ITTER INFORMATION TECHNOLOGY & INNOVATION FOUNDATION

Testimony of:

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INTRODUCTION AND SUMMARY

Chairman Comer, Ranking Member Raskin, and members of the Committee. I am Robert Atkinson, President of the Information Technology and Innovation Foundation (ITIF). During the Obama administration, I was appointed to co-chair the U.S.-China Innovation Experts Group. And over the last two decades, I have conducted extensive research China's efforts to displace the United States and the West to gain global dominance in advanced, technologically sophisticated industries through a state-directed campaign of what we at ITIF call "innovation mercantilism."

Just last week, we completed a 20-month investigation to assess China's innovation capabilities in 10 key industries, such as AI, semiconductors, and quantum.¹ We found that the Chinese Communist Party's (CCP) master plan is succeeding: Chinese companies have already pulled ahead in some areas, and in most others they are on track to replace U.S. and Western industry leaders in the next decade.²

I commend the Committee for your important efforts to better understand what U.S. government agencies are doing to understand and respond to the techno-economic challenge China presents. For agencies to respond effectively, policymakers need to understand the nature of the threat accurately and fully.

CHINA'S GOAL

If China were trying to achieve the Western economic goal of allocation efficiency—market-based allocation of goods, services, and investments—then the United States would have little to worry about, because as a rising economy, China would have limited innovation capabilities. But Chinese leaders do not want to accept the normal pace and stage of developing economies. Nor do they seek to maximize consumer welfare, or even provide good jobs for Chinese workers. Instead, the CCP, especially under President Xi Jinping's leadership, is focused first and foremost on maximizing its techno-economic power by growing China's advanced economy at the expense of the rest of the global economy, especially Western companies.

As the China Institutes of Contemporary International Relations, a bureau of the Ministry of State Security, has stated, "Economic growth is a prerequisite to and a necessary foundation for the rise of a great power."³ But it is not just any kind of economic growth China is seeking; it specifically wants to grow its advanced manufacturing. As a Chinese report titled "General Laws of the Rise of Great Powers" states, "Manufacturing can Rejuvenate a Nation … For a modern economy to be prosperous and strong it requires a powerful, diversified, and creative manufacturing industry…. Becoming a major manufacturing power provides crucial security for the goal of realizing the Great Rejuvenation of the Chinese Nation."⁴

Similarly, Wen Yi, a professor at Tsinghua University, has argued, "So long as a nation steps out onto the road of Industrial Revolution and becomes the factory of the world, it has the possibility of becoming the world leader in technological innovation. But if an industrialized nation abandons its manufacturing industry, it will very likely come by degrees to lose its technological advantage and capacity for innovation."⁵ Likewise, the China Institutes of Contemporary International Relations has written, "The state that esteems industry will increase in wisdom day by day."⁶ The opposite is also true, as we see in the United States, where the federal government is indifferent or even dismissive of the risk of steadily losing industrial knowhow.⁷

As such, China's economic, trade, and technology policies are all about gaining relative global power through advanced industry leadership. Chinese economic policy, unlike U.S. policy, does not privilege consumer welfare or efficiency. Chinese leaders do not care about "distorting the market"; in fact, they understand the only way China can become the global leader is to distort the market, because otherwise market forces would suggest that China remain a low-wage manufacturer for many decades to come.

The CCP's leaders do not see this merely as competition; they see it as war. Commercial war, to be sure, but war, nonetheless. Yi Changliang, a leading official of China's NDRC, wrote:

At a time when this new round of techno-scientific revolution and industrial transformation has not yet gained its [full] momentum, there are grand expectations for artificial intelligence, big data, and cloud computing and [these areas] have become the main battlefield for innovation.⁸

In other words, the CCP sees economics, trade, and technology as a battlefield on which to fight for dominance. And as China advances, the CCP considers it a success to see America in retreat. As Xie Tao, dean of the School of International Relations and Diplomacy at Beijing Foreign Studies University, wrote, "All tides that rise must fall. All living men must age, sicken, and die. Therefore, the United States must accept that the day will come where it too will fall into decline."⁹ It appears that day is fast approaching, if not already here, as China is already 70 percent more specialized than America in advanced industries.¹⁰ To match China's specialization, U.S. output would have to double in nine key industries, including aerospace, machinery and equipment, computers and semiconductors, and electronics.¹¹

