolves into deeper economic separation. Particularly in light of rising trade tensions, it provides an important forum for promoting a more coherent approach to global economic governance.

- ***Facilitating Practical Multilateralism.*** Connectivity may represent one of the few remaining areas where interests continue to overlap despite broader geopolitical competition. The G20 provides an important venue through which practical cooperation can continue even where political consensus remains elusive.

The G20's value therefore lies not in building, financing, or governing infrastructure directly. Rather, its comparative advantage lies in reducing the economic and political costs of fragmentation. Its role is to provide a forum through which competing actors, initiatives, and governance systems can remain connected, even when broader political relationships are strained.

The central question is therefore not whether the G20 governs global connectivity—it does not—but whether it remains capable of facilitating sufficient cooperation among competing powers to support a more coherent, interoperable, and resilient global connectivity landscape.

1.4 RESEARCH QUESTION AND ARGUMENT

The growing fragmentation of the international political economy raises important questions regarding the future of multilateral cooperation. As competing geopolitical blocs, connectivity initiatives, industrial strategies, and economic governance models emerge, many of the institutions that underpinned the post-Cold War era face increasing pressure. The World Trade Organization (WTO) has struggled to advance new rounds of trade liberalization, and supply chains are now being shaped by considerations of resilience and economic security, competition for markets and technological leadership is intensifying, and infrastructure is increasingly being deployed as an instrument of geopolitical influence.[3] Yet despite these trends, the global economy remains deeply interconnected and dependent upon efficient flows of goods, capital, energy, data, and people.

The timing of this debate is particularly significant. The expansion of BRICS+, renewed trade tensions, continuing conflicts in Europe and the Middle East, the reorganization of global supply chains, and the emergence of new connectivity initiatives are reshaping the architecture of the global economy. At the same

[3] The WTO remains indispensable as the formal rules-based institution governing international trade, but it has struggled to advance major new multilateral agreements in an era of growing geopolitical competition, economic nationalism, and strategic trade policies. The G20 cannot substitute for the WTO, but it may provide a complementary political forum through which dialogue and consensus-building can continue among the world's largest economies.

time, the G20 faces growing questions regarding its future relevance and effectiveness as a forum for international cooperation. Against this backdrop, connectivity has emerged as one of the few domains in which cooperation and competition coexist. This paper is motivated by three interrelated questions:

- ***Question 1*:** Can connectivity remain one of the few domains of practical multilateral cooperation in a fragmented and multipolar world?
- ***Question 2*:** Can the G20 play a stronger role in fostering coordination, interoperability, and dialogue across a crowded landscape of competing connectivity initiatives?
- ***Question 3*:** What lessons does the India–Middle East–Europe Economic Corridor (IMEC) provide regarding the future of connectivity governance, and what does it reveal about the capacity of the G20 to facilitate cooperation across competing geopolitical and economic domains?

This paper argues that the principal challenge facing the international community is no longer the absence of infrastructure initiatives or financing mechanisms but the growing fragmentation of the global connectivity landscape itself, with initiatives increasingly developing within separate geopolitical, institutional, and economic spheres.

Using IMEC as a case study, the paper contends that IMEC is more than a transport corridor. It represents one of the most ambitious contemporary attempts to connect Europe, the Middle East, and Asia through an integrated system of transport, energy, digital, and trade infrastructure. As such, it provides a useful lens through which to examine the broader challenges of connectivity governance in a fragmented world and the necessary convening role of the G20.

In this sense, the paper explores whether the future relevance of the G20 may therefore depend less on its ability to negotiate grand bargains across all areas of global governance and more on its capacity to foster cooperation in areas where interests continue to converge, such as connectivity. In this sense, IMEC serves not only as a major infrastructure initiative, but also as a test of whether practical multilateralism can continue to function in a fragmented and multipolar world.

2. FROM GLOBALIZATION TO CONNECTIVITY COMPETITION

The decades following the end of the Cold War were characterized by an unprecedented expansion of globalization. Trade liberalization, technological innovation, global value chains, financial integration, and declining transportation and communication costs contributed to the emergence of an increasingly interconnected world economy. At the same time, successive international development frameworks—including the Millennium Development Goals (MDGs), Agenda 2030 and the Sustainable Development Goals (SDGs), the Paris Climate Agreement, and most recently the United Nations Pact for the Future—have reflected a continuing commitment to multilateral cooperation in pursuit of shared prosperity, sustainable development, and global public goods (United Nations, 2015; United Nations, 2024).

Yet, while trade, investment, technology, and connectivity have drawn economies closer together, rising geopolitical competition, economic nationalism, supply-chain vulnerabilities, technological rivalry, and competing governance models have challenged assumptions regarding the inevitability of deeper global integration (IMF, 2023; World Bank, 2024). The result is not the end of globalization, but its transformation. The contemporary international system is being shaped by the interaction of two opposing dynamics: centripetal forces that encourage integration and cooperation, and centrifugal forces that promote fragmentation and competition.

The interaction between these forces is transforming the nature of international economic cooperation. Rather than converging around a single model of globalization, the world is characterized by multiple centers of power, each with competing development pathways and overlapping governance architectures. Economic interdependence remains extensive, yet governments are seeking to shape the infrastructure, supply chains, digital systems, energy networks, and trade corridors through which economic exchange occurs (IMF, 2023; OECD, 2024).

This transition marks the emergence of what may be described as connectivity competition. Rather than a single, integrated model of globalization, the world is witnessing the development of multiple and sometimes competing connectivity systems. Initiatives such as China's Belt and Road Initiative (BRI), the European Union's Global Gateway, the G7's Partnership for Global Infrastructure and Investment (PGII), and IMEC all seek to shape the future geography of trade, investment, production, and influence. The central challenge is no longer whether connectivity will expand, but whether these emerging systems will evolve in a coordinated and interoperable manner or become increasingly fragmented along geopolitical, economic, and technological lines.

2.1 THE RISE OF CORRIDOR-BASED GEOECONOMICS

One of the most significant developments in the contemporary international political economy has been the growing importance of what may be described as **corridor-based geoeconomics**. During the height of globalization, economic integration was largely driven by trade liberalization, declining transportation costs, global value chains, and the expansion of multilateral economic institutions. Markets were generally assumed to allocate resources efficiently, while infrastructure was primarily viewed as a facilitator of trade, investment, and economic development. Connectivity was largely regarded as an economic objective rather than a geopolitical strategy.

Over the past decade, however, this assumption has changed. A combination of geopolitical tensions, supply-chain disruptions, energy insecurity, technological competition, and growing concerns regarding economic resilience have fundamentally altered how governments view connectivity. Infrastructure is increasingly understood not only as an enabler of economic activity but also as a strategic asset capable of shaping trade flows, influencing investment patterns, strengthening geopolitical relationships, and enhancing national security (IMF, 2023; OECD, 2024).

As a result, attention has shifted from globalization in general to the specific corridors, networks, and systems through which economic exchange takes place. Governments are concerned with securing access to critical markets, reducing exposure to strategic vulnerabilities, diversifying supply chains, and strengthening economic resilience. Questions of *where* goods move, *through whom* they move, and *under what rules and standards* they move have become important. Connectivity has therefore become a central arena in which economic and geopolitical interests intersect.

Trade corridors now play a particularly important role within this evolving landscape. Historically, major transport routes such as the Silk Roads, maritime trading networks, and strategic waterways facilitated economic exchange across regions and civilizations. Contemporary corridor initiatives perform a similar function, but within a far more interconnected and competitive global economy. Modern connectivity corridors increasingly combine physical infrastructure, logistics systems, digital networks, energy transmission systems, customs arrangements, regulatory cooperation, and investment frameworks into integrated economic platforms designed to facilitate trade and investment while strengthening strategic relationships (World Bank, 2024).

At the same time, the concept of economic security has emerged as a major driver of infrastructure policy. The disruptions caused by the COVID-19 pandemic, the war in Ukraine, instability in the Red Sea, semiconductor shortages, and growing tensions between major powers exposed vulnerabilities within highly concentrated global supply chains. In response, governments and businesses have pursued strategies aimed at diversification, redundancy, resilience, and risk reduction. Friend-shoring, near-shoring, re-shoring, and corridor-based investment strategies have become important tools through which states seek to balance economic efficiency with economic security (WTO, 2024; UNCTAD, 2024).

The emergence of corridor-based geoeconomics therefore reflects a broader transformation in the nature of globalization itself. Connectivity is no longer simply about reducing barriers to trade. It is increasingly about shaping the architecture through which trade, investment, energy, technology, and data move across the international system. Infrastructure corridors have become instruments through which major powers pursue economic growth, strengthen resilience, project influence, secure strategic partnerships, and compete for position within a multipolar world.

This shift is reflected in the growing number of large-scale connectivity initiatives (see Table 1 below) emerging across different regions. While these initiatives differ significantly in scope, financing models, governance structures, and geopolitical objectives, they collectively illustrate a world in which connectivity has become a central arena of strategic competition.

Importantly, these corridors should not be viewed solely as infrastructure projects. They increasingly function as integrated economic, political, digital, energy, and logistics systems that influence patterns of trade, investment, supply-chain resilience, market access, and geopolitical alignment. Some corridors seek to strengthen regional integration; others aim to diversify supply chains, secure access to critical minerals, support energy transitions, or expand geopolitical influence. Collectively, they demonstrate the extent to which connectivity has become a defining feature of contemporary geoeconomic competition.

The challenge facing policymakers is therefore no longer whether connectivity will expand, but whether these emerging connectivity systems will evolve in a coordinated and interoperable manner or become fragmented across competing geopolitical and economic spheres.

Table 1. MAJOR GLOBAL CONNECTIVITY CORRIDORS AND THEIR IMPLICATIONS FOR GLOBAL CONNECTIVITY GOVERNANCE [1]

Corridor / Initiative	Geography	Primary Anchors / Investors	G20 Connection	Strategic Implication
Belt and Road Initiative (BRI)	China–Asia–Africa–Europe–Latin America	China; Chinese policy banks; SOEs; host governments	China is a G20 member; many recipients are outside G20	The largest connectivity platform; creates parallel standards, financing models and influence networks.
India–Middle East–Europe Economic Corridor (IMEC)	India–UAE/Saudi Arabia–Jordan/Israel–Europe	India, US, EU, Saudi Arabia, UAE, France, Germany, Italy	Launched at the 2023 G20 New Delhi Summit; most anchors are G20 actors	A G20-born corridor and direct test case for connectivity governance across trade, energy, digital and political domains. (presidency.ucsb.edu)
Iraq Development Road / Dry Canal	Gulf–Iraq–Türkiye–Europe	Iraq, Türkiye, UAE, Qatar; private and state capital	Türkiye is G20; UAE/Qatar/Iraq are non-G20 but strategically important	Competes with or complements IMEC by offering a Gulf-to-Europe land bridge through Iraq and Türkiye. (Middle East Council on Global Affairs)
International North–South Transport Corridor (INSTC)	India–Iran–Caspian–Russia–Europe	India, Iran, Russia, Azerbaijan and regional partners	India and Russia are G20; Iran is outside G20	Provides a sanctions-era Eurasian alternative linking India, Iran and Russia; highly geopolitical. (Grc)
Middle Corridor / Trans-Caspian International Transport Route	China/Central Asia–Caspian–Caucasus–Türkiye–Europe	Kazakhstan, Azerbaijan, Georgia, Türkiye, EU, China-linked trade	Türkiye, China and EU are G20-connected	A Russia-bypassing Eurasian route gaining importance after Ukraine; high interoperability challenge. (EY)
Lobito Corridor	Angola–DRC–Zambia to Atlantic markets	US, EU, Angola, DRC, Zambia, AFC/private investors	US, EU, AU and South Africa linked through G20; Angola/DRC/Zambia outside G20	Strategic minerals corridor for copper/cobalt and energy transition supply chains; strong PGII/Global Gateway case. (International Partnerships)
EU–Africa Strategic Corridors	Africa–Europe; 12 priority corridors	EU Global Gateway, AU, African governments, MDBs	EU and AU are G20 members	Important for showing that Africa is not peripheral to connectivity competition; directly linked to PIDA. (International Partnerships)

[1] Analytical takeaway: the corridor landscape is no longer dominated by one initiative. It is becoming a dense, overlapping system of trade, energy, digital, mineral and logistics corridors. The G20 is involved in some directly, such as IMEC, indirectly in others, such as Lobito and the Middle Corridor, and only partially in others, such as INSTC and Iraq's Development Road. That is precisely the governance gap: the G20 does not control these corridors, but it may be the only forum capable of reducing fragmentation between them.

