The AEF first met in early 2018 to discuss reforms to foreign investment screening mechanisms in various countries. Over time, the agenda has expanded to cover four distinct policy areas—foreign investment screening, export controls, supply chain security, and international research collaboration—with emphasis on managing the transfer of technologies critical to national security.

Five central lessons for future cooperation with like-minded partners emerged from our discussions:

• The interconnectedness of the global economy and innovation ecosystems means unilateral approaches are unlikely to succeed.

• The high degree of interconnectedness results in multiple vectors for sensitive technology and data transfer, requiring coordination across countries as well as policy areas.

• Allies should proactively manage areas of tension between them, for instance on trade, that might otherwise jeopardize coordination efforts.

• Technical assessments should remain independent of political considerations and be shared among allies to build consensus.

• Future cooperation should build on recent efforts to coordinate policy mechanisms over the past few years.

Looking ahead, the traditional distinctions between national security and economic competitiveness are being blurred. Policymakers should resist justifying economic protectionism in the name of national security. Instead, they should deepen mechanisms for engagement among like-minded countries on shared security issues. They should also explore possible joint action to promote technological development and secure critical functions such as medical supply chains in a way that limits distortions and promotes a level playing field.

BACKGROUND: A HIGHLY INTERDEPENDENT WORLD
The Covid-19 pandemic has reversed the march of globalization, but economies are still more closely linked now than in any other period in modern history. The value of global
merchandise trade increased from 16.7 percent of world GDP in 1960 to 46.1 percent in 2018. Including services, the value of total trade amounted to nearly 60 percent of global GDP in 2018. Further, the majority of trade flows are now tied to complex production processes, where goods can cross international borders multiple times before reaching their final market destination. The World Bank estimates that more than two-thirds of total trade occurs through these global value chains that support cross-border production.

Investment has similarly become more globalized, with foreign direct investment (FDI) and other flows growing more quickly than trade in recent decades. Worldwide FDI stocks exceeded $32 trillion in 2018, or 38 percent of global GDP, up from 6 percent of GDP in 1980. The United States is the largest destination for global investment, and inward FDI stocks (U.S. FDI liabilities) have jumped from less than 3 percent of GDP in 1980 to 36 percent in 2018.

Portfolio investment, defined as cross-border transactions and positions involving equity or debt securities, has grown even more significantly over the last four decades. U.S. holdings of foreign portfolio assets totaled just over 2 percent of U.S. GDP in 1976 but since have grown to 63 percent as of 2019, while U.S. portfolio investment liabilities (foreign investments in U.S. equity and debt securities) increased from 8 percent of GDP to 100 percent over the same period.

As the world has become more integrated, economic activity has become less concentrated in North America and Europe, while East and South Asian countries, especially China, account for an increasing share of global output. The U.S. share of global GDP fell from 40 percent in 1960 to 24 percent in 2019. Members of the Organisation for Economic Co-operation and Development (OECD), a group of 37 mostly advanced economies, represented 61 percent of global GDP in 2018.
2019, down from 78 percent in 1960. In contrast, China’s share of world GDP quadrupled from 4 to 17 percent over that time.

Changes in contributions to global output have coincided with a rebalancing of global research and development (R&D) spending. Between 2000 and 2017, U.S. and EU shares of worldwide R&D spending fell from 37 percent to 25 percent and 25 percent to 20 percent, respectively, despite consistent increases in gross expenditures. Increased R&D spending in Asian economies—led by China, Japan, South Korea, and India—explains the difference, with regional R&D spending accounting for 42 percent of the global total in 2017, up from 25 percent in 2000.7 Consistent with global R&D investment trends, work in the AEF revealed the increasingly connected nature of research across a range of science and engineering fields, with implications for scientific innovation and commercialization.8

LESSON 1: INTERDEPENDENCE CONSTRAINS UNILATERAL ECONOMIC ACTIONS

Globalization has yielded tremendous benefits, chiefly spurring economic development and helping to lift hundreds of millions of people out of poverty. Increased interdependence between countries has enabled efficient supply chains that lower costs for consumers and has created research linkages that generate scientific breakthroughs. Trade and foreign investment support millions of jobs in the United States, and U.S. technological leadership is built on attracting foreign talent.