President Xi Jinping regularly touts the "Great Rejuvenation of the Chinese Nation." As the Center for Strategic Translation has argued, one aim associated with China's National Rejuvenation is for "China's return to national greatness as a process of 'advancing toward the center for the world stage." They quote an official *Xinhua* commentary on the 19th Congress describing what this advance entails:

China has stood up, grown rich and become strong. It will advance toward center stage and make greater contributions for mankind. By 2050, two centuries after the Opium Wars, which plunged the "Middle Kingdom" into a period of hurt and shame, China is set to regain its might and re-ascend to the top of the world.... China's success proves that socialism can prevail and be a path for other developing countries to emulate and achieve modernization. China is now strong enough, willing, and able to contribute more for mankind. The new world order cannot be just dominated by capitalism and the West, and the time will come for a change.¹²

So, for China, it isn't about competing in a few industries and having other nations compete in others. It's about dominance. U.S. policymakers should take seriously the possibility that China is seeking not just growth, not just gradual development, and not just technological advancement according to Ricardian principles; but rather global dominance in advanced industries, which it sees as a source of power.

CHINA'S STRATEGY

It would be one thing if China were seeking to achieve this largely through market forces—leveraging its large domestic market, investing in the skills of its workers, encouraging its entrepreneurs, etc. But market forces would put limits on what China can achieve. Market forces would never, for example, have supported the development of COMAC, China's state-owned aviation company, which makes the C-919 jet to compete with Boeing and Airbus. This is inherently a large-scale money-losing operation that is only viable with massive government subsidies and a government-assured domestic plane market. The same is true with many Chinese industries in which domestic enterprises are viable because their markets are closed to foreign competitors, shaped by massive direct and indirect government subsidies, and spurred by intellectual property acquired free or at low cost through theft or coercion. I won't go into detail about the vast array of unfair Chinese industrial and commercial policies and practices, but ITIF has written extensively about this.¹³ However, here are a few key examples:

Not only is China an enormous market, but in many key industries, foreign companies are effectively precluded from gaining any significant market access. For example, Chinese telecom services firms have to buy a small amount of equipment from Ericsson and Nokia in order to give the impression of an open market, but the reality is that their market share is essentially allocated by the government, and most of the market reserved for Chinese firms. China imposes this managed market access through a variety of means, including tax incentives, directions to state-owned enterprises (SOEs), and informal pressures on other firms to buy domestic. On top of that, thanks to its Belt and Road Initiative and massive export-financing programs to much of the rest of the developing world,

China is aggressively fighting for and gaining market share around the world, especially outside Western nations.

- The government provides massive subsidies. China's subsidies are on steroids, in part because of the intense competition for industry between its cities and provinces, which shell out massive funds to support local champions. And China flouts the flaccid World Trade Organization (WTO) disciplines on subsidies. The magnitude and extent of Chinese subsidies has been widely documented. Though dated, Haley and Haley's book Subsidies to Chinese Industry documents just how sizeable these were and the role they played in enabling China to gain global market share in the 2000s.¹⁴ More recently, Center for Strategic and International Studies (CSIS) found, "Even using a conservative methodology, China's industrial policy spending is enormous, totaling at least 1.73 percent of GDP in 2019. This is equivalent to more than \$248 billion at nominal exchange rates and \$407 billion at purchasing power parity exchange rates."¹⁵ A new study from a German institute estimates, "Overall, industrial subsidies in China are several times higher than those in large EU and OECD countries. The size of the estimated difference ranges from a ratio of at least three to four in conservative estimates to a ratio of as high as nine in more encompassing studies."¹⁶ In 2022, 99 percent of listed firms in China received direct government subsidies. Overall, in 2019, Chinese industrial subsidies were 4.5 times greater than the United States as a share of GDP, and that was accounting for the U.S. subsidies related to national defense.
- Finally, what underpins the Chinese innovation model is the CCP's strategy for achieving its goal of gaining advanced-technology advantage over its adversaries. By "strategy," I do not necessarily mean a formal document or process laying out steps. Often, Chinese tech policy is more akin to "crossing the river by touching the stones," an incremental process, sometimes involving mistakes and reversals, but always in the service of crossing the river: technology-economic dominance. And unlike the United States, where multiple, often warring factions competing in the interagency process related to tech, trade, and industrial policy make all-of-government solutions all but impossible, those kinds of solutions are the norm in China as the CCP State Council can more easily impose its will on assorted agencies. The CCP's control means that it has more leeway to ignore vested interests and focus on its overall mission to become dominant.

