

The U.S. Must Release the Semiconductor Industry from China's Grasp

By Frank J. Cilluffo and Kelsey Shields Published Jan 27, 2022 at 6:30 AM EST

The current state of the U.S. semiconductor industry is like a slow-motion car crash. We know that we need to onshore chip production, address current supply chain issues, and fund this looming national and economic security imperative, yet the car continues to accelerate toward destruction. Rather than waiting for China to further extend its grip on this critical industry, we must seize the moment. The means, tools and bipartisan support exist—but does the will to exercise economic, political and diplomatic leadership?

We have come to rely on semiconductors for core aspects of daily life. Computers, mobile devices, gaming systems, weapons, cars, planes, industry and government all rely on chips—some more sophisticated than others. The chip industry is fundamental to U.S. national and economic security, and onshoring semiconductor manufacturing plants holds the promise of economic growth.

So, what is the biggest threat to the U.S. semiconductor

market? The Chinese Communist Party. Its "Made in China 2025" agenda plans for 70 percent of China's semiconductor demand to be met through domestic production by 2025. The party intends to up that percentage to 80 percent by 2030, supported by a projected \$150 billion investment through state-sponsored programs. The Congressional Research Service cites significant advancements since 2014, as China has already invested nearly \$80 billion in manufacturing plants for its semiconductor industry.

According to recent reports by the Semiconductor Industry Association, that commitment has yielded results. China captured 9 percent of the semiconductor industry in 2020; that year, an additional 15,000 Chinese firms were registered as semiconductor enterprises. Today, 75 percent of semiconductor manufacturing occurs in China and East Asia. Furthermore, the association's most recent research details an expansion of China's domestic semiconductor manufacturing supply chain. The country added a whopping 28 new facilities with a \$26 billion investment from the Communist Party.

Meanwhile, China's intensifying interest in Taiwan is deeply problematic for the United States. Taiwan maintains an extensive semiconductor market, hosting Taiwan Semiconductor Manufacturing Company (TSMC)—the

largest chipmaker and largest foundry in the world.

Moreover, the U.S. manufactures a significant portion of its chip designs in Taiwan. If Taiwan falls more firmly into China's grip, the detrimental economic consequences for the United States would be substantial. The U.S. Air Force predicts that 90 percent of cutting-edge integrated circuit fabrication production will be in Taiwan by 2022. Adding insult to injury, China would gain access to America's outsourced semiconductor technology, with a concomitant impact on U.S. national security.

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A new type of 300 millimeter wafer with semiconductor chips and finished microchips of the semiconductor German manufacturer Bosch is pictured in Dresden, eastern Germany on May 31, 2021. - The factory will officially open... JENS SCHLUETER / AFP/Getty Images

The big picture is clear and concerning. But what are U.S. legislators doing about it? Channels for funding and legislation exist, but more profound action is necessary. John Cornyn (R-Tex.), Mark Warner (D-Va.), Michael McCaul (R-Tex.), Mike Crapo (R-Idaho) and Ron Wyden (D-Ore.) were all instrumental in engaging bipartisan congressional support for the CHIPS Act, which included funding to promote domestic semiconductor production. The CHIPS Act propelled bipartisan support for the United States Innovation and Competition Act, designed to facilitate U.S.-built semiconductors and bolster the research and development provisions of the Infrastructure Deal. It seeks to allocate \$52 billion towards advancing the domestic semiconductor industry and \$190 billion to improve U.S. technologies. However, USICA has yet to pass in the House and appears to be stalled.

Re-shoring complex chip manufacturing would enhance U.S. national and economic security. But the initiative requires funding and, as things now stand, only two of the largest U.S. manufacturing plants—Intel Corporation and Micron Technology—specialize in sophisticated chip production. Furthermore, the larger of the two (Intel) does most of its development and assembly abroad. While the company has allocated \$29 billion to build two new plants in Arizona, construction is not yet complete. Intel also hopes to make semiconductor installments in Ohio and Samsung in Texas,

but USICA funds must come through prior to construction. Constructing a sophisticated semiconductor plant takes time and money, both of which are hindered by legislative hurdles and geopolitical tensions.

And even with the requisite support and funding, building a plant takes time. In the interim, there are steps that the U.S. can take to better position itself. One would be to look to allies to diversify the U.S. supply chain. Unlike the cost of moving production wholly onto U.S. territory—which would be a half-trillion-dollar expenditure—"friend-shoring" would be comparatively inexpensive.

Read more

- [The Real Price of 'Made in China'](#)
- [Is This the New Normal for Global Supply Chains?](#)

This is not to say "friend-shoring" will be easy. On the contrary, the semiconductor industry does not fit neatly into existing agreements like the G7, Five Eyes or [NATO](#). We will need bilateral and tailored outreach and arrangements with many different partners: Japan, Singapore and the Netherlands for equipment; South Korea, Singapore, Germany and other [EU](#) countries for production and manufacturing; and Israel and the United Kingdom for research and development and core architecture.

The United States must pursue this challenge with urgency

but also with care. An effective long-term plan requires (among other things) pooling research and coordinating to avoid duplication of effort or roles. Tightening and aligning the export controls of the U.S. and its partners will also be critical, as failure to do so would undermine the entire exercise and only serve the interests of our adversaries.

Ultimately, [Congress](#) has a responsibility to expand economic opportunity for Americans and to advance U.S. national security by challenging China's tightening grip on the chip industry. The playing field is already uneven. There is no more time to waste. Let's not wait until the car crashes, lest we find ourselves scrambling through the wreckage wishing we had acted sooner.

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