At the same time, interdependence renders the unilateral use of economic policy tools both less effective (the United States is neither the dominant economic actor nor the sole innovation leader) and more costly (the United States could divert benign foreign capital, knowledge, and technology to other markets). For example, unilateral controls on the export of items with alternate foreign producers would simply shift business to foreign competitors, harming U.S. companies without alleviating the national security threat. Efforts therefore are needed to coordinate among allies and partners to help policymakers distinguish between beneficial cross-border activity and a narrow set of interactions that pose an unacceptable risk to national security.

LESSON 2: COORDINATION IS REQUIRED ACROSS COUNTRIES AND POLICY AREAS

The challenges posed by China are highly complex and involve interconnected supply chains, financial linkages, and research communities. The high degree of interconnectedness implies that there are multiple vectors for sensitive technology and data transfer,

CONCERNS WITH BEIJING’S TECHNOLOGY ACQUISITION STRATEGY

In a more interdependent world, China’s rise has produced unique challenges for advanced democracies. China is simultaneously a vital market for foreign businesses and a key link in global supply chains; a necessary partner in the fight against climate change, pandemics, and other global crises; an economic competitor, especially in emerging technologies; and a strategic rival promoting an alternate vision of governance.

While technological advancement is desirable and naturally occurs with economic growth, there are concerns in Washington and other capitals that Beijing’s state-directed technology acquisition strategy threatens national security.9 The rapid development of dual-use technologies—those with both civilian and military applications—has blurred traditional lines between national security and economic competitiveness. Policymakers fear that state-supported Chinese companies could supplant their foreign peers or drive them out of business, which would weaken the U.S. defense innovation base and erode the military’s technological edge over the People’s Liberation Army.

An influential 2017 white paper commissioned by the Department of Defense alleged that Beijing took advantage of the openness of the U.S. economy to direct acquisition of dual-use technologies.10 The report argued that existing mechanisms to control military items in the United States and allied countries are ill-equipped to manage dual-use, early-stage technologies that are often developed in the commercial sector.

Over the past several years, Washington has taken a number of unilateral actions, such as tariffs and export controls, in an effort to curb Beijing’s support for favored technology sectors. Yet the globalized nature of advanced technology R&D requires a multilateral response to be effective. U.S. allies share concerns with certain aspects of China’s technology acquisition strategy, and there have been nascent efforts at alignment between Washington and like-minded capitals. Policymakers should build on that momentum to deepen coordination when using economic tools to address shared national security concerns.
requiring coordination not only across countries but across policy areas. While the AEF initially met to discuss foreign investment screening mechanisms, participants recognized FDI as only one possible means for transferring critical technologies. As a result, the AEF agenda expanded to include export controls, supply chain security, and foreign research collaboration to address risks of sensitive technology and data leakage associated with exports, imports, and transfers of human capital, respectively. The cross-policy format helped facilitate conversations connecting objectives and tactics among a group of participants from different institutional backgrounds.

In many governments, including the United States, policies relevant to managing technology transfer are overseen by different agencies with varying degrees of coordination. Such decentralization may be efficient but is challenged by multipronged efforts aimed at technology acquisition by foreign adversaries. Organizing policy around specific critical technologies would cut across transfer mechanisms (e.g., FDI in a sensitive sector or export of a sensitive technology), allowing for a “whole-of-government” approach and offering a framework for coordinating policy among allies and partners.

**LESSON 3: NATIONAL SECURITY ISSUES DO NOT EXIST IN ISOLATION**

National security discussions take place against a backdrop of competing policy priorities and equities. Not all like-minded countries will weigh security considerations similarly, and failure to understand competing priorities risks undermining efforts at multilateral coordination. The debate about whether to restrict Huawei Technologies, a Chinese company, from fifth-generation (5G) telecommunications networks is an instructive example. In Washington, Tokyo, Canberra, and Wellington, dominant national security concerns led to early bans of the company from building 5G networks. After a protracted debate, the United Kingdom announced it would also stop using Huawei equipment in its 5G network. Other countries, including several U.S. allies, have been more reluctant to announce an outright ban for a variety of reasons, including the presence of existing Huawei infrastructure in their communications networks, the lack of a cost-effective alternative to Huawei, and the perceived threat of retaliation from China. The uncertain direction of U.S. policy compounds differences with allies and inhibits cooperation. If other countries cannot reliably predict U.S. actions, they will be reluctant to commit to a course of action preferred by Washington. AEF conversations revealed that trade tensions unrelated to Huawei complicate the domestic calculus for allies and partners seeking to align with the United States on national security issues. For example, U.S. tariffs on imported steel and aluminum and the threat of tariffs on imported automobiles on dubious national security grounds have frustrated and alienated U.S. partners. While such actions are seemingly unrelated to national security risks around technology transfer, tensions in bilateral relationships may prevent cooperation even when there is agreement on underlying risks.

