# Technological Blockades: Huawei's Strategy Adjustment Response

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Keywords: Strategic Adjustment, Technological Blockades, Huawei.

Abstract: Against the constantly tense global technological situation, enterprises restricted by technological blockades must adjust their strategies promptly to maintain competitiveness during the crisis. This article takes Huawei as a case to explore how enterprises should adapt their strategy when facing technological blockades. The article adopts the SWOT module to analyze Huawei's internal strengths and weaknesses and the external opportunities and threats. Analysis shows that Huawei, relying on its strong technological strength and the policy support of the Chinese government, has actively introduced talents under the background. Against the backdrop of technological blockade, it has not only adjusted its global strategic layout but also maintained the stability of its market share. The research results contribute to a broader understanding of how enterprises respond to external technological constraints through strategic adjustments.

## 1 INTRODUCTION

Technology blockades in today's globalized business environment have become a significant aspect of international competition, particularly in science and technology. In recent years, with the complex changes in global politics and economics, some countries have implemented technological blockades against specific countries and enterprises for strategic reasons. Under the background, China and its enterprises have also suffered from technological restrictions. The global financial crisis of 2008 severely impacted the United States and Europe economies. However, China's multi-year planning policies, market liberalization, state-owned enterprise reforms, and other measures contributed to China's economic rise, leading to the rapid development of China's economy and technology in 2008 (Heilmann & Melton, 2013). According to official statistics, China's Gross Domestic Product (GDP) grew by 6.1% in the first quarter of 2009 and 7.9% in the second quarter. This reflects the development of China's economy during 2009. In the years that followed, Chinese technology continued to advance rapidly. In 2016, the Chinese government conducted 5G trials, which promoted the commercialization of 5G technology (Chen & Kang, 2018). Based on the above background, some countries, led by the United States, began to implement measures to restrict the technological development of Chinese enterprises. In 2017, the Trump administration released its National Security Strategy report, which proposed trade sanctions against Chinese companies. In 2019, the US Congress passed an act that created a "whole-of-government China strategy," requiring all government agencies to develop measures against China.

Technological blockades manifest economic struggles between countries and the deep division of labor within the global supply chain system. In today's world, where business relies on global supply chains, many enterprises depend significantly on technologies, raw materials, production capacities, and other aspects from various countries and regions (Sanders et al., 2019). Consequently, any technology blockades and trade restrictions may pose substantial risks to business operations. In the short term, such restrictions have led to a decline in the short-term market share of Chinese enterprises. The fact that China still relies on imports for high-end equipment and other critical components shows the significant impact these blockades have on the development of Chinese enterprises. This dependency led to a decline in growth in Chinese enterprises and also highlights the urgency for strategic adjustments to enhance resilience and reduce the influence of external pressures.

Facing the challenges brought by technology blockades, enterprises need to implement strategic adjustments quickly. First, enterprises need to



Ni, H.
Technological Blockades: Huawei's Strategy Adjustment Response.
DOI: 10.5220/0014294500004859

In *Proceedings of the 1st International Conference on Politics, Law, and Social Science (ICPLSS 2025)*, pages 111-117
ISBN: 978-989-758-785-6

increase their research and development investments, striving to break through the technical bottlenecks to reduce their dependence on foreign technologies and the impact of technology blockade. Concurrently, enterprises must strive to build localized supply chains, decrease their reliance on global supply chains, and strengthen regional cooperation. Moreover, enterprises should actively explore emerging markets, expand their business reach, and reduce the risks associated with over-reliance on a single market. This study analyzes the case of Huawei, a Chinese multinational technology company, to explore how the enterprise navigates the technological blockades and challenges posed by external pressures and its strategic adjustments in response. The analysis will consider various criteria that help to understand why Huawei was chosen as a representative case and the broader implications of its response for other global firms facing similar circumstances.