Table 1. MAJOR GLOBAL CONNECTIVITY CORRIDORS AND THEIR IMPLICATIONS FOR GLOBAL CONNECTIVITY GOVERNANCE [1]

Corridor / Initiative	Geography	Primary Anchors / Investors	G20 Connection	Strategic Implication
LAPSSET Corridor	Kenya–South Sudan–Ethiopia	Kenya, Ethiopia, South Sudan, AfDB, private investors	AU is G20; countries are not individual G20 members	East African integration corridor; shows how non-G20 corridors still matter to global connectivity governance. (lapsset.go.ke)
Northern Sea Route / Polar Silk Road	Arctic Russia–Asia–Europe	Russia, China, Arctic investors, shipping interests	Russia and China are G20	Climate-change-enabled corridor with major strategic, sanctions and environmental implications. (INSS)
Digital / Data Corridors	Gulf–Iraq–Türkiye–Europe; broader subsea/terrestrial cable systems	UAE, Iraq, private digital infrastructure investors	Türkiye is G20; UAE/Iraq are outside G20	Shows that connectivity competition is no longer just ports and railways; data and AI infrastructure are now corridor politics. (Reuters)

2.2 COMPETING CONNECTIVITY INITIATIVES AND DEVELOPMENT PARADIGMS

Although connectivity is often presented as a shared global objective, contemporary connectivity initiatives reflect different approaches to development, finance, governance, state-market relations, and international cooperation. While many initiatives overlap in practice and increasingly combine physical infrastructure, energy systems, digital networks, logistics, trade facilitation, and regulatory cooperation, important differences remain in how connectivity is financed, governed, organized, and strategically pursued. These initiatives embody different assumptions regarding the appropriate role of the state, markets, private capital, multilateral institutions, governance standards, technology, sovereignty, and development pathways (Farrell and Newman, 2019; IMF, 2023; World Bank, 2024).

The emerging connectivity landscape is therefore characterized not only by a growing number of projects and corridors, but also by alternative approaches to development, financing, governance, and international cooperation. Connectivity has consequently become an important arena through which states and coalitions seek not only to facilitate economic exchange, but also to shape the rules, standards, institutions, and relationships that will underpin the future global economy.

Importantly, these approaches are not mutually exclusive. Many countries participate simultaneously in multiple connectivity initiatives, reflecting a pragmatic desire to diversify partnerships, financing sources, markets, technologies, and strategic relationships. The principal challenge is therefore not the existence of multiple connectivity initiatives or development paradigms, but the absence of mechanisms capable of promoting coordination, interoperability, transparency, and coherence across an increasingly complex and overlapping connectivity ecosystem.

Understanding these different approaches remains important because they shape the incentives, governance arrangements, financing structures, standards, and strategic objectives through which connectivity is pursued. Table 2 illustrates the dominant characteristics of several major connectivity initiatives. While these initiatives differ in their underlying approaches, they increasingly interact within a shared global connectivity landscape. The central challenge for both the G20 and the wider international system is therefore not how to eliminate diversity or competition, but how to ensure that differing approaches can coexist within a framework that promotes interoperability, reduces fragmentation, and maximizes collective economic benefits.

Table 2. COMPETING POLITICAL, ECONOMIC AND STRATEGIC MODELS OF CONNECTIVITY

Connectivity Model	Representative Initiative	Primary Actors	Financing Logic	Governance Approach	Strategic Objective
State-Led Strategic Connectivity	Belt and Road Initiative (BRI)	China, state-owned enterprises, policy banks	State-backed lending and investment	Bilateral agreements and project-based implementation	Expand connectivity, trade, market access, and geopolitical influence
Standards-Based Connectivity	Global Gateway	European Union, European financial institutions, partner countries	Public finance combined with development finance institutions	Rules-based, governance-focused, sustainability and transparency standards	Promote sustainable, high-quality, and standards-driven connectivity
Investment-Led Connectivity	Partnership for Global Infrastructure	G7 governments,	Mobilization of private capital and	Market-oriented and investment-focused	Expand infrastructure investment and

Table 2. COMPETING POLITICAL, ECONOMIC AND STRATEGIC MODELS OF CONNECTIVITY					
Connectivity Model	**Representative Initiative**	**Primary Actors**	**Financing Logic**	**Governance Approach**	**Strategic Objective**
	and Investment (PGII)	MDBs, private investors	blended finance		reduce financing gaps
Digital Connectivity and Public Goods	Digital Public Infrastructure (DPI) Initiatives	Governments, multilateral institutions, technology partners	Public investment and digital ecosystem development	Open standards, interoperability, and digital inclusion	Expand digital access, service delivery, and digital integration
Regional Integration Connectivity	Regional Corridors (Lobito, LAPSSET, ASEAN, GCC, African corridors)	Regional organizations and national governments	Mixed public, private, and multilateral financing	Regional cooperation frameworks	Strengthen regional integration, trade facilitation, and resilience
Strategic Corridor Connectivity	IMEC, INSTC, Development Road Project, Middle Corridor	Coalitions of states and strategic partners	Mixed public and private financing	Multi-country corridor governance arrangements	Strengthen supply-chain resilience, economic security, and geopolitical partnerships

The diversity of contemporary connectivity initiatives reflects both the multipolar nature of the international system and the emergence of alternative approaches to development, finance, governance, and strategic influence (Farrell and Newman, 2019; IMF, 2023; World Bank, 2024). While all seek to strengthen connectivity, they differ in their financing structures, governance arrangements, implementation modalities, risk-sharing mechanisms, and strategic objectives. Some emphasize state leadership, long-term strategic investment, and geopolitical influence; others prioritize governance standards, sustainability, and regulatory alignment, while others focus on mobilizing private capital, promoting regional integration, strengthening digital inclusion, or enhancing economic security. Importantly, these approaches are neither mutually exclusive nor static. Many initiatives increasingly combine elements of multiple approaches, while countries frequently participate in several connectivity initiatives simultaneously to diversify partnerships, financing sources, markets, technologies, and strategic relationships.

For the G20, this diversity presents both opportunities and challenges. On the one hand, the coexistence of multiple connectivity initiatives can stimulate innovation, expand infrastructure investment, increase financing options, encourage technological development, and provide countries with greater flexibility in pursuing their development objectives. On the other hand, differing standards, financing approaches, procurement practices, regulatory frameworks, data governance arrangements, and strategic priorities can contribute to fragmentation, increase transaction costs, and reduce opportunities for coordination and interoperability (OECD, 2024; UNCTAD, 2024). The challenge is therefore not to promote a single approach to connectivity, but rather to identify mechanisms through which diverse initiatives can coexist, interact, and contribute to a more coherent, interoperable, and resilient global connectivity system. In this context, the central question is not whether connectivity competition will continue—it almost certainly will—but whether institutions such as the G20 can help ensure that competition occurs within a framework that supports coordination, compatibility, transparency, and shared economic benefits.

2.3 RISKS OF FRAGMENTATION

While competition among connectivity initiatives can stimulate innovation, investment, technological advancement, and greater choice for countries seeking development partners, excessive fragmentation can generate significant economic, regulatory, technological, financial, and geopolitical costs. The challenge is therefore not competition itself, but the absence of mechanisms capable of ensuring interoperability, coordination, transparency, and compatibility across a complex connectivity landscape.

Recent global events have highlighted the extent to which economies remain interconnected and vulnerable to external disruptions. The COVID-19 pandemic, the war in Ukraine, instability in the Red Sea, disruptions to global energy markets, semiconductor shortages, rising trade restrictions, and escalating geopolitical tensions have demonstrated how exogenous shocks can rapidly propagate through trade networks, supply chains, transport systems, financial markets, technology ecosystems, and commodity markets. Armed conflict has become an increasingly important source of disruption. Modern connectivity systems depend upon stable transport routes, secure energy supplies, functioning digital infrastructure, and predictable political relationships. When conflict affects major producing regions, strategic waterways, energy corridors, logistics hubs, or critical infrastructure, the resulting economic impacts can extend far beyond the immediate theatre of conflict.

As the International Monetary Fund (IMF) has observed in its work on geoeconomic fragmentation, the benefits of globalization (and conversely the costs of fragmentation) are transmitted through multiple interconnected channels, including trade, capital flows, technology diffusion, migration, finance, and the provision of global public goods (Aiyar et al., 2023). Fragmentation in one domain therefore frequently generates consequences across many others. These shocks rarely affect countries equally. Instead, they interact with domestic vulnerabilities—including dependence on specific export markets, concentrated supply chains, energy dependencies, technological reliance, limited logistics capacity, fiscal constraints, and structural economic weaknesses—often amplifying their economic impact. In effect, exogenous shocks become magnified through domestic transmission mechanisms, increasing exposure to inflation, supply shortages, financial volatility, declining investment, and slower economic growth.

As a result, resilience now not only depends on national policies, but also on the strength, diversity, interoperability, and adaptability of the connectivity systems upon which economies depend. From this perspective, connectivity governance is not simply an infrastructure challenge; it is an important component of economic resilience, risk management, and long-term development strategy (IMF, 2023; OECD, 2024; World Bank, 2024).

While competition among connectivity initiatives can generate innovation, investment, and strategic choice, excessive fragmentation ultimately imposes costs on all participants. In an interconnected global economy, disruptions arising from trade disputes, sanctions regimes, armed conflict, supply-chain disruptions, regulatory divergence, technological decoupling, and energy insecurity rarely remain confined to their point of origin. Instead, they are transmitted through interconnected networks of trade, finance, technology, energy, and logistics, creating wider economic consequences across both G20 and non-G20 economies. Although competing political and economic interests are an enduring feature of the international system, the collective challenge is to manage these differences in ways that minimize systemic instability and avoid unnecessary costs. From this perspective, connectivity governance is not simply about building infrastructure; it is about reducing fragmentation, strengthening resilience, and ensuring that economic competition occurs within a framework that supports interoperability, predictability, and shared prosperity. Table 3 summarizes some of the principal risks and costs associated with a fragmented connectivity landscape.