WHAT ARE THE IMPLICATIONS?

The last decade has shown that China can be a globally competitive producer of technologically complex goods, including telecom equipment, machine tools, computers, solar panels, high-speed rail, ships, drones, electric vehicles, bulk chemicals, LCD displays, satellites, heavy equipment, and pharmaceuticals. In these industries, China has been able to gain market share through the advantages of scale economies in its protected home market, complemented by often massive subsidies to Chinese firms and a litany of other unfair practices.

However, if China can combine its cost advantage with an innovation advantage, or at least innovation parity, the challenge to advanced technology industries in Western nations will become much more significant. So, a key question for Western nations is to what extent China is becoming an innovation leader, or at least reaching par with Western innovation leaders. If China can innovate as well as the leaders, the result will be a significant diminution of Western firms' market share, including widespread and highly visible corporate

bankruptcies, as China will be able to combine quality, innovation, and price. As a two-year long ITIF project has found, China is making rapid advances in technology innovation.¹⁷ (See table 1.)

Industry	Position vs. World Leaders	Pace of Progress
Robotics	• Near	Rapid
Chemicals	Lagging	Rapid
Nuclear Power	Ahead	Rapid
Electric Vehicles/Batteries	• At Par	Rapid
Machine Tools	Lagging	Rapid
Biopharmaceuticals	Lagging	Rapid
Semiconductors	Lagging	Modest
Artificial Intelligence	• Near	Rapid
Quantum	• Near	Modest
Display Technology	• Near	Rapid

Table 1: Chinese advanced industries' relative position and pace of progress on key indicators of innovation

As China continues to become more self-sufficient in advanced industries, Western sanctions and other disciplinary trade tools will be less effective. Moreover, China could become the one with sanction power, able to threaten cutting off supplies of needed goods if the United States and other Western nations do not do what it wants. And of course, its military capabilities would increase even further than they already have, as they would have access to globally leading-edge technology. Its foreign power and influence over other nations, especially in the developing world, but also in regions such as Europe, would increase even more.

At the same time, because global markets for advanced industries are largely fixed, at least in the short-run, China's gain will inevitably come at the West's expense. China gaining \$50 billion in telecom equipment sales means that Western firms lose \$50 billion in sales. This means Western advanced industry capabilities would shrink, and in the case of some already weak nations such as the United Kingdom and Australia, virtually evaporate. The U.S. economy could look like that of the United Kingdom in several decades, with a dramatically hollowed-out technology production base. This, of course, would have severe consequences for U.S. military capabilities, with military spending having to increase massively if most weapons systems and parts are made only for the Defense Department, as opposed to being dual-use. Because the U.S. trade deficit would likely increase even more, a significant devaluation of the dollar would be likely, lowering U.S. living standards.

Moreover, unlike less sophisticated industries that could be resurrected easily if they were lost—call centers, timber production, and the like—advanced industries are almost impossible to resurrect because of the massive amount of embedded knowledge that rests in the companies and overall industrial commons. Imagine if COMAC put Boeing out of business by taking all Chinese sales and most sales outside of the OECD. No amount of subsidies could recreate a U.S. commercial airline producer once that capability is lost.

