

The Shift of Power in the International System: The Role of New Determinants of Power in China's Rise in the 21st Century



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Abstract:

This article explores the factors behind China's rise as a global power in the 21st century, focusing on the shift from traditional determinants such as military and economic strength to new drivers of influence. The central question addressed is: How have new determinants of power, such as technological innovation, environmental leadership, and digital sovereignty, contributed to China's global ascension? Using the systemic approach, the article is structured into several sections that examine both traditional and modern determinants of power, with an emphasis on China's advancements in areas like AI, green energy, and 5G technology. The article finds that China's strategic investment in these emerging areas has allowed it to project influence beyond traditional military and economic realms. It concludes that these new determinants will shape the future dynamics of global power, solidifying China's position as a leading world power.

Keywords: Power Shift; Technological Innovation; Environmental Leadership; Digital Sovereignty; China's Rise

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Introduction:

China's rise to prominence in the 21st century marks a transformative shift in global power dynamics, challenging the long-standing dominance of Western powers. Traditionally, global influence was defined by military strength and economic power—attributes that allowed nations like the United States and the Soviet Union to shape world affairs. However, as the world has become more interconnected and complex, these traditional determinants have been joined by new drivers of influence.

China's ascendancy exemplifies this evolving landscape of power. While it continues to develop its military and economic capabilities, its rapid rise can be attributed to its strategic focus on new determinants of power, such as technological innovation, leadership in green energy, digital infrastructure, and soft power through cultural diplomacy. These elements are increasingly crucial in an era where information, sustainability, and technological superiority often outweigh traditional hard power.

This article aims to explore how these modern determinants have facilitated China's emergence as a global power and examines how they may shape its role in the international system moving forward. The central question guiding this analysis is: **How have these new drivers of power influenced China's rise in the 21st century, and how might they impact future global power dynamics?**

By looking at China's advancements in technology, its growing influence in environmental leadership, and its push to dominate the digital and cultural landscapes, this article sheds light on how these factors have worked together to propel China to the forefront of global politics. As the world becomes increasingly multipolar, understanding these dynamics is key to grasping the future of global power relations.

1. Traditional Determinants of Power

For centuries, global influence has been largely defined by military strength and economic power. These two traditional determinants have shaped the history of international relations, driving conflict, alliances, and power structures. China's rise in the 21st century is also grounded in these conventional pillars. However, what sets China apart is how it has combined these traditional factors with newer, innovative determinants of power to consolidate its position on the global stage.

1.1. Military Power

Historically, military might has been a crucial element of national power, enabling states to defend their interests and project influence. For China, military modernization has been at the core of its strategy to assert itself as a major power. Over the past two decades, China has significantly expanded and modernized the

People's Liberation Army (PLA). From 2000 to 2020, China's defense spending skyrocketed from approximately \$22 billion to over \$250 billion, making it the second-largest military spender in the world after the United States (SIPRI, 2021).

A significant portion of this budget has been allocated to modernizing the Chinese navy and air force, with an emphasis on power projection. In 2012, China launched its first aircraft carrier, the Liaoning, and in 2019, it commissioned its second carrier, the Shandong. This naval expansion aligns with China's growing ambitions in the Asia-Pacific region, particularly in the contested South China Sea. China's aggressive island-building and militarization efforts in this region underscore its intent to secure regional dominance and challenge U.S. influence in Asia (Shambaugh, 2019).

In addition to conventional forces, China has rapidly developed its cyber capabilities, recognizing the importance of cybersecurity and information warfare. By 2021, China had made significant strides in cyber warfare and space-based defense systems, reflecting its desire to compete with the United States not only in traditional military domains but also in emerging areas of conflict (Cliff, 2015).

1.2. Economic Power

Economic strength is equally important to China's rise. Since the late 1970s, when China implemented sweeping economic reforms under Deng Xiaoping, the country has transformed from an agrarian society into the world's manufacturing hub. China's GDP grew from just \$191 billion in 1980 to over \$14 trillion by 2020, making it the second-largest economy globally (World Bank, 2021). This remarkable economic transformation has been central to China's growing influence in international affairs.

