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US-China “Tech Decoupling”: A Swiss Perspective

A partial technological decoupling of the United States and China is already under way. Switzerland will also feel the ripple effects.

By Sophie-Charlotte Fischer

Over the last two decades, the technological ecosystems of the United States and China have become deeply intertwined. In both countries, cross-border flows of talent, knowhow, and investments have played an important role in enabling technological advancement and promoting economic growth. Moreover, the US and China have greatly benefitted from establishing global technology supply chains that maximized production and cost-efficiency. During this period, national security considerations played only a subordinate role in shaping the US-China high-tech ties.

In recent years, however, policymakers in Washington and Beijing have started to fundamentally challenge the basic assumptions that have driven their technological integration. The US government has grown increasingly concerned about China’s strategic intentions and its ambition to challenge America’s long-held technological advantage. It has also repeatedly accused China of innovating at America’s cost through unfair trading practices and the theft of Intellectual Property. In addition, the COVID-19 pandemic, which exposed the vulnerabilities of global supply chains, strengthened Washington’s resolve to reduce American dependence on Chinese manufacturing. In Beijing, this notable shift in US rhetoric and policy height-

ened longstanding concerns that China’s continued reliance on Western technology threatens its future economic and military competitiveness and the consolidation of its status as a great power.

Against this backdrop, political leaders in Washington and Beijing have concluded that efficiency and economic growth as the guiding principles for their techno-

Key Points

- The intensifying US-China competition for technological advantage, combined with supply chain vulnerabilities highlighted by the COVID-19 pandemic, has initiated a partial decoupling of the American and Chinese high-tech ecosystems.
- Decoupling in the tech sector bears significant challenges for both countries. These include the high level of specialization in certain industries, the costs of technology restrictions for companies and consumers, and the likely negative impact of restrictive measures on innovation.
- The US-China tech decoupling also affects Switzerland as a highly globalized small state and as a platform for global governance initiatives. To mitigate negative repercussions, Berne should increase the resilience of strategically important technology supply chains and use its unique strengths to serve as a “tech intermediary” between the US and China.

logical integration need to be complemented – or even replaced – by national security considerations. Both governments have already taken a series of steps that mirror this shift, affecting the cross-border flows of technology, capital, talent, and data. The result is a gradual technological decoupling of the world’s two largest economies, which inevitably affects other countries, including Switzerland, as well.

Decoupling Tactics

Under the former US administration of Donald J. Trump, bipartisan consensus emerged in the US government that America needs to reduce its tech ties with China. However, the justifications motivating the deployment of different policy instruments that had the effect of technological decoupling varied and were often not new. They included the need to bring back jobs to America, to counter unfair Chinese trading practices, to address human rights abuses against minorities in China, and to preserve the United States’ technological edge over China.

During Trump’s time in office, the administration introduced a range of measures aimed at restricting Chinese access to US technology, knowhow, and data and the use of Chinese technology in security sensitive applications in the US. Specifically, measures included tighter controls of Chinese foreign direct investment in US tech companies, the “blacklisting” of certain Chinese companies, such as telecoms giant Huawei, via the Department of Commerce’s entity list, and greater scrutiny of the work of Chinese scientists in the US. On the flip side, the administration also increased investment in certain technology sectors considered strategically important for the economy and military such as Artificial Intelligence (AI) and quantum information science.

While President Joe Biden has softened the “decoupling rhetoric” of his predecessor, he broadly continued his course through the implementation of additional restrictive measures and the pursuit of industrial policies. For example, the government consecutively added new Chinese technology companies, like facial-recognition software firm SenseTime, to the Commerce Department’s entity list and introduced new export controls on high-end processors produced by US companies Nvidia and AMD. The government also significantly increased investments in the US industry, for example with the recently signed CHIPS and Science Act, which provides 52.7 billion USD for semiconductor research, development, manufacturing, and workforce development.

