

Policy Brief No. 8 – February 2024

Democratic Renewal or Vast Panopticon? Great-Power Rivalry in the Data Economy

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Key Points

- As the world's major powers compete in the digital economy, technology platforms and the data they expropriate from their users have become critical to geopolitical advantage.
- Privacy and other human rights are subverted not only by the commodification of personal data but also by domestic spying and extensive surveillance that governments around the world have developed as competitive levers.
- Further, a focus on soft power competition to harness and control data, one strategy for competing in the data economy, includes using social media to shape global narratives, control information and drive innovation.
- This brief recommends tactics for shaping digital regulatory systems across this changing multipolar landscape.

Introduction

The twenty-first century has witnessed a profound transformation in the geopolitical landscape, marked by the gradual emergence and ascendance of a multipolar order. With the rise of Asian economies and especially China, a new architecture of economic, political and technological integration is under way. Beyond the bipolar order of the Cold War or the unipolar order of American hegemony, the global system is becoming “pluricentric.” Given the scale of these changes, contemporary public policy will need to better appreciate the nature and dynamics of great-power rivalry.

As innovation moves to the core of the global economy, geopolitical leadership is now interdependent with technological leadership. In fact, technological trade is a key feature of this new era. Rather than centring on any one country alone, power itself is becoming increasingly fluid as nations compete and cooperate with multiple partners in the pursuit of “geotechnological” advantage. In this multipolar system, power is not equally distributed, nor is there a lack of hierarchy among global centres of influence. Rather, power is intermeshed with technology markets even as traditional alliances increasingly co-exist alongside a range of new multilateral institutions and partnerships.

This policy brief argues that the rise of a data-driven economy provides a framework for understanding the changing contours of this new order. More specifically, it helps to explain why enforcing human

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rights across a contested multipolar system will prove especially difficult (Mayer-Schönberger and Ramge 2018). Where innovation in the knowledge economy ensured that intellectual property (IP) captured the lion's share of economic rents, artificial intelligence (AI) has begun to transform the nature of innovation itself (Ciuriak 2023). Indeed, systems of innovation have become increasingly dependent on the expropriation of personal data in the form of “surveillance capitalism” (Zuboff 2019).

The proliferation of surveillance technologies and the expanding influence of data collection and analysis pose serious challenges to human rights regimes in the data economy. Ensuring the protection of personal data against unauthorized use or exploitation while developing technologies that stimulate democratic flourishing is essential to striking the right balance between innovation and regulation. Upholding human rights in the data economy will necessitate robust legal frameworks, ethical protocols and transparent practices that empower individuals and communities alike. Given the challenges of a competitive multipolar system, finding common ground on global governance will be critical to maintaining peace and security.

Capturing the Commanding Heights

Intensifying rivalry between the United States and China mirrors a palpable shift in the global balance of power.¹ This shift reflects the rise of new centres of influence and the decline of America's “unipolar moment” (Krauthammer 1989; Khanna 2019). In truth, such shifts are not new. The development and application of frontier technologies have always been intimately tied to changes in the global order (Araya 2022). Like sedimentary layers, each new stage of technological advancement shapes new social systems, leading to increasingly complex social relations (see Table 1).

Much as the mechanization of steam power did in the late eighteenth century, and the electrification of mass production in the

¹ It is important to recognize that multipolarity does not mean that major powers possess equal strength or influence. Rather, multipolarity signifies a world where there are multiple actors with varying levels of power and capabilities.

Table 1: Stages of Technological Change

Industrial Revolution	Time Period	Key Characteristics
Industry 1.0	Late 1700s to early 1800s	<ul style="list-style-type: none"> • Introduction of mechanization powered by water and steam. • Transition from hand production methods to machines. • Development of iron and textile industries.
Industry 2.0	Mid-1800s to early 1900s	<ul style="list-style-type: none"> • Mass production through electrification and assembly lines. • Advancements in transportation and communication technologies. • Rise of oil, steel and automotive industries.
Industry 3.0	Late 1900s to early 2000s	<ul style="list-style-type: none"> • Automation and digitalization with the advent of electronics and information technology. • Introduction of computers, robotics and programmable logic controllers. • Growth of telecommunications and internet industries.
Industry 4.0	Mid-2000s to present	<ul style="list-style-type: none"> • Integration of cyber-physical systems and advanced digital technologies. • Internet of Things, big data analytics, AI and machine learning. • Smart factories, autonomous systems and augmented decision making.

