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The Trade War Between China And The USA And The Geopolitical Impacts Of The 5G

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Abstract:
Background*: The trade war between the United States and China, particularly concerning the 5G technology dispute, has profound economic and geopolitical implications. The economic transformation of China and its emergence as a technological innovator are crucial contexts. The development of 5G technology, with Huawei at its center, highlights technical, economic, and security concerns, with the United States blocking Huawei over espionage and unfair trade practices.*
Materials and Methods*: This cross-sectional observational study, complemented by a comprehensive literature review, sources data from repositories such as JSTOR and ScienceDirect. Gadamer's hermeneutic methodology and Braudel's historical methods were applied alongside comparative approaches and case studies to evaluate public policies and cybersecurity strategies.*
Results*: The findings indicate that the 5G dispute is an extension of economic and military rivalries, significantly impacting national security and the global economy. Concerns about espionage and cybersecurity drive the preference for national or allied technologies. These results corroborate previous studies on the role of information technologies in geopolitics, adding new nuances to US-China rivalries and highlighting that control over 5G networks could define future economic and military leadership.*
Conclusion: *The study concludes that 5G technology transcends its technical and economic implications, deeply influencing national security and technological sovereignty. It provides valuable insights for public policy and cybersecurity strategy formulation, recommending national investments in technology and strategic alliances to reduce foreign dependence. Future research should focus on longitudinal data to evaluate long-term impacts and the integration of 5G with emerging technologies.*
Key Word*: Trade war, 5G technology, United States, China, geopolitical impacts, national security, technological sovereignty, Huawei, economic implications.*

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I. Introduction

The trade war between the United States and China, formally initiated in March 2018 by then-President Donald Trump, is one of the most debated topics in recent years due to its profound economic and geopolitical implications. This conflict began with the announcement of increased tariffs on Chinese products, initially imposing tariffs on $50 billion worth of Chinese goods to encourage the purchase of American-made products and make Chinese products less competitive 1. China's response, which included imposing tariffs on American products, escalated the economic tension to new levels 2.

To understand this trade war, it is crucial to consider China's economic transformation over the past decades. Since Deng Xiaoping's reforms, the country has experienced unprecedented economic growth, attracting global industries with its cheap and abundant labor force. The "Made in China" strategy evolved into "Developed in China," with heavy investments in education, technology, and infrastructure, resulting in cities with high levels

of technological development comparable to urban centers like Tokyo and New York 3. Recently, China has emerged not only as a major producer but also as a technological innovator.

Communication technology, especially the development of 5G, has become a central element in the global power struggle, involving technical, economic, and geopolitical issues. Huawei, a global leader in 5G technology, has challenged traditional companies and raised security concerns among other countries, including the United States 4. Accusations of espionage and unfair trade practices have led the U.S. to attempt to block Huawei from accessing essential technologies developed by American companies 5.

The results of this study show how the development and implementation of 5G not only revolutionize connectivity but also intensify rivalries between major powers like the United States and China. This context aligns with existing literature that highlights the role of information technologies in modern geopolitics 6, 7. The analysis of the disputes over 5G reveals the depth of how these technologies influence national security strategies and technological sovereignty 5, 8.

The impact of this trade war is felt not only through the imposed tariffs and barriers but also through the slowdown of global trade and the reduction in global economic growth. In 2018, the United States exported approximately $120 billion worth of products to China while importing about $539 billion, resulting in a trade deficit of $419 billion 9. The U.S. strategy of trade protectionism generated retaliations that affected the economies of both countries and their trade partners.

The main findings indicate that the 5G dispute is an extension of economic and military rivalries, with significant implications for national security and the global economy. The preference for national or allied technologies reflects concerns about espionage and cybersecurity, directly influencing communication infrastructure policies 10, 11. These findings contribute to understanding contemporary political dynamics, showing how technological infrastructure has become a crucial arena for exercising global power 12.

This article aims to analyze the origins, developments, and implications of the trade war between the United States and China, exploring the strategies adopted by both sides, the global economic impacts, and possible solutions to this impasse that continues to shape the world economic scenario. Additionally, we will discuss the role of technology, particularly the competition for supremacy in the development and implementation of 5G, and how this technological competition intertwines with trade and national security policies. The results have profound implications for society and the political system, suggesting that control over 5G networks could define future economic and military leaderships 7, 13. Public policies and regulatory interventions need to consider cybersecurity and technological sovereignty as priorities, directly influencing the formulation of national and international strategies 5.

