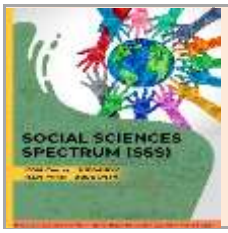

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US-China Technological Hegemony: Analyzing the Digital Colonialism in South Asia

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Abstract

The technology war between the United States and China marks a significant trend in the 21st century, characterized by intense strategic and economic rivalry. This competition is explored through the lens of U.S. technological hegemony and China's Digital Silk Road initiative in South-Eastern Asia. As two global superpowers, the United States and China present contrasting models—open, democratic digital platforms versus centralized infrastructure and rapid technological expansion. This paper delves into how South Asia can attract foreign investments while safeguarding its sovereignty. It highlights the implications of this rivalry on digital governance, economic growth, and regional collaboration. Furthermore, the study emphasizes the importance of developing resilient policies that promote local innovation and protect against external influences. However, this rivalry plays out against the context of other long standing global issues such as social and economic inequality, environmental degradation and political instability. These ongoing issues affect the lives of people worldwide and thus add a layer of complexity to technological and geopolitical dynamics. Therefore, when navigating the U.S.-China tech war, South Asian nations have to make sure they are attracting investments without having to foster sovereignty and also address the other global challenges.

Keywords: US-China Rivalry, Technological Hegemony, Digital Silk Road, Digital Colonialism, Data Sovereignty.

Introduction

Welcome to the 21st century, where the tech race is the new space race, and the rivalry between the U.S. and China is as good as any Hollywood movie. However, instead of Avengers and Thanos, we have nations fighting for data, digital infrastructure, and who will be the ultimate ruler of the internet. And South Asia? It is just in the middle of this digital pullback.

Then what is going on here? China's 'Digital Silk Road' is trying to be the ultimate controller of the tech world or at least the emerging part of it. They are laying down fibers, telecom networks, and smart cities and saying, "Look, we are here to assist!" However, critics have described it as 'digital authoritarianism' where China is spreading its surveillance technology and centralized governance (Heeks, R., Ospina, A. V., Foster, C., Gao, P., Han, X., Jepson, N., Schindler, S., & Zhou, Q., 2024). On the other hand, the U. S is still the king of software and platforms, trying to keep everything open and democratic, or at least that is what they try to portray. However, let us not forget the fact that they are also after power. These technologies are transforming global power structures, making South Asia a strategic enabler and consumer in this rivalry.

History in a Nutshell

Irony would likely enjoy playing games in geopolitics if irony had a favorite pastime. In politics, the truth rarely seems to be what it seems, and the U.S.-China rivalry is the perfect example. At one time, Washington figured Beijing was a reliable factory—low-cost labor, pumping out cheap goods and filling the shelves of Walmart quickly. The plan seemed flawless. However, here is the twist: smartphones, China, didn't also just design grow—it leveled microchips up. The power country them is not and just is producing, currently leading the global semiconductor patent race by a mile. That is called protégé surpassing the master.

The U.S.'s response? A pivot from "let us work together" to "let us shut them down." Initiatives like the Clean Network and the Huawei ban scream containment as Washington scrambles to clip Beijing's technological wings. However, China's reaction was the geopolitical equivalent of shrugging and saying, "Fine, we'll build our playground." Moreover, they build it. With 55% of global semiconductor patents in 2022 and a six-fold increase in design firms over the past decade, China has turned its constraints into a Launchpad. The irony here? Every move to contain China seems to spur its innovation even further. Things like the U. S. Clean Network initiative and the banning of Huawei are part of that strategy (Zhao, 2023). Also, China's response is, Fine, we will do it our way! They are doing it in a big way—China's advancements in critical technologies like semiconductors. For instance, in 2022, Chinese entities accounted for 55% of global semiconductor patent applications, more than double that of American applicants. (ITIF, 2024) Additionally, the number of semiconductor design firms in China increased nearly six fold from 2010 to 2022, from 582 to 3,243. (Cybernews, 2024) These developments underscore China's commitment to becoming a leader in the semiconductor industry. South.
In the meantime, South Asia has waltzed into this rivalry like an unwelcome guest who has suddenly become the life of the party. The region is now the focus of contention between the US and future China for South control of Asia in its digital market. Two superpowers are giants to influence, vying for the technological attention of a single date, each attempting to outdo the other in providing infrastructure, software, and economic growth.