Some will argue that even if America loses its advanced industries, the United States will succeed in the next new industries, such as synthetic biology, quantum computing, and AI. But as ITIF has shown in its series of studies on Chinese innovation, China is also gaining ground rapidly in many industries of the future.¹⁸ As such, there is no assurance that the United States will automatically lead in them. Moreover, the industries of the future are simply not large enough or comprehensive enough to ensure adequate national power. The United States cannot win wars with data and molecules; it needs metal, chemicals, and electrons.

Overall, if China succeeds in being the global innovation leader, the result would be a shift in the center of global economic power and innovation from a geo-point somewhere in the Atlantic Ocean to China. Should that happen, geopolitics would fundamentally change, America would lose its status as the most powerful nation on earth, and the West would be reliant on China and likely have to kowtow to Beijing, as was true for many centuries in the past.

A NEW COLD WAR

So where does this put us? How should U.S. policymakers think about China, at least in the realm of technology and industry? The best way to think about this is as a form of war: China is seeking to defeat the United States on the techno-economic battlefield. In contrast, Japan, Europe, Canada, and others are competing with the United States on fair terms, and all are willing to acknowledge that the United States has areas of competitive advantage. China wants total defeat. In this sense, while some experts dismiss the concept of America being in another cold war, because it does not exactly fit the contours of the conflict with the Soviet Union, the reality is that war is the best metaphor for understanding the new dynamic. For at least the next three decades (presuming the CCP does not fall), China will be waging a techno-economic war on the United States, whether our leaders recognize that or not.

THE FALSE HOPE OF COOPERATION

What about cooperation? We hear phrases like we must compete, confront, and cooperate.¹⁹ But cooperate on what? Cooperation is a false promise, dangled by the CCP to extract concessions from the United States. For example, China will agree to cooperate in climate, but only if America limits export controls.

There are a number of areas cooperators argue for. The first is climate, with the idea that since China is such a major greenhouse gas emitter we must not be so confrontational with China that they won't help us address the challenge.²⁰ But there are three things wrong with this. First, China has much more at stake from climate change than the United States. More of its population lives in areas around sea level, and it has less arable land than the United States. China should be begging America to do more on climate. Second, China will only address decarbonization when it is in its economic interest to do so. And that will only happen when clean energy becomes cheaper than fossil fuels.

Others argue we need to cooperate on "illegal narcotics."²¹ Do they mean the fentanyl that the Chinese government allows to be made with Chinese precursor chemicals? There is no cooperation to be had there; only China stopping its destructive actions.

Others say we need to cooperate on human rights. But it is China that is oppressing whole populations in its territory. There is no cooperation to be had; China alone must address the issue.

Finally, infectious diseases. That anyone can raise this point with a straight face is truly amazing. It was China's deceit (and possibly mismanagement, if the virus escaped from the Wuhan government lab) that made COVID-19 much worse than it could have been.

Others, such as Columbia professor Jeffrey Sachs, are positively enthusiastic about cooperation, treating China almost as an ally, where cooperation can get us "peace, expanded markets, accelerated technological progress, the avoidance of a new arms race, progress against COVID-19, a robust global jobs recovery, and a shared effort against climate change."²² Peace depends on China not invading Taiwan. Markets expand for Chinse firms, not U.S. ones. Technological progress expands for Chinese firms and contracts for the United States. China shows no signs of slowing down its massive arms buildup. China allowed COVID-19 to spread. Chinese job growth has come partly at the expense of jobs in the United States. China will continue to be a massive carbon polluter until it suits them not to be.

WHY THIS TIME IS DIFFERENT

There are many reasons why the techno-economic threat China presents is fundamentally different than past challenges. The challenge from the Soviet Union was military- and foreign-expansion-related, not techno-economic. The economic challenge from Japan was centered on technology industries, but Japan was an ally, which gave the United States considerable leverage.