It is recommended that policymakers invest in national technologies and strategic alliances to reduce dependence on foreign infrastructures. Furthermore, the creation of robust regulations and advanced security measures is crucial to protect communication networks from external threats 11, 14.

II. Material And Methods

This study is part of the Media Hermeneutics and Humanism studies, led by Professor Dr. Osvando José Moras from the Media and Technology Program at FAAC-UNESP, Brazil. It is conducted within the research group DIGITART: Theories of Digital Media, Technologies, Arts, and Cultures, at UNESP - Bauru Campus, certified by the institution and by CNPq.

Study Design: This cross-sectional observational study was conducted to explore the geopolitical and economic impacts of the 5G technology dispute between the United States and China.

Study Location: The study utilized data sourced from various reputable repositories, including JSTOR, ScienceDirect, IEEE Xplore, SpringerLink, Springer Nature, and Dimensions.

Study Duration: The data collection and analysis covered publications and data available up to the year 2024.

Sample Size: The study examined multiple sources and cases, encompassing a wide range of perspectives and data points relevant to the 5G dispute and its implications.

Subjects & Selection Method: The study focused on a broad range of sources, including academic articles, policy papers, news articles, and statistical data sources. These sources were selected based on their relevance to the topics of 5G technology, geopolitics, national security, and economic impacts.

Inclusion Criteria:
Sources discussing the 5G technology dispute between the United States and China.
Publications addressing the geopolitical, economic, and national security implications of 5G.

Studies and reports from reputable academic and policy institutions.
Data and analyses providing comparative perspectives on US and Chinese strategies and policies.

Exclusion Criteria:
Sources not directly related to the 5G technology dispute.
Publications lacking rigorous academic or analytical standards.
Data from non-reputable or unverified sources.
Studies focusing solely on the technical aspects of 5G without considering geopolitical or economic contexts.

Data Collection and Analysis:
Data Collection: The data were sourced from repositories and were organized, abstracted, and categorized. These sources provided a comprehensive overview of the relevant literature and case studies.
Hermeneutic Methodology: Gadamer's 1975 hermeneutic methodology was applied to interpret and contextualize the data, providing a deep understanding of the geopolitical and economic narratives surrounding the 5G dispute [15].
Historical Methods: Braudel's 1980 historical methods were employed to trace the evolution of communication technologies and their geopolitical implications [16].
Comparative Approaches: As described by Lijphart in 1971, comparative approaches and case studies were used to evaluate public policies and cybersecurity strategies in various nations [17]. This allowed for an in-depth analysis of how different countries are addressing the challenges posed by 5G technology.
Statistical Data: Data were consulted from scientific and rigorous sources, analyzed, and organized into tables.

Procedure Methodology:
Literature Review: A comprehensive review of existing literature on 5G technology, geopolitics, national security, and economic impacts was conducted. This included academic articles, policy papers, and case studies from reputable sources.
Data Interpretation: The hermeneutic methodology was used to interpret qualitative data, while historical methods provided context for the evolution of communication technologies.
Comparative Analysis: Comparative approaches allowed for the evaluation of public policies and cybersecurity strategies across different nations, highlighting the geopolitical and economic implications of 5G technology.

By combining these methodologies, this study offers a thorough analysis of the implications of 5G technology in global geopolitical and economic dynamics, providing valuable insights into the ongoing trade war between the United States and China.

III. Result

The main findings of this study indicate that the 5G dispute is an extension of economic and military rivalries, with profound implications for national security and the global economy. The preference for national or allied technologies is motivated by concerns about espionage and cybersecurity, directly impacting communication infrastructure policies [10, 11.] These findings highlight the importance of technological infrastructure as a crucial arena for exercising global power [12].

The results corroborate previous studies that indicate the centrality of information technologies in modern geopolitics, but also bring new nuances, such as the intensification of rivalries between the US and China due to global technological dependence [11, 18]. For example, while previous studies focused broadly on the digital economy 19, this study specifies the direct impact of 5G infrastructures on global security and politics, highlighting new challenges and opportunities.

The results have profound implications for society and the political system, suggesting that control over 5G networks could define future economic and military leaderships [7, 13]. Public policies and regulatory interventions need to consider cybersecurity and technological sovereignty as priorities, directly influencing the formulation of national and international strategies [5]. It is recommended that policymakers invest in national technologies and strategic alliances to reduce dependence on foreign infrastructures. Furthermore, the creation of robust regulations and advanced security measures is crucial to protect communication networks from external threats [11, 14].