However, here is the real kicker: This rivalry is not simply a story of two superpowers; it is a story of unintended consequences. The United States may have wanted a subservient trading partner but found a rival innovator instead. China has responded to every challenge with a determination to

succeed. South Asia is caught in the middle but has a unique position and policy power. If it plays unpredictability, it's of cards progressing correctly.
This and Its story is ironic, not a lesson, just underestimating that about one's in semiconductors competition. Geopolitics and plans are rarely foolproof, and the underdog is often the trailblazer.

Why South Asia Matters

Now, South Asia is where things get spicy. This is not just about geography (it is strategically located) but also about numbers, significant populations, growing economies, and enormous potential. But here's the catch: These countries are trying to play much nicer on either side.

- same For time instance, not India, being that has close ties with the U.S. through the Quad, has focused on cybersecurity and monitoring China while forgetting that China is still investing in India's tech sector (Heeks, R., Ospina, A. V., Foster, C., Gao, P., Han, X., Jepson, N., Schindler, S., & Zhou, Q., 2024).
- Then there is Pakistan, China's vassal thanks to the Belt and Road Initiative, particularly the Digital Silk Road. But hey, they are getting fiber optics and smart cities out of the deal, although China may have a little too much say on things (Andrew B. Kennedy, 2018).
- Bangladesh is the most relaxed of the siblings, trying to get the best deal from both sides. They receive funds from both superpowers to avoid being drawn into their conflict (Heeks, R., Ospina, A. V., Foster, C., Gao, P., Han, X., Jepson, N., Schindler, S., & Zhou, Q., 2024).

South Asia isn't some country - it has to work hard, and sometimes beg to chill – and can wait just around; it's gotta hustle hard because it's situated between the U.S. and China, and that demands attention. Whether it's fiber optic cables or AI-powered devices, the region is bright, using the tech war between the two powers to accelerate its digital development. If this were poker, South Asia would be the wildcard player, making moves that keep the U.S. and China guessing. But this is a tricky balancing act of teamwork and a pinch of caution, which shows the region is finally developing its own digital future.

The Tech Tug-of-War

You should know that technology is no longer about devices and daily application activities. People are used to knowing who is going to be the owner of the future. The U. S. wants to continue to be number one, and China wants to prove that it can outperform the U. S. And South Asia. It is like the prize that both of them are striving to get.

It becomes a problem for South Asian countries to determine how to take advantage of the positive aspects, such as investments and infrastructure, without giving away too much power. It's a fine line, but they could come out on top if they play their cards right.

Accepting investments from either side can mean immediate infrastructure, digital capacity, and economic growth gains. However, the long-term costs, such as ceding data control or becoming overly reliant on a single power, loom large. For instance, Pakistan's deep entanglement with China through the Belt and Road Initiative's Digital Silk Road has brought significant advancements in fiber optics and smart grids but at the potential cost of eroding its digital independence (Zulkifli, 2023). Meanwhile, wary of such risks, India actively engages with both the U.S. and China, making calculated moves to bolster its tech ecosystem while resisting undue influence (Andrew B. Kennedy, 2018).

What's Next

This paper examines the impact of this tech rivalry on South Asia, focusing on how the conflict affects infrastructure, data, and sovereignty. In the following pages, we shall look at how these countries manage the confusion and what they need to do to ensure they are well-balanced. The future hinges on whether South Asian nations can turn this high-stakes rivalry into their golden ticket—grabbing investments and expertise from both tech titans while slyly keeping their digital sovereignty intact. It's like hosting a dinner where both guests bring lavish dishes, but you make sure you don't wash their plates afterward. The challenge? Balancing on the tightrope of opportunity without falling into the nets of dependency.

Framing the Rivalry with Theoretical Lenses

Let's look at theories that can help explain all this mayhem; first is the Balance of Power theory. Consider it a seesaw – if one side of the scale gets too heavy, the other side has to become heavier to balance it out. China's massive investments in the South Asian digital infrastructure are like a huge pile of bricks placed on one side. They have the Digital Silk Road, where they are developing 5G networks and smart cities, and they do not hesitate to use it to advance their agenda (Heeks, R., Ospina, A. V., Foster, C., Gao, P., Han, X., Jepson, N., Schindler, S., & Zhou, Q., 2024). On the other hand, the U. S. and its partners, including India through the Quad, are coming up with cybersecurity collaborations while trying to contain what it terms as 'digital authoritarianism.' Thus, South Asia becomes a balancing act with countries attempting to balance between the two and not fall off.