Table 3. RISKS AND COSTS OF CONNECTIVITY FRAGMENTATION		
Risk Area	**Manifestation**	**Potential Cost to G20 Members and the Global Economy**
Supply Chain Fragmentation	Parallel production, sourcing, logistics and distribution systems	Higher production costs, reduced efficiency, increased vulnerability to disruptions, and slower economic growth
Competing Technical Standards	Different transport, digital, energy, customs and operational standards	Higher transaction costs, reduced interoperability, and barriers to trade and investment
Regulatory Incompatibility	Divergent regulations, compliance requirements, customs procedures and data governance frameworks	Increased compliance costs, delays, reduced trade efficiency, and barriers to market integration
Infrastructure Duplication	Overlapping corridors, competing investments, and parallel infrastructure systems	Reduced efficiency, lower returns on investment, and sub-optimal allocation of scarce capital
Financing Inefficiencies	Limited coordination among governments, MDBs, DFIs, sovereign wealth funds and private investors	Reduced co-financing opportunities, higher capital costs, and lower infrastructure investment efficiency
Technology Fragmentation	Restrictions on technology transfer, competing digital ecosystems, AI systems, innovation networks and knowledge flows	Reduced productivity growth, slower innovation, diminished competitiveness, and barriers to technological diffusion
Digital Fragmentation	Competing digital platforms, payment systems, data governance frameworks and digital infrastructure	Reduced interoperability, barriers to digital trade, increased costs, and slower digital transformation
Energy System Fragmentation	Uncoordinated energy networks, infrastructure standards, supply arrangements and transition pathways	Increased energy costs, reduced resilience, and greater vulnerability to supply disruptions
Exposure to Exogenous Shocks	Disruptions to trade routes, supply chains, energy systems, technology networks and commodity markets	Greater economic volatility, inflationary pressures, and vulnerability to external crises
Domestic Amplification of External Risks	Dependence on specific markets, suppliers, technologies, trade routes or energy sources	Increased exposure to inflation, shortages, unemployment, fiscal pressures and economic instability
Reduced Market Integration	Fragmented trade, investment and logistics networks	Lower productivity, reduced market access, slower growth, and fewer opportunities for developing economies
Geopolitical Rivalry	Connectivity initiatives used as instruments of strategic competition and influence	Reduced cooperation, increased uncertainty, political risk, and constraints on multilateral action
Conflict and Security Disruptions	Armed conflict affecting trade routes, ports, logistics hubs, energy infrastructure, undersea cables, digital networks and critical infrastructure	Supply disruptions, higher insurance and transport costs, increased energy prices, reduced investor confidence, economic instability, and heightened systemic risk

2.4 CONNECTIVITY AS A GLOBAL PUBLIC GOOD

The preceding discussion suggests that the principal challenge facing the international community is not the absence of infrastructure initiatives, financing mechanisms, or connectivity corridors. Rather, it is ensuring that a complex and competitive connectivity landscape remains sufficiently interoperable, efficient, resilient, and inclusive to support continued economic growth and development. From this perspective, connectivity itself may increasingly be understood as a global public good. While individual corridors may compete, the broader benefits generated by connectivity extend well beyond national borders and individual projects.

Table 4. THE ROLE OF CONNECTIVITY AS A GLOBAL PUBLIC GOOD

Dimension	Why It Matters
Lower Economic Friction	Reduces transaction costs, transport costs, delays, and barriers to trade and investment.
Market Access	Expands access to domestic, regional, and global markets for producers, consumers, and investors.
Economic Efficiency	Allows resources, capital, labour, technology, and goods to move more efficiently across economies.
Trade and Growth	Supports trade expansion, productivity growth, industrial development, and economic diversification.
Supply Chain Resilience	Reduces dependence on single routes, suppliers, technologies, or markets and strengthens economic resilience.
Digital Connectivity	Facilitates data flows, digital services, e-commerce, financial inclusion, and innovation.
Energy Security	Improves access to diversified energy sources, transmission networks, and regional energy markets.
Innovation and Knowledge Flows	Accelerates technology transfer, research collaboration, learning, and diffusion of innovation.
Development and Poverty Reduction	Creates opportunities for investment, employment, market participation, and economic inclusion.
Interoperability	Ensures that transport, digital, energy, financial, and regulatory systems can function effectively across borders.
Global Economic Resilience	Reduces vulnerability to exogenous shocks and strengthens the capacity of economies to adapt to disruption.
Future Economic Competitiveness	Supports emerging economic models based on artificial intelligence, robotics, digital platforms, cloud computing, and globally integrated service delivery systems.

The importance of connectivity is likely to increase rather than diminish in the decades ahead. As artificial intelligence, advanced robotics, automation, digital platforms, and globally integrated service delivery models continue to transform the global economy, economic value will increasingly be generated through networks rather than geography alone. In this emerging environment, connectivity becomes the bridge between global opportunity and local prosperity. While states remain central actors, multinational corporations, technology firms, digital platforms, sovereign wealth funds, and global innovation networks are assuming increasing influence over how economic activity is organized. Ensuring that the global connectivity system remains open, interoperable, resilient, and accessible therefore serves a collective interest that extends beyond individual countries, corridors, or political alliances. For the G20, promoting greater interoperability and coordination across the global connectivity landscape may increasingly represent not only an economic objective, but a contribution to the provision of a global public good.

The argument presented here also has important implications for contemporary debates regarding the future of multilateralism. At a time when the United Nations faces growing financial pressures, geopolitical divisions, and increasing scrutiny regarding its effectiveness, the demand for global public goods has not diminished. If anything, it has increased. Climate stability, global health, financial stability, sustainable development, digital governance, and connectivity all depend upon forms of international cooperation that no single state can provide alone. Connectivity is emerging as one of these public goods because its benefits extend across borders, sectors, and generations. The challenge is therefore not whether global public goods remain necessary, but how they will be governed in a fragmented and multipolar world.

It is within this broader context that the role of the G20 becomes particularly important, in contributing to the preservation of cooperative frameworks, norms, and platforms necessary to ensure that connectivity continues to serve shared global interests rather than another source of fragmentation.

3. G20 INFRASTRUCTURE GOVERNANCE

The G20's infrastructure agenda evolved gradually from its initial focus on financial stability and macroeconomic coordination. Although the G20 is not a formal international organization and possesses no treaty-based authority over global infrastructure development, it has progressively developed a significant infrastructure governance architecture over the past decade.[1] Infrastructure emerged as a major area of G20 engagement following the recognition that closing infrastructure gaps was essential for sustaining economic growth, improving productivity, supporting development, and enhancing global economic resilience. Through various means (unpacked below), the G20 has become one of the principal platforms for infrastructure policy dialogue, financing coordination, knowledge sharing, and investment promotion.

In particular, following the Global Financial Crisis, infrastructure investment was increasingly viewed as an important driver of economic recovery, productivity growth, employment creation, and long-term competitiveness. The G20 Leaders' Summit in Brisbane (2014) marked a significant turning point, placing infrastructure at the centre of the growth agenda and leading to the establishment of new institutional mechanisms designed to mobilize investment and improve project preparation (G20, 2014a). Subsequent presidencies expanded this work to include quality infrastructure, sustainable financing, resilience, climate considerations, digital infrastructure, and support for the Sustainable Development Goals (G20, 2016; G20, 2019a; G20, 2023a). Over time, the infrastructure agenda has evolved from a narrow financing discussion into a broader conversation concerning infrastructure systems, connectivity, sustainability, and economic transformation.

The G20's infrastructure role is therefore best understood not through any single body or initiative, but as an evolving governance architecture composed of complementary platforms, principles, and coordination mechanisms. Together, these instruments demonstrate how the G20 continues to shape the global connectivity agenda through political convening, agenda-setting, policy dialogue, technical knowledge, normative guidance, connectivity cooperation, and engagement with multilateral development banks. The figure below summarizes the main components of this architecture and the ways in which they collectively support global infrastructure and connectivity governance.

[1] Established in 1999 by G7 Finance Ministers and Central Bank Governors in the aftermath of the Asian Financial Crisis, the G20 was originally conceived as a forum for international economic cooperation among systemically important advanced and emerging economies. Following the 2008 Global Financial Crisis, it was elevated to the level of Heads of State and Government and has since evolved into the premier forum for international economic cooperation (G20, 2009).

The G20 and the Global Connectivity Agenda

How the G20 continues to shape infrastructure and connectivity through policy coordination, knowledge sharing, standards, and financing cooperation

Although the G20 has no treaty-based authority over global infrastructure development, it has developed a significant governance architecture that continues to influence the global connectivity agenda.

G20 Platform for Global Connectivity Leadership

Political Convening | Agenda-Setting | Coordination Across Major Economies

Infrastructure Working Group (IWG)

Core policy coordination platform

The IWG serves as the principal G20 platform for infrastructure policy dialogue under the Finance Track. It brings together finance ministries, central banks, multilateral development banks, and international organizations to address investment challenges and strengthen infrastructure financing frameworks.

Policy dialogue | Project preparation | Sustainable infrastructure

Global Infrastructure Hub (GI Hub)

Knowledge and advisory platform

Established in 2014, the GI Hub supports infrastructure investment through data, analytical tools, case studies, and best-practice guidance for governments, investors, and development institutions.

Data | Analytical tools | Project pipelines | Governance support

Global Infrastructure Connectivity Alliance (GICA)

Connectivity cooperation platform

Established in 2016, GICA was created to promote cooperation, information exchange, and synergies across existing and emerging connectivity initiatives, reflecting early recognition that connectivity requires coordination beyond infrastructure finance alone.

Information-sharing | Bottleneck identification | Connectivity dialogue

G20 Principles for Quality Infrastructure Investment

Shared normative framework

Adopted in 2019, the Quality Infrastructure Principles provide a common framework for sustainable, resilient, efficient, and transparent infrastructure development, helping shape international understanding of high-quality infrastructure investment.

Sustainability | Resilience | Transparency | Fiscal responsibility

MDB and Infrastructure Financing Coordination

Financing and implementation pillar

The G20 works with multilateral development banks to strengthen lending capacity, improve project preparation, mobilize private capital, expand blended finance, and enhance institutional cooperation.

Financing coordination | Private capital mobilization | Implementation support

Collective Contributions

Policy Dialogue
Common forum for major economies and institutions

Knowledge Sharing
Tools, data, and practical guidance

Norms and Standards
Quality, sustainability, and resilience

Connectivity Cooperation
Cross-border coordination and synergies

Financing Coordination
MDB engagement and investment mobilization

Why This Matters for the Global Connectivity Agenda

Taken together, these bodies and instruments show that the G20 remains an important platform for shaping the global connectivity agenda. Its influence lies not in directly building or governing infrastructure, but in convening major actors, promoting shared principles, strengthening knowledge and financing coordination, and keeping connectivity on the agenda as a field of practical multilateral cooperation.

3.7 ACHIEVEMENTS AND CONTRIBUTIONS

Over the past decade, the G20's infrastructure architecture has made a number of important contributions to global infrastructure development. First, it has helped elevate infrastructure investment as a strategic global policy priority and contributed to efforts aimed at mobilizing additional financing for infrastructure projects (G20, 2014a; G20, 2023a). Second, through the work of the GI Hub and MDB partners, it has strengthened project preparation capacity and improved understanding of infrastructure investment needs (GI Hub, 2024). Third, it has advanced the use of blended finance mechanisms and encouraged greater private sector participation in infrastructure investment (MDB Working Group, 2018). Fourth, the G20 Principles for Quality Infrastructure Investment have helped establish a shared normative framework promoting sustainability, resilience, transparency, and value for money (G20, 2019b). Finally, the G20 has contributed significantly to knowledge sharing, policy dialogue, and the dissemination of good practices across governments, investors, development institutions, and international organizations. Collectively, these achievements have strengthened the global infrastructure ecosystem and improved the enabling environment for infrastructure investment.

Over the past decade, the G20 has progressively developed a substantial infrastructure architecture encompassing infrastructure finance, project preparation, quality standards, knowledge sharing, and coordination among development finance institutions. While individual mechanisms serve different functions, collectively they have contributed to strengthening the global infrastructure ecosystem and elevating infrastructure as a strategic issue within international economic governance. The principal contributions of this architecture are summarized in Table 5.