## 2 CASE DESCRIPTION

Established in 1987, Huawei has evolved from a small communications equipment supplier to a leading global technology company. It has achieved remarkable success in telecommunications infrastructure and consumer electronics. Huawei operates in more than 170 countries, employs more than 200,000 people, and serves over 3 billion people worldwide. Huawei is a global leader in 5G network construction and has an important impact on artificial intelligence, cloud computing, and other aspects. In 2020, Huawei overtook Ericsson to become the world's leading supplier of 5G base stations. However, Huawei's rapid growth and technological achievements have also led to complex conflicts. For example, they have triggered disputes between China and the United States. Since 2018, the US government has made a series of allegations against Huawei, including issues related to national security, espionage, and other acts. In 2019, the Trump administration added Huawei to the "entity list," which restricts US companies from providing Huawei with key technologies and related parts. This includes critical components such as chips, semiconductors, and other technologies that have significantly impacted Huawei's products and supply chain. The technology blockade challenges Huawei faces extend beyond US trade restrictions and involve complex global supply chain dynamics. As an enterprise extensively integrated into global technology and supply chains, Huawei has had to make rapid strategic adjustments to maintain its competitiveness in the face of these restrictions. These adjustments are responses to the immediate impact of the technology blockades and reflections of the broader geopolitical and economic tensions that characterize the current global landscape.

Several key factors have led to Huawei being selected as the subject of this case study. First of all, as a global leader in the field of 5G, Huawei is highly representative in network infrastructure construction and research and development of high-tech products (Zhang, 2024). Given its significant impact from the technology blockades, the strategic adjustment made by Huawei holds substantial reference value for other enterprises facing similar challenges. Secondly, the technology blockades that Huawei faces reflect a trade war and involve complex elements such as countries and global supply chains. In this intricate political context, Huawei's strategic adjustments offer valuable insights for other companies facing similar challenges.

Huawei operates in one of the most sensitive sectors of the global technology industry, particularly telecommunications and semiconductors. The telecommunications industry is a vital pillar of the global economy and a key part of national security strategies (Faccio & Zingales, 2021). With the increasing global competition in 5G technology, Huawei has leveraged its leading position in 5G to expand its global development. However, technological developments have made Huawei a target of repression by the United States and its allies. Since 2018, the United States has stepped up its crackdown on a series of Chinese high-tech companies led by Huawei. The United States has restricted Huawei's business in the global market because Huawei and other companies endanger US national security, including prohibiting US companies from selling key technology products such as semiconductor chips to Huawei. Such restrictions have made it challenging for Huawei to purchase chips and other critical components. In addition to US sanctions, some other countries have imposed restrictions on Huawei for political reasons. In 2020, over 30 countries banned Huawei from participating in the construction of 5G networks in their countries. This action has significantly limited Huawei's opportunity in international markets. Therefore, Huawei's strategic adjustment in the face of technology blockades effectively reflects the measures that high-tech enterprises can take in response to such challenges and is representative.

Huawei's global business depends highly on international markets and supply chains. According to

Huawei's 2020 annual report, Huawei's foreign trade ratio exceeds 60%, meaning more than half of the company's revenue comes from the global market. Huawei has traditionally relied heavily on trade with foreign suppliers for key technology products such as semiconductors and displays. However, the technology blockades have prevented Huawei from continuing to purchase key technologies and components from foreign companies such as Qualcomm and Google. This has had a substantial impact on Huawei's production capacity. The US sanctions have forced Huawei to seek alternative suppliers from other countries. For instance, Huawei attempted to purchase semiconductors from Chinese companies such as SMIC (Tse et al., 2024). However, due to technological gaps, this supplier shift has not effectively resolved Huawei's chip shortage. Therefore, the strategic adjustments made by Huawei in response to the technology blockades effectively reflect the measures enterprises relying on global supply chains can take to navigate this challenge.