The main limitations of this study include the rapid evolution of 5G technology and the complexity of the involved geopolitical variables, which may have influenced the results and their interpretations. The lack of longitudinal data on the global implementation of 5G may also limit a complete understanding of long-term impacts [20, 21].

The Importance of Information Throughout History

Human history is filled with examples that demonstrate the crucial importance of information in the construction and maintenance of societies and empires. From ancient times to the modern era, the ability to collect, transmit, and manipulate information has been an essential tool for rulers, military strategists, and business leaders. Effective communication and data control not only facilitated the administration and expansion of territories but also decisively influenced historical events, policies, and power strategies. Table 1 illustrates some of these significant historical cases, highlighting the relevance of information in different contexts and periods.

Table no 1: History of Information as a Source of Power

Historical Case	Description	Ref.
Ancient Egypt	Pharaohs used messengers to transmit orders and vital information across their vast empire. Messengers traveled great distances to ensure royal messages reached their recipients.	18, 19
Persian Empire	Royal road system built during the reign of Darius I 522-486 BC. Messengers traveled quickly between different parts of the empire, ensuring efficient information transmission.	20, 21
Trojan War	Use of the Trojan Horse ruse to gain access to the city of Troy. The strategy involved tactical skill and effective information manipulation to convince the Trojans to accept the horse.	22, 23
Ancient China	During the Warring States period 475-221 BC, Sun Tzu's "The Art of War" emphasized the importance of espionage and information gathering as crucial for military success.	24, 25
Ancient Rome	Communication system developed to support military expansions and governance. Paved roads allowed for the rapid movement of troops and information. "Cursores" ensured quick delivery of orders.	26, 27
Ancient Greece - Pheidippides	Legend of the messenger who ran approximately 42 kilometers from Marathon to Athens to deliver vital news about the Greek victory against the Persians, illustrating the importance of information for strategic decisions.	28, 29
19th Century - Rothschild Fami ly	The family used political and economic information obtained by a network of correspondents and agents to build an influential business empire, making advantageous financial decisions.	30, 31
French Revolution	Pamphlets, newspapers, and inflammatory speeches mobilized the masses and overthrew the Ancien Régime. Texts from the period reveal rhetorical strategies to incite revolt and build new forms of power.	32, 33
20th Century - Cold War	The US and Soviet Union invested in espionage, propaganda, and counter-information. Analysis of political speeches and propaganda shows how narratives and ideologies justified political and military actions.	34, 35
21st Century - Information Age	The power of multinationals grows, influencing political and economic relations. The nation-state does not disappear, but the global scenario becomes more complex. User data becomes valuable for companies.	19, 36, 37, 12

US and China Dispute

The most intense dispute in the 5G field occurs between the United States and China, particularly involving the technological giant Huawei. Tekir 2020 argues that access to network flows is the new battlefield between these two powers, marking a new dimension in geopolitical rivalry 6. Fricke 2020 complements this view by highlighting that the competition between the US and China is not only technical and military but also deeply rooted in technology geopolitics [7]. The US insistence on barring Huawei from its 5G networks reflects concerns about security and global influence, while China seeks to expand its technological and economic reach [7, 8].

Table 2 compares important points between the US and China in the 5G dispute, providing a comprehensive view of the differences in approaches and strategies adopted by each country.

Table no 2: Comparison Between the US and China in the 5G Dispute

Aspect	United States	China	Ref
Leading Companies	Qualcomm, Intel, Cisco, AT&T, Verizon	Huawei, ZTE, China Mobile, China Telecom, China Unicom	38, 39, 11, 40, 41, 42
Investments	Focus on R&D and cybersecurity, with limited government support	Strong state subsidies and massive investments in R&D	38, 39, 11, 40, 41, 42
Government Policies	Restrictions on Huawei and support for international alliances	"Made in China 2025" and "China Standards 2035"	38, 39, 11, 40, 41, 42
Implementation Strategy	Development of national technologies, alliances with Western countries	Rapid and efficient implementation, strong government support	38, 39, 11, 40, 41, 42
Security Concerns	Cybersecurity and espionage	Control over critical global infrastructures	38, 39, 11, 40, 41, 42
Economic Impact	Job creation, GDP growth	Technological leadership, accelerated economic growth	38, 39, 11, 40, 41, 42
Infrastructure	Development through private companies	Rapidly developed infrastructure with state support	38, 39, 11, 40, 41, 42

International Standards	Establishing standards favoring Western technologies	Promoting standards favoring Chinese technologies	[38, 39, 11, 40, 41, 42]

According to Kshetri 2020, the US distrust of Huawei is related to concerns about national security, espionage, and the control of critical infrastructures 11. The escalation of this dispute has led to a polarization in global 5G development, where countries are pressured to choose sides. On the other hand, Ding 2018 argues that 5G technology offers China an unprecedented opportunity to project its economic and technological power globally, challenging Western technological hegemony 18.