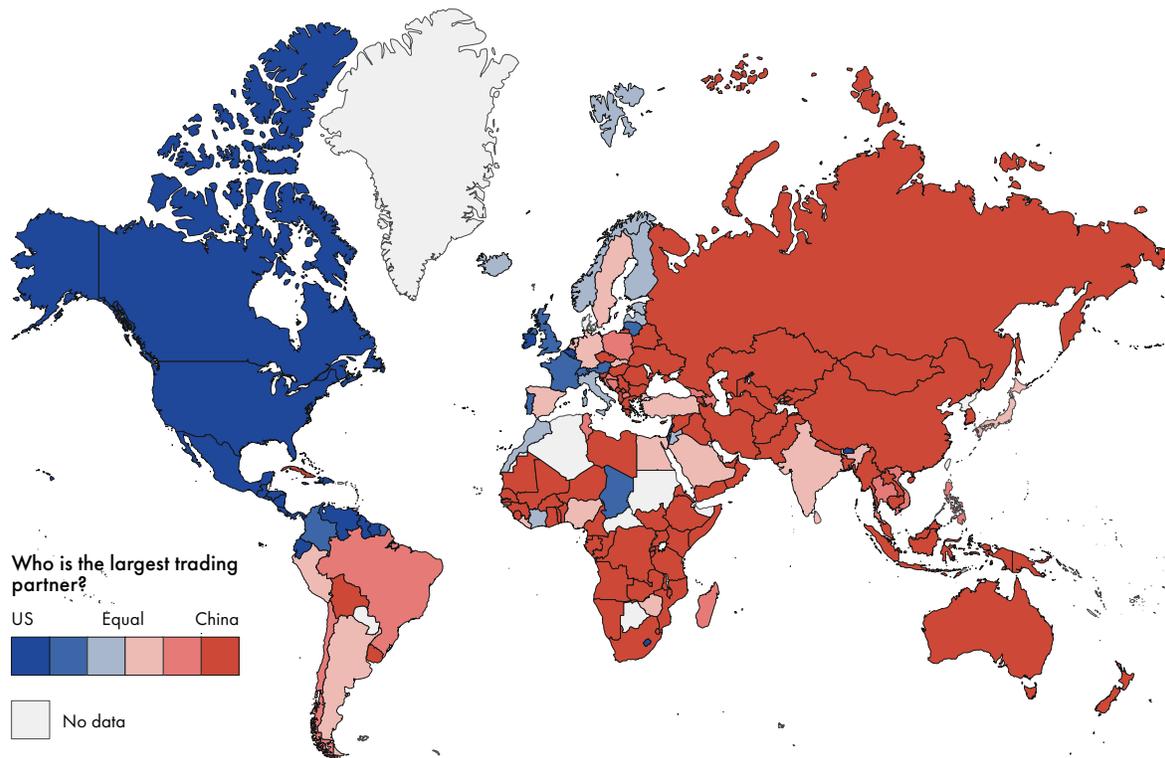
Source: Author.

mid-nineteenth century, digital technologies are now restructuring the “commanding heights” of the global economy (Yergin and Stanislaw 1999). In fact, both industrial production (manufacturing) and knowledge-based innovation (IP) are becoming subsumed by competition to control data and data-driven technologies (Zuboff 1988; Brynjolfsson and McAfee 2014).

No resource is more important to this new era than AI. Building on advances in semiconductor chips and improvements in machine-learning protocols, AI is at the epicentre of a vast innovation economy. Together with neuroscience and quantum technologies, AI is evolving rapidly and represents uncharted territory: “for many experts in the field, the recent acceleration in both the power and the scope of AI has raised fears that the technology is now advancing too quickly” (Peters et al. 2023, 18). The capacity of AI to both automate labour and accelerate innovation portends far-reaching changes in the nature of social and political relations.