China's accession to the World Trade Organization (WTO) in 2001 was a pivotal moment in its economic rise. It allowed China to integrate into global supply chains, leading to a surge in exports and foreign investment. By 2020, China was the world's largest exporter, accounting for 13% of global exports, with products ranging from electronics to textiles (World Trade Organization, 2020). This economic dominance has given China significant leverage over both developing and developed nations, allowing it to use economic partnerships as a tool of diplomacy.

A key aspect of China's economic strategy is the Belt and Road Initiative (BRI), launched in 2013. This ambitious infrastructure project aims to connect Asia, Europe, and Africa through a network of roads, railways, and maritime routes. By 2021, China had invested over \$200 billion in BRI projects, building critical infrastructure in more than 60 countries. The initiative has not only expanded China's economic influence but has also provided it with political leverage in regions where it had previously wielded little influence.

China's control over key resources, particularly rare earth minerals, has also bolstered its economic power. By 2020, China controlled about 60% of global

rare earth production, giving it significant leverage in industries critical to modern technology, such as electronics and electric vehicles (Bradsher, 2020). This dominance in key sectors further strengthens China's hand in global economic negotiations.

Military and economic power have been crucial to China's rise and continue to form the backbone of its global strategy. However, while these traditional determinants remain important, they are increasingly complemented by new sources of influence, such as technological leadership, environmental diplomacy, and cyber capabilities. As China's global influence grows, these new determinants will play a larger role in shaping the international order, alongside its well-established military and economic power.

2. The Transition from Traditional to New Determinants of Power in International Relations

The shift in global power dynamics reflects a broader evolution in international relations theory, where traditional determinants such as military and economic power are increasingly complemented by newer, non-conventional factors. The realist paradigm, long dominant in the field of International Relations (IR), emphasized the centrality of military strength and economic capacity as key elements of state power (Mearsheimer, 2001). However, in the increasingly interconnected and globalized world of the 21st century, these traditional determinants have proven insufficient in fully explaining state influence and global standing.

Recent theoretical developments in IR, such as the constructivist and liberal approaches, have expanded the scope of what constitutes power. Joseph Nye's concept of "soft power" illustrates how ideational factors like culture, values, and diplomacy are critical in shaping global influence (Nye, 2004). Soft power, in contrast to the hard power emphasized by realists, allows states to co-opt rather than coerce, giving rise to a more nuanced understanding of global power dynamics. States like China have successfully incorporated these newer determinants into their broader strategy, enhancing their global presence not only through military and economic means but also by excelling in areas such as technology, environmental leadership, and cultural diplomacy (Fukuyama, 2018).

This transition toward new determinants has been accelerated by technological advancements and globalization. Scholars have increasingly pointed out how the digital revolution has given rise to a new arena of competition, wherein the ability to innovate and control digital infrastructure has become a crucial determinant of national power (Schwab, 2017). As China's investments in AI and 5G technologies demonstrate, states that dominate the digital landscape can exert substantial influence not only in traditional economic and security domains but also in shaping the future architecture of global governance.

Thus, the integration of new power determinants into the broader framework of international relations signals a significant theoretical and practical shift. While military and economic power remain essential, the 21st-century global order increasingly favors states that excel in technological innovation, environmental stewardship, and digital sovereignty. Understanding this shift is vital for analyzing the rise of new powers like China and forecasting the future balance of power in the international system.

3. Technological Leadership and Global Influence

In the 21st century, technological innovation has emerged as one of the most critical determinants of global power. For China, its rapid advancements in areas such as artificial intelligence (AI), 5G telecommunications, and quantum computing have solidified its position as a global technological leader. The ability to innovate and control key technological sectors is not only driving China's domestic development but also shaping its geopolitical strategy on the global stage.

3.1. Artificial Intelligence (AI) and Digital Innovation

China has aggressively pursued leadership in artificial intelligence, seeing it as a cornerstone of future global power. In 2017, the Chinese government released its "Next Generation Artificial Intelligence Development Plan," which set the ambitious goal of becoming the world leader in AI by 2030 (Roberts et al., 2021). By 2020, China had already become the second-largest investor in AI research, trailing only the United States, and accounted for nearly 20% of global AI research output (Ding, 2020). Chinese companies like Baidu, Tencent, and Alibaba have been at the forefront of this push, developing AI-driven technologies that range from facial recognition to autonomous vehicles.