But wait—there's more. Here comes the Balance of Threat theory. This one concern not just power but also how scary that power looks. For example, India may consider China's huge tech investments a threat to its sovereignty even if it reaps economic gains. On the other hand, Pakistan seems to be leaning toward China as the former's strategic partner, even though the latter's dependence could one day backfire.

These theories are not mere theories; they are the spectacles through which the drama of the U.S. and China's engagement with India's ITES-BPO in South Asia is coming into view. It explains why India is building a strong security relationship with the U.S. while at the same time engaging Chinese investments. This is happening in Pakistan, which is entering wholeheartedly into the Digital Silk Road. However, this may put China in a position where it has too much power over some issues.

What these theories fail to capture is the human aspect of events. This is because, behind every strategic decision made, there are leaders who are, at the same time, managing risk, public opinion, and the weight of history. The South Asia paradigm is not just a question of strategy but also of appearance. It is not just a tightrope walk of power and dynamics but a domestic and international performance where every step is under the limelight. Balancing power and threats is one thing, but appearance is quite another.

What is pleasing about these theoretical analyses is how they cut through the complexity and provide clarity in a confusing world. However, it is a gentle reminder that, after all, theories do not give complete answers. They frame the picture, but they cannot paint every brush stroke. The real story of the U.S.-China tech rivalry in South Asia is not static; it is alive and ever-changing. These power plays, nations here are not only reacting to but also defining what power means in the algorithm- and infrastructure-driven world. Theories provide the tools to understand the dynamics, but these nations' messy and very real reality fills in the gaps, often in ways that no model could ever have predicted.

The Tech Tug-of-War

The tech tug-of-war is not just a competition but a full-scale geopolitical chess match, with South Asia as the board on which the US and China are making their moves. To the US, this is a matter of defending the crown in software and platforms while proclaiming democracy and openness. To China, it is a strategic move to control hardware and digital infrastructure by advocating efficiency and growth. South Asia has a follow-the-leader-learn game; it's about sovereignty, and the game is overused without becoming a pawn.

This isn't received, brings investments, awards fiber for optic, most cables are valuable, and players other at things like this but circus. It brings Pakistan the danger of hugging China tightly calling by China. Shots. Beijing On the flip side, India's dependence on U.S-based cloud providers has an ironic twist: digital sovereignty has been compromised in the name of a partnership. It's as if you are building your own borrowed house, and your neighbors have tools, too – they are helpful, but you have to return them at some point. The block unintended side of the South effect is Asia's economic integration; however, the integration is uneven. This process rivalry is not coherent. Chinese formation dollars are hard at work on the hardware side: hand, fiber, optic U.S. cables, mobile, the power of the network, and other tangible digital things, such as software, different platforms, and increasing clouds. The double presence attracts investment but complicates policy, perception, and much else. How do you choose between the building hand and the programming hand, which both try to take over?

Sovereignty is the most often used term and the first casualty in the race for digital dominance. South Asian countries have been witnessing high growth rates and have attracted massive FDI, but they are now coming to terms with the consequences of excessive reliance on foreign technologies. For instance, Pakistan's close alliance with China limits its options for building relations with other companies in the digital field, effectively subordinating Pakistan's tech sphere to Beijing's preferences (Zulkifli, 2023).

Similarly, the relationship between U.S. cloud providers and India raises concerns about policy sovereignty, as most of the digital economy is now under the rules of another nation. The ability to govern one's digital infrastructure is becoming an essential parameter of sovereignty in this new era. This dual approach means that the South Asian nations have to engage with both superpowers, which leads to the creation of a rather complex structure. Although integration enhances economic development, it also complicates policymaking since the countries have to deal with conflicting interests. The effects of the U.S.-China tech competition on South Asia are vast, but they are not inconsequential; it is not inevitable. It is not a very simple task region as it has. Here are many options and recommendations that could help: less dependence on local tech, less dependence on global powers, and the search for a better deal. It is time for South Asia to no longer be the playground and be the player. The question of the hour is whether South Asia can rise to this challenge or will simply have its future digital strategy defined by others.

Policy implications of the U. S. – China tech rivalry in South Asia

The technological competition between the two global powers is having a significant impact on South Asian countries. It is crucial for these countries to make the right policy decisions in order to protect their national interests while at the same time promoting economic growth. Let's explore the existing policies, the recent developments, and possible strategies for the region.