Table 5. KEY CONTRIBUTIONS OF THE G20 INFRASTRUCTURE ARCHITECTURE

Area	Major Contribution
Infrastructure Financing	Mobilization of public and private capital for infrastructure investment
Project Preparation	Improved project pipelines, preparation facilities, and investment readiness
Blended Finance	Greater use of risk-sharing instruments and private capital mobilization
Quality Infrastructure Standards	Adoption of shared principles for sustainable, resilient, and transparent infrastructure
Knowledge Sharing	Development of analytical tools, data platforms, case studies, and policy guidance
MDB Coordination	Enhanced cooperation among development finance institutions, investors, and governments
Sustainable Infrastructure	Greater integration of climate, resilience, sustainability, and long-term asset management considerations
Global Policy Dialogue	Elevated infrastructure as a strategic issue within international economic governance
Cross-Border Connectivity	Increased recognition of infrastructure as a driver of regional integration, trade facilitation, and economic connectivity
Platform for Consensus Building	Created one of the few forums where advanced economies, emerging powers, MDBs, and infrastructure investors can engage on shared infrastructure challenges

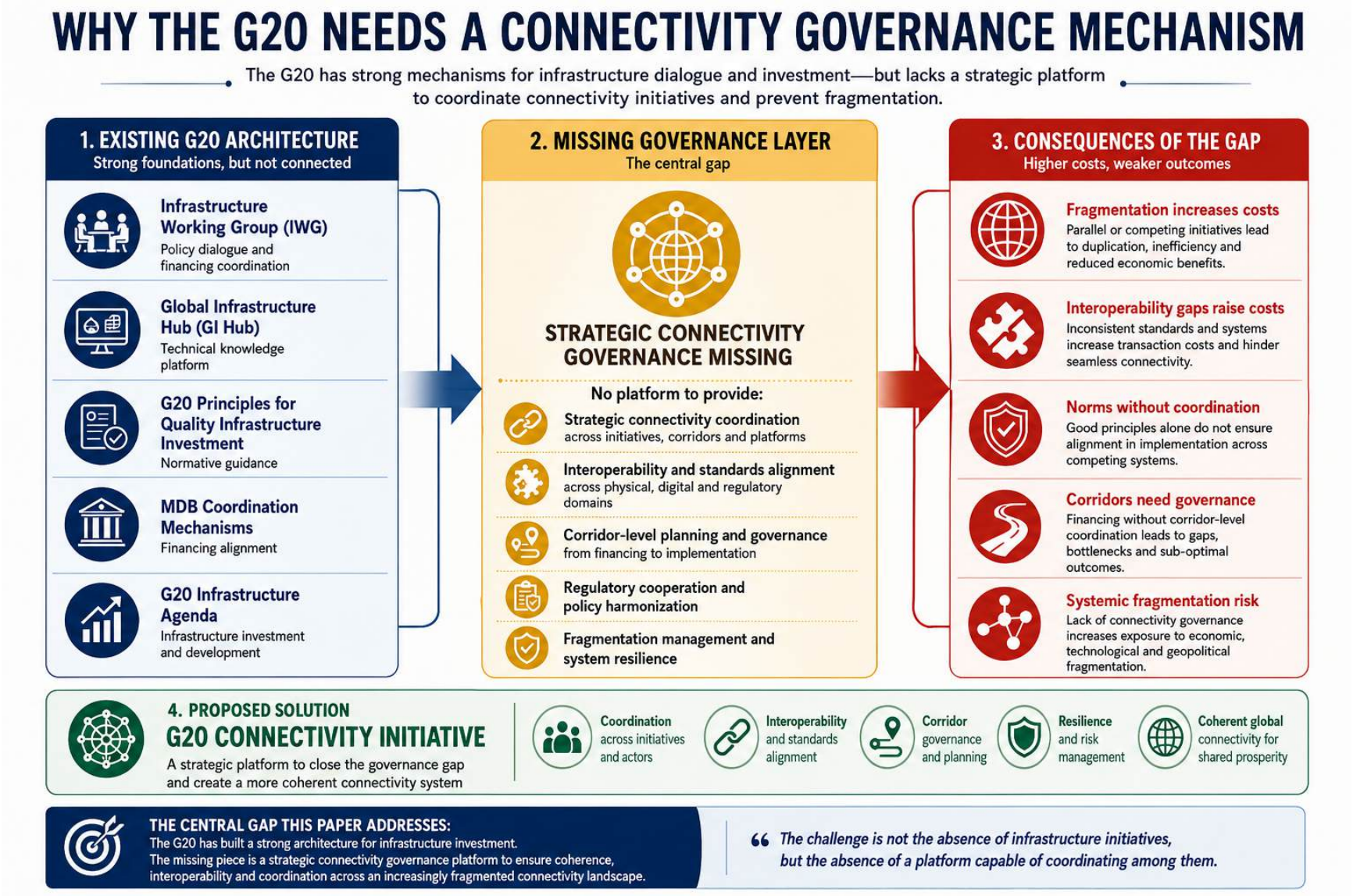
3.8 REMAINING GOVERNANCE GAPS

Despite the significant progress made by the G20 in strengthening infrastructure finance, project preparation, quality infrastructure standards, and coordination among development finance institutions, important governance gaps remain. Existing mechanisms were largely designed to address infrastructure investment and financing challenges rather than the broader governance challenges associated with an increasingly fragmented global connectivity landscape. As a result, while the G20 possesses a substantial infrastructure architecture, it currently lacks a dedicated mechanism capable of promoting strategic coordination across competing connectivity initiatives, facilitating interoperability between different

infrastructure systems and standards, supporting corridor-level governance, and reducing the economic costs associated with fragmentation. Figure 1 summarizes the principal elements of the existing G20 infrastructure architecture and highlights the remaining governance gaps that this paper seeks to address.

Figure 1 illustrates a central finding of this paper: the challenge facing the international community is no longer the absence of infrastructure initiatives, financing mechanisms, technical expertise, or normative frameworks. Rather, it is the absence of an effective platform capable of coordinating among them. In a world characterized by competing connectivity initiatives, overlapping corridors, technological fragmentation, supply-chain restructuring, and growing geopolitical competition, the principal governance gap lies at the level of strategic connectivity coordination. Addressing this gap does not require replacing existing institutions or initiatives. Instead, it requires mechanisms capable of promoting coherence, interoperability, dialogue, and cooperation across an increasingly complex and fragmented global connectivity ecosystem.

Figure 1. EXISTING G20 INFRASTRUCTURE ARCHITECTURE AND REMAINING CONNECTIVITY GOVERNANCE GAPS



4. IMEC: A TEST CASE FOR 21ST CENTURY CONNECTIVITY

The India–Middle East–Europe Economic Corridor (IMEC) provides a useful lens through which to examine many of the themes explored in this paper. Announced at the G20 New Delhi Summit in 2023, IMEC is arguably the most ambitious connectivity initiative to emerge directly from the G20 framework and represents an important test case for twenty-first century connectivity governance. More than a transport corridor, IMEC seeks to integrate maritime, rail, energy, digital, logistics, and trade systems across three regions that collectively account for a substantial share of global economic activity.

The emergence of IMEC also reflects deeper structural shifts within the global economy. For much of the post-Cold War period, advanced economies outsourced manufacturing and industrial production to Asia in pursuit of lower labour costs, greater efficiency, and access to expanding markets. China emerged as the principal beneficiary of this transformation, becoming the world's manufacturing powerhouse and a central node within global supply chains. Yet rising wages, demographic change, geopolitical tensions, supply-chain vulnerabilities, and efforts to diversify production have encouraged governments and multinational firms to seek alternative manufacturing locations. India has emerged as a leading beneficiary of this transition, offering a large labour force, growing industrial capabilities, expanding domestic markets, and a strategic location between Europe, the Middle East, and Asia.

Within this context, IMEC seeks to connect India's growing industrial and manufacturing base with the logistics, investment, and energy hubs of the Gulf and the consumer markets of Europe. The original concept envisaged an integrated network linking Mumbai and western India to the major logistics platforms of the United Arab Emirates, including Jebel Ali, onward through industrial and logistics clusters in Saudi Arabia, across Jordan and Israel via the Port of Haifa, and ultimately into European markets through Mediterranean gateways such as Piraeus and potentially other ports across Southern Europe and the Eastern Mediterranean. In doing so, IMEC combines physical infrastructure, trade facilitation, energy connectivity, digital infrastructure, and strategic partnerships into a single connectivity framework.

IMEC is particularly significant because it sits at the intersection of multiple and sometimes competing geopolitical and economic interests. It involves major G20 actors including India, the United States, the European Union, Saudi Arabia, and several key Gulf partners, while operating alongside other major connectivity initiatives such as China's Belt and Road Initiative (BRI), Russia's International North-South Transport Corridor (INSTC), the European Union's Global Gateway, and emerging regional corridor projects. As a result, IMEC offers more than a case study of infrastructure development; it provides a practical test of whether connectivity can serve as a platform for cooperation across an increasingly fragmented international system and whether the G20 can play a meaningful role in facilitating such cooperation.

Figure 2 presents a simplified overview of IMEC and its core components. The corridor combines maritime transport, rail infrastructure, energy systems, digital connectivity, and trade facilitation mechanisms into a single transregional framework linking India, the Middle East, and Europe. In doing so, it illustrates the multidimensional nature of modern connectivity initiatives and highlights why issues of interoperability, coordination, governance, and resilience are becoming as important as infrastructure investment itself. As such, IMEC serves as a practical test case for examining the role that the G20 might play in supporting connectivity governance within a complex and competitive global landscape.

Figure 2. IMEC IN PERSPECTIVE: STRUCTURE, PARTNERS AND STRATEGIC SIGNIFICANCE

4.1 ORIGINS AND STRATEGIC LOGIC OF IMEC

The India–Middle East–Europe Economic Corridor (IMEC) was announced on 9 September 2023 on the margins of the G20 Leaders' Summit in New Delhi. The Memorandum of Understanding was signed by India, the United States, Saudi Arabia, the United Arab Emirates, France, Germany, Italy, and the European Union, making IMEC one of the most significant connectivity initiatives to emerge directly from a G20 process (IMEC MoU, 2023; White House, 2023a). The corridor was conceived as a multi-country connectivity platform designed to link India, the Arabian Gulf, and Europe through integrated transport, energy, digital, and trade infrastructure.

Strategically, IMEC reflects several overlapping objectives. For India, it supports the country's ambition to become a major manufacturing, logistics, and geopolitical actor connecting Asia, the Middle East, and Europe. For the Gulf states, particularly Saudi Arabia and the UAE, it reinforces efforts to diversify their economies, strengthen logistics and industrial capacity, and position themselves as global connectivity hubs. For Europe, IMEC offers a potential route for supply-chain diversification, energy cooperation, and deeper engagement with India and the Gulf. For the United States, it provides a platform for strategic economic engagement with partners across the Indo-Pacific, Middle East, and Europe, while also offering a potential alternative to China-led connectivity frameworks (White House, 2023b; European Commission, 2023).

IMEC is therefore best understood not as a single infrastructure project, but as a strategic connectivity framework. It emerged at a moment when governments were increasingly seeking to diversify supply chains, reduce strategic dependencies, strengthen economic resilience, and create new corridors of trade, energy, and digital exchange. In this respect, IMEC provides a practical example of the shift from globalization as a market-led process to connectivity as an instrument of geoeconomic strategy.