# 3 SWOT MODULE

The SWOT model is a strategic analysis framework that examines internal strengths, weaknesses, and external opportunities and threats to explore how to utilize strengths better and overcome threats to create new opportunities (Benzaghta et al., 2021). Strengths refer to internal positive factors, while weaknesses refer to internal defects. Opportunities refer to positive factors available in the external environment, and threats refer to challenges in the external environment that may bring risks. By conducting a SWOT analysis, enterprises can formulate more targeted strategies to capitalize on strengths, compensate for weaknesses, seize opportunities, and avoid threats, thus enhancing their overall competitiveness. After the completion of the SWOT analysis, the enterprise can develop specific strategies such as Strengths-Opportunities (SO), Weaknesses-Opportunities (WO), Strengths-Threats (ST), and Weaknesses-Threats (WT) strategies based on the conclusion. This essay employs SWOT analysis and its strategic method to explore Huawei's strategic adjustment in response to technology blockades.

## 3.1 Strengths

First of all, in the realm of technology, Huawei has many significant advantages in technology, particularly in the field of 5G. Since 2009, Huawei has been deeply invested in 5G technology research. Since then, Huawei has become a pioneer with the launch of the world's first commercially available 5G base station chip, "Tiangang." This technological breakthrough enhances the performance of communication devices and solidifies Huawei's leadership in the industry. According to the World Intellectual Property Organization (WIPO) and other research institutions, Huawei is one of the world's largest 5G standard-essential patents (SEPs), consistently ranking first globally in the number of 5G core patent applications. Huawei's advantage in 5G technology puts it ahead of many companies. Up to 2018, Huawei was the only company that could produce all the elements of 5G on a large scale and at a low cost. Secondly, Huawei enjoys a vast consumer base. On the one hand, Huawei offers a broad and diverse product portfolio. Huawei has products in different price segments, so consumers have a wide choice of products that cater to them best. From high-end flagship phones (mate, p series) to sub-brands (Honor), Huawei provides a wide range of choices that meet the diverse preferences of consumers. On the other hand, Huawei has a prominent national brand image. Huawei is seen as a proxy for China in the context of growing trade frictions between the United States and China and the ongoing technology blockades (Christie, Jakobsen & Jakobsen, 2023). The concept of "supporting domestic production" is deeply embedded in the minds of Chinese consumers, providing Huawei with a loyal and substantial consumer base. Thirdly, Huawei has a very high investment in research and development (R&D). Huawei has consistently been one of the world's largest R&D spenders. In 2022, Huawei allocated 25.1% of its total revenue to R&D. This continuous significant investment in research and development provides conditions for Huawei to break through technical bottlenecks. Huawei's R&D investments span multiple critical areas, including 5G, artificial intelligence, and semiconductors. These investments have strengthened Huawei's competitiveness and allowed it to adjust to the dynamic international context.

## 3.2 Weaknesses

Although Huawei has robust technical strengths, it faces significant challenges due to its reliance on international suppliers for key components, particularly high-end semiconductors. Following the imposition of technology blockades and the gradual geopolitical tension, many companies in the United States and its allied nations have severed supply cooperation with Huawei. The most direct impact is

the interruption of the high-end chip supply chain. Huawei's self-developed Kirin chips, which rely heavily on TSMC for advanced process (7nm and below) manufacturing, were forced to halt production due to US export controls. Such behavior has seriously affected Huawei's high-end smartphone business, highlighting Huawei's vulnerability due to its high dependence on overseas key technologies. Moreover, countries led by the United States banned Huawei from participating in constructing 5G networks within their countries, citing "national security" concerns. This has led to a contraction of Huawei's international market. In addition, the absence of Google's Mobile Services (GMS) has significantly reduced the market appeal of Huawei's mobile phone industry, especially in regions outside China. As a result, Huawei has to readjust its strategy, focusing more on developing the domestic market and some international markets that remain open. The technology blockades have not only put pressure on Huawei's supply chain and market but also affected Huawei's internal organizational stability. In the face of external uncertainties, core technical talents can be lost. The loss of key personnel, especially in high-tech fields such as semiconductor design, could have a lasting impact on Huawei's long-term innovation capabilities and overall competitiveness.

