

Export Control

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Board of Directors (21 July 2020)*

Export controls, including International Traffic in Arms Regulations (ITAR) are essential to national and international security, and serve as crucial international policy tools for the United States. However, such measures should be used with care. Proactively fostering fundamental research and encouraging domestic technology development are far more likely to lead to national security and economic prosperity. International research collaborations can significantly accelerate the advancement of science and technology; enhance the long-term competitiveness of domestic research; and benefit U.S. economic and social advancement.

In 2010, the Department of Commerce’s Emerging Technology and Research Advisory Committee (ETRAC) stated, “To remain the technological leader in the 21st century, it is imperative that the U.S. simultaneously enable scientific discovery, promote economic growth, and preserve national security.” This message remains valid today, even in the face of an increasingly competitive global technology environment. It is IEEE-USA’s position that the United States. should implement policy that stimulates--not hinders--innovation, and the underlying fundamental research that is essential to innovation.

IEEE-USA recommends that Congress and the administration:

1. Ensure that export control licensing, including identification of commodities or technologies that should be subject to controls (including deemed export), is administered by a single Department or Agency. The same Department or Agency should also perform the export control enforcement function.
2. Pursue multilateral export control regulations and minimize the number of unilaterally regulated commodities or technologies to the maximum extent possible.
3. Ensure that definitions of commodities and technologies subject to export controls are specifically identified down to the fundamental elements (e.g., material, single device, or subcomponent) that enable the regulation’s motivating military or intelligence applications.

4. Ensure that publication or public dissemination of fundamental research remain unrestricted to the maximum extent possible. Specifically, the administration should reaffirm the policy stated in National Security Decision Directive 189.
5. Ensure that fundamental research collaborations between American researchers and those from foreign nations not be unnecessarily restricted by export control measures.
6. Ensure that information systems that store and communicate export-controlled digital files have appropriate cybersecurity measures in operation to protect intellectual property.
7. Enhance the effectiveness of the Committee on Foreign Investment in the U.S. (CFIUS) in its ability to prevent sale or transfer of intellectual property to foreign entities when needed to protect U.S. national security interests.

This statement was developed by IEEE-USA's Research and Development Policy Committee and represents the considered judgment of a group of U.S. IEEE members with expertise in the subject field. IEEE-USA advances the public good and promotes the careers and public policy interests of the nearly 180,000 engineering, computing and allied professionals who are U.S. members of the IEEE. The positions taken by IEEE-USA do not necessarily reflect the views of IEEE, or its other organizational units.

BACKGROUND

Need for a Single Agency, and for Specific and Consistent Lists

Export control functions are currently carried out by multiple federal agencies -- including the Department of Commerce, the Department of Defense, the Department of Homeland Security, the Department of Treasury, and the U.S. Customs and Border Protection (CPB) Agency. Functions of note include:

- Identification of systems subject to export control
- Licensing entities that either create or export the aforementioned systems
- Enforcing said controls

These activities are often disjointed, and sometimes even contradictory. The current situation simultaneously undermines protection of export-controlled materials and weakens the international competitiveness of the United States.

The shortcomings of the current export control situation are not new. U.S. entities have actively sought reforms for at least the past ten years. Over those ten years, export control regulation reform has followed the trajectory set by the Export Control Reform (ECR) Initiative. Posed in 2009, the initiative set forth targets¹ including the creation of:

- “A single export control licensing agency for both dual-use, munitions and exports licensed to embargoed destinations
- A unified control list
- A single enforcement coordination agency
- A single integrated information technology system, which would include a single database of sanctioned and denied parties.”

Unfortunately, the ECR has not yet achieved these targets. Currently, several export control lists (CCL, ML, MCTL, etc.) exist. Some of the technologies are at the material and device level, and some at the subsystem and/or system level. It is important to clearly define the commodities and technologies that are subject to export control to assure consistency and avoid confusion.

Multilateral Agreements

Currently, four multilateral agreements are in place: the Australia group², the Missile Technology Control Regime³, the Nuclear Suppliers Group⁴, and the Wassenaar Arrangement.⁵ All four are voluntary arrangements, consisting of between 35 and 48 members. As an example, the Wassenaar Arrangement, negotiated in 1996, includes 42 countries. The Wassenaar Arrangement is voluntary and is not legally binding. It has not been effective in export control. One problem, for example, is that China—a major player in international technology—is not one of the 42 countries that has signed on to the Wassenaar Arrangement. Challenges with control of re-exporting also exist. While more comprehensive and enforceable multilateral agreements would better prevent re-exporting of critical technologies, it remains a challenge to develop agreements that

¹ The U.S. Export Control system and the Export Control Reform Initiative, Ian Fergusson and Paul Kerr, CRS Report 7-5700, March 15, 2018.