In contrast to Trump, however, the Biden administration complements the use of unilateral instruments with multilateral efforts. The government has recognized that in a globalized economy in which the US no longer has control over highly complex and globalized technology industries, the support of trusted allies and partners is imperative to increase the effectiveness of its restrictive measures and to restructure critical supply chains. For example, as part of the CHIPS and Science Act, the US seeks to collaborate with Taiwan, South Korea, and Japan on building robust semiconductor supply chains. Another interesting format is the EU-US Trade and Technology Council (TTC). While not explicitly focused on China, the TTC offers a forum for the US and EU to coordinate on issues such as investment screening, secure supply chains, and export controls.

What initially got lost in the US debate on decoupling is that Beijing has made strides to decrease China’s reliance on Western technology for more than a decade. This is reflected in well-known Chinese plans like the The National Medium- and Long-Term Program for Science and Technology Development from 2006 and Made in China 2025. However, with external pressure from the US increasing in recent years, the Chinese leadership has intensified these efforts. For example, China’s dual-circulation strategy reflects the ambition to reduce foreign dependencies, to strengthen domestic key industries, and to leverage their competitiveness globally. These efforts

Further Reading

Tim Hwang / Emily Weinstein, ***Decoupling in Strategic Technologies: From Satellites to Artificial Intelligence*** (Washington, D.C.: Center for Security and Emerging Technology, 2022).

This report investigates the efficacy of export controls and other trade controls to prevent a competitor from catching up with a leading nation in strategically important technology. Specifically, the report explores what lessons can be drawn from US attempts to decouple its satellite industry from China for the current competition between the great powers in emerging technology like Artificial Intelligence.

Yan Luo et al., ***“Mapping U.S.-China Technology Decoupling. How Divergent Policies are Unraveling a Complex Ecosystem,”*** *DigiChina*, 2020.

This short report maps the policy moves already made by the United States and China that contribute to decoupling their high-tech ecosystems. It also reflects on the concerns that motivated the implementation of the different policy instruments in Washington and Beijing.

Knut Aliche / Ed Barriball / Vera Trautwein, ***“How COVID-19 is Reshaping Supply Chains,”*** *McKinsey & Company*, 2021.

This article maps how companies have adapted their supply chains due to the effects of the COVID-19 pandemic on global trade.



A screen shows Chinese President Xi Jinping attending a virtual meeting with US President Joe Biden, in Beijing, China November 16, 2021. *Tingshu Wang / Reuters*

should increase government control over the economy and insulate it from potential future disruptions like broad US sanctions and export controls on critical technologies.

To realize these goals, the Chinese leadership has also introduced a mix of industrial policies as well as restrictive measures. For example, China has launched massive investment programs to build up advanced capabilities in semiconductor manufacturing and to develop a competitive AI industry. For years, the government has also promoted the adoption of open-source software and hardware, like the RISC-V, an open instruction set architecture, to decrease the dependency on proprietary solutions offered by foreign companies. Moreover, Beijing has erected additional market entry barriers for foreign firms, including tightening control over foreign investments in critical sectors, such as cloud-related services, that are enumerated on its “Negative List.”

Challenges

While Washington and Beijing aim to increase their relative competitiveness and resilience through this web of disparate policies, separating their technology ecosystems poses significant challenges for both sides. For example, one challenge is the high degree of specialization in some technology industries. Over the last decades, the incentives for specialization have increased with the rising complexity of technology and the very different skills and resources demanded of firms that work at the cutting-edge. Due to the unique expertise and skills held by very few companies and experts globally, it is very difficult in industries such as semiconductors to simply relocate or duplicate certain elements of the relevant supply chains.

Another challenge is the massive economic costs of decoupling and the broader societal implications. Decou-

pling measures such as the tariffs imposed by the Trump administration have already notably increased the costs of goods “Made in China” for American consumers. This development is of particular concern given that the US inflation rate is at a 40-year high. Furthermore, US industries with significant investments in and trade with China could face massive losses from restrictive measures. For example, the US Chamber of Commerce estimates that a potential loss of access for the US semiconductor industry to the Chinese market would cost up to 124 billion USD in lost output, 12 billion USD in Research and Development (R&D) spending, and put more than 100,000 American jobs at risk.¹

A third and related challenge is that decoupling could stifle innovation. Tech companies with global markets usually reinvest shares of their revenues

in R&D activities, which keeps them competitive. Consequently, a significant decrease in revenues due to market access restrictions could adversely affect the long-term technological competitiveness of both the US and China. In addition, a disruption of talent flows could negatively affect technological advancement in companies and universities. These negative effects on innovation as a consequence of decoupling would contradict some of the motivations in both countries for unraveling their tech ties in the first place.