Given the importance of both Chinese and U.S. markets to many economies, foreign officials bristle at suggestions that Washington will ask them to “pick a side” between the two powers. As the figure below illustrates, most countries have a larger merchandise trading relationship with China than with the United States. Similarly, many foreign companies rely on the Chinese market as a primary source of revenue growth or a vital link in their supply chains. Uncertain U.S. trade policy further complicates the notion of “picking a side,” especially when Beijing presents itself as a champion of globalization.

A more realistic approach would prioritize those areas where allied coordination is essential—such as managing critical technology transfer—as well as those areas where values (for example, on human rights) are aligned, without asking countries to reconsider their whole relationship with China. Walking back tariffs spuriously based on national security and a renewed commitment to the multilateral trading system over reliance on unilateral trade actions would signal Washington’s good faith efforts at coordination with allies and partners.

**LESSON 4: TECHNICAL EXPERTISE MATTERS**

Given global competition across complex technologies, policymakers should solicit expert input and base decisions on realistic assessments of the global innovation landscape. In the export control space, the Department of Commerce has reconstituted its Emerging Technology Technical Advisory Committee, which convenes industry, academia, and government experts to help identify emerging technologies that are developed in the commercial sector with significant national security applications. Within critical technology categories, the group was tasked with identifying potential “chokepoint technologies” with high priority for control while considering the impacts of regulation on the domestic research base. The framework and conclusions from this group should guide viewpoints on emerging technologies across agencies.
and future federal efforts to classify technologies for control.

At the multilateral level, AEF discussions demonstrated that policy arguments based on firm technical grounds will resonate best with allies, while those that do not will undermine credibility. This was especially relevant in the 5G debate, where different countries, or even agencies within countries, produced different opinions on whether risks from Huawei could be mitigated. Technical assessments should remain independent of political considerations and shared among allies, where possible, to clarify different positions. Like-minded countries with a history of secure information exchange, such as the Five Eyes intelligence alliance, can also consider joint, cross-border technology advisory committees to form a common baseline understanding of critical technology issues.

LESSON 5: BUILD ON SUCCESSFUL COORDINATION

Over the past few years, Washington has made steady progress on multilateral coordination of policies to manage technology transfer and contain aspects of Beijing’s technology acquisition strategy. Policymakers have worked with other countries to strengthen investment screening regimes, export control systems, and research integrity guidelines. Successful efforts share a few common features: interagency and broad stakeholder consultation, including with the private sector and academia as appropriate; a commitment to working with allies from the start; and flexibility to adapt outreach based on individual partner-country circumstances. Future efforts to deepen cooperation should build on these initiatives.

Investment screening stands out as an area where the United States has prioritized multilateral coordination. The Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA) notably expanded the jurisdiction of the Committee on Foreign Investment in the United States (CFIUS) to review and block non-controlling, non-passive investments in U.S. critical technology companies, critical infrastructure, and businesses that manage sensitive personal data that pose national security risks. FIRRMA explicitly instructed the Department of the Treasury to “establish a formal process for the exchange of information” with partner countries to harmonize investment screening action.

The initial FIRRMA mandate to work with allies empowered the Department of Treasury to conduct outreach and offer technical support to allies and partners developing their own regimes. Since FIRRMA was signed in August 2018, several close U.S. allies, notably Australia, Germany, and Japan, have strengthened their investment review mechanisms. In 2019, the European Commission...
announced guidelines to encourage member states to stand-up formal investment review procedures. As of April 2020, 14 EU member states had screening mechanisms, and several others are in the process of adopting an investment review regime.\textsuperscript{20}

The United States has also offered incentives for other countries to strengthen their screening mechanisms. FIRMA’s implementing regulations created a category of “excepted foreign states” whose covered investments (but not control transactions) into the United States could be subject to less rigorous review, provided certain criteria are met.\textsuperscript{21} Countries that have established and are “effectively utilizing a robust process to assess foreign investments for national security risks . . . and coordinate with the United States on matters relating to investment security” are eligible for this “white list” status, although the Department of Treasury will make determinations on a case-by-case basis. Thus far, Australia, Canada, and the United Kingdom have been listed as “excepted foreign state” candidates.

