

ANALYSIS OF HUAWEI REVENUE THROUGH POST-TIRE TECHNOLOGY PATENTS FROM UNITED STATES

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ABSTRACT

The competition between the United States and China is shifting to technological dominance, especially in the development of 5G technology dominance. Huawei, as one of China's largest technology companies, has been a target of US sanctions since 2019 related to alleged threats to national security and espionage. The sanctions restrict Huawei's access to critical components from American companies, including software and vital components, thus affecting its global expansion strategy, including in the US market. Huawei took an adaptive approach through new strategies to maintain its existence and expand its reach amid political and economic pressures from several powerful countries. Therefore, this study analyzed the 4C (Customer Solution, Customer Cost, Convenience, and Communication) to show the strategy of survival and adaptability in the midst of US sanctions. This research uses an explanatory qualitative research method with previous literature such as academic journals, company reports, and relevant financial data. The results of this study show that US sanctions did not derail Huawei, but rather pushed its business strategy to become more sustainable, and resilient to geopolitical pressures.

Keywords : *Huawei, US Sanctions, Expansion strategy, 4C*

INTRODUCTION

Current technological developments are rapidly changing the way countries compete at the national level. Mastery of technology is not only an economic factor, but also a strategy for determining a country's position in international politics. One of the technologies that is the main focus is 5G internet technology as a determining factor in the balance of power between countries. Huawei, a Chinese company, has emerged as a global pioneer in 5G technology, offering communication infrastructure with faster data transfer speeds than previous generations (Arinanda et al., 2022).

This success has sparked concerns in the United States, due to the impact of economic competition between China and the United States. In May 2019, President Donald Trump established a policy that included Huawei in the Entity List, citing concerns about national security and potential espionage. This resulted in sanctions such as restrictions on access to semiconductor components and a ban on cooperation between US companies and Huawei (Nanaj, 2020). This listing means that a license is required to export goods included in the Commerce Control List (CCL) – a list of dual use goods subject to the Export Administration Regulations (EAR). Restricting certain US companies from doing business with Huawei without special permission. This measure includes restricting Huawei's access to technology and components from US

companies, such as chips from Qualcomm and Google Mobile Services (Gallagher, 2022). As a result, Huawei has struggled to compete in the global smartphone market because its devices lack access to popular services like the Google Play Store and other Google apps. The United States has also urged its allies, including the United Kingdom, Australia, and Japan, not to use Huawei equipment in their 5G network infrastructure. However, Huawei is working to reduce its reliance on U.S. technology by developing its own operating system, HarmonyOS, and increasing chip production through HiSilicon.

The sanctions imposed on Huawei by the United States are part of the strategic competition between the United States and China to dominate future technology, particularly in the development of 5G networks. The United States views Huawei as a threat due to its rapid technological advancements, which are perceived as potentially being used for espionage or geopolitical influence. These sanctions are part of a broader trade war. The United States is seeking to limit China's access to advanced technology, while China is striving for technological independence through initiatives such as "Made in China 2025" (Wu, 2024).

Previous research has highlighted the rejection of Huawei's 5G technology by the United States. For example, research by Sibarani (2020) explains the reasons motivating the US to impose restrictions on Huawei's business operations, despite Huawei's investments benefiting the US labor market and contributing to cybersecurity in the US. Furthermore, research by Bayuaji P. A. (2022) focuses on the US decision to adopt a policy rejecting Huawei's 5G internet technology as a means to counter China, thereby sparking a technology war.

