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TECHNOLOGICAL GEOPOLITICS: PERSPECTIVES FOR SINO-LATIN AMERICAN RELATIONS

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In recent years, the technological Sino-American rivalry has intensified, shaping new global alliances and economic strategies. This geopolitical contest is not merely about economic dominance but about securing technological leadership that can influence global power dynamics. For Latin America and the Caribbean (LAC), this emerging bipolar landscape presents a dual-edged sword: the potential for significant technological and economic development on one side, and the risks of strategic vulnerability on the other.

UNDERSTANDING CHINA'S PATH: FROM REFORM TO TECHNOLOGICAL LEADERSHIP²

China's development path has been a complex process, shaped by unique economic, political, and social factors, forging its own distinctive path. Throughout its long history, China has faced various challenges and opportunities that have influenced its modernization efforts. From overcoming foreign invasions and internal conflicts to implementing significant economic reforms in the late 20th century, China's journey reflects a blend of resilience and adaptation. These experiences have not only defined its growth but have also set it apart on the global stage.

The profound impact of Deng Xiaoping's vision and the pragmatic policies that followed cannot be overstated. Deng introduced economic reforms grounded in gradualism and the dual-track system, balancing state control with market mechanisms. It was not a smooth sail towards progress but rather an intricate dance of experimentation, progress, setbacks, and lateral moves. This nuanced approach has left an indelible mark on contemporary China, illustrating the resilience and adaptability embedded in its development philosophy.

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Opening the door to private enterprise was a significant milestone. Accession to the World Trade Organization (WTO) in 2001 marked its commitment to global economic integration, significantly boosting foreign trade and investment, and establishing the nation as a global manufacturing powerhouse. The success in achieving the goals set by the Four Modernizations—enhancing agricultural productivity, industrial prowess, national defense, and scientific and technological advancements—is evident today.

Thus, China's rise to becoming the world's second-largest economy can be attributed to the intricate interplay between its historical context and strategic foresight. The nation's pragmatic blend of socialist principles with market-oriented reforms, coupled with a strong emphasis on R&D and infrastructure development, has been instrumental in this ascendance. By drawing lessons from successes and setbacks, China has crafted a long-term vision that establishes its status as a global economic powerhouse.

Currently, China is poised to become the world's foremost technology superpower, with significant dominance across sectors. According to the Critical Technology Tracker by the Australian Strategic Policy Institute (ASPI), China leads in 37 out of 44 technologies including drones, machine learning, electric batteries, photovoltaics, quantum sensors, and critical minerals extraction. ASPI's findings indicate that its dominance is so profound that the top ten global research institutions in certain technologies are all based in China. This situation has alarmed developed nations, especially the United States, prompting an international effort to counter China's technological advancements and expansion into global markets.

UNDERSTANDING THE STAKES

The Thucydides' Trap, proposed by political scientist Graham Allison, can help us comprehend the escalating Sino-American technological competition. As China ascends economically and technologically, it challenges the United States' long-held dominance, creating a situation ripe for strategic rivalry. This dynamic reflects historical patterns where the dominant power feels threatened by a rising power, potentially leading to conflict.

Nowadays, technological leadership transcends economic growth, serving as a cornerstone for geopolitical leverage and shaping global alliances and power structures. Burrows, Mueller-Kaler, Oksanen, and Piironen in their article: *Unpacking the Geopolitics of Technology* highlight that in today's context, digital and technological advancements are paramount geopolitical concerns, especially with the second wave of systemic digital innovations poised to determine future global power dynamics.

This strategic rivalry and current developments between Biden's and Xi's administrations are heading toward a scenario of technological decoupling, marked by the separation of technological ecosystems to reduce interdependence between nations. We have witness

Washington's endeavors to limit Beijing's market leadership in 5G technology, commercial drones, and electric vehicles. The recent passage of a bill by the United States Congress that could potentially ban TikTok, along with President Biden's announcement of a 100% tariff on Chinese-made electric vehicles are perfect examples.

In response to this Sino-American context, China is developing its semiconductor industry to reduce dependency on Western technology. The persistence on this decoupling strategy is an indicator that both countries view technological independence not just as an economic goal, but as a critical component of its national security and sovereignty. However, for the rest of the world, their push for technological self-sufficiency comes at a significant global cost, creating a new cold war-like bipolarity.

NAVIGATING THE DUAL-EDGED SWORD

In this scenario, LAC countries must balance harnessing Chinese technology and investment benefits with mitigating risks of strategic vulnerability. The Belt and Road Initiative (BRI) offers significant investments that can modernize infrastructure, boost economic growth, and bridge technological and digital gaps. Chinese innovations often come at competitive prices, and access to financing from Beijing is valuable for LAC countries' development efforts. Partnerships with Chinese firms can enhance local expertise and facilitate technology transfer, fostering local innovation and capacity building.

However, associating closely with China necessitates navigating a complex geopolitical landscape, particularly given the strategic interests of Western powers in the region. This geopolitical balancing act could strain relationships with traditional allies and create new vulnerabilities. Technological decoupling complicates the scenario further.

LAC countries are facing pressure to align with one technological sphere over the other. This could lead to fragmented technology markets and increased costs of integrating systems from different blocs, forcing countries to make difficult choices with long-term economic, political and social implications. Moreover, it could limit access to future innovations and supply chains, stifling development and economic growth.

One can argue that innovation and technology drive humanity's progress and prosperity. Advances in fields like healthcare, communication, and energy have significantly improved quality of life, increased economic opportunities, and fostered global connectivity. Technological innovation enables sustainable development, enhances productivity, and opens new frontiers for scientific and social advancements, benefiting societies worldwide.

Thus, for LAC countries, this rivalry does not yield any potential benefits, au contraire, it underscores the need for developing nations to advocate for international cooperation and

multilateralism. Let's keep in mind that in Allison's study of Thucydides' Trap, among a sample of 16 historical cases of an emerging power rivaling a ruling power, 12 ended in war. To avoid the dangers of technological decoupling and geopolitical fragmentation, developing nations must advocate for balanced and peaceful solutions that support global governance efforts.

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