\textbf{LOOKING FORWARD: PRIORITIES FOR FURTHER COOPERATION}

Drawing on the lessons revealed through the AEF, we suggest three priorities for future cooperation among allies and partners:

\textbf{DISTINGUISH NATIONAL SECURITY-BASED ACTIONS FROM BROADER ECONOMIC OBJECTIVES}

The increasing development of dual-use technologies in the commercial sector has blurred the line between economic and national security, and the 2017 U.S. \textit{National Security Strategy} declared that “economic security is national security.”\textsuperscript{22} Expanding on this idea in a 2018 speech, Assistant to the President and Director of the White House Office of Trade and Manufacturing Policy Peter Navarro argued that a broad domestic manufacturing base is vital for national security.\textsuperscript{23} Since then, the White House has cited national security to justify a range of economic actions, notably tariffs on steel and aluminum from mostly allied countries and potential tariffs on imported automobiles.

Economic competitiveness concerns are legitimate but cannot be addressed using national security tools without undermining trust and doing damage to the international system.

Blurring national and economic security presents the risk of setting precedent for other countries to follow, alienating allies, and jeopardizing broader strategic goals. Congress can play a constructive role by reaffirming commitments to open trade and trusted investment and avoiding legislation that justifies protectionism on the basis of national security. While the experience with Covid-19 has underscored the challenge of \textit{ex ante} identification of strategic sectors, policymakers should seek to level the playing field rather than protect non-strategic economic interests. And where there are distortions to the global trading system that impact competitiveness, countries must be willing to address these distortions or risk facing a protectionist backlash.

\textbf{INSTITUTIONALIZE MULTILATERAL COORDINATION}

The United States and other like-minded governments have launched several new, creative channels for coordinating China policy: trade ministers from the European Union, Japan, and the United States have discussed trade issues, including those related to technology transfer, in a trilateral dialogue for over two years;\textsuperscript{24} the United Kingdom is reportedly organizing a group of 10 advanced democracies to support alternatives to Huawei;\textsuperscript{25} and in June 2020, a group of legislators from 11 countries and the European Union announced the Inter-Parliamentary Alliance on China to support democratic values and an open, rules-based international trading system.\textsuperscript{26}

Washington should continue to invest in mechanisms to foster agreed approaches to managing potential national security risks that stem from certain economic and research activities. For example, the Department of Treasury could facilitate expansion of its “excepted foreign investor” list by publishing transparent criteria and offering guidance to partners; the Department of State could seek to accelerate reviews of specific technologies that are candidates for multilateral restrictions among a subset of advanced economies; and government funding agencies could enhance outreach to scientific societies.

\textbf{EXPAND THE AGENDA}

Allied coordination on China has mostly focused on defensive actions to control critical technologies, enforce global trading rules, and push back on human rights violations. Beyond basic research, proactive cooperation on new R&D may have limits, since like-minded countries are also economic competitors. However, the scale of China’s ambitions in dual-use technologies could create new urgency for allied collaboration. Future efforts should explore joint action to promote technological development in a trusted innovation base, where possible.\textsuperscript{27} Such efforts could start at the bilateral or
plurilateral level and leverage existing linkages, such as the Group of Seven-endorsed Global Partnership on Artificial Intelligence to support responsible development of AI.28

Beyond technology, the Covid-19 pandemic has underscored the importance of “critical national functions” such as medical supplies. Allied discussions should also focus on securing such critical functions for future crises while minimizing trade disruptions.

Future meetings of the AEF will explore ideas to promote joint critical technology development and secure critical functions as well as other opportunities for multilateral coordination. ■

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1. Participants in AEF meetings have included officials from Australia, Canada, the European Union, France, Germany, Japan, Korea, the Netherlands, New Zealand, the United Kingdom, and the United States. AEF discussions are held under a not-for-attrition basis.


11. For example, in the United States the foreign investment screening process is led by the Department of the Treasury; the export control system is led by the Department of Commerce; and efforts to manage supply chain security involve the Departments of Defense and Homeland Security, among others. Guidelines for foreign research collaboration are overseen by individual scientific funding agencies, while visas are managed by the Department of State and guidelines for universities are coordinated by the Department of Education.


16. For example, in 2019 the UK National Cyber Security Centre concluded it was possible to mitigate risk in 5G networks from using Huawei equipment, contradicting the U.S. position on Huawei. Under increasing political pressure, the UK government reversed its stance and has decided to phase out Huawei.


17. The Five Eyes is an intelligence alliance between Australia, Canada, New Zealand, the United Kingdom, and the United States that facilitates information exchange, where appropriate.


