Technological Dimensions of the Evolving Global Economic Order

Sameer Bharti[i]

The global economic order is undergoing a visible shift toward a more decentralized, multipolar, and fragmented structure. The retreat from hyper-globalization, weakening of traditional multilateral trade and financial institutions, the transactional turn in economic policies—most notably during the Trump administration—and the growing assertion of the Global South all point to an order in transition. Rather than a single, rules-based hierarchy, the emerging system reflects competing power centers, selective cooperation, and differentiated economic alignments.

An important but often understated driver of this transition is technology. As economies move deeper into the Fourth Industrial Revolution, technologies such as semiconductors, artificial intelligence (AI), and digital infrastructure are no longer neutral enablers of growth. They have become strategic assets that shape economic resilience, geopolitical influence, and development trajectories. At the same time, the push toward green and climate-resilient economies has intensified global competition over critical technologies and inputs. As a result, economic power and technological capability are increasingly intertwined.

Semiconductor Supply Chains, Critical Minerals, and Strategic Choices

The post–COVID-19 semiconductor shortage highlighted the vulnerabilities of globally concentrated supply chains. Semiconductors are central to modern economies, supporting everything from consumer electronics and renewable energy systems to advanced defense platforms. Yet their production—particularly at advanced fabrication nodes—remains concentrated in a handful of regions, with Taiwan playing a pivotal role.

In response to these vulnerabilities, major economies have turned toward active industrial policy. The United States' CHIPS and Science Act, the European Union's Chips Act, India's semiconductor Production-Linked Incentive (PLI) scheme, and China's efforts to achieve technological self-reliance reflect a broader shift toward securing domestic capacity. At the same time, these initiatives acknowledge an important reality: semiconductor ecosystems are deeply interconnected and depend on access to critical minerals such as lithium, cobalt, and rare earth elements.

This has brought initiatives like the Minerals Security Partnership (MSP) into sharper focus. By seeking to diversify and secure critical mineral supply chains among trusted partners, the MSP reflects a form of selective multilateralism rather than a return to open globalization. It also signals a growing effort to integrate resource-rich developing countries into technology supply chains on more structured and strategic terms. Together, semiconductor policy and mineral diplomacy illustrate how technology is reshaping the global economic order through a mix of cooperation and controlled decoupling.

Artificial Intelligence and a Tech-Led Global Order

Artificial intelligence is rapidly emerging as a defining force in the global economy. Beyond its potential to boost productivity and growth, AI is altering how economic and strategic power is distributed. Estimates suggest that AI could significantly raise global output over the next decade, though outcomes will depend on governance frameworks, institutional readiness, and access to infrastructure.

At present, AI capabilities remain highly concentrated. The United States holds a clear advantage due to its technology firms, data ecosystems, and access to advanced computing hardware. China's rapid progress, including the development of competitive large language models, points to intensifying technological competition. In contrast, much of the developing world faces structural constraints, including limited access to high-performance computing and skilled talent.

These trends have contributed to what is increasingly described as a "Pax Siliconica**"**—an emerging order in which control over digital infrastructure, algorithms, data, and chips shapes global influence. Under this framework, countries that lead in technology set standards and norms, while others risk long-term dependency. Recognizing this challenge, countries like India have launched initiatives such as the IndiaAI Mission to build domestic capabilities. At the same time, there is growing awareness that AI cannot be effectively governed by individual states alone, prompting multilateral efforts through platforms such as the United Nations and global AI summits.

Technology and the Changing Global Economic Landscape

Taken together, developments in semiconductors, critical minerals, and AI highlight a broader pattern in the evolving global economic order. States are increasingly cautious and inward-looking when it comes to strategic technologies, yet they also recognize the limits of self-reliance. As a result, cooperation is shifting away from universal frameworks toward smaller coalitions built around shared interests and trust.

Technological challenges—from cross-border digital crime and deepfake-driven misinformation to globally distributed AI-driven production—underscore the international nature of technological risks. At the same time, demands from the Global South for fairer access to technology and value chains are becoming more pronounced. These pressures are reshaping how technology is developed, regulated, and shared.

Looking ahead, the interaction between technology and the global economic order is likely to define the contours of global power and development. Whether this leads to greater fragmentation or more balanced forms of cooperation will depend on how states manage technological

competition while addressing shared global challenges. What is clear is that technology is no longer peripheral to the global economic order—it is increasingly at its core.

References (APA Style)

European Commission. (2023). *The European Chips Act*. European Union.

Farrell, H., & Newman, A. L. (2019). Weaponized interdependence: How global economic networks shape state coercion. *International Security, 44*(1), 42–79.

Goldman Sachs. (2023). *The potential economic impact of generative AI*. Goldman Sachs Global Economics Analyst.

Government of India. (2023). *IndiaAI Mission document*. Ministry of Electronics and Information Technology.

Organisation for Economic Co-operation and Development. (2023). *Artificial intelligence, productivity and economic growth*. OECD Publishing.

United Nations General Assembly. (2024). *Resolution on safe, secure and trustworthy artificial intelligence*. United Nations.

U.S. Congress. (2022). *CHIPS and Science Act of 2022*. Government of the United States.

U.S. Department of State. (2022). *Minerals Security Partnership joint statement*. Government of the United States.

Zuboff, S. (2019). *The age of surveillance capitalism*. PublicAffairs.

[i] Sameer Bharti is a Research Scholar in the Department of Library and Information Science, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, India 495009. Email – contactsameerbharti@gmail,com