² <https://australiagroup.net/en/origins.html>

³ <https://mtcr.info>

⁴ <https://www.nuclearsuppliersgroup.org/en/>

⁵ <http://www.wassenaar.org>

have effective consequences for non-compliance. Continued persistence to pursue improved agreements and enforcement mechanisms is needed.

Emerging Technologies

A Congressional Research Service report from early 2019⁶ notes that the Department of Commerce is in the process of digesting comments received on a 2018 Notice of Proposed Rulemaking (NPR), hoping to inform regulation around emerging technologies. Part of the hope is to identify (1) “emerging technologies warranting consideration for export controls,” and (2) whether export controls on those technologies are feasible.

Fundamental Research

While export control of technology development is important to ensure national security, it is widely regarded that fundamental research – which includes basic and applied research – is foundational, pre-technology work excluded from export control. This position is captured in National Security Decision Directive (NSDD)189⁷, which was issued by President Reagan in 1985 as a national policy; reaffirmed by (then Secretary of State) Condoleezza Rice in 2001; and then again by (then Secretary of Defense) Ashton B. Carter in 2010⁸. NSDD 189 states, “Fundamental research means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons.” The Directive goes on to state that:

“It is the policy of this Administration that, to the maximum extent possible, the products of fundamental research remain unrestricted. It is also the policy of this Administration that, where the national security requires control, the mechanism for control of information generated during federally-funded fundamental research in science, technology and engineering at colleges, universities and laboratories is classification ... No restriction may be placed upon the conduct or reporting of federally-funded fundamental research that has not received national security classification, except as provide in applicable US States.”

NSDD 189 is neither law nor regulation and can be modified at any time. The original policy was applicable only in the Reagan administration. The U.S. research

⁶ Defense Primer: Emerging Technologies, by Kelley M. Saylor, CRS In Focus IF11105, updated October 23, 2019.

⁷ <https://fas.org/irp/offdocs/nsdd/nsdd-189.htm>

⁸ “Memorandum for Secretaries of the Military Departments; Subject: Fundamental Research”, Ashton B. Carter, 24 May 2010. Available at: <https://research.uci.edu/policy-library/export-control-policies/govt-fundamental-research-policy>.

environment would benefit from a more permanent affirmation of this fundamental research exclusion from export control, so that researchers can openly share research results and build research partnerships, both domestically and internationally, to accelerate research advancements.

There has been recent national concern about foreign countries exploiting the U.S. open system of scientific research to gain access to militarily critical technologies. While the United States can and should curtail unlawful exploits, the enforcement mechanism should be based on export controls and not by unnecessarily limiting international fundamental research collaborations.

CFIUS and FIRRMA

Closely tied to export control is the Committee on Foreign Investment in the U.S. (CFIUS). CFIUS is an interagency body that assists the President in reviewing national security aspects of foreign direct investment in the U.S. economy.⁹ It is authorized to review certain transactions involving foreign investment in the United States (called covered transactions), to determine the effect of such transactions on national security. CFIUS can approve or prevent the transactions from going forward. An example was China's purchase of IBM's PC unit. After the CFIUS review, it was approved and the IBM PC became the Lenovo PC. In other cases, CFIUS prevented the sale of technology companies. On August 13, 2018, the ***Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA)*** was signed into law. Subsequently, on 17 September 2019, the Department of Treasury issued proposed regulations to implement changes that FIRRMA made to CFIUS's jurisdictions and processes.

As it stands now, CFIUS and FIRMMA are not sufficiently effective in preventing the transfer and sale of intellectual property that is critically important to national security. For example, China is investing a substantial amount in Silicon Valley, in technologies such as artificial intelligence that are very important to DoD.¹⁰ We need to strengthen CFIUS to prevent intellectual property and critical national security technologies erosion to these types of foreign investments.

⁹"The Committee on Foreign Investment in the United States (CFIUS)," *Congressional Research Service report no. RL33388*, Updated October 23, 2019.
<https://fas.org/sgp/crs/natsec/RL33