The geopolitical rivalry between the United States and China has positioned Huawei as a symbol of technological competition and a key target of US national security policy. Since 2019, various sanctions and restrictions on access to key components have hampered Huawei's global expansion, with a number of US allies such as the United Kingdom, Japan, and Australia also imposing bans on the use of Huawei's 5G networks (Segal, 2021). Economically, the company has experienced a decline in revenue in the smartphone sector due to the loss of Google Mobile Services, but is trying to bounce back through the development of HarmonyOS, cloud services, and the Internet of Things (Statista, 2023). Socially, Huawei has gained domestic public support as a manifestation of technological nationalism, while in Western countries its credibility has declined due to the narrative of security threats constructed by the US (Balding, 2020). In the field of technology, Huawei remains the leader in the number of 5G patents, but limited access to advanced semiconductors dominated by the US ecosystem poses a serious challenge (European Patent Office, 2022). Although environmental issues are not dominant in this conflict, Huawei continues to integrate sustainability strategies and green ICT initiatives into its operations (Huawei Sustainability Report, 2022). From a legal perspective, the company faces lawsuits in the US related to alleged sanctions violations and technology theft, along with increasing global cybersecurity regulations (U.S. Department of Justice, 2020). Overall, political, economic, social, technological, environmental, and legal factors form external pressures that simultaneously push Huawei to continue adapting in order to maintain its revenue and position amid global competition.

Although various strategies have been implemented to address this conflict, there are still several strategic gaps in Huawei's expansion as a party affected by further and more specific restrictions from the United States. Other studies have focused more on rejection policies and the impact of US restrictions, which have not been examined in more detail. Therefore, this study specifically analyzes how the U.S. ban impacts Huawei's expansion strategies and what Huawei's post-ban strategies look like in 2019, using the 4C (Customer Solution, Customer Cost, Convenience, Communication) to analyze the strategies Huawei has implemented for its expansion in the United States following the ban.

In this study, the author examines the research question "How do US sanctions against Huawei impact Huawei's expansion strategy in the United States?" The author's objective in this study is to analyze specifically how the sanctions imposed by the United States after the 2019 ban have affected Huawei's expansion strategy in the US market. Using 4C (Customer Solution, Customer Cost, Convenience, Communication), the author wants to see what actions Huawei has taken to survive and try to enter the US market, despite political pressure and restrictions. This study also aims to provide an overview for large technology companies to adapt amid global competition and complex geopolitical situations.

The sanctions imposed by the United States on Huawei can be understood not only as a national security policy, but also as a geopolitical instrument to maintain global technological hegemony. By limiting Huawei's access to vital components such as Google Mobile Services and semiconductors, the United States is hindering Huawei's penetration into strategic markets, particularly the United States. However, Huawei's response through the implementation of the 4C strategy shows structural adaptations such as Customer Solution, namely innovations such as HarmonsOS and the development of substitution technologies, which are strategic steps to reduce the asymmetry of dependence on Western technology, while strengthening the company's technological sovereignty. Customer Cost is the verification of suppliers and production efficiency, which is a cost mitigation strategy that indicates a shift in the supply chain towards greater independence. Convenience emphasizes data protection and information security, not only in response to the concerns of US consumers, but also as a counter-narrative to allegations of espionage. Communication such as Huawei launching a global campaign emphasizing transparency shows that technological competition is also a competition for public perception and a good brand reputation in the eyes of the public. Huawei has succeeded in reducing its dependence on US technology and strengthening its position in the global market by changing several of its business models. However, these sanctions remain a major challenge for Huawei in the global technology industry in the long term.