4.2 IMEC AS A MULTI-DOMAIN CONNECTIVITY PLATFORM

The IMEC Memorandum of Understanding describes the corridor as comprising two main segments: an eastern corridor connecting India to the Arabian Gulf, and a northern corridor connecting the Arabian Gulf to Europe (IMEC MoU, 2023). This structure reflects the hybrid nature of the initiative. IMEC is intended to combine maritime routes, rail connectivity, energy infrastructure, digital networks, and trade facilitation systems into an integrated connectivity platform.

The transport component is expected to link Indian ports with Gulf logistics hubs, including the UAE, before connecting onward through Saudi Arabia, Jordan, and Israel to Mediterranean ports and European markets. The corridor is therefore designed around a ship-to-rail-to-ship model, combining maritime connectivity with overland rail infrastructure across the Middle East. This is significant because it seeks to create an alternative route between India and Europe that could reduce transit times, strengthen supply-chain resilience, and diversify trade routes beyond existing maritime chokepoints.

IMEC also includes important energy and digital dimensions. The original vision refers to electricity cables, clean hydrogen infrastructure, and high-speed data cables, reflecting the growing convergence between transport, energy, and digital connectivity (IMEC MoU, 2023; European Commission, 2023). This makes IMEC a useful test case for twenty-first century connectivity because it is not confined to roads, ports, and railways. Rather, it reflects a broader model in which physical infrastructure, clean energy, digital systems, and regulatory cooperation are increasingly integrated within a single corridor framework.

4.3 ECONOMIC AND TRADE IMPLICATIONS

The economic rationale for IMEC lies in its potential to improve trade efficiency, diversify supply chains, reduce logistics costs, and strengthen market integration between India, the Middle East, and Europe. By

connecting India's industrial and manufacturing base with Gulf logistics platforms and European consumer markets, IMEC could contribute to the reorganization of trade flows across one of the world's most important economic regions.

For India, IMEC offers the possibility of strengthening export routes to Europe and the Middle East while supporting its ambition to become a larger manufacturing and logistics hub. For the Gulf economies, the corridor reinforces national diversification strategies by positioning Saudi Arabia and the UAE as central nodes in global trade, energy, and investment networks. For Europe, IMEC could support supply-chain diversification, improve access to Indian markets, and contribute to economic resilience following disruptions linked to the war in Ukraine, energy insecurity, and wider geopolitical instability.

The potential benefits, however, depend heavily on implementation. The value of IMEC will not be determined solely by the construction of physical infrastructure, but by the efficiency of customs systems, regulatory alignment, standards compatibility, digital integration, logistics coordination, and financing arrangements. In this sense, IMEC illustrates the broader argument of this paper: connectivity is not simply about infrastructure assets, but about the governance systems that allow those assets to function together.

4.4 GEOPOLITICAL SIGNIFICANCE

IMEC is geopolitically significant because it sits at the intersection of several major transformations in the international system. It reflects India's growing role as a manufacturing power, Gulf efforts to become global logistics and energy-transition hubs, Europe's search for strategic resilience, and the United States' attempt to strengthen economic partnerships across the Indo-Pacific, Middle East, and Europe. It also builds upon the political opening created by deeper Israel-Gulf cooperation following the Abraham Accords, even though regional instability has complicated the corridor's implementation.

The role of Israel is particularly important. Although Israel was not among the formal signatories of the IMEC Memorandum of Understanding, the proposed route depends heavily on Israel's function as a land bridge between the Gulf and the Mediterranean, particularly through the Port of Haifa. This makes IMEC closely tied to the future of regional normalization, security cooperation, and the political stability of the Eastern Mediterranean and Middle East.

Box 1. HAS IMEC ALREADY FAILED? LESSONS FOR CONNECTIVITY GOVERNANCE

The announcement of IMEC at the 2023 G20 New Delhi Summit was widely interpreted as a landmark connectivity initiative linking India, the Middle East, and Europe. Yet within weeks of its launch, the regional environment changed dramatically. The outbreak of conflict in Gaza, escalating tensions involving Iran, instability in the Red Sea, continued uncertainty in southern Lebanon, and broader questions regarding the future political order of the Middle East raised concerns regarding the corridor's viability. As a result, some observers have questioned whether IMEC has already stalled before significant implementation could begin.

Whether IMEC ultimately succeeds or fails is less important than what it reveals about the nature of modern connectivity initiatives. The principal obstacles facing IMEC are not engineering challenges, technological limitations, or even financing constraints. Rather, they relate to governance, political risk, security dynamics, regional cooperation, and the ability of multiple actors to coordinate across a complex geopolitical landscape.

IMEC therefore provides an important lesson for policymakers. Connectivity corridors are not simply infrastructure projects. They are political, economic, technological, energy, and security systems operating simultaneously across multiple jurisdictions. Their success depends as much on stability, trust, interoperability, and governance as on the construction of physical assets. In this respect, IMEC illustrates the broader argument advanced throughout this paper: the challenge facing the international community is no longer the absence of connectivity initiatives, but the absence of mechanisms capable of supporting coordination and resilience across them.

IMEC also exists within a wider landscape of competing corridors. It is often viewed alongside China's Belt and Road Initiative, the International North-South Transport Corridor linking India, Iran, Russia, and Eurasia, the Middle Corridor across Central Asia and the Caucasus, Iraq's Development Road Project, and the European Union's Global Gateway. IMEC should not be understood simply as an anti-BRI project, but it clearly reflects a broader effort by India, the United States, Europe, and Gulf partners to shape alternative connectivity routes, diversify supply chains, and strengthen strategic economic partnerships (Atlantic Council, 2025; KAS, 2025).

4.5 WHAT IMEC REVEALS ABOUT CONNECTIVITY GOVERNANCE

IMEC demonstrates that the central challenge facing major connectivity initiatives is not only financing or construction, but governance. The corridor spans multiple jurisdictions, political systems, financing institutions, regulatory regimes, transport networks, energy markets, digital systems, and security environments. Its success will depend on whether participating actors can coordinate standards, sequence investments, align regulations, manage political risk, mobilize finance, and maintain confidence across a complex and contested geopolitical landscape. Table 6 summarizes some of the principal connectivity governance challenges illustrated by the IMEC experience.

Table 6. CONNECTIVITY GOVERNANCE CHALLENGES ILLUSTRATED BY IMEC

Governance Challenge	IMEC Example	Wider Connectivity Governance Implication
Multi-Country Governance	Corridor spans India, UAE, Saudi Arabia, Jordan, Israel and Europe	Requires sustained coordination across multiple jurisdictions and political systems
Standards and Regulatory Alignment	Different customs procedures, transport standards and regulatory frameworks	Lack of interoperability increases costs and reduces efficiency
Political Risk	Changes in political priorities, leadership transitions and shifting regional alliances	Long-term corridors require policy continuity over decades
Conflict and Security Risks	Gaza conflict, tensions involving Iran, instability in the Red Sea and wider regional uncertainty	Connectivity systems remain vulnerable to geopolitical shocks
Financing Coordination	Multiple public, private, sovereign wealth fund, MDB and DFI financing sources	Complex financing structures require strong coordination mechanisms
Energy Interoperability	Electricity networks, hydrogen infrastructure and cross-border energy systems	Energy connectivity requires harmonized standards and regulatory frameworks
Digital Interoperability	Data cables, digital platforms, cybersecurity systems and digital trade arrangements	Digital connectivity increasingly requires common governance frameworks
Absence of an Overarching Coordinating Platform	No dedicated institution responsible for corridor-wide governance and implementation oversight	Highlights broader gaps in global connectivity governance

The initiative also highlights the vulnerability of connectivity corridors to regional instability. The conflict in Gaza, tensions involving Iran, insecurity in the Red Sea, and wider uncertainty across the Middle East have all complicated the political environment in which IMEC must operate. This does not mean that IMEC is no longer relevant. Rather, it demonstrates precisely why connectivity governance matters. Strategic corridors require more than diplomatic announcements; they require mechanisms for coordination, risk management, interoperability, financing, and crisis resilience.

For this paper, IMEC is therefore a test case for the broader argument that connectivity governance is becoming an essential component of global economic governance. IMEC brings together many of the principal actors represented in the G20, yet it also involves non-G20 actors and operates within a wider ecosystem of competing corridors and geopolitical interests. It shows that the G20 can help launch major connectivity initiatives, but also that existing G20 mechanisms are not yet designed to coordinate them over time. The governance challenge is therefore not whether IMEC should exist, but whether the international system possesses the mechanisms required to make such corridors interoperable, resilient, and capable of generating shared economic benefits.

5. THE FUTURE OF GLOBAL CONNECTIVITY GOVERNANCE

What kind of global connectivity system does the world need by the second half of the twenty-first century?

This question lies at the heart of contemporary debates regarding globalization, multilateralism, infrastructure, technology, and economic governance. The challenge facing policymakers is no longer simply how to build more infrastructure or mobilize additional financing. Rather, it is how to govern an increasingly complex ecosystem of transport networks, energy systems, digital platforms, data flows, logistics corridors, financial markets, and emerging technologies in a world characterized by both deep interdependence and growing geopolitical fragmentation.

The answer matters because the global economy is entering a period of profound transformation. Artificial intelligence, advanced robotics, automation, digital platforms, cloud computing, quantum technologies, and new energy systems are likely to reshape how goods, services, capital, information, and economic value move across borders. At the same time, demographic transitions, climate change, shifting production patterns, and the emergence of new centres of economic growth are altering the geography of the international economy itself. The connectivity systems built over the next several decades will therefore influence not only trade and investment, but also economic resilience, technological innovation, social inclusion, environmental sustainability, and geopolitical stability (IMF, 2024; OECD, 2024; World Bank, 2024).

The future challenge is not whether connectivity will remain important. It almost certainly will. The challenge is whether the international community can develop forms of connectivity governance capable of reducing fragmentation, promoting interoperability, and ensuring that an increasingly connected world remains open, resilient, inclusive, and capable of supporting shared prosperity.

5.1 CAN CONNECTIVITY REMAIN AN AREA OF CONSENSUS?

One of the defining characteristics of the contemporary international system is the coexistence of strategic competition and deep economic interdependence. Governments may disagree on security issues, trade policy, technology regulation, industrial strategy, or geopolitical alignment, yet they remain connected through supply chains, energy systems, logistics networks, digital platforms, financial markets, and trade relationships. This raises an important question: can connectivity remain one of the few areas where practical cooperation survives despite broader political disagreement?

There are reasons for cautious optimism. Unlike many areas of international politics, connectivity often generates mutual benefits. Efficient transport corridors reduce costs. Interoperable digital systems improve productivity. Integrated energy networks enhance resilience. Better logistics systems expand market access. Improved connectivity strengthens economic growth, reduces poverty, and supports development outcomes. Even where political consensus is limited, governments, businesses, investors, and consumers continue to benefit from connectivity systems that function efficiently across borders.

Connectivity may therefore represent one of the last remaining domains of pragmatic multilateralism. States may continue to compete, but they also share an interest in avoiding excessive fragmentation. The costs of disconnection are increasingly visible through supply-chain disruptions, energy shocks, inflationary pressures, technological decoupling, and declining productivity. In an interconnected world, the challenge is not eliminating competition but ensuring that competition occurs within a framework that preserves interoperability, predictability, and economic efficiency.