China's technological advancements in AI have important implications for its geopolitical power. As countries around the world integrate AI into their economies and national defense systems, China's expertise in this field allows it to set global standards and frameworks. In regions such as Africa and Southeast Asia, Chinese tech firms are establishing digital infrastructure, allowing China to spread its influence by embedding its technology into the economic and security systems of other nations (Feldstein, 2019).

3.2. Advanced Generations of Telecommunications

Another crucial area where China is exerting its technological influence is in 5G telecommunications. Chinese telecommunications giant Huawei has become a global leader in 5G technology, which is set to revolutionize industries ranging from telecommunications to healthcare and finance by offering faster internet speeds and more reliable connections (Crawford, 2020). By 2020, Huawei had secured over 91 commercial 5G contracts globally, spanning countries in Europe, Asia, and the Middle East, making China the frontrunner in setting the global 5G infrastructure (Hille, 2020).

China's dominance in 5G is critical not only for its economic power but also for its strategic leverage. As countries around the world adopt 5G technology, they become more reliant on Chinese technology and infrastructure. This creates both economic and political dependencies that China can exploit to its advantage in diplomatic and trade negotiations (Triolo et al., 2018). It also raises security concerns in the West, as Chinese companies' involvement in critical telecommunications infrastructure has sparked fears about espionage and data security.

3.3. Quantum Computing

China's efforts in quantum computing represent the cutting edge of technological innovation. Quantum computing has the potential to revolutionize fields like cryptography, materials science, and medicine by vastly increasing computational power. In 2020, China claimed a significant breakthrough when its quantum computer achieved "quantum supremacy," performing calculations far beyond the capabilities of classical computers (Chen et al., 2020).

These advancements in quantum computing have substantial implications for global power dynamics, particularly in cybersecurity and defense. The ability to process complex cryptographic codes at unprecedented speeds would give China an enormous advantage in intelligence and defense systems, potentially undermining the cybersecurity of rival nations. The race to quantum computing supremacy is thus seen as a key battleground for future technological and geopolitical dominance.

3.4. Implications for Future Power Dynamics

China's leadership in these emerging technologies is redefining the landscape of global power. Technological innovation is no longer a supplementary tool of influence but a central pillar of global dominance in the 21st century. By leading in AI, 5G, and quantum computing, China is setting the stage for a future where technological supremacy is as critical as military or economic strength.

As more countries adopt Chinese-developed technology, they will increasingly find themselves integrated into China's digital ecosystem, creating both economic dependencies and strategic vulnerabilities. This dynamic could tilt the balance of power in China's favor, especially in regions where Western influence has traditionally been dominant. If China continues to lead in these fields, it will not only shape global markets but also have the potential to set the rules and standards for the future technological world order.

4. Green Technology and Environmental Leadership

In recent years, environmental sustainability has become a crucial determinant of global power, particularly as the world grapples with the challenges of climate change and resource depletion. China, recognizing the strategic

importance of green technology, has positioned itself as a leader in renewable energy development, not only as a means of addressing its own environmental challenges but also as a way to gain influence in the global economy and international climate negotiations.

4.1. China's Renewable Energy Investments

China's commitment to green technology is evident in its massive investments in renewable energy. By 2021, China had become the world's largest producer of solar and wind energy, accounting for over 30% of the world's solar capacity and more than a quarter of global wind energy capacity (IEA, 2021). The country's National Energy Administration announced in 2021 that it would install 1,200 gigawatts of wind and solar power by 2030, a target that positions China as a global leader in renewable energy transition (Buckley, 2021).

These investments in renewable energy have been driven not only by environmental concerns but also by strategic interests. As traditional fossil fuel sources become less viable due to both environmental and economic factors, countries that lead in green technology will gain a significant geopolitical advantage. China's dominance in renewable energy technologies, such as solar panels and battery storage, allows it to influence global energy markets and reduce its dependency on foreign oil and gas, which has historically been a strategic vulnerability (Zhao, 2020).

4.2. The Belt and Road Initiative: Exporting Green Technologies

China has also integrated green technology into its Belt and Road Initiative (BRI), using it as a tool of environmental diplomacy. The BRI, launched in 2013, initially focused on building infrastructure such as roads, railways, and ports in Asia, Africa, and Europe. However, in recent years, China has begun to emphasize the development of green projects within the BRI framework, including renewable energy infrastructure, electric transportation, and sustainable urban planning (Shepard, 2020).