## 3.3 Opportunities

Despite facing technology blockades, Huawei has been presented with new opportunities for developing 5G, artificial intelligence, cloud computing, and other technologies. These advancements offer Huawei avenues to innovate and expand its technological advantages. In response to the technology blockades imposed by the United States, the Chinese government has implemented a series of supportive policies to bolster domestic enterprises and foster the technological development of Chinese enterprises. Since 2014, the Chinese government has set up the National Integrated Circuit Industry Investment Fund. This fund is designed to promote the development of industrial chains such as semiconductors through strategic capital guidance (Liu, 2023). The state fund has alleviated Huawei's R&D pressures by lowering the financing barriers for relevant enterprises and helped establish a "top-down" integrated innovation system. This system facilitates coordinated development across the industry, enhancing Huawei's capabilities in critical areas. Moreover, the Chinese government has launched various subsidies and incentives for local technology companies, including Huawei, to expand its domestic market under the "double cycle" strategy. This strategy emphasizes domestic and international markets and reduces companies' dependence on international technologies. Faced with a series of policy supports, Huawei has effectively explored ways to develop its technology further.

## 3.4 Threats

A major external threat to Huawei is the ongoing technology blockades imposed by the United States and other Western countries. In 2019, the US government placed Huawei on the Entity List, restricting its access to key technologies, especially US-made semiconductors and software. This forced Huawei to seek alternative solutions, such as developing its HarmonyOS operating system and HiSilicon chipset. However, difficulties procuring key components due to the technology blockades could erode Huawei's competitive advantage, particularly in its consumer electronics sector. Secondly, as the confrontation between China and the United States is becoming increasingly acute, Huawei is increasingly seen as a representative of China's technological rise and is given political significance. As early as 2003, Huawei was accused of engaging in espionage activities.

Meanwhile, it has also been accused of continuously violating international economic sanctions against Iran and North Korea. This makes Huawei's business activities easier to obstruct and increases its "non-market risks," such as difficulties accessing markets in other countries. The technology blockades have also triggered a restructuring of global supply chains. With rising costs in chips, raw materials, manufacturing, and other links, Huawei has to find alternative suppliers to replace the US suppliers. This leads to higher procurement costs and longer lead times. Some countries, driven by geopolitical interests, have blocked Huawei equipment entry. For example, in fierce international competition, Huawei is also under significant pressure in the domestic market. Competitors like Oppo, Vivo, and Xiaomi have rapidly expanded their market share and seized the space in Huawei's domestic middle and high-end market. In 2021, OPPO and Vivo occupied the top two positions in the Chinese smartphone market with market shares of 22% and 21%, respectively, while Huawei was the only one among the top five brands to experience a decline in sales, with its market share dropping to 16%.

# 4 SOLUTIONS

Huawei's SWOT analysis shows that while the company has significant technological advantages and a large consumer base, it also faces substantial pressure and challenges when seizing development opportunities. As Western countries impose technological blockades on Huawei, Huawei is confronted with unprecedented challenges. In the face of external political pressure and technological restrictions, Huawei has actively responded to these difficulties through strategic adjustments. These strategic adjustments can be effectively analyzed through the SWOT analysis framework, which includes four key dimensions: SO, WO, ST, and WT. The following section will provide a detailed analysis of how Huawei responds to challenges and seizes opportunities through strategic adjustments in the context of technological blockades.

## 4.1 SO Strategy

Huawei's remarkable technological achievements in 5G and telecommunications have been a cornerstone of its success for many years. The technology blockades led by the United States has elevated the significance of this advantage, compelling Huawei to enhance its independent innovation capabilities further.