The political feasibility of greater connectivity cooperation should not be overstated. The contemporary international system remains characterized by strategic competition, geopolitical rivalry, divergent

development models, and competing economic interests. Yet history suggests that cooperation often emerges not from the absence of disagreement, but from the recognition of mutual dependence. Despite growing fragmentation, all major economies remain exposed to common challenges, including public debt pressures, inflationary shocks, commodity price volatility, supply-chain disruptions, climate risks, demographic change, technological transformation, and the increasing complexity of global economic governance. The functioning of the modern global economy also depends upon continued flows of trade, capital, energy, data, technology, and critical resources across national borders. In this context, the prosperity of both advanced and developing economies remains deeply interconnected. The challenge is therefore not whether competition will continue—it will—but whether governments can establish sufficient mechanisms for dialogue, coordination, and interoperability to ensure that competition does not undermine the broader foundations of global economic stability and shared prosperity.

5.2 CONNECTIVITY IN AN ERA OF STRATEGIC COMPETITION

The future of connectivity will increasingly be shaped by strategic competition among states, regions, corporations, investors, and technology ecosystems. Infrastructure is no longer viewed solely as a development asset. It has become a strategic asset linked to economic security, industrial policy, technological leadership, critical minerals, energy transition, data governance, and geopolitical influence.

The Belt and Road Initiative, Global Gateway, PGII, IMEC, Digital Public Infrastructure initiatives, and numerous regional corridors reflect different approaches to shaping the future architecture of the global economy. Yet beneath these competing initiatives lies a broader structural reality. The world is becoming simultaneously more integrated and more fragmented.

A further transformation concerns ownership itself. Historically, major infrastructure systems were largely financed, owned, and operated by governments or state-owned enterprises. Increasingly, however, connectivity systems are being financed and managed through complex combinations of sovereign wealth funds, pension funds, infrastructure funds, private equity, institutional investors, technology companies, logistics operators, energy companies, and multinational corporations (GI Hub, 2024; OECD, 2024).

As a result, the future of connectivity governance will involve hybrid public-private systems rather than purely state-led models. Ports, logistics hubs, energy corridors, undersea cables, cloud infrastructure, data centres, digital platforms, and multimodal transport systems are already being shaped by decisions made by private investors and corporate actors operating across multiple jurisdictions. The distinction between public infrastructure and private infrastructure is becoming blurred.

This trend is likely to accelerate. The twenty-first century may witness the emergence of corporate actors, sovereign investment vehicles, and technology platforms whose economic influence rivals that of many nation states. Connectivity governance will therefore involve managing relationships between sovereign authority, market power, private ownership, public regulation, and strategic national interests.
Artificial intelligence provides a useful illustration. AI systems require global data infrastructure, cloud computing capacity, semiconductor supply chains, energy networks, and digital standards that transcend national boundaries. Yet governments seek greater control over technology, data, and strategic industries. Similar tensions are emerging across energy systems, digital governance, advanced manufacturing, and critical minerals. The future challenge is therefore not simply one of infrastructure provision, but of governance across interconnected and overlapping systems.

5.3 LESSONS FROM IMEC

IMEC provides important insights into the future of connectivity governance.

- First, modern connectivity initiatives are becoming multidimensional. They no longer consist solely of roads, ports, railways, or pipelines. Instead, they combine transport infrastructure, logistics systems, energy networks, digital connectivity, trade facilitation, customs arrangements, investment frameworks, and regulatory cooperation within integrated connectivity ecosystems.

- Second, governance matters as much as infrastructure itself. Financing infrastructure remains difficult, but coordinating multiple jurisdictions, standards, regulations, financing institutions, technologies, and political interests may be even more challenging. Connectivity governance therefore becomes a critical determinant of connectivity success.

- Third, political and security risks remain unavoidable. The experience of IMEC demonstrates that connectivity initiatives are highly sensitive to geopolitical developments, regional instability, conflict, sanctions, trade disputes, and changing political priorities. Connectivity systems must therefore be designed for resilience as much as efficiency.

- Finally, IMEC illustrates that twenty-first century connectivity is increasingly about managing complexity. The most successful initiatives may not be those that build the most infrastructure, but those that create the most effective mechanisms for coordination, interoperability, adaptation, and long-term cooperation across multiple actors and systems.

5.4 WHAT IMEC REVEALS ABOUT THE FUTURE ROLE OF THE G20

IMEC reveals both the strengths and limitations of the G20.

On the one hand, the initiative demonstrates the ability of the G20 to convene major powers, emerging economies, development partners, investors, and regional actors around a shared strategic objective. Few institutions possess comparable convening power. The G20 remains one of the only forums capable of bringing together advanced economies, emerging powers, major infrastructure financiers, sovereign wealth funds, multilateral development banks, and the principal actors shaping the future of global connectivity.

On the other hand, IMEC highlights the limitations of the existing G20 architecture. While the G20 possesses mechanisms focused on infrastructure finance, project preparation, standards, knowledge sharing, and development finance coordination, it lacks a dedicated mechanism capable of supporting long-term connectivity governance across competing initiatives and corridors.

Box 2. THE EMERGENCE OF HYBRID PUBLIC–PRIVATE CONNECTIVITY CORRIDORS

One of the most significant but often overlooked transformations in global connectivity is the changing nature of infrastructure ownership and governance. Historically, major transport, energy, communications, and logistics infrastructure was largely financed, owned, and operated by governments or state-owned enterprises. Increasingly, however, major connectivity systems are being financed, developed, owned, and managed through hybrid arrangements involving governments, sovereign wealth funds, multilateral development banks, pension funds, infrastructure funds, private investors, technology companies, and multinational corporations (OECD, 2024; GI Hub, 2024).

This shift reflects both fiscal realities and market dynamics. The scale of global infrastructure investment required to support economic growth, energy transition, digital transformation, and climate resilience exceeds the financing capacity of governments alone. As a result, private capital is playing a growing role in infrastructure development, particularly in ports, logistics hubs, renewable energy systems, digital infrastructure, data centres, telecommunications networks, and transport corridors.

Examples are already visible. The Lobito Corridor in Southern Africa combines government participation with financing and investment from development finance institutions, private operators, and international investors. Similarly, many components of IMEC are expected to rely upon a mixture of sovereign investment, private finance, logistics operators, energy companies, and institutional investors. Around the world, ports, airports, logistics parks, rail concessions, energy networks, undersea cables, and digital infrastructure are owned or operated through public-private partnerships, concession agreements, and blended finance structures.

Table 7. EMERGING MODELS OF CONNECTIVITY OWNERSHIP

Model	Typical Actors	Governance Characteristics
Public Ownership	Governments, state-owned enterprises	Political accountability, public control
PPP Model	Government + private operator	Shared risk and operational responsibility
Blended Finance	MDBs, DFIs, governments, private investors	Public risk mitigation with private capital mobilization
Sovereign Capital Model	Sovereign wealth funds and state investors	Long-term strategic investment orientation
Corporate Infrastructure Model	Technology firms, logistics companies, infrastructure funds	Commercial ownership and operation
Hybrid Corridor Model	Combination of public, private, sovereign and multilateral actors	Multi-stakeholder governance requiring coordination across multiple institutions

The implications extend beyond financing. As ownership structures become more complex, governance becomes more challenging. Questions emerge regarding accountability, regulation, security, competition policy, public interest obligations, environmental standards, data governance, and national sovereignty. Future connectivity systems may therefore be governed not only by states, but also by institutional investors, sovereign wealth funds, multinational corporations, technology platforms, and infrastructure operators whose influence increasingly spans multiple jurisdictions.

Looking toward 2050 and beyond, some connectivity corridors may be financed predominantly through private and institutional capital, with governments acting primarily as regulators, conveners, and providers of strategic direction. The future challenge for policymakers is therefore not simply how to finance infrastructure, but how to govern increasingly hybrid connectivity systems in ways that preserve public value while leveraging the efficiencies and innovation associated with private capital.

This distinction may become increasingly important over time. The future challenge may not be mobilizing capital but managing complexity. The comparative advantage of the G20 therefore lies less in directing connectivity initiatives and more in facilitating dialogue, reducing fragmentation, promoting interoperability, encouraging cooperation, and maintaining channels of communication across competing geopolitical and economic systems. The future relevance of the G20 may consequently depend upon its ability to evolve from a forum focused primarily on economic coordination toward one capable of supporting the governance of interconnected global systems.

5.5 THE FUTURE CONNECTIVITY SYSTEM: SCENARIOS TO 2050 AND BEYOND

The geography of the global economy is unlikely to remain static. Manufacturing activity that once dominated North America, Western Europe, and Japan shifted progressively toward East Asia and, most notably, China. Rising wages, demographic transitions, geopolitical tensions, and supply-chain diversification strategies are now encouraging greater investment in South Asia, particularly India.

Over the longer term, similar transitions may occur again. By the second half of the twenty-first century, Africa is expected to account for a substantial share of global population growth, urban expansion, and labour force growth. While many advanced economies face ageing populations and shrinking workforces, Africa will remain comparatively young and integrated through initiatives such as the African Continental

Free Trade Area (AfCFTA), the Programme for Infrastructure Development in Africa (PIDA), the Lobito Corridor, LAPSSET, and other emerging regional connectivity systems (African Union, 2024; AfCFTA Secretariat, 2024).

The connectivity architecture required by 2050—or indeed 2100—may therefore look very different from that which exists today. Future production systems are likely to become distributed across multiple regions, linked through sophisticated logistics corridors, digital networks, multimodal transport hubs, energy systems, and advanced manufacturing ecosystems. Connectivity will increasingly determine which regions participate successfully in global value creation and which remain marginalized.

The future connectivity system will also be shaped by changing relationships between labour, capital, and technology. Advances in artificial intelligence, robotics, autonomous systems, and digital service delivery are likely to transform labour markets across both developed and developing economies.[1] These changes will have implications extending beyond employment itself, influencing taxation systems, public finances, social protection arrangements, patterns of consumption, and broader economic governance.

Connectivity investments will play a critical role within this transformation. Their value extends far beyond the infrastructure assets themselves. Major transport, energy, digital, and logistics investments generate direct, indirect, catalytic, induced, and spillover effects throughout wider economies. Multimodal logistics hubs, industrial clusters, special economic zones, service providers, SMEs, technology firms, financial institutions, and local supply chains frequently emerge around major connectivity investments, creating economic opportunities that extend far beyond the immediate corridor footprint. The long-term value of connectivity therefore lies not only in moving goods, services, energy, and data more efficiently, but also in enabling broader economic ecosystems capable of supporting innovation, productivity growth, and structural transformation. The future connectivity system must therefore satisfy several core requirements:

- Interoperability across transport, energy, digital, financial, and regulatory systems;
- Resilience against geopolitical shocks, climate risks, technological disruption, and conflict;
- Inclusivity that allows developing countries and emerging regions to participate fully in global markets;
- Flexibility to adapt to technological and economic transformation;
- Sustainability consistent with climate, environmental, and development objectives; and
- Governance mechanisms capable of coordinating among increasingly diverse public, private, and hybrid actors.

The alternative is a more fragmented future characterized by competing standards, duplicated infrastructure, technological decoupling, regulatory divergence, and rising transaction costs. Such an outcome would reduce the efficiency gains historically associated with globalization while increasing exposure to economic and geopolitical instability. The central question is therefore not whether connectivity will continue to expand. It almost certainly will. The question is whether the international community can shape that expansion in ways that promote interoperability, resilience, and shared prosperity. The answer to that question may ultimately determine not only the future of connectivity, but also the future of multilateralism itself.

[1] While forecasts vary considerably, advances in artificial intelligence, robotics, autonomous systems, and digital service delivery have the potential to reshape labor markets on a scale comparable to previous industrial revolutions. The implications extend beyond employment itself. In many advanced economies, personal income taxation remains a major source of public revenue used to finance debt servicing, pensions, healthcare, and social protection systems. Significant changes in the structure of employment could therefore have wider fiscal and governance implications, potentially requiring new approaches to taxation, social protection, economic participation, and the relationship between labor and capital (IMF, 2024; World Economic Forum, 2025).