India's Regulatory Approach

India has been proactive in regulating foreign tech companies to assert its digital sovereignty. Since 2021, the government has implemented stricter rules, including criminal liability for social media executives, compelling compliance from platforms like Twitter. Additionally, India is overhauling existing IT laws and introducing new legislation, such as the Digital India Act and a digital antitrust bill, aiming to balance regulation with consumer protection. (Times, 2024).

China's Strategic Investments

China continues to expand its influence in South Asia through strategic investments in digital infrastructure. For instance, Chinese companies are involved in undersea cable projects, enhancing regional connectivity and raising concerns about data security and geopolitical leverage. (Wire, 2024).

U. S. Cybersecurity Strategies

The United States has updated its International Cyberspace & Digital Policy Strategy, identifying China as a significant cyber threat. This strategy emphasizes the application of mutual defense treaties in cyberspace, challenging China's vision of digital sovereignty and advocating for a free and open internet. (Diplomat, 2024).

Recommendations of Policy and Personal Insights

1. Strengthening Digital Sovereignty

It is, therefore, important for South Asian nations to develop their own strong domestic digital infrastructures so as to minimize dependence on foreign technologies. These include supporting the growth of local data centers, encouraging indigenous tech start-ups, and the formulation of cybersecurity policies. Thus, while engaging with the global tech giants, it is important not to rely on them fully as this creates vulnerabilities. In this way, it is necessary to maintain the balance in the digital sphere to preserve the sovereignty of the state.

2. Enhancing Regional Cooperation

Current Landscape: The tech rivalry has led to economic fragmentation, with countries like Pakistan leaning toward Chinese investments while others, such as India, engage with both superpowers (LSE, 2023). Cooperation in the region can be an effective response to the pressures of the STC-U. S. China tech rivalry. Thus, a regional approach can help South Asia to increase its power at the international level during negotiations. Collaboration through SAARC and other regional platforms can help South Asian countries negotiate better terms with both superpowers and ensure collective digital security (LSE, 2023).

India's Technological Partnerships

- U.S.-India Initiative on Critical and Emerging Technology (iCET): Launched in May 2022, the iCET aims to elevate and expand the strategic technology partnership and defense industrial cooperation between the governments, businesses, and academic institutions of the two countries. This initiative focuses on areas such as artificial intelligence, quantum computing, and advanced wireless technologies. (White House)
- Defense Acceleration Ecosystem (INDUS-X): In June 2023, India and the United States launched the INDUS-X to expand the strategic technology partnership and foster defense-industrial cooperation. This initiative seeks to foster cooperation between the Indian and American defense innovation ecosystems, including governments, defense firms, academic and

research institutions, technology incubators, investors, and industry associations. (Carnegie Endowment).

The Untapped Potential of Pakistan in the Tech and Digital Race

Pakistan stands at the threshold of immense opportunity in the ongoing global tech and digital race, primarily driven by the rivalry between the U.S. and China. While the country has yet to establish itself as a dominant player in technology production and digital innovation, the groundwork is being laid through national policies and international collaborations. The recently unveiled Pakistan Digital Policy 2021-2025 (Technology, 2021) emphasizes enhancing digital infrastructure, fostering tech entrepreneurship, and creating skilled human capital. With strategic focus and global cooperation, Pakistan has the potential to emerge as a vital player in this global race.

A Human Capital Powerhouse

One of Pakistan's most significant advantages is its surplus of human capital. Approximately 25,000 engineers graduate annually from Pakistani universities, and with targeted training programs, this workforce could become a crucial resource in the tech and digital industries (UNESCO, 2022). Imagine leveraging this talent to develop software solutions, artificial intelligence (AI) capabilities, and cybersecurity expertise that cater not only to domestic needs but also to global markets.

However, the current lack of alignment between educational outcomes and market needs presents a significant challenge. Bridging this gap will require collaboration between the government, academia, and the private sector to design programs that foster innovation, entrepreneurship, and digital skills. By doing so, Pakistan could transition from being a consumer of imported technology to a contributor to the global tech landscape.

Opportunities in Digital Infrastructure

Pakistan's collaboration with China under the Digital Silk Road (DSR) initiative is a critical component of its tech ambitions. Projects like fiber optic networks, smart city development, and e-governance systems are gradually transforming the country's digital landscape (Heeks, R., Ospina, A. V., Foster, C., Gao, P., Han, X., Jepson, N., Schindler, S., & Zhou, Q., 2024). For instance, the Pakistan-China Fiber Optic Cable Project has enhanced connectivity across regions, creating a backbone for future digital endeavors (Dawn, 2023).