By promoting and financing renewable energy projects in developing countries, China is not only exporting its green technology but also solidifying its influence in regions that are crucial to global trade and resource flows. For example, China has become a major investor in Africa's renewable energy sector, funding solar, wind, and hydroelectric projects across the continent (Shen, 2020). These investments not only help mitigate climate change but also expand China's economic and political reach, creating dependencies on Chinese technology and finance.

4.3. Electric Vehicles (EVs) and the Global Auto Industry

Another critical area where China is leading the green technology revolution is the electric vehicle (EV) industry. China is the world's largest market

for electric vehicles, accounting for over 40% of global EV sales in 2020 (BloombergNEF, 2021). Chinese companies such as BYD and NIO have become global players in the EV market, producing vehicles that are increasingly competitive with those from Western automakers like Tesla.

China's dominance in the EV sector is supported by its control over the global supply chain for key materials used in EV batteries, such as lithium and cobalt. By 2021, China controlled roughly 80% of the world's lithium-ion battery production capacity, giving it significant leverage in the global transition to electric transportation (Bradsher, 2021). This leadership in EVs and battery production not only enhances China's economic power but also aligns with global efforts to reduce carbon emissions, positioning China as a key player in the fight against climate change.

4.4 Green Technology as a Soft Power Tool

China's leadership in green technology has also provided it with a form of soft power, allowing it to project influence through its commitment to environmental sustainability. This is particularly important in international climate negotiations, where China has increasingly portrayed itself as a responsible global actor. At the 2021 United Nations Climate Change Conference (COP26), China reaffirmed its goal of reaching peak carbon emissions by 2030 and achieving carbon neutrality by 2060, positioning itself as a leader in the global response to climate change (Xinhua, 2021).

By investing in green technologies and promoting international cooperation on climate issues, China seeks to enhance its global image and influence, particularly among developing countries that are vulnerable to the impacts of climate change. Through initiatives like the Green Silk Road, which promotes sustainable development along the BRI, China is using environmental diplomacy to build alliances and project its vision of a green future (Sun, 2023).

China's leadership in green technology is transforming global power dynamics. As the world transitions away from fossil fuels, countries that control renewable energy technology and resources will hold significant influence. China's investments in solar, wind, and electric vehicles, combined with its ability to export these technologies through the Belt and Road Initiative, have made it a global leader in the green revolution. This not only strengthens China's economic position but also enhances its geopolitical influence, allowing it to shape the future of global energy and environmental policy.

5. Cyber Capabilities and Digital Sovereignty

In the 21st century, the rise of digital infrastructure and cyberspace has created a new frontier for geopolitical power. Cyber capabilities, encompassing cybersecurity, digital surveillance, and technological sovereignty, have become key determinants of national influence. China has placed significant strategic focus on

developing its digital infrastructure and strengthening its cyber capabilities to enhance its global standing. These efforts have allowed China not only to bolster its domestic security but also to exert greater control over the digital domains of its allies and competitors.

5.1. China's Cybersecurity Strategy

China's leadership recognizes that cyberspace is a critical domain of both national security and international power. In response to the increasing number of cyberattacks and the rising importance of information warfare, China has invested heavily in its cybersecurity infrastructure. The Cybersecurity Law of the People's Republic of China was passed in 2017 to strengthen the country's ability to protect its digital infrastructure and guard against foreign influence. The law requires companies operating in China to store data locally and grants the government broad powers to regulate and monitor internet traffic (Creemers, 2017).

China's cyber strategy is not solely defensive. The country has developed significant offensive capabilities, positioning itself as a leader in cyber espionage and cyber warfare. Chinese state-sponsored hacking groups have been linked to numerous high-profile cyberattacks, including the theft of intellectual property from Western corporations and government institutions. These cyber operations not only enhance China's technological capabilities but also provide strategic intelligence that can be leveraged in diplomatic and military negotiations.

5.2. The Great Firewall and Digital Sovereignty

One of the key pillars of China's cyber strategy is its emphasis on digital sovereignty—the idea that a nation should have complete control over its own digital infrastructure and data. China's "Great Firewall," a sophisticated system of internet censorship and surveillance, is the most well-known manifestation of this approach. The firewall allows the Chinese government to control what information enters and leaves the country, creating a tightly controlled digital environment.