Huawei has been intensifying its independent research and development (R&D) and technological innovation efforts. Huawei's leading position in 5G and communication equipment have become its core competitive strengths. Huawei's long-standing commitment to high R&D investment has laid a solid foundation for its technological innovation. With technological blockades, Huawei has no choice but to reduce its dependence on foreign technologies and rely more on its innovation capabilities. As of 2024, Huawei has invested more than 1,249 billion yuan in research and development expenses over the past decade.

Meanwhile, the global demand for technologies such as 5G and artificial intelligence presents new opportunities for Huawei. Against this backdrop, Huawei has intensified its efforts in independent research and development and technological innovation. In response to the ban from the United States, one of Huawei's key strategies has been to increase its investment in its subsidiary "HI Silicon Semiconductor," which specializes in chip development. This move has enabled Huawei to reduce its reliance on American companies such as Qualcomm and Intel. In addition, Huawei has intensified its R&D of the "Kirin chip," ensuring that it can continuously provide competitive smartphones even under technological blockades. Meanwhile, Huawei has further reduced its dependence on Google's software ecosystem by developing HarmonyOS. With its R&D capabilities, Huawei has maintained its competitive edge under the technological blockades and positioned itself at the forefront of the next-generation technology field.

In addition to independent innovation, Huawei has dramatically benefited from the policy support of the Chinese government. In response to the complex situation of technological blockades, Huawei has been actively adjusting its strategy to align with the comprehensive policies of the Chinese government. The Chinese government has implemented a wide range of incentive policies to bolster the development of high-tech enterprises. In 2024, the Chinese government's policies for enterprises led to approximately 366.75 billion US dollars in tax breaks, fee reductions, and tax refunds. With the strong support of the Chinese government in technological innovation and independent research and development, Huawei can secure support in multiple aspects, such as funding and tax relief. Specifically, Huawei has actively taken advantage of the numerous financial incentives the Chinese government provides, including tax breaks and subsidies. These measures have injected enough funds into Huawei's R&D projects and significantly accelerated the company's technological innovation, particularly in crucial technological domains such as chips and operating systems. As a result of these strategic adjustments and policy supports, Huawei can effectively counter the effects brought about by the technological blockades.

## 4.2 WO Strategy

Although Huawei has significant technological advantages, its reliance on foreign technologies has shown apparent flaws in the context of the technological blockades. In response, Huawei has strategically leveraged its capabilities to address these weaknesses through targeted adjustments.

Huawei has accelerated the development of domestic alternative technologies. Huawei is highly dependent on foreign technologies, especially in key areas such as chips and operating systems, which has placed it under immense pressure due to technological blockades. However, the rapid advancement of technology in China's domestic technology industry has given Huawei opportunities to utilize domestic resources as substitutes for foreign

technologies. Huawei is reducing its reliance on foreign suppliers by intensifying its research and development efforts in domestic alternatives. Through strategic partnerships with Chinese semiconductor enterprises like Semiconductor Manufacturing International Corporation (SMIC), Huawei has made significant progress in producing domestic chips. SMIC has become a major supplier of Huawei's 7nm chips (Tse et al., 2024). This collaboration has diminished Huawei's reliance on American chip technologies. By promoting domestic alternative technologies and driving independent technological breakthroughs, Huawei has maintained its development despite the ongoing technological blockages.

In the face of the technological blockades, talent recruitment and retention have emerged as critical issues. The technological blockades have led to a significant loss of technical talent, particularly for those from Western countries. To compensate for this deficiency, Huawei has actively implemented government talent development policies, such as the "Talent Introduction Fund," to attract top experts in fields like artificial intelligence, semiconductor design, and operating systems. By the end of 2024, R&D personnel at Huawei accounted for 54.1% of the total workforce. The strategic use of these talent introduction funds has enabled Huawei to attract high-quality researchers and ensured its continuous technological innovation. In the context of complex talent mobility, this approach has guaranteed that Huawei can continue to develop competitive technologies and maintain its leading position.