Yet, while these collaborations bring technological advancements, they also highlight the need for robust data privacy and regulatory frameworks. Strengthening domestic digital governance will be crucial for ensuring that Pakistan maintains sovereignty over its digital ecosystem while benefiting from foreign partnerships.

Tech Entrepreneurship and Startups

In recent years, Pakistan's tech startup ecosystem has shown promise. With over $350 million in venture capital investment in 2021 alone, startups in fintech, e-commerce, and health tech are driving innovation (Report, 2022) However, much more needs to be done to scale these successes. Innovation hubs and incubators, like National Incubation Centers, have laid the groundwork, but expanding their reach and resources is essential for fostering a culture of entrepreneurship that can compete on a global scale.

The Role of Diaspora and International Collaboration

Pakistan's diaspora in the tech industry, particularly in the U.S. and Europe, offers a unique opportunity to bring expertise and investment back home. Initiatives like Digital Pakistan Vision could be expanded to engage these professionals, creating mentorship programs and investment platforms to accelerate local innovation.

Similarly, partnerships with global tech companies can help bridge resource gaps. For example, Pakistan has collaborated with Google for digital skills training under the Grow with Google program, aiming to train thousands of individuals in critical digital skills (Pakistan, 2023). Expanding such partnerships with both U.S. and Chinese tech giants could further Pakistan's tech capabilities.

China-Pakistan Agreements:

In October 2024, Pakistan and China signed 13 agreements to enhance cooperation across various sectors, including security, education, agriculture, human resource development, and science and technology. These agreements were finalized following delegation-level talks between Prime Minister Shehbaz Sharif and Chinese Premier Li Qiang, underscoring the deepening ties between the two nations. (Insight, 2024).

Internet Connectivity Hub: In January 2024, Pakistan entered into a strategic agreement with China to route its internet traffic through the country, positioning itself as a regional hub for connectivity. This move aims to enhance Pakistan's digital infrastructure and strengthen its role in regional internet connectivity. (Today, 2024).

A Balancing Act in the Global Tech Race

The U.S.-China rivalry is both an opportunity and a challenge for Pakistan. On the one hand, the Digital Silk Road, China's investments, drive digital transformation through infrastructure and funding. On the other hand, collaborations with U.S. tech companies bring innovation and advanced software solutions. The key is to find a balance between the two powers' strengths without over-dependence on either.

Pakistani technology and digital progress are marathons, not sprints. Vision, resilience, and strategic planning are needed. The government should focus on developing a robust policy framework that fosters innovation, protects digital sovereignty, and attracts foreign investment. The private sector needs to develop not only emerging technologies but also research and development and the workforce.

Pakistan's potential has been such that the country is at a crossroads. The decisions that are being made in education, infrastructure, or diplomacy are going to determine its position in the global digital economy. With innovation, resource alignment, and international collaboration, Pakistan can move from being a follower in the tech race to being a leader, occupying a significant place in the digital global order.

Bangladesh's Digital Leap: Unlocking Tech Opportunities

Even though it has not yet captured the headlines as a dominant tech powerhouse, its youthful energy makes it a country to watch despite being overshadowed by its bigger neighbors. The nation is preparing to move out of its 'emerging market' label with the Smart Bangladesh Vision 2041, a follow-up to Digital Bangladesh. The underdog in the digital Olympics: scrappy, ambitious, and ready to prove everyone wrong.

A Growing Tech Workforce

Bangladesh's secret weapon? Its people. With over 47% of its population under the age of 25 (Bank, 2021), it's sitting on a goldmine of youthful energy and talent. Every year, tens of thousands of IT and engineering graduates join the workforce, eager to dive into the digital economy. Programs like She Power, designed to empower women in ICT, and partnerships with global firms for tech training are beginning to harness this potential.

But here's the rub: many of these graduates are learning skills that will be outdated by the time they finish their degrees. The skills gap is a glaring issue that requires an overhaul of the education system and better coordination with the private sector. Fixing this could turn Bangladesh into a tech outsourcing giant, rivaling its more prominent, louder neighbor, India. Who doesn't love a good sibling rivalry?

Opportunities in Digital Infrastructure

When it comes to digital infrastructure, Bangladesh is playing the long game. Partnering with China under the Digital Silk Road, the country is rolling out broadband in rural areas and building smart cities. The Bangladesh-China Digital Connectivity Partnership is one such initiative that aims to bridge the digital divide and ensure that even remote regions are wired for the future (Bangladesh Chronicle, 2023).