China's emphasis on digital sovereignty extends beyond its borders. Through initiatives like the Digital Silk Road, China is exporting its model of internet governance to developing countries. By providing these nations with telecommunications infrastructure, data centers, and surveillance technology, China is not only fostering economic ties but also promoting its vision of a controlled, state-centric internet. Countries that adopt Chinese digital infrastructure often become reliant on China for maintenance and technological support, deepening China's geopolitical influence (Feldstein, 2019).

5.3. 5G and Control of Global Digital Infrastructure

China's dominance in 5G technology is one of the most significant aspects of its digital strategy. Huawei, the Chinese telecommunications giant, has been at the forefront of the global race to develop and deploy 5G infrastructure. By 2020,

Huawei had established partnerships in over 170 countries and regions, providing 5G technology to major markets in Europe, Africa, and Asia (Triolo et al., 2019). This global reach gives China considerable influence over the next generation of digital infrastructure.

Control of 5G infrastructure is strategically important because it will underpin the digital economy of the future, enabling everything from autonomous vehicles to smart cities. Countries that rely on Huawei's 5G technology may become vulnerable to Chinese surveillance or influence. Concerns about Huawei's ties to the Chinese government have led to pushback from the United States and some European nations, which fear that Chinese control over 5G could pose a national security risk.

5.4. Artificial Intelligence (AI) and Digital Surveillance

China has also become a global leader in artificial intelligence (AI) and digital surveillance technologies. Chinese companies, backed by the government, have developed advanced AI-driven facial recognition systems and surveillance networks. These technologies have been deployed domestically for purposes such as law enforcement and social control, particularly in regions like Xinjiang (Mozur, 2019).

However, China's ambitions extend beyond its borders. Through the Belt and Road Initiative (BRI), China has exported its digital surveillance technology to developing countries, often as part of broader infrastructure deals. These systems, marketed as tools for maintaining public order and combating crime, have been adopted by governments in Africa, Latin America, and Southeast Asia. By exporting its surveillance technology, China is not only expanding its economic influence but also promoting a model of governance that prioritizes state control over digital spaces (Feldstein, 2019).

5.5 The Geopolitical Implications of China's Cyber Dominance

China's cyber capabilities and digital infrastructure projects have significant geopolitical implications. As more countries adopt Chinese technology and digital governance models, China's influence in global cyberspace grows. This is reshaping global power dynamics in several ways:

a. **Economic Influence:** Countries that rely on Chinese telecommunications and digital infrastructure may find themselves economically dependent on China, giving Beijing leverage in trade negotiations and diplomatic relations.

b. **Security Concerns:** The widespread adoption of Chinese 5G technology and surveillance systems raises concerns about national security. Western nations, particularly the United States, have expressed fears that Chinese technology could be used for espionage or cyberattacks (Segal, 2020).

c. Digital Sovereignty: By promoting the concept of digital sovereignty, China is challenging the open, decentralized model of the internet that has traditionally been championed by Western nations. This could lead to a more fragmented global internet, with countries adopting different governance models depending on their alignment with Chinese or Western values (Lindsay, 2020).

China's cyber capabilities and digital sovereignty initiatives are reshaping the global landscape of power. By investing in cybersecurity, developing cutting-edge technologies like 5G and AI, and exporting its digital infrastructure model to other countries, China is positioning itself as a dominant player in the digital age. As nations increasingly rely on digital infrastructure for their economic and security needs, China's control over these systems gives it significant leverage in global politics. Moving forward, China's ability to maintain and expand its influence in cyberspace will be a key determinant of its future role in the international order.

6. New Power Determinants and Future trends for Global Power Shift

In considering how new determinants of power could shape future global scenarios, China's rise exemplifies the profound changes occurring in international relations. As traditional determinants of power, such as military strength and economic might, are increasingly influenced by technological innovation, energy security, and environmental leadership, China's strategic focus on these emerging areas is likely to further solidify its global influence. Technological advancements, renewable energy investments, and climate change policies are now crucial components that will shape the country's future global standing.