As AI continues to underwrite the convergence of human and machine intelligence, it is setting the conditions for geopolitical rivalry (Araya 2018). Indeed, no country is more fundamental to a changing global order than China. Whereas the United States emerged as a “global hegemon” at the end of the Cold War, China’s rising technology and manufacturing capacity is drawing much of the world into a shared orbit (see Figure 1). China’s enormous market and expanding technology industries are moving it into direct competition with the United States.

Figure 1: China's Trading System (2018)



Source: Based on Roland Rajah and Alyssa Leng (n.d.) and adapted with permission of the Lowy Institute.

Multipolarity and the Rise of China

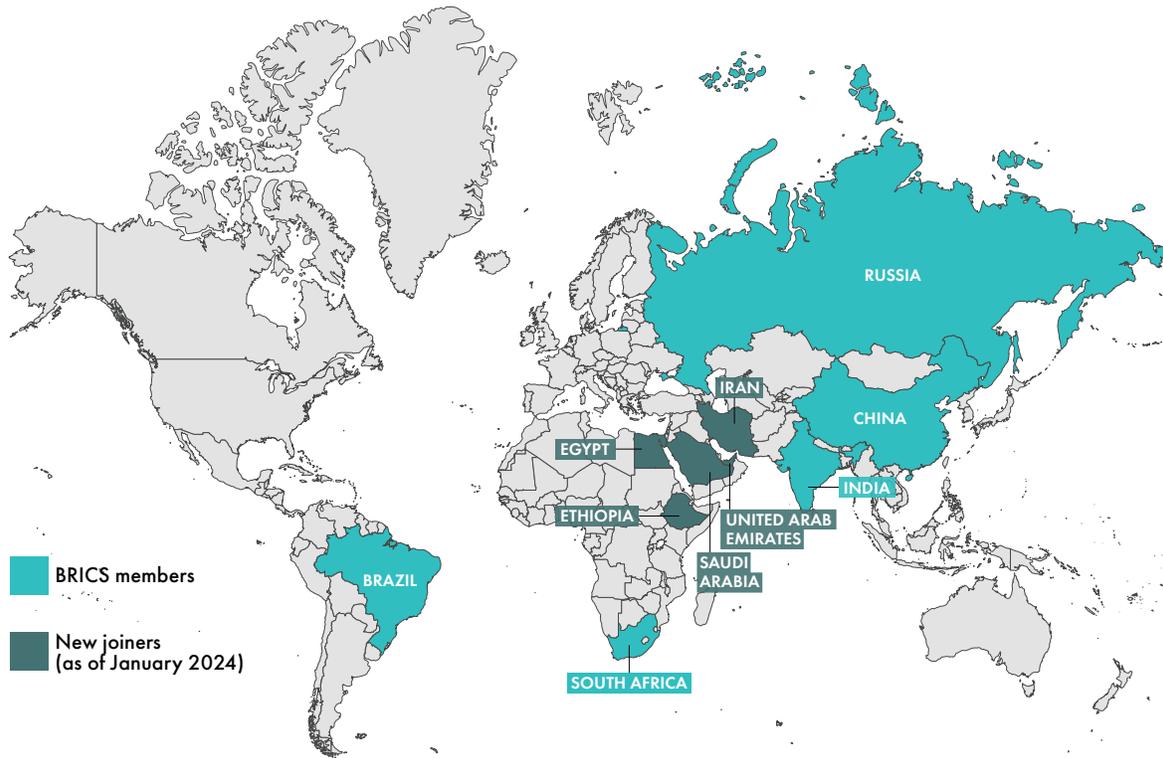
Transformation in the nature of innovation is critical to understanding changes in the global order (National Intelligence Council 2021). As AI and robotics move geopolitical competition onto a new playing field, the scramble to dominate data-driven technologies is now central to global leadership. Even as the United States continues to lead in cutting-edge sectors such as machine learning, biotechnology and quantum computing, China has emerged as a geopolitical rival. Bolstered by its dynamic innovation sector and unrivalled export market, China's economic and

political ascendance is setting the conditions for a multipolar system (Romei and Reed 2019).²