Table no 3: Technology Companies: China vs. USA

Category	China	USA	Ref
Leading Technology Companies	Huawei, Xiaomi, Tencent	Apple, Google, Microsoft	[43, 44]
Annual Revenue of Leading Technology Companies billion USD	Huawei: 136.7, Xiaomi: 37.7, Tencent: 86.3	Apple: 274.5, Google: 181.7, Microsoft: 143.0	[43, 44]
Units Sold by Leading Technology Companies millions	Huawei: 200, Xiaomi: 150	Apple: 217, Google: 120 approx.	[43, 44]
4G Speed Mbps	35-50	25-30	[45]
5G Speed Mbps	100-1200	100-2000	[46, 45]
5G Coverage %	60	75	[46, 45]

Geopolitical and National Security Aspects

The dominance of 5G technology transcends technical and economic issues, delving deeply into national security and geopolitical spheres. Control over global communication infrastructures has direct implications for a country's ability to monitor and influence others, both in peacetime and conflict. Concerns about the security of 5G networks, including the possibility of espionage and cyberattacks, make the decision of which technology to adopt a matter of national sovereignty [10, 11]. Recently, works such as those by Lewis 2020 highlight that 5G can be exploited for cyberespionage and cyberattacks, elevating national security risks to new levels [5]. For example, the introduction of backdoors in network equipment can allow unauthorized access to sensitive information, a topic widely debated in the context of US-China tensions [5].

Economic and Technological Impact

5G technology promises not only to revolutionize connectivity and internet speed but also to enable a series of technological innovations, from the Internet of Things IoT to autonomous vehicles and smart cities. According to Ijaz et al. 2017, 5G offers "very high data rates and greater coverage through the dense deployment of base stations with greater capacity, significantly better Quality of Service QoS, and extremely low latency" [47]. The 5G infrastructure will allow the implementation of advanced technologies that rely on ultra-low latency and high data capacity, directly influencing the economic competitiveness of countries. Therefore, the 5G dispute is a battle for leadership in the next phase of the digital revolution [11, 48].

Recent studies, such as those by Katz and Jung 2020, indicate that the implementation of 5G can generate significant economic impact, including the creation of millions of jobs and a substantial increase in global GDP [42]. Additionally, 5G technology is seen as a catalyst for the digital transformation of various sectors, such as health, transportation, and manufacturing, promoting innovation and economic efficiency [42].

Non-State Actors and Multinationals

In the information age, besides states, there is an empowerment of non-state actors, such as large technology companies and multinationals, which play significant roles in 5G geopolitics 36. These actors have resources and technological capabilities that often surpass those of many countries, allowing them to influence global policies and markets [19]. The rise of these entities further complicates the global scenario, where the strategic decisions of private companies can have large-scale geopolitical consequences. The influence of technological multinationals in the 5G architecture highlights the interdependence between public and private sectors in the information age [37, 49].

Recent research, such as that by Kshetri 2020, indicates that companies like Huawei, Ericsson, and Nokia are at the forefront of this competition, influencing national and international policies through their innovations and technological capabilities [11]. The ability of these companies to shape global 5G development reflects a new kind of corporate power that challenges traditional power dynamics between states [11].

Challenges and Opportunities

The implementation of 5G brings significant challenges, including the need for new infrastructures, robust regulations, and advanced security measures. Ijaz et al. 2017 highlight that 5G "resides in providing very high data rates and greater coverage through the dense deployment of base stations with greater capacity, significantly better Quality of Service QoS, and extremely low latency" [47]. However, this new infrastructure also

opens unprecedented opportunities for technological innovation and economic growth, enabling advances in various sectors, such as health, transportation, and manufacturing [20, 21].

Recent studies indicate that the adoption of 5G may face challenges related to cybersecurity and interoperability between different systems and international standards [14]. At the same time, 5G technology offers opportunities for developing new applications in artificial intelligence and automation, creating a digital ecosystem that can transform society and the economy globally [14, 21].