A more plausible future may lie between these extremes. The emerging connectivity system is unlikely to converge around a single dominant corridor, platform, or governance model. Instead, it is likely to evolve as a diverse ecosystem of overlapping initiatives reflecting different development paradigms, strategic interests, and financing approaches. In this respect, the future connectivity system may evolve in much the same way as the post-1945 global trading system—not through a single dominant network, but through multiple competing systems linked by agreed rules, standards, and mechanisms for interoperability. The central challenge for the international community is therefore not to eliminate competition, but to ensure that competition occurs within a framework that preserves connectivity, reduces fragmentation, and maximizes collective economic benefits.

6. TOWARD A G20 CONNECTIVITY INITIATIVE

A growing body of international policy thinking suggests that global governance is evolving away from centralized control and toward the coordination of distributed systems. In such an environment, the objective is not to replace existing institutions, initiatives, or regional arrangements with a single overarching framework. Rather, it is to create the mechanisms, standards, incentives, and platforms that enable diverse actors and systems to operate coherently within an interconnected global landscape. Connectivity governance must follow the same logic. The challenge for the coming decades is not the creation of additional infrastructure initiatives, but the establishment of governance arrangements capable of promoting interoperability, transparency, resilience, and cooperation across an expanding ecosystem of connectivity actors and platforms.

The analysis presented throughout this paper suggests that the principal challenge facing the international community is no longer the absence of infrastructure initiatives, financing mechanisms, technical standards, or development partners. Rather, it is the absence of effective mechanisms capable of promoting coordination across an increasingly complex and fragmented connectivity landscape.

The world is witnessing the emergence of multiple connectivity systems, corridors, financing arrangements, technology ecosystems, digital platforms, energy networks, and governance models. Individually, many of these initiatives are successful. Collectively, however, they risk producing duplication, regulatory divergence, competing standards, fragmented supply chains, and increasing transaction costs. The challenge is therefore not whether connectivity should expand, but whether the international community can shape that expansion in ways that promote interoperability, resilience, and shared prosperity.

Looking toward 2050 and beyond, this challenge is likely to become more significant rather than less. Artificial intelligence, digital infrastructure, advanced manufacturing, autonomous logistics systems, energy transition networks, critical minerals, and hybrid public-private connectivity systems will create new forms of interdependence that extend well beyond traditional infrastructure. The governance question is therefore becoming important. What kind of connectivity architecture will be required to support a more connected but simultaneously more fragmented world?

6.1 THE GOVERNANCE PROBLEM

The analysis undertaken in this paper suggests that the principal governance challenge is frequently misdiagnosed. The international community is not suffering from a shortage of infrastructure initiatives. On the contrary, the global connectivity landscape has become increasingly crowded. Major programs such as the Belt and Road Initiative (BRI), Global Gateway, PGII, IMEC, the International North-South Transport Corridor (INSTC), the Middle Corridor, the Lobito Corridor, Digital Public Infrastructure initiatives, and numerous regional programs collectively represent hundreds of billions of dollars in planned and ongoing investment.

Nor is the challenge primarily one of financing. Multilateral development banks, sovereign wealth funds, institutional investors, development finance institutions, climate funds, infrastructure funds, export credit agencies, and private capital markets provide an expanding range of financing instruments capable of supporting infrastructure investment. Likewise, significant progress has been made in the development of technical standards, policy frameworks, and infrastructure expertise through the G20 Principles for Quality Infrastructure Investment, MDB cooperation frameworks, OECD guidance, WTO trade facilitation arrangements, and numerous international standards-setting bodies (G20, 2019; OECD, 2024; WTO, 2024). The central challenge is therefore not the absence of initiatives, finance, or expertise. Rather, it is the absence of mechanisms capable of coordinating a complex connectivity ecosystem. Existing initiatives operate largely in parallel rather than as components of a broader system. As connectivity becomes

increasingly multidimensional—encompassing transport, energy, digital infrastructure, data, trade facilitation, logistics, and regulatory systems—the need for strategic coordination becomes vital.

The challenge facing the international community is one of governing interconnected systems rather than constructing individual infrastructure assets. As connectivity expands across transport, energy, digital, logistics, financial, and data networks, the absence of institutions capable of coordinating these systems creates growing risks of fragmentation, inefficiency, and vulnerability. Table 8 identifies key governance functions that remain largely absent from the current international architecture.

Table 8. KEY CONNECTIVITY GOVERNANCE FUNCTIONS CURRENTLY MISSING FROM THE INTERNATIONAL SYSTEM

Governance Function	Why It Matters
Strategic Dialogue Across Connectivity Initiatives	No regular platform exists for structured engagement among major corridor and connectivity initiatives
Cross-Corridor Coordination	Opportunities for complementarity, sequencing, and shared planning are often missed
Interoperability of Systems and Standards	Differing technical, digital, customs, logistics, and regulatory systems increase transaction costs
Integrated Physical–Digital–Energy Planning	Connectivity domains are frequently planned separately despite increasing interdependence
Long-Term Connectivity Foresight	Limited institutional capacity exists to assess how AI, robotics, demographic shifts, climate change, and new technologies may reshape future connectivity needs
Public–Private Connectivity Governance	Growing participation of sovereign wealth funds, technology firms, infrastructure funds, and institutional investors creates new governance challenges
Connectivity Resilience and Risk Monitoring	No dedicated mechanism exists to monitor fragmentation risks, corridor disruptions, technological decoupling, or geopolitical shocks
Knowledge Sharing Across Initiatives	Lessons learned remain fragmented across institutions, regions, and corridor programs
Corridor-Level Governance Support	Many major corridors lack structured mechanisms for multi-country coordination and dispute resolution
Connectivity Ecosystem Stewardship	No institution currently possesses an explicit mandate to promote coherence across the broader global connectivity landscape

These gaps suggest that the future challenge is not building additional infrastructure but improving the governance of connectivity itself. The question is therefore not whether a new infrastructure initiative is required, but whether a light-touch mechanism capable of promoting coordination, interoperability, and strategic dialogue could help improve the performance of a complex global connectivity ecosystem.

The African Union's membership of the G20 adds a particularly important dimension to this discussion. As home to many of the world's fastest-growing economies and a growing number of regional and transcontinental connectivity initiatives, Africa has a strategic interest in avoiding the emergence of a fragmented corridor landscape characterized by competing standards, disconnected infrastructure systems, and limited interoperability. Many African countries already participate simultaneously in multiple connectivity initiatives, including the Belt and Road Initiative, Global Gateway, the Lobito Corridor, regional economic corridor programmes, and a range of multilateral infrastructure partnerships. This creates a strong interest in governance arrangements that promote coordination, compatibility, and interoperability across initiatives. The African Union is therefore uniquely positioned to contribute to the development of a more coherent global connectivity architecture and to help ensure that connectivity competition translates into greater development opportunities rather than increased fragmentation.

6.2 PROPOSED OBJECTIVE

The objective of a future G20 Connectivity Compact would not be to direct, finance, regulate, or replace existing initiatives.

Rather, its purpose would be to transform a fragmented landscape of connectivity initiatives into a more coherent, interoperable, resilient, and inclusive global connectivity ecosystem. The Compact would seek to promote practical cooperation while respecting national sovereignty, institutional mandates, and differing development models. It would not require consensus on geopolitical issues. Instead, it would focus on areas where mutual interests continue to exist, including trade facilitation, interoperability, corridor coordination, digital connectivity, energy integration, logistics efficiency, standards dialogue, and knowledge sharing. The guiding principle would be simple: competing connectivity initiatives need not become competing connectivity systems.

6.3 A G20 CONNECTIVITY COMPACT

The proposed Compact would operate as a voluntary coordination mechanism rather than a formal treaty or international organization. Its core functions could include:

- ***Strategic Dialogue*:** Providing a structured platform through which major connectivity initiatives can exchange information, discuss emerging trends, identify risks, and explore opportunities for cooperation.

- ***Interoperability*:** Promoting dialogue regarding customs systems, logistics standards, digital platforms, energy networks, trade facilitation arrangements, and regulatory frameworks to reduce fragmentation and transaction costs.

- ***Corridor Coordination*:** Supporting information-sharing among major corridor initiatives, identifying opportunities for complementarity, and reducing unnecessary duplication.

- ***Integrated Connectivity*:** Encouraging greater alignment between physical infrastructure, digital systems, energy networks, trade facilitation measures, and regulatory frameworks.

- ***Co-Financing Opportunities*:** Identifying opportunities where MDBs, sovereign wealth funds, private investors, climate funds, development finance institutions, and governments can support complementary investments.

- ***Knowledge and Foresight*:** Supporting long-term analysis regarding emerging connectivity trends including artificial intelligence, digital infrastructure, critical minerals, energy transition, demographic change, climate resilience, and future trade patterns.

6.4 INSTITUTIONAL DESIGN

A key principle should be to build upon existing institutions rather than create new ones. The proposed Compact could operate through a light institutional architecture anchored within existing G20 structures. The Infrastructure Working Group could provide strategic oversight, while the Global Infrastructure Hub could support analytical work, data collection, and technical coordination.

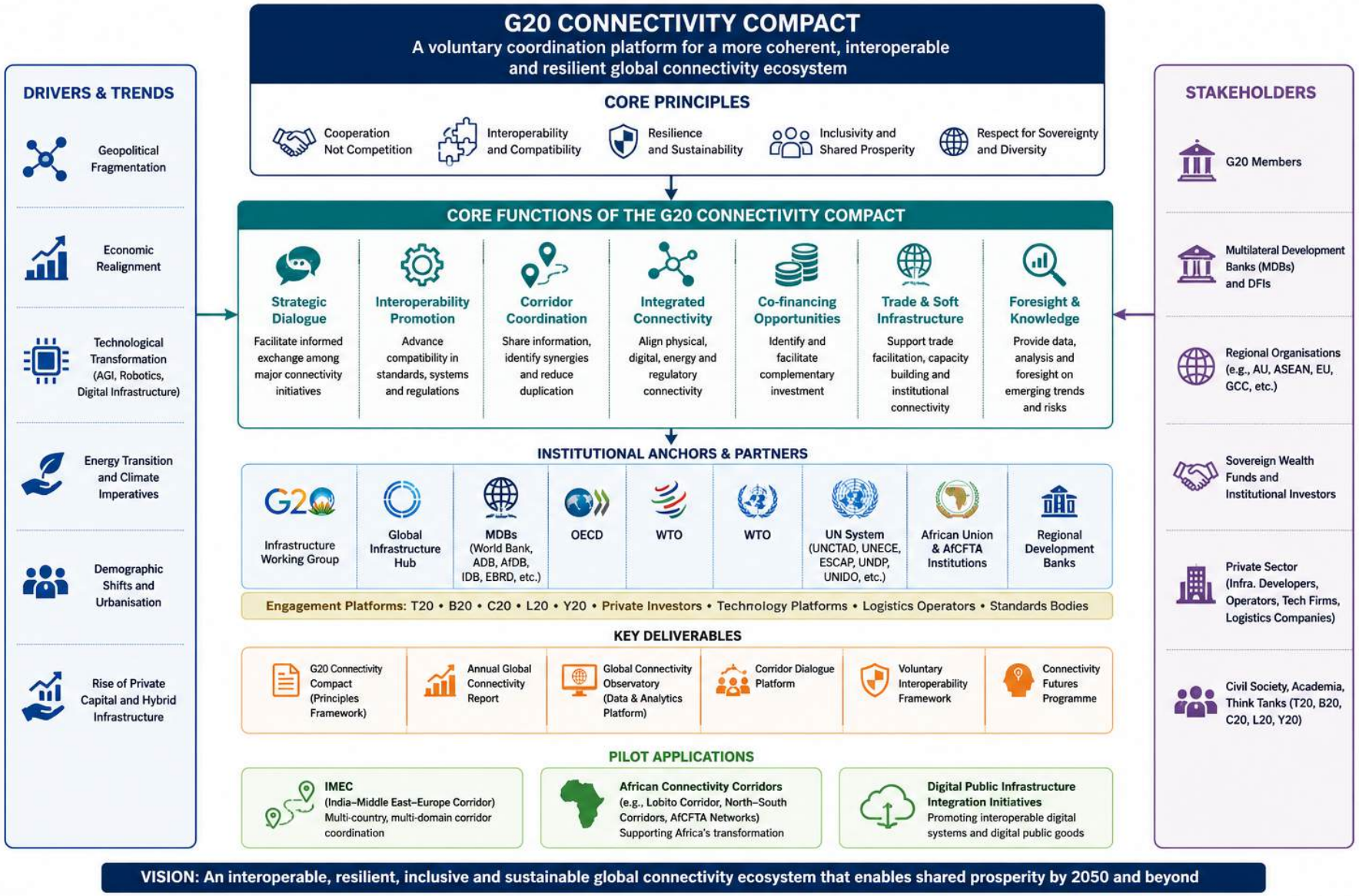
The role of the private sector will become increasingly important within future connectivity systems. Many of the assets, platforms, technologies, and investment flows that underpin contemporary connectivity are already owned, financed, operated, or influenced by private actors. Global logistics firms, port operators, technology companies, digital platform providers, telecommunications firms, infrastructure funds, sovereign wealth funds, institutional investors, and multinational corporations increasingly shape the