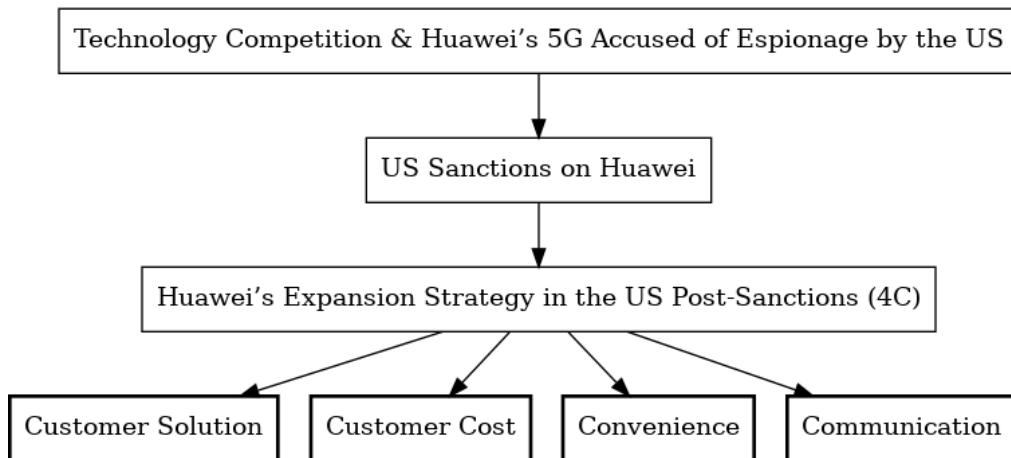
METHODS

The research methodology employed in this study is primarily qualitative, and explanatory method. This method was chosen because it allows for an in-depth and holistic analysis of how United States sanctions against Huawei influence the company's expansion strategies in the United States, especially within the context of international policy and geopolitical competition. The case study approach enables the

researcher to explore complex phenomena in detail, considering various factors such as political, economic, and strategic responses.

The data sources for this research are diverse and include official documents such as U.S. government policies, Huawei's official statements, and documents from international organizations like the WTO. These sources provide authoritative and primary information relevant to understanding the sanctions and Huawei's responses. Additionally, media reports, articles, opinions, and international news from sources in the United States, China, and other countries are also utilized to capture different perspectives and public responses. Financial and operational reports of Huawei before and after the sanctions are analyzed to assess the economic impact of the United States policies. Data collection involves document analysis and indirect observation of media coverage and public responses. Document analysis helps in understanding the official stance and policy details, while media observation provides insights into public perception and media framing of the issue. This combination ensures a comprehensive understanding of the phenomenon from multiple angles.

The data analysis process is based on analyzing these documents and media sources to understand how United States sanctions have affected Huawei's expansion strategies in the United States and what responses Huawei has implemented to continue its operations despite the restrictions. The analysis aims to identify patterns, strategies, and adaptations that Huawei has employed in response to the sanctions, within the framework of the 4C concept (Customer Solution, Customer Cost, Convenience, Communication), which guides the evaluation of Huawei's strategic responses in the context of international sanctions.



RESULT AND DISCUSSION

The sanctions imposed by the United States on Huawei are one example of how geopolitical and economic competition can have a direct impact on the business strategies of some companies. These restrictions include a ban on access to vital

components such as semiconductors and Google Mobile Services (GMS), which were previously an important part of Huawei's competitive advantage in the global market (Ford, 2020). The impact of this policy is not only operational, but also forces Huawei to reformulate its business model, marketing strategy, and even the direction of its technological development. In response, Huawei has adopted the 4C concept (Customer Solution, Customer Cost, Convenience, Communication) (Babaei et al., 2017). This concept emphasizes the importance of understanding consumer needs, managing costs, providing ease of access, and building effective communication as the main foundations of business strategy.



Sumber : Technosia News

(<https://www.technonesia.id/berita-tekno/huawei-pendapatan-meningkat-tajam-hingga-985-miliar-di-tahun-2023>)

1. Customer Solution

In this regard, Huawei strives to ensure that its products and services always meet consumer needs despite facing restrictions on access to technology from the United States. The loss of full Android support was a major blow, as its operating system is the global standard in the smartphone market. In response, Huawei developed HarmonyOS, an independent operating system that can run on various devices, from smartphones to smart home devices. This initiative demonstrates efforts to build an integrated software ecosystem that does not depend on Western technology (Herzog, 2021). In addition to software development, Huawei has also expanded its business focus to the 5G network infrastructure sector in several countries that do not follow the sanctions policy set by the United States. This action allows the company to continue to leverage its 5G technology advantage, which is one of its strongest assets amid global competition (Arinanda et al., 2022). This diverse strategy shows that Huawei is not only reacting to sanctions but also trying to take advantage of opportunities in alternative markets that are friendly to Tiongkok technology.

2. Customer Cost

US sanctions have significantly increased Huawei's operating costs. The ban on cooperation with US suppliers has forced the company to seek alternative sources of supply or produce the necessary parts itself. This requires a large investment in the short term, especially in the development of internal chips through its subsidiary HiSilicon (Nanaj, 2020). However, Huawei is still working hard to ensure that these increased costs are not passed on entirely to consumers. Efforts include supply chain efficiency, shifting production to several geopolitically neutral countries, and adjusting product specifications to match the target purchasing power of the market. This approach ensures Huawei's awareness that the telecommunications market is very sensitive to price, and that losing competitiveness in this aspect could have a fatal impact on some markets, especially in developing countries.