Leveraging decades of investments in manufacturing, telecommunications, transportation, energy and education, China's signature Belt and Road Initiative is now reshaping the global balance of power (McBride, Berman and Chatzky 2023) (see Figure 1). As researchers from the Australian Strategic Policy Institute conclude in a recent report, "China has built the foundations to position itself as the world's leading science and technology superpower" (Gaida et al. 2023). With 60 percent of the world's 5G (fifth-generation) mobile

2 One clear example of this shift is the struggle to dominate the semiconductor industry. Huawei's recent breakthrough with the Kirin 9000S mobile processor signals a new phase in advanced Chinese engineering. Representing a milestone for China's semiconductor industry, the smaller size of transistors allows for better overall performance while lowering power consumption. Growing competition between the United States and China in the semiconductor industry reflects broader geopolitical efforts to dominate the data economy.

Figure 2: The Expanding BRICS Trading Bloc



Source: Author.

network base stations (2.73 million), 50 percent of installed industrial robots and 66 percent of the world's high-speed rail (40,000 km), China is now a global technology leader.

China's growing influence overlaps changes in multilateral institutions as well. With increased representation and leadership roles in various international organizations, including prominent institutions such as the United Nations, the International Monetary Fund, the World Bank and the World Trade Organization, China is now a major political power. In addition to engaging with existing multilateral institutions, Beijing has taken steps to establish new institutions that reflect its priorities and vision. Together, Chinese-led initiatives such as the Asian Infrastructure Investment Bank, the Belt and Road Initiative, the Global Security Initiative, the Shanghai Cooperation Organisation and

the BRICS³ trading bloc are integrating what geopolitical strategist Halford Mackinder once described as the "World-Island" (Knutsen 2014).

Competing in the Data Economy

Geopolitical rivalry between the United States and China has catalyzed widespread fear that a new Cold War is on the horizon. Indeed, for many in the West, a new Cold War has already begun. However, even as heightened tensions and divergent strategic interests have forced the United States and China to seek out new economic and security alliances, geopolitical rivalry between the two countries faces

3 The BRICS bloc includes Brazil, Russia, India, China, South Africa and now five additional countries: Egypt, Ethiopia, Iran, Saudi Arabia and the United Arab Emirates, with more countries expected to be included in 2024.

significant limits. Together, a tightly coupled global trading system, the expanding influence of regional powers (for example, India, Saudi Arabia, Russia, Iran, Türkiye, Brazil, Indonesia and South Africa), and the existential risk of nuclear confrontation place specific constraints on US-China rivalry.

Rather than a “hot war,” competition between the United States and China is focused on emerging technologies and a data-driven economy. Both nations are investing heavily in research and development in order to gain a competitive edge in critical technology areas. China’s growing influence in the data economy has been met by a strategic focus on export controls and calls for technology “de-risking” across the United States and Europe. In fact, US and Chinese technology companies dominate the data economy. The market capitalization of US firms — Apple (\$2.8 trillion), Microsoft (\$2.4 trillion), Alphabet (\$1.6 trillion), Amazon (\$1.3 trillion) and Meta (\$734 billion) — is increasingly balanced by rising Chinese firms — Tencent (\$423.23 billion), Alibaba (\$228 billion), Meituan (\$102 billion) and Baidu (\$50.4 billion).⁴

Strategies for competing in the data economy include a focus on the following:

- **Market dominance:** An acute understanding that market competition in the race for technological dominance — particularly in emerging technologies such as AI, 5G networks, quantum computing and autonomous robotics — will have significant implications for economic competitiveness, national security and geopolitical leverage.
- **Data sovereignty:** As centres of deep technological innovation, both the United States and China now seek to protect their data and establish control over data flows, often through regulatory measures. This includes an intense focus on data localization requirements, cross-border data transfer restrictions and data protection regulation.
- **Cybersecurity and surveillance:** Extensive cyber surveillance and cyberwarfare activities aim to access valuable data, disrupt information systems and protect data from espionage. This includes hacking, intelligence gathering and the deployment of offensive cyber capabilities.

⁴ See Laricchia (2023) and Thomala (2023), respectively.