architecture of trade, energy, data, finance, and supply chains. In some cases, the financial resources, technological capabilities, and operational reach of these organizations rival those of many states. As artificial intelligence, cloud computing, digital infrastructure, advanced manufacturing, autonomous logistics systems, and new energy networks expand, the governance of connectivity will become as much a public–private challenge as an intergovernmental one. Any future connectivity architecture must therefore provide meaningful mechanisms through which private-sector actors can contribute to dialogue, interoperability, resilience, innovation, and long-term strategic planning.

Partnerships could be developed with multilateral development banks, the OECD, WTO, UN regional commissions, UNCTAD, UNECE, ESCAP, the African Union, AfCFTA institutions, regional development banks, and other relevant organizations. Engagement with the T20, B20, C20, sovereign wealth funds, infrastructure investors, technology firms, logistics operators, and other non-state actors would help reflect the increasingly hybrid nature of future connectivity systems.

Importantly, the Compact would not seek to create a global authority for infrastructure. Rather, it would provide a platform through which governments, institutions, investors, and connectivity stakeholders can engage constructively despite differing political and economic interests.

Figure 3. CONCEPTUAL ARCHITECTURE OF A G20 CONNECTIVITY COMPACT



6.5 POTENTIAL DELIVERABLES

The proposed G20 Connectivity Compact would not seek to become a new operational institution or financing mechanism. Its value would lie in providing practical tools, information products, dialogue platforms, and governance frameworks capable of improving coordination across a complex connectivity landscape. Several initial (but illustrative) deliverables could support this objective.

Table 9. ILLUSTRATIVE DELIVERABLES OF A G20 CONNECTIVITY COMPACT

Deliverable	Purpose	Potential Value
G20 Connectivity Compact	Voluntary framework establishing principles for connectivity governance, interoperability, resilience, and cooperation	Provides a common reference point across diverse connectivity initiatives
Annual Global Connectivity Report	Assessment of global trends in corridors, infrastructure, digital systems, energy networks, supply chains, and emerging risks	Creates a shared evidence base for decision-making
Global Connectivity Observatory	Monitoring platform tracking major connectivity initiatives, investments, interoperability indicators, and governance developments	Improves transparency and situational awareness
Corridor Dialogue Platform	Structured forum for engagement among major corridor initiatives and stakeholders	Encourages cooperation, information-sharing, and coordination
Voluntary Interoperability Framework	Guidance on customs systems, logistics standards, digital platforms, energy systems, and regulatory compatibility	Reduces fragmentation and transaction costs
Connectivity Futures Programme	Long-term foresight program examining AI, robotics, demographic change, climate transition, digital transformation, and future trade patterns	Supports strategic planning toward 2050 and beyond
Connectivity Risk Assessment Mechanism	Periodic assessment of geopolitical, technological, climate, and supply-chain risks affecting connectivity systems	Strengthens resilience and early warning capacity
Public–Private Connectivity Forum	Engagement platform for governments, MDBs, sovereign wealth funds, infrastructure investors, technology firms, and logistics operators	Reflects the hybrid nature of future connectivity systems

These deliverables would help shift the focus of international cooperation from individual infrastructure projects toward the governance of connectivity systems. Rather than creating new institutions, the Compact would strengthen the capacity of existing actors to cooperate, coordinate, and adapt within an interconnected and complex global economy.

6.6 POTENTIAL PILOT APPLICATIONS

A phased approach would allow a G20 Connectivity Compact to demonstrate practical value before expanding its scope. Rather than attempting to coordinate the entire global connectivity landscape from the outset, the Compact could initially focus on a limited number of pilot applications that reflect different dimensions of contemporary connectivity governance. These pilots should be selected not because they are identical, but because they collectively illustrate the physical, digital, energy, regulatory, and institutional challenges that increasingly characterize modern connectivity systems. Together, they would provide opportunities to test approaches to interoperability, information-sharing, coordination, risk management, and multi-stakeholder governance while generating lessons applicable across a wider range of initiatives.

Table 10.	ILLUSTRATIVE PILOT APPLICATIONS FOR A G20 CONNECTIVITY COMPACT		
Pilot Application	**Strategic Rationale**	**Potential Compact Objective**	**Expected Outcome**
India–Middle East–Europe Economic Corridor (IMEC)	G20-originated initiative involving advanced economies, emerging powers, Gulf states, and major logistics corridors; highlights governance challenges associated with geopolitical risk, interoperability, and multi-country coordination	Support corridor-level dialogue, information-sharing, interoperability mapping, and coordination among participating stakeholders	Improved coordination across transport, energy, digital, and regulatory systems; lessons for future multi-country corridors
Lobito Corridor (Africa)	Strategic mineral, logistics, and trade corridor linking Angola, Zambia, and the Democratic Republic of Congo; combines public, private, MDB, and development finance participation	Demonstrate how connectivity governance can support regional integration, trade facilitation, and blended financing arrangements	Enhanced corridor governance, improved regional trade connectivity, and replicable lessons for African infrastructure corridors
AfCFTA Connectivity Corridors	Africa represents the largest long-term frontier for future trade, industrialization, urbanization, and demographic growth; successful implementation of AfCFTA depends heavily on cross-border connectivity	Support interoperability among regional transport, customs, logistics, and trade facilitation systems	Reduced trade costs, strengthened regional value chains, and accelerated continental market integration
Digital Public Infrastructure (DPI) Initiatives	Increasing importance of digital identity, payments, data exchange, cloud infrastructure, and digital public goods within modern economies	Promote dialogue on interoperability, digital standards, data governance, and cross-border digital connectivity	Improved compatibility among digital systems and greater inclusion within the emerging digital economy
Green Energy and Hydrogen Corridors	Energy transitions depend upon cross-border electricity grids, hydrogen networks, transmission infrastructure, and critical mineral supply chains	Explore governance approaches for integrating energy, infrastructure, trade, and climate objectives	Stronger energy security, accelerated decarbonization, and greater alignment between connectivity and climate goals

The purpose of these pilots would not be to manage individual projects or create new layers of oversight. Rather, they would provide practical laboratories through which governments, development institutions, investors, corridor operators, and other stakeholders could test approaches to connectivity governance in real-world settings. The experience gained through these pilots could subsequently inform the gradual development of broader interoperability frameworks, coordination mechanisms, and governance arrangements across the global connectivity ecosystem.

7. CONCLUSION

The central argument of this paper is that the principal challenge facing the international community is no longer the absence of infrastructure investment, financing mechanisms, technical standards, or connectivity initiatives. Rather, it is the growing fragmentation of the global connectivity landscape itself. As competing corridors, infrastructure programs, digital ecosystems, energy networks, financing arrangements, and geopolitical spheres emerge, the governance challenge becomes one of coordination, interoperability, resilience, and cooperation across an increasingly complex and multipolar international system. This paper advances five principal findings:

- ***Connectivity as a Strategic Issue*** – Connectivity has become one of the defining issues of twenty-first century international political economy. Infrastructure, energy systems, digital networks, logistics corridors, and regulatory frameworks shape economic growth, competitiveness, resilience, and geopolitical influence.

- ***The Rise of Corridor-Based Geoeconomics*** – The international system is experiencing a shift from globalization toward corridor-based geoeconomics. Initiatives such as the Belt and Road Initiative, Global Gateway, PGII, IMEC, Digital Public Infrastructure programs, and emerging regional corridors reflect the growing strategic importance of connectivity.

- ***The Connectivity Governance Gap*** – The principal governance challenge is not a lack of initiatives, finance, or technical expertise. Significant infrastructure architectures already exist. The more important gap lies in the absence of mechanisms capable of promoting coordination, interoperability, dialogue, and cooperation across competing connectivity systems.

- ***IMEC as a Test Case for Twenty-First Century Connectivity*** – IMEC demonstrates both the opportunities and limitations of contemporary connectivity initiatives. While it illustrates the continued potential for practical cooperation among diverse actors, it also reveals the governance challenges associated with multi-country corridors operating across complex political, economic, technological, and security environments.

- ***The Continuing Relevance of the G20*** – Although the G20 is neither a global government nor an implementing agency, it remains one of the few forums capable of bringing together advanced economies, emerging powers, major infrastructure financiers, multilateral institutions, sovereign investors, and key regional actors within a single platform for dialogue and coordination.

This paper therefore proposes a G20 Connectivity Compact as a practical response to an emerging governance gap. The proposal does not seek to create new institutions, duplicate existing initiatives, or impose a single model of connectivity. Instead, it seeks to strengthen cooperation across a diverse ecosystem of connectivity actors and initiatives by promoting interoperability, strategic dialogue, information-sharing, and coordination. In doing so, it offers a pragmatic approach to reducing fragmentation while preserving the flexibility and diversity that characterize the contemporary connectivity landscape.

Looking toward 2050 and beyond, the future of globalization may depend upon the governance of connectivity itself. The question is no longer whether the world will remain connected. The question is whether governments, institutions, investors, corporations, and societies can develop the mechanisms required to ensure that connectivity remains open, resilient, interoperable, and capable of supporting shared prosperity in an increasingly complex world.

The future relevance of the G20 may depend less on its ability to negotiate comprehensive agreements across all areas of global governance and more on its capacity to facilitate practical cooperation in areas where interests continue to converge. Infrastructure and connectivity represent one such area. In a fragmented international system, the G20 remains uniquely positioned to convene advanced economies, emerging powers, major infrastructure financiers, multilateral institutions, sovereign investors, and key regional actors around a shared interest in connectivity. By promoting coordination, interoperability, strategic dialogue, and cooperation across a complex landscape of connectivity initiatives, the G20 can contribute not only to more effective connectivity governance, but also to the broader practice of multilateral cooperation itself.

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