Technological innovation is at the forefront of China's rise, particularly in areas like artificial intelligence (AI) and 5G infrastructure. China's significant investment in research and development has positioned it as a global leader in these sectors, allowing it to influence the international technology landscape. According to the World Economic Forum (2023), China's leadership in 5G and AI will not only secure its economic dominance but also give it a geopolitical advantage as other nations adopt these technologies. With companies like Huawei and ZTE expanding globally, China has effectively reshaped global telecommunications, creating dependencies that enhance its strategic leverage.

The shift towards renewable energy is another critical determinant in China's global strategy. As the largest producer of solar and wind energy, China is rapidly transitioning into a green economy, positioning itself as a leader in the global energy transition. The International Energy Agency (2021) reported that China accounted for over 30% of the world's solar capacity by 2021, marking a significant shift from its historical reliance on coal. These investments not only reduce China's carbon footprint but also strengthen its geopolitical influence by making it a key player in global climate initiatives and renewable technology exports (Buckley, 2021).

Climate change has become a central issue in global power dynamics, and China's approach to environmental leadership could further enhance its influence. As the effects of climate change become more pronounced, nations that lead the global response will gain diplomatic and economic power. China's efforts to promote green technology through its Belt and Road Initiative (BRI), particularly by financing renewable energy projects in developing countries, signal its intention to use environmental diplomacy as a tool to build alliances and increase its soft power (Feldstein, 2019). This strategic approach allows China to simultaneously address global challenges while expanding its sphere of influence.

China's digital sovereignty and cybersecurity strategies are also key to its future power. Through initiatives like the "Great Firewall," China has created a highly controlled digital environment that enhances its national security while exporting its model of internet governance to other nations (Lindsay, 2020). Moreover, China's leadership in developing cyber capabilities has allowed it to exert influence in cyberspace, positioning itself as a dominant player in both the global digital economy and information warfare. As cyberspace becomes a critical arena for global competition, China's advancements in this domain will be pivotal in shaping future global power structures (Segal, 2020).

Looking ahead, these new determinants—technology, energy, and environmental leadership—could create future scenarios where China is able to leverage its advancements to reshape its relations with other global powers. However, China's success will depend on how well it can navigate challenges like slowing economic growth and heightened geopolitical competition with the United States and its allies (ISAS, 2021). The future balance of power will hinge on how China integrates these new determinants into its global strategy while maintaining domestic stability and managing international tensions.

Conclusion:

The rise of China in the 21st century marks a significant shift in the global power dynamic, reshaping the traditional understanding of international relations. Historically, military strength and economic dominance were considered the primary determinants of power. However, China's ascent reveals the increasing relevance of new factors such as technological innovation, environmental leadership, and digital sovereignty. These emerging determinants not only enhance China's capacity to influence global affairs but also represent a broader transition in how power is accumulated and exerted in today's interconnected world.

Technological advancement, particularly in AI, 5G, and quantum computing, has allowed China to position itself as a technological leader, gaining strategic leverage over global markets and digital infrastructures. Additionally, China's leadership in green technology and renewable energy has enabled it to

influence global environmental policies, furthering its geopolitical objectives while addressing global sustainability concerns. This strategic focus on innovation and sustainability gives China a competitive edge in shaping future power dynamics.

Systemic approach helps explain how these new determinants of power are changing the structural conditions of the international system. The traditional unipolar dominance of the United States is increasingly challenged by China's ability to leverage its technological and environmental investments for strategic gain. These shifts indicate a move toward a more multipolar world order, where different forms of power—military, economic, technological, and environmental—coexist and interact in shaping global governance.

One of the key findings of this analysis is that while China still invests heavily in military and economic power, its success in emerging areas such as digital infrastructure, AI, and green energy highlights a nuanced understanding of modern influence. China's ability to blend traditional and new determinants of power suggests that future global competition will increasingly be shaped by the capacity to innovate, adapt to environmental challenges, and dominate digital spaces. This evolution of power dynamics suggests that the future of global leadership will be determined by who can most effectively harness these new tools of influence, rather than relying solely on military or economic superiority.

In conclusion, the rise of China signals a transformative moment in international relations, where new determinants of power, including technology, environment, and cyber capabilities, are becoming crucial to shaping global power structures. These factors, which transcend traditional forms of power, point to an evolving global landscape in which the capacity to lead in technological innovation, environmental stewardship, and digital sovereignty will define global influence in the coming decades. China's strategic investments in these areas demonstrate its adaptability and foresight, potentially solidifying its position as a dominant force in future international relations.

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