→ **Soft power:** Data is seen as a tool for geopolitical influence and soft power projection. This includes the use of the media to shape global narratives, controlling information flows and influencing international public opinion through the use of social media campaigns, media manipulation and targeted attacks.

Competition over data has not only set the stage for great-power rivalry but also enabled the rise of a vast digital panopticon⁵ in the pursuit of *surveillance capitalism*. King’s College lecturer Nick Srnicek (2016) refers to this surveillance system as “data feudalism.” The term draws a parallel to the feudal system of the European Middle Ages in which powerful landlords owned and mediated access to resources. As Srnicek explains, technology platforms like Amazon, Facebook and Google operate as analogs to feudal estates. Just as feudal lords depended on economic rents to extract value from the labour of serfs, platforms now extract and monetize the value of personal data made available by their users.

Much as the move from mass industrialization to knowledge-based innovation enabled the outsized influence of US research universities and the unipolar moment, the global economy is increasingly being reconfigured around data: “Data is the new oil.”⁶ As Harvard scholar Shoshana Zuboff explains, data has been transformed from “data exhaust” into a feedstock for computation (Zuboff 1988, 2019). Nations that possess extensive data repositories or have the kinds of companies that dominate IP regimes gain enormous leverage in shaping a changing geoeconomic landscape. More to the point, nations that lead in this new computational era have the capacity to shape the contours of the global economy (Araya and Marber 2023).

As the world’s major powers compete to harness and control data, technology platforms have become critical to geopolitical advantage. Notwithstanding the fact that most of the world’s leading tech firms were formed only relatively

⁵ A panopticon is both a type of institutional building and a social theory of control introduced in the late eighteenth century by English social theorist Jeremy Bentham. The concept is particularly associated with surveillance and the idea of constant observation. The architectural design consists of a circular structure with a central observation tower surrounded by cells or living quarters, creating an environment of constant surveillance.

⁶ The phrase was coined by British mathematician Clive Humby in 2006 (cited in Arthur 2013).

recently (for example, Facebook was formed in 2004; Twitter, in 2006; Instagram, in 2010; TikTok, in 2016), the data they manage has become critical to geopolitical influence. Indeed, the technology industry and its global supply chains now rival the oil and gas industry in terms of their importance to the global economy (Thadani and Allen 2023).

Rather than controlling single industries, tech platforms use “competitive bottlenecks” to aggregate and harvest user data (Iansiti and Lakhani 2017). The value of surveillance capitalism to commercial enterprise is obvious: the collection and analysis of user data enables commercial firms to optimize and tailor their products and services. While this powerful feedback loop can dramatically improve existing business models, it also ensures that personal data can be monetized, often without the consent or awareness of users.

Human Rights in the Data Economy

Struggles over the issue of digital surveillance have become fundamental to debates on the data economy. Together with the erosion of personal privacy and the commodification of user data, governments have become dependent on domestic spying (Levine 2018; Seymour 2019). Building on the tech industry, governments around the world have developed extensive surveillance systems that collect and analyze immense flows of data generated by the world’s technology users (Chin and Lin 2022; Price 2022).

In the United States, Edward Snowden’s disclosure of the PRISM⁷ program exposed the enormous scale of surveillance deployed by the National Security Agency and other US agencies in monitoring both its domestic population and populations abroad. Like America’s Silicon Valley, China’s own technology giants are broadly seen as tools for advancing Beijing’s broader geopolitical ambitions. China was late to the knowledge economy, but its influence has expanded dramatically with the rise of the data economy. China’s highly advanced state-controlled

surveillance infrastructure combines facial recognition technology and mass data collection to advance a robust governmental panopticon.

Subverting well-established laws on personal privacy, surveillance technologies have become the engine of the data economy (Zuboff 2019). For human rights lawyer Susie Alegre (2022), the expanding power of algorithmic control systems constitutes a challenge to established principles on human rights. As Alegre observes, the right to freedom of thought is rooted in the Universal Declaration of Human Rights. In fact, the modern conception of human rights only gained momentum in the aftermath of the Second World War, catalyzed by the atrocities witnessed during the Holocaust and the war’s widespread devastation.