3. Convenience

The main challenge for Huawei in the US market and allied countries is distribution barriers. Huawei products are not only difficult to enter through official distribution channels, but also face consumer resistance due to concerns about data security. With these issues, Huawei has improved the security features of its products by implementing advanced encryption, strict application permission management, and a more transparent privacy policy (Qi, 2024). Huawei developed AppGallery as an alternative application distribution platform due to its loss of access to the Google Play Store. Cooperation with global application developers has been intensified to expand the availability of applications compatible with Huawei devices. Through these measures, Huawei is working to minimize usage barriers for consumers and maintain user convenience amid the limitations of its software ecosystem. (Herzog, 2021).

4. Communication

Communication is a key aspect in shaping public perception amid the reputation crisis faced by Huawei. Allegations of involvement in espionage activities by the United States government have forced Huawei to implement an aggressive and proactive communication strategy. The company launched a global transparency campaign, including the establishment of cybersecurity centers in various countries to enable third-party audits (Arinanda et al., 2022). In addition, Huawei strengthened its relationships with governments and companies in several countries that are not bound by sanctions imposed by the United States. Through strategic collaboration, Huawei is also working to demonstrate its commitment to data security and corporate responsibility. Marketing and public communication campaigns are used to emphasize technological superiority, product quality, and the company's dedication to secure innovation (Ryan & Burman, 2024).

Huawei's implementation of the 4C concept (Customer Solution, Customer Cost, Convenience, Communication) following US sanctions reflects a comprehensive effort to survive in a complex market environment. Product innovation and cost management demonstrate a rapid response in maintaining foreign demand, while improving consumer convenience and strategic communication serve as a long-term foundation for rebuilding market trust. Although this strategy has yielded positive results in geopolitically neutral markets, political barriers remain a major obstacle in several

countries that follow U.S. policy. In addition, the emergence of divisions in the global ecosystem due to the phenomenon of "tech decoupling" has created new challenges. Huawei must now operate in two different technology ecosystems, namely the Western-based ecosystem and the Chinese-based ecosystem. This condition has the potential to increase its operational complexity costs (Ryan & Burman, 2024), but at the same time urges the company to continue to innovate and adapt to changes in the global technology landscape.

CONCLUSION

United States sanctions against Huawei constitute a significant element within the broader dynamics of technological competition and geopolitics between the two global superpowers, the United States and China. The case illustrates how United States protectionist and restrictive policies have not only impacted Huawei's economic and operational aspects but have also significantly influenced the company's market expansion strategy within the United States, as analyzed through the 4C framework (Customer Solution, Customer Cost, Convenience, Communication). The research offers a critical examination of this analytical framework, positing that while the 4C concept is useful for understanding Huawei's adaptive measures in response to the ban, the company's overall strategy is deeply interwoven with complex geopolitical and international policy contexts, extending beyond mere technical business adjustments. The principal findings indicate that Huawei implemented a range of strategic initiatives to sustain its presence in the United States market, including innovations in customer-centric solutions and enhanced communication United States, despite confronting substantial barriers imposed by the United States government's restrictions. Furthermore, this analysis affirms that the ramifications of the sanctions extend beyond the economic sphere, accelerating the fragmentation of the global technology ecosystem and reinforcing the process of technological decoupling between the United States and China. This, in turn, underscores a fundamental shift in the international technology industry's landscape.

A critical assessment of the analytical framework suggests that while it provides a holistic overview of Huawei's strategic responses, its explanatory power could be enhanced by incorporating a more profound inquiry into political and national security determinants. This integration would allow for a more comprehensive understanding of the underlying motivations driving such corporate strategies. For subsequent research, it is recommended that scholars adopt a multidisciplinary approach, integrating policy analysis, cybersecurity considerations, and international relations theory. Such an approach is essential for developing a more complete and nuanced comprehension of the impact of sanctions on technology firms amidst on going geopolitical tensions.

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