## 4.3 ST Strategy

Due to the technological blockades imposed by the United States and the geopolitical landscape, Huawei faces tremendous political and economic pressure in the international market. To reduce these risks, Huawei's strategic focus is to enhance its core advantages.

One of the key strategies Huawei can use to deal with international pressure is to expand its domestic market layout. Huawei enjoys a strong brand awareness and consumer base in the domestic market. This strategy provides Huawei with stable revenue and enables it to maintain growth when facing external challenges. Meanwhile, the domestic market's demand for high-tech products remains strong, and the Chinese government has provided policy and financial support to technological innovation enterprises. Although the international market is restricted, the domestic market remains an important strategic market for Huawei. Especially in the current context where the trend of globalization is restricted, exploring the domestic market has become an important strategic direction for Huawei. With the support of domestic policies, Huawei's share in the domestic market has been continuously expanding. Despite fierce competition from domestic rivals such as "Xiaomi" and "oppo," Huawei still holds a considerable share of the Chinese market thanks to its leading position in 5G technology and the field of smartphones. Huawei has rapidly advanced the construction of 5G networks across China and launched consumer products represented by the Mate X series of foldable screen mobile phones and the bright screen series in the domestic market. According to CounterPoint Research, in the fourth quarter of 2024, Huawei ranked first in China's smartphone market, with a market share of 18.1%, returning to its market position after the US blockade. These products have further consolidated their advantages among domestic consumers and enhanced their competitiveness in the Chinese market.

## 4.4 WT Strategy

Huawei has made several strategic adjustments to cope with internal and external disadvantages. These strategic adjustments include adjusting the global strategy, entering emerging markets, diversifying global risks, etc.

Due to a series of technical restrictions implemented by the US government, including the ban on using chips, operating systems, and natural services from US enterprises, Huawei's ability to expand its traditional market business in Europe and the United States has been undermined. Therefore, Huawei has no choice but to readjust its global strategy, gradually shifting from a layout highly dependent on the European and American markets to diversified development and seeking new growth points. Southeast Asia, Africa, and the Middle East have become Huawei's development directions. By expanding its influence in these regions, Huawei has effectively reduced its reliance on Western markets and diversified risks in the international market. For example, Huawei has expanded its business scope using the Belt and Road Initiative (BRI). Through strategic partnerships and joint ventures, Huawei has played a key role in constructing 5G infrastructure and telecommunications in Southeast Asia, Africa, and the Middle East. For instance, in South Africa, MTN South Africa collaborates with Huawei and China Telecom to promote the development of technologies such as 5G, cloud computing, and

artificial intelligence to strengthen the construction of digital infrastructure. This regionalization strategy has reduced Huawei's risk of being restricted in the European market due to technology blockades.

In response to the tense political situation, Huawei is also committed to diversifying global risks by targeting new markets. In addition to Southeast Asia, Africa, and the Middle East, Huawei has also deepened its participation in Latin America, where the political environment remains relatively neutral towards Chinese enterprises (Kalam et al., 2025). These regions offer significant opportunities for Huawei to expand its telecommunications infrastructure and electronic business while minimizing the risks brought about by technical sanctions and political pressure to the greatest extent.

## 5 CONCLUSION

Facing the technological blockades imposed by the United States, Huawei successfully dealt with the challenges brought by its strong technological capabilities and strategic adjustment measures. By increasing investment in research and development, Huawei has maintained its technological leading position in key areas such as 5G. Meanwhile, Huawei has also reduced its reliance on foreign technologies through strategies like policies, talents, and the development of alternative technologies. The adjustment of Huawei's global strategy has effectively mitigated the impact of technological blockades. This series of strategic adjustments helped Huawei maintain its development amid the threat of technological blockade and provided valuable experience for other enterprises. Other enterprises must rigorously analyze their strengths and weaknesses, combine them with the background, and explore strategic adjustments suitable for themselves in the face of technological blockades.

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