IV. Discussion

The technological dispute between the United States and China, focused on the development and control of 5G technology, brings deep implications for the global economy, national security, and geopolitics [40, 50]. This study reveals that 5G goes beyond its technical functionalities, serving as a new battleground for economic and military power projection between major powers. The strategies adopted by the US and China reflect this intense competition for leadership in future digital infrastructure.

The results address the research question directly, showing how the US and China have used 5G as a strategic tool to expand their global influence. Implementing 5G is essential to maintaining technological sovereignty, with the US adopting restrictive policies toward Huawei to protect its infrastructure, while China leverages investments in emerging markets [51, 52]. This technological competition confirms 5G's role as a decisive factor in building an economy based on information and cybersecurity, underscoring the importance of developing national infrastructure with independence and local control.

Although the findings align with existing literature, discrepancies emerge in implementation strategies. China's rapid adoption of 5G, contrasting with the US's cautious and restrictive approach, reveals differences in security and technological independence practices. The strong government support China offers to Huawei and its swift implementation across various nations stand in contrast to Western caution [53, 54]. This discrepancy may reflect different priority levels between security and innovation, raising questions about the long-term consequences of these distinct approaches.

These results interact with previous studies emphasizing the strategic role of information in modern geopolitics [7, 42]. The analysis confirms that, as noted by authors like Kshetri [40] and Nguyen [59], technological supremacy is a pillar for global dominance in the twenty-first century. This study adds nuance by relating 5G technology to market expansion, particularly in emerging countries, expanding the discussion on how 5G impacts diplomatic relations and trade alliances [50, 60].

Economic Impacts

The race for 5G dominance brings profound economic ramifications. The United States has increased restrictions against Huawei, aiming to prevent the Chinese company from providing critical components for 5G networks within the country. This strategy seeks to strengthen the position of American companies in the global telecommunications market and ensure that 5G development and implementation benefit the American economy, creating millions of jobs and boosting global GDP [51, 52]. The economic impact of 5G is likened to a new industrial revolution, enhancing the development of technologies such as the Internet of Things (IoT), autonomous vehicles, and smart cities, transforming the economic infrastructure of countries [53]. Studies further indicate that 5G could add trillions of dollars to the global economy, boosting sectors such as healthcare and advanced manufacturing [42].

On the other hand, China continues to lead in 5G implementation, with significant investments positioning the country as a technological powerhouse. Despite sanctions, Huawei maintains a dominant presence in many emerging markets, thanks to massive investments and government support, including substantial subsidies for research and development [54]. This state support enables China to advance rapidly in its 5G infrastructure, consolidating its role as a global leader in emerging technologies and establishing a robust technological ecosystem that challenges Western supremacy [38]. China's leadership in 5G is further facilitated by its vast consumer base and its ability to implement technologies quickly and efficiently, creating a significant competitive advantage in the global arena.

These actions illustrate the direct impact of the trade war on strategic sectors and reinforce the United States' response to China's growing economic influence. The specific measures and their effects are detailed in Table 4 below.

Table no 4: Measures Adopted and the Resulting Impacts of the Trade War Between the United States and China in 2024

Category	Parameter	Details	Ref.
Increase in Tariffs and Target Sectors	Tariffs on electric vehicles EVs	Tariffs increased from 27.5% to 102.5%	[55]
Increase in Tariffs and Target Sectors	Tariffs on lithium batteries	Tariffs increased from 7.5% to 25%	[55]

Increase in Tariffs and Target Sectors	Strategic sectors affected	Electric vehicles, lithium batteries, solar cells, steel, aluminum	[55]
Increase in Tariffs and Target Sectors	Objective	Protect sensitive industries in the US and pressure China to eliminate unfair trade practices	[55]
Mutual Economic Impact	Reduction in US imports from China	25% drop in imports of tariffed products in the first half of 2019	[56]
Mutual Economic Impact	Increase in prices for American consumers	Consumers bearing most of the cost due to higher prices	[56]
Trade Diversion	Benefited countries	Taiwan, Mexico, European Union, Vietnam	[56]
Trade Diversion	Effect on exports to the US	Significant increase in exports partially replacing Chinese imports	[56]
Strategic and Technological Changes	CHIPS Act	Measure to strengthen the domestic semiconductor industry	[57]
Strategic and Technological Changes	Objective	Reduce dependence on Chinese production, increase US economic and technological security	[57]
International Relations and Cooperation	Cooperation efforts	Expansion of cooperation in renewable energy and combating drug trafficking	[58]
International Relations and Cooperation	Diplomatic language	Adjustment of language to "decoupling" instead of "disengagement"	[58]
International Relations and Cooperation	Objective	More collaborative approach with international allies to address challenges posed by China	[58]