On the other hand, U.S. tech companies are exploring the Bangladeshi market and are investing in cloud computing and cybersecurity. This balancing of the relationships is not just a diplomatic challenge; it's an art form. Who wouldn't want the best of both worlds?

Tech Startups and Innovation Hubs

The startup scene in Bangladesh is heating up, and not just because of the weather. With Startup Bangladesh Limited, a $65 million venture capital fund, the government is betting big on innovation. Their goal? A $1 billion startup economy by 2025 (Startup Bangladesh, 2023). Ambitious? Yes. Unrealistic? Not if the current momentum keeps up. Places like the Bangabandhu Hi-Tech City and Sylhet IT Park give startups the space and resources to grow, attracting international collaborations and fostering innovation. The focus is on emerging technologies like AI, robotics, and big data analytics, so why play catch-up when you can leapfrog?

Harnessing the Diaspora

If you think the Bangladeshi tech story stops at its borders, think again. The diaspora, particularly in the U.S. and Europe, represents a brain trust the country hasn't fully tapped into yet. Initiatives like Bangladesh Open-Source Network (BdOSN) aim to connect these professionals with opportunities back home, but the scale of these efforts needs to grow. After all, who better to help shape the country's tech future than those who've already succeeded in global markets?

A Balancing Act in the Global Tech Race

Bangladesh is in an interesting position between the U.S. and China. As Chinese investments build their infrastructure, U.S. tech companies offer the expertise they need for the long haul. Balancing these relationships without entering the two camps' geopolitical webs will require diplomacy and careful planning. It is like being at an evening dinner where two guests are trying to grab your attention; you smile, nod, and pick the best pieces without it becoming awkward.

The Road Ahead

Bangladesh is not going to be the new China with its dominance of technology nor the new India with its reputation for software. But what Bangladesh has in abundance is something as potent as all that: potential. The choices it makes now in education, infrastructure, or international partnerships will determine its place in the global digital economy. And if there is one thing Bangladesh has proven itself at, it's how to punch above its weight.

The process of becoming a tech and digital leader will not be without its bumps, but Bangladesh is no stranger to facing obstacles head-on. With its ambitious goals, youthful workforce, and strategic partnerships, it's only a matter of time before it ceases to be the underdog and emerges as a contender. When it does, you can be sure it will do so with its characteristic grit and ambition.

3. Implementing Comprehensive Data Protection Laws

Recent Developments in South Asia:

- India's Digital Personal Data Protection Act: In August 2023, India enacted the Digital Personal Data Protection Act 2023, marking a significant milestone in establishing a comprehensive framework for data protection in the country. (MeitY).
- Pakistan's Personal Data Protection Bill: In 2023, Pakistan introduced the Personal Data Protection Bill, leading to the establishment of the National Commission for Personal Data Protection (NCPDP). The Commission is responsible for monitoring data processing activities and protecting individuals' privacy rights. (Ministry of IT and Telecom).

It is, hence, essential to put in place proper data protection laws to protect the citizens' privacy and the nation's security. Best practices in data collection, storage, and sharing can avoid misuse by external players. Also, such policies help to ensure transparency, which may repel improper foreign investments that may be of security concern while accepting the right ones.

Implications for Foreign Investment:

Robust data protection laws can influence foreign investment in several ways:

Attracting Responsible Investors: Clear and enforceable data protection regulations provide a secure environment for businesses, attracting investors who prioritize data security and compliance.

Deterring Non-Compliant Entities: Stringent data protection measures may discourage foreign entities unwilling to adhere to local data privacy standards, thereby protecting national security interests.

Enhancing Economic Growth: Effective data protection frameworks can support the growth of innovative sectors, such as AI and fintech, contributing to economic development. (The Hacker News).

4. Promoting Technological Innovation and Education

Investment in education and research is a way of making South Asia move from being a technology consumer to a producer of technology. Supporting STEM education, funding research and development, and developing innovation hubs may lead to technological advancement within the country. This shift can decrease the dependence on foreign technology and place the region in the competitive the market of global technology.

Currently, South Asia's spending on R&D as a percentage of GDP is dismally low compared to global leaders like the U.S., China, or even smaller nations such as Israel. For example, despite being the region's largest economy, India spends less than 1% of its GDP on R&D, lagging far behind China's 2.4% or Israel's 4.9% (Bank, 2021). Without substantial investment in R&D, South Asia will remain a follower in technology, reliant on importing foreign innovations rather than creating indigenous solutions.