Implications for Switzerland

Even a partial tech decoupling of the two leading global economies causes ripple effects for the rest of the world. As a highly globalized small state with an export-oriented economy, Switzerland is inevitably affected by the repercussions of the US-China tech decoupling as well. Berne is still at the very beginning of addressing the manifold repercussions. Given the great challenges but also opportunities presented by the technological separation of the great powers, the Swiss government must position itself more strategically going forward.

First, for Switzerland it is neither desirable nor feasible to choose between a US- and a Chinese-led technology sphere or to try duplicating supply chains. Instead, Berne should focus on strengthening the resilience of strategic technology supply chains in the face of likely future disruptions. To this end, the government needs to systematically identify which technologies it considers to be strategically relevant. Strategic relevance could be defined as a subset of advanced technologies that are key to protecting Swiss security – implying its economic prosperity, its internal and external security, and its values. The creation of a strategic technologies list could then inform a review of

the relevant supply chains for vulnerabilities and the design of targeted measures to address them.

Second, in a world where technology is becoming an increasingly important geopolitical resource, Switzerland should continue to invest in its world-class tech ecosystem, including startups and universities. This also requires an effort, which the Federal Department of Foreign Affairs has already begun, to make collaboration on science and technology a more central component in Swiss bilateral relations with other countries. At the same time, Swiss scientific institutions and companies also need to increase the awareness among their staff of, and possibly counter, attempts to illicitly transfer technical knowhow across borders and to deploy it for purposes contrary to Swiss interests.

Third, the Swiss government should seize the opportunity to position itself as a “tech intermediary” between the US and China. Switzerland can build on its strengths as a politically neutral, stable, and technologically advanced country to serve as an initiator of and a host state for collaborative technology projects with US and Chinese participation. The aim of these projects could be tackling global challenges of mutual concern, such as food insecurity, looming water shortages, and the growing need for renewable energy sources, where technology may be at least part of the solutions. Such an approach would also be aligned with Switzerland’s current efforts to strengthen its profile in science diplomacy.

Finally, addressing the implications of the US-China tech decoupling necessitates a strengthened interdepartmental collaboration in Berne. The required policy responses – such as the creation of a strategic technologies list and a review of the related supply chains – do not fall neatly within the domains of foreign, economic, science, and security policy but touch upon all of them. Hence, only by combining insights and instruments from these different policy areas will Berne be able to effectively address the challenges presented by the changing global technology landscape.

Outlook

The unfolding US-China tech decoupling rewires the technological ties between countries around the globe. The evolving landscape is characterized by a reorganization of critical technology supply chains along ideological lines and a greater focus on countries’ technological self-reliance. The guiding principles underlying this new topography are trustworthiness and national security rather than specialization and cost-efficiency.

Switzerland needs to redefine its role in this changing environment. In the face of increasing risks of disruptions, Berne has to improve the resilience of its strategic technology supply chains while also maintaining its competitiveness through investments in and the protection of its domestic technology ecosystem. Moreover, given Switzerland’s attributes and resources, Berne should position the country as a “tech intermediary” between the US and China by creating a platform to jointly tackle global challenges.

As the tensions between the great powers continue to rise, the pressure on other countries to choose a side will further increase. Before the window of opportunity closes, Berne should develop and promote its own unique profile in the changing global technology landscape and avoid subordinating itself to an American or Chinese technology sphere.

Selected sources

1. U.S. Chamber of Commerce, [Understanding U.S.-China Decoupling: Macro Trends and Industry Impacts](#), 2021, 34–46.

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