In the contemporary data economy, the intersection of human rights and data governance emerges across a critical confluence of social and technological development. Indeed, the proliferation of data-driven technologies and their ubiquitous integration into daily life present intricate challenges to human rights and the rule of law. Issues surrounding privacy, autonomy and freedom of expression are now foregrounded by data as a commodity. Subject to extensive collection, analysis and monetization, data is now a form of capital. The necessity to balance innovation and economic growth with the protection of rights to privacy and self-determination underscores legal and regulatory challenges ahead.

Unleashing a plethora of new tools for driving propaganda and behaviour modification, digital platforms have become instrumental in shaping human behaviour. Where mass media has often used broadcast media to shape opinions that favour established power (Herman and Chomsky 1988), data-driven technologies are dramatically expanding the potential for social and political fragmentation (Balsillie 2019). Given these dangers, it is incumbent upon policy makers to ensure that the data economy remains aligned with the values of democratic self-government.

Given the importance of data and information to self-government, the dangers of misinformation, disinformation and deliberate propaganda are hard to overstate. Ensuring human rights within the data economy requires robust legal frameworks, data practices and inclusive policies that acknowledge and safeguard

⁷ PRISM is an acronym for the National Security Agency’s Planning Tool for Resource Integration, Synchronization and Management.

data sovereignty. As AI and machine learning continue to expand and integrate with a global surveillance economy, their capacity to amplify instruments of social manipulation will grow.

Policy Proposals

A rapidly changing technology landscape now places a particular burden on policy makers to better understand the various kinds of regulatory regimes that are possible. As regions with divergent approaches to privacy and data protection clash over global standards and regulations, data governance has become a uniquely global challenge. Governments are now waking up to the significant real-world challenges that digital technologies present alongside their benefits, and are scrambling to regulate technology companies.

Even as the European Union has positioned itself as a global leader on data protection, traditional approaches to privacy protection and data regulation could prove inadequate. Indeed, even as regulators focus on the data economy, its tools and actors will likely reshape the institutions and practices that are the foundation of democratic self-government itself. This suggests the need for governing systems that provision new data standards and new regulatory systems in guiding the data economy.

The following are recommendations for shaping regulatory systems across a changing multipolar landscape. These recommendations build on previous research exploring the changing nature of national security in the digital era (Araya and Mavinkurve 2022). As these proposals make clear, governments will need to become more proficient at securing their digital infrastructure, both with respect to technology modernization and with respect to the operational capacity, scale and resiliency of digital tools.

Redefine Critical Infrastructure in the Data Economy

Critical infrastructure and supply chains now form complex, interconnected information systems across a global data economy. To ensure that data is protected, governments will need to provision public data infrastructure that is both interoperable and trusted (ibid.). Safeguarding data integrity

requires a multilateral cybersecurity strategy. Building on a combination of technical solutions, proactive planning and continuous adaptation, this should include decentralized structures that eliminate single points of failure; smart contracts for automation; identity management and access control; and multilateral systems supporting coordinated auditing and compliance.

Pursue Multilateral Initiatives for Data Governance

Secure data infrastructure overlaps the need for interoperability and shared governance standards in supporting a globally articulated data economy. Governments acting in good faith will need to pursue solutions to the challenges of surveillance capitalism through multilateral institutions and mechanisms that overcome security divides. At a minimum, finding these solutions will require working with regional partners in developing comprehensive multilateral frameworks for governing the data economy (ibid.).

Leverage AI and Data-Driven Practices in Government

A data-driven economy will continue to blur the regulatory boundaries governing the development of technology. Even as the emergence of data-driven industries (robotics, 5G, cloud computing) has begun reshaping the design of institutions, the technology has had comparatively little impact on the design of government. Moving governments into the data economy will mean leveraging AI and data-driven systems in remaking government itself.

Educate the Global Public on the Changing Landscape of Data-Driven Technologies

A shifting geopolitical landscape raises critical questions about data privacy, national security and ethical constraints on the flows of data across a data-driven economy. Governments around the world will need to better educate their citizens on the controls available for protecting and governing these flows and provide guidance on legal protections governing personal information across industry and government (ibid.). Citizens and consumers alike will need proper education and support in understanding the value of their personal data and the application of that data in shaping a computational society.