China is different in many ways. The first relates to its relationship with U.S. companies. By and large, the Japanese kept American companies out and therefore American companies were more than willing to support trade cases against Japan. Most large U.S. companies (and other foreign multinationals) have considerable operations in China (something U.S. administrations from Nixon to George H. W. Bush administration encouraged them to do). Like the mafia, the Chinese government does not tolerate criticisms, so it punishes U.S. companies that complain about Chinese government actions or that have the temerity to encourage the U.S. government to bring any kinds of actions against China, including domestic or international trade cases. These companies find themselves met with purchase bans, antitrust penalties, or other actions designed to send a clear message to the violator and anyone else who may be so brazen as to speak out: Be quiet, or else.

China does the same thing to other nations. Its so-called "wolf warrior" diplomacy was only the most visible aspect of this. But if nations, other than the United States, complain publicly against China, China will retaliate with sanctions like import bans, key product export bans, limits on Chinese tourism or foreign students and the like. But for nations that kowtow to Beijing, the rewards can be great, including massive infrastructure spending.

The second way this time is different has to do with U.S. elite capture.²³ During the first cold war, the Soviets had little access or influence in America, particularly after the purge of Soviet agents and fellow travelers in the

U.S. government in the 1950s. Americans might have heard of Pravda but they didn't consume its propaganda. And few U.S. scholars visited China. Today, we hear regularly of Chinese spies in various government posts. One can buy *China Daily* at a news boxes throughout Washington. CCP officials and agents have Twitter accounts they use to influence America. Moreover, the think tank and university scholars who study China are dependent on access to China. The Chinese government has shown that it will deny access to scholars who are critical of the regime. And even for the most careful and ethical China scholars this looming pressure often has some effect on their willingness to be candid.

WHY HAS WASHINGTON NOT DONE MORE?

While Washington has made some changes in response to the China threat, particularly in the current and previous administration, we still lack an all-of-government strategy. There are numerous reasons for this:

- 1. There is widespread denial of the nature of the China challenge, with some arguing that China is a basket-case economy, and we are now seeing "the delusion of peak China."²⁴ Others argue that it is impossible for a Marxist-Leninist regime to innovate.²⁵ Both are wrong.
- 2. Many defenders of free trade and global integration either turn a blind eye to China's threat to that vision, or they believe that if the United States responds in kind with any kind of market closing, it will open the flood gates to the protectionist barbarians who reject globalization. Even if this were true, the job of policy experts and scholars is to leave the politics up to elected officials and focus on analysis. Anyone with a shred of objectivity can see that China has not been playing by the global rules, especially not since Xi Jinping took power.
- 3. Many in government (and in economics) remain committed to the view of "potato chips, computer chips: what's the difference?" In their telling, it doesn't matter what industries the United States has, as long as our GDP is growing. Coupled with that is a view among the foreign policy establishment that economic issues are second-rate—something consigned to low-level desk officers in embassies, not a matter for grand strategists. But the reality is that techno-economic issues have become today's grand strategic issues.
- 4. Agencies have conflicting priorities that collectively don't always generate public interest. Treasury, for example, seeks to defend the strong dollar, as well as keep China buying U.S. T-bills, so it is reticent to do anything to upset China. The National Science Foundation sees its mission as helping U.S. research scientists and research universities, so it is hesitant to impose restrictions on working with Chinese researchers. The Department of Energy is often concerned with spreading advanced clean energy technology throughout the world, not on limiting China's access to our technology. The Department of Justice and the Federal Trade Commission do not want to criticize China's discriminatory and weaponized antitrust regime because they believe it is none of their business.

And the list goes on.

WHAT TO DO

While it is beyond the scope of my testimony to lay out a comprehensive agenda to address China's technoeconomic aggression, let me suggest three steps:

First, Congress needs to take the lead in putting in place a much more robust advanced-industry competitiveness strategy.²⁶ While such a strategy is multifaceted, some of what it entails is a more robust R&D tax credit; making permanent first-year expensing of all capital equipment expenditures; a "Super Chips" tax credit that for five years would allow companies in a set of advanced industries to take a 25 percent tax credit on all machinery, buildings, and equipment; expanding the NIST Manufacturing USA centers; creating a national industrial development bank; and making better use of trade policy, including U.S. ITC's Section 337 program, to limit imports of unfairly made Chinee goods and services.