Geopolitical Implications

Geopolitically, the 5G competition is an extension of economic and military rivalries between the US and China. The Biden administration has emphasized the importance of establishing international standards favoring Western technologies and limiting Chinese influence in critical global infrastructures. This approach includes efforts to persuade European allies to ban Huawei from their 5G networks, citing national security concerns and the risk of espionage. The pressure to adopt secure technologies and collaborate with allies to develop Western alternatives to Chinese 5G reflects this technology's strategic importance for global security [50, 59]. Additionally, implementing 5G in the United States and Europe is seen as a way to protect critical infrastructures from foreign interference, ensuring the integrity of communications and strategic operations [7].

In Latin America, countries like Mexico and Brazil are adapting their strategies to respond to the economic and political impact of the US-China dispute. Protection and prosperity strategies adopted by these countries are described in Table 5.

Table no 5: Impacts and Strategies of Latin American Countries in the Trade War Between the US and China

Country	Impact	Protection and Prosperity Strategy	Ref.
Mexico	Benefited from trade diversion; increased exports to the US; vulnerable to US policies	Capitalize on nearshoring trend to attract more US investments; improve logistics infrastructure	[63]
Brazil	Economy linked to Chinese demand for commodities; stability of commodity prices affected	Diversify export markets; invest in technology and infrastructure; strengthen trade relations with other partners	[63]
Argentina	Increased Chinese investment, especially in lithium mining; dependency on a single partner	Establish clear policies to regulate foreign investments; diversify trade partners; seek investments in technology	[63]

Despite the insights provided, the study faces limitations, such as the rapid evolution of 5G technology and the complexity of geopolitical variables, making it challenging to predict all developments. The absence of longitudinal data limits the assessment of long-term impacts, but the application of hermeneutic and historical methodology strengthens the analysis, providing a deep understanding of the geopolitical narrative associated with the 5G dispute [55].

The US-China dispute for 5G dominance represents a new dimension of contemporary geopolitical rivalries. The study underscores that leadership in developing and controlling 5G infrastructure may define future economic and military positions globally. To ensure the protection and independence of communication networks, public policies and international cooperation strategies must prioritize cybersecurity and technological autonomy. This research contributes to the field by providing a detailed analysis of the power dynamics involved in the 5G competition, suggesting future investigations to explore the impacts of integrating 5G with emerging technologies like artificial intelligence and IoT [63].

V. Conclusion

The technological dispute between the United States and China over 5G illustrates a new dimension of contemporary economic and geopolitical rivalries. This study demonstrated how 5G technology transcends its technical and economic implications, delving deeply into issues of national security and technological sovereignty.

The economic impacts of 5G implementation are vast, promising to revolutionize connectivity and enable a series of technological innovations that will directly influence the competitiveness of countries. Both the US and China are aware that dominance over 5G infrastructure could define future economic and military leaderships, and both countries have heavily invested to ensure a leadership position.

Geopolitically, control over 5G networks has become a crucial arena for exercising global power. The fierce competition between the US and China reflects a growing concern with cybersecurity and espionage, leading to stricter communication infrastructure policies and a strategic alignment with reliable allies. The Biden administration has emphasized the need to establish international standards that limit Chinese influence, while China promotes its "China Standards 2035" initiative to consolidate its role as a global technological leader.

National security is a central concern in the 5G dispute, with direct implications for a country's ability to monitor and influence others. The use of Huawei equipment by the US is seen as a risk due to the possibility of espionage and cyberattacks. The decision on which technology to adopt has become a matter of national sovereignty, with profound implications for internal and external stability.

The results of this study corroborate existing literature, which highlights the centrality of information technologies in modern geopolitics, and bring new nuances about the intensification of US-China rivalries. This study also offers a detailed analysis of the power dynamics involved in 5G development, providing valuable insights for public policy formulation and cybersecurity strategies.

It is recommended that future studies focus on collecting longitudinal data to evaluate the long-term impacts of 5G implementation and explore the interactions between different global actors and their technological strategies. The integration of 5G with other emerging technologies, such as artificial intelligence and the Internet of Things, should also be investigated to expand knowledge on the subject.

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