Innovation hubs and incubators offer another promising avenue. While some progress has been made, such as India's Bengaluru being a global IT hub, the establishment of 25 Technology Innovation Hubs (TIHs) under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) aims to boost emerging technologies across various sectors. (Department of Science & Technology, 2022) Similarly, Bangladesh is making strides with its Hi-Tech Parks, which focus on fostering innovation and technological advancement, aligning with the nation's Industry 4.0 and Smart Bangladesh initiatives. (Xpress, 2024).

5. Navigating Geopolitical Neutrality

It is not very difficult to find out that neutrality in the U.S. China tech competition is beneficial for anyone. The South Asian countries are in a position to gain from the two powers by not aligning with one power structure. However, this needs a good diplomatic strategy so that one does not offend the other. However, this strategy comes with its challenges. This requires sharp diplomacy and constant vigilance in order to maintain this balance and a clear vision of what each nation wants to achieve. The tricky part is keeping citizens happy while ensuring foreign powers don't start calling the shots behind the scenes. It's a high-wire act that demands not just courage but also creativity.

Conclusion: South Asia's Balancing Act in the Tech Rivalry

It isn't just another geopolitical drama—it's the ultimate showdown of our digital age: The U.S.-China tech rivalry. And South Asia? It's not a helpless bystander; it's a region with immense potential to reshape the game, caught in the middle. While the tech giants tussle for dominance, South Asia holds a wildcard, juggling opportunities and risks like a high-wire act in a digital circus.

The region has the daunting task of ensuring data sovereignty when riding the waves of foreign investments. It's a bit like accepting gifts from two feuding relatives: the gifts are generous, but the strings attached could tie you in knots. Data privacy, cybersecurity, and digital governance are no longer luxuries; they are lifelines. South Asia needs to build its defenses without slamming the door on innovation and collaboration. Easier said than done, right?

But here's the kicker: South Asia isn't just trying to survive this rivalry; it's figuring out how to thrive in it. China brings the hardware, laying down fiber optics and smart city infrastructure like it's spreading pixie dust. At the same time, the U.S. offers its software and platforms, promising democracy and freedom of the cloud. The challenge for South Asia? Take the best from both without becoming a colony of either's digital. It's like walking on a tightrope juggling flaming swords—not impossible, but definitely not for the faint of heart.

The real irony is that this rivalry has brought South Asia into the limelight. For years, the region has been seen as a region of untapped potential. Now, while the tech superpowers of the world fight over influence, South Asia can chart its digital future. This isn't merely a matter of policy grandiosity; it's also a matter of give and subcontinent take. The perfecting South Asian art of the deal to leverage demographic, entrepreneurial, and locational advantages in this competitive sparring match.

It's also important to remember the human side of this story. Every tech investment or policy decision is made by leaders trying to manage public opinion, historical baggage, and the need to keep their economies running. It is a juggling act, and one misstep could tip the balance. But isn't that what makes South Asia's journey so fascinating? It's messy, unpredictable, and full of contradictions, but it's also full of promise.

America and China may be heavyweight contenders in this tech rivalry, but South Asia is both the prize and the referee strategist and may even be a surprise winner. The future isn't in stone or silicon; it's there to be shaped by those with the vision to think big and act boldly. South Asia has the tools, the talent, and the wit not only to play the game but to write new rules. And as the world watches, one thing is sure: This region isn't just surviving the digital revolution; it's about to define it.

References

Heeks, R., Ospina, A. V., Foster, C., Gao, P., Han, X., Jepson, N., Schindler, S., & Zhou, Q. (2024). China's digital expansion in the Global South: Systematic literature review and future research agenda. The Information *Society*, *40*(2), 69–95. https://doi.org/10.1080/01972243.2024.2315875.

Rashid, W. (2022). US-China competition: Implications for South Asian security. Master's Thesis, Air University, Islamabad.

Saunders, P. C., & Bowie, J. G. (2016). US-China military relations: Competition and cooperation. *Journal of Strategic Studies*, *39*(5-6), 662–684. https://doi.org/10.1080/01402390.2016.1221818

Tellis, A. J., Szalwinski, A., & Wills, M. (2020). The return of US-China strategic competition. Strategic Asia. Retrieved from https://policycommons.net/artifacts/433859/strategic-asia-2020/.