Second, Congress should establish a National Competitiveness Council in the White House.²⁷ At the end of the day, the problem is not so much knowing what to do, but rather having people in the White House with the incentives and ability to organize an all-of-government China response. We have not seen that to date. The Council of Economic Advisors is the home for conventional economists, focused largely on macroeconomic policy. The National Security Council, while having had some focus on these issues, sees China through the lens of national security, intelligence, and foreign policy. And the National Economic Policy team focuses largely on broad domestic economic policy issues, often related to social policy, business regulation, infrastructure, college debt, inflation, and small business.

What is needed is a National Competitiveness Council (NCC) focused on formulating and coordinating advanced-industry competitiveness policy across the entire federal enterprise. The NCC would oversee analysis of U.S. advanced-industry capabilities, especially vis-à-vis China. It would assess Chinese policies designed to erode U.S. advanced-industry leadership. It would identify key sectors needed for U.S. leadership and organize a whole-of-government approach to advance that on the sectoral level (e.g., semiconductors, biopharmaceuticals, aerospace, autonomous systems, AI, etc.). The NCC should be staffed not by economists who focus principally on price-mediated markets, but rather by "productionists"—analysts who have a deep understanding of firm, industry, and technology dynamics.

The NCC should then lead the formation of an all-of-government China strategy wherein each major agency develops an approach to deal with China. U.S. Border and Customs should have a robust strategy for interdicting and destroying all illegal Chinese imports. DOJ and FTC should develop a joint strategy for responding to China's weaponized antitrust regime. The National Science Foundation should focus on how to support knowledge generation that limits Chinese access while advancing U.S. industrial innovation. The Ex-Im Bank, the Development Finance Corporation, and other federal export agencies should be required to form joint aligned strategies, along with state governments that operate similar programs.

Agencies and departments will need to be pressured to prioritize winning the techno-economic war with China, just as containing and ultimately winning against the Soviets was a top priority for many federal agencies in the first Cold War. This will mean intervening in deep agency cultures to press them to reconsider long-held views. In antitrust for example, it will mean agency regulators putting competitiveness first and foremost, not competition per se. For the Small Business Administration, it would mean not just supporting any and all small businesses but prioritizing the ones that are most likely to grow and could do the most to help compete with China. For EPA and other regulators, it would mean putting industry competitiveness impacts front and center with their traditional missions to better balance the two when they are in tension. For State Department, it would mean putting American economic interests first and being more willing to challenge China and other foreign governments whose policies hurt U.S. advanced-industry competitiveness. For the Securities and Exchange Commission, it would be more and stronger efforts to limit Chinese access to U.S. financial markets. Etc.

The federal government also needs to more closely monitor what state and local governments are doing. ITIF has estimated that between 2010 and 2022, state governments have provided over \$2 billion in subsidies to Chinese companies in the United States.²⁸ These incentives did not determine whether the company located in the United States, only what state it went in. U.S. governments should not be subsidizing Chinese companies. The Department of Commerce should be tracking that, as well as other state and local programs favoring China, such as state pension fund investments in Chinese companies and state university partnerships with Chinese companies.

And that work has to be informed by industry. It is U.S. industry that is on the front lines of this battle, and the old view that industry should be kept at arm's length no longer works. These issues are so complex and technology-specific that without deep and sustained industry advice, it will be impossible to generate policies in the national interest. While antibusiness civil society groups may complain, the goal here is to advance the overall national interest.

Finally, we need to institute a government-wide training program to help government officials better understand Chinese technology policy. When it comes to foreign or national-security training, the federal government is well prepared. But when it comes to training government officials on advanced-technology competition, science and technology policy for competitiveness, and the Chinese system, they are not. While certain individuals in certain agencies have developed deep expertise in these areas, these individuals are usually few and far between.

Thank you again for the opportunity to present my thoughts to the Committee in support of the important work you are doing.

Robert D. Atkinson President, ITIF

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