Conclusion

Intensifying rivalry between the United States and China underscores a seismic shift in the global balance of power. Beyond the era of US hegemony, the twenty-first century is now being shaped by a contest to dominate the commanding heights of the global economy. The consequences of this new era remain difficult to forecast but what is clear is that both the United States and China understand the power of surveillance capitalism in catalyzing the computational engines that drive the data economy.

What is also clear is that as accelerating technological change converges with a rising multipolar system, it will reset the world's governance architecture. For this reason, regulating the data economy could prove daunting. As data-driven technologies proliferate, power is being redistributed — from older centres of influence to newer centres of influence. Indeed, nations that do not have a strong presence in the data economy could find themselves marginalized or dependent on the players that do.

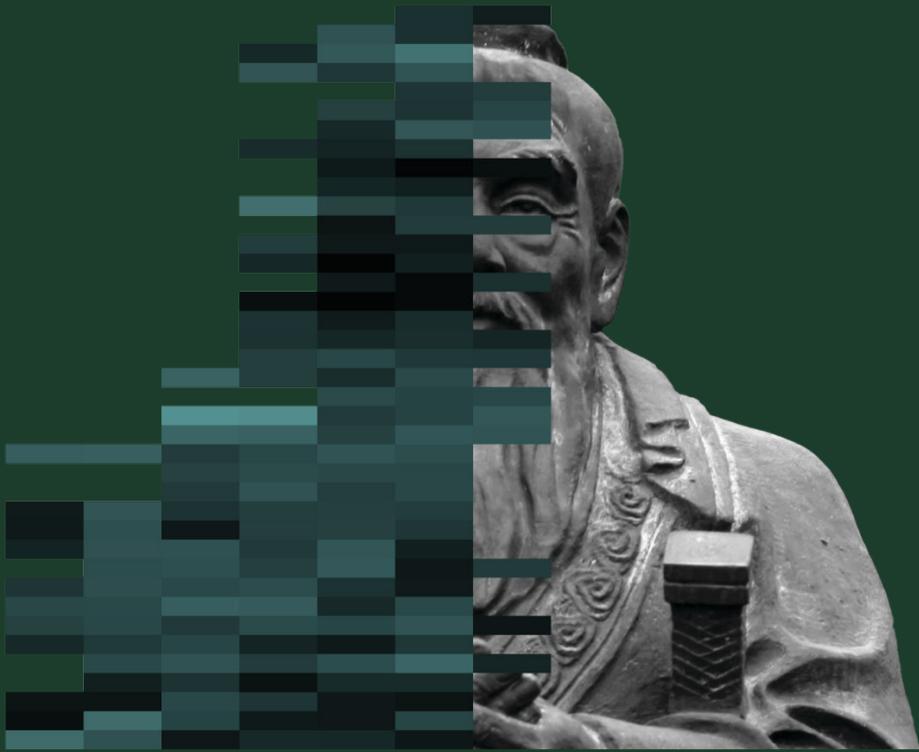
Even as the global data economy sets the stage for geopolitical rivalry, multilateral cooperation will remain vital to maintaining peace and security across a complex multipolar system. In this volatile environment, the pursuit of national interest at the expense of shared technological, economic and environmental challenges could prove highly destabilizing. Ultimately, the resolution of tensions over competition for geopolitical predominance will determine whether technological innovation supports democracy and human rights or simply stokes widespread social unravelling.

As governments grapple with the challenges posed by a vast surveillance-driven economy, they will need to come to terms with their own dependence on spying in the pursuit of geostrategic advantage. Given the challenges posed by a multipolar system, this will be no easy task. Whether the world's governments collaborate in the pursuit of democratic renewal or simply yield to systems of surveillance and control will largely depend on the capacities of citizens to hold their governments accountable. Eliminating the capacity of governments and commercial firms alike to manipulate, commodify and exploit human behaviour will be critical to safeguarding democracy for future generations.

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This policy brief was made possible thanks to the financial support of the Konrad-Adenauer-Stiftung (KAS) Canada.

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