Zhao, M. (2023). Digital Sovereignty in South Asia: Balancing China's Digital Silk Road and U.S. Tech Influence. *Asian Affairs Review*, *28*(3), 14-32.

Keyser, J. (2020). Geopolitics of digital infrastructure: Undersea cables, data sovereignty, and power dynamics. Policy Brief, Center for Strategic Studies.

Linchuan, J. Q. (2023). The return of billiard balls? US-China tech war and China's state-directed digital capitalism. Javnost - *The Public*, *30*(2), 197-217. https://doi.org/10.1080/13183222.2023.2200695

LSE (2023). Regional cooperation as a response to U.S.-China tech rivalry in South Asia. London School of Economics Policy Paper.

Zulkifli, F., Ahmad, N., & Rashid, H. (2023). U.S.-China rivalry in South Asia: Digital connectivity, sovereignty, and security concerns. *International Journal of Policy and Strategy*, *15*(1), 48-66.

The Diplomat. (2024). ASEAN should watch the China-U.S. cyber competition more closely. The Diplomat. Retrieved from https://thediplomat.com/2024/05/asean-should-watch-the-china-us-cyber-competition-more-closely.

Financial Times. (2024). India will overhaul IT laws to regulate digital platforms. Financial Times. Retrieved from https://www.ft.com/content/3400d1d3-7fce-4932-b4d3-17a98323f3df.

Policy-Wire. (2024). U.S.-China tech rivalry in undersea cables: Security and sovereignty issues. Policy-Wire. Retrieved from https://policy-wire.com/us-china-tech-rivalry-undersea-cables.

The Diplomat. (2024). U.S. cybersecurity strategies in response to China's digital expansion. The Diplomat. Retrieved from https://thediplomat.com/2024/05/us-cybersecurity-strategies-in-response-to-chinas-digital-expansion.

Andrew B. Kennedy, Darren J. Lim, The innovation imperative: technology and US-China rivalry in the twenty-first century, International *Affairs*, Volume 94, Issue 3, May 2018, Pages 553–572,

Le Monde. (2024, September 8). India was challenged by China in its sphere of influence. Retrieved from https://www.lemonde.fr/en/opinion/article/2024/09/08/india-challenged-by-china-in-its-sphere-of-influence_6725225_23.html.

The Diplomatic Insight. (2024). Pakistan and China sign 13 agreements to deepen cooperation across various sectors. Retrieved from https://thediplomaticinsight.com/pakistan-china-sign-13-agreements-to-deepen-cooperation/.

Pakistan Today. (2024). Pakistan signed an agreement with China to become a regional internet connectivity hub. Retrieved from https://www.pakistantoday.com.pk/2024/01/30/pakistan-signs-agreement-with-china-to-become-regional-internet-connectivity-hub/.

Ministry of Information Technology & Telecommunication, Government of Pakistan. (2021). Promoting Digital Transformation. Retrieved from (Ministry of IT and Telecom).

Dawn. (2023). Pakistan-China Fiber Optic Cable Project inaugurated. Retrieved from https://www.dawn.com/news/fiber-optic-project

UNESCO. (2022). Engineering education in South Asia. Retrieved from https://www.unesco.org/engineering/south-asia.

Pakistan Startup Ecosystem Report. (2022). Invest2Innovate Report on VC Funding Trends in Pakistan. Retrieved from https://www.invest2innovate.com/report.

Google Pakistan. (2023). Grow with Google Program: Empowering digital skills. Retrieved from https://www.google.com/pk/digital-skills.

Bangladesh Chronicle. (2023). Bangladesh-China Digital Connectivity Partnership: Accelerating Development. Retrieved from https://www.bangladeshchronicle.net/digital-connectivity/

Startup Bangladesh. (2023). Driving Innovation Through Startup Bangladesh Limited. Retrieved from https://startupbangladesh.vc

World Bank. (2022). Bangladesh Population Data and Youth Demographics. Retrieved from https://data.worldbank.org/country/bangladesh.

Lee, K. F. (2018). *AI Superpowers: China, Silicon Valley, and the New World Order*. Houghton Mifflin Harcourt. Source: https://aisuperpowers.com/ *Note*: This book by Kai-Fu Lee explores the AI landscape, focusing on the competition between China and the U.S.

South Asia and the US-China Tech Competition. (2023). *South Asia @ LSE.*

Source:https://blogs.lse.ac.uk/southasia/2023/04/17/south-asia-and-the-us-china-tech-competition/ *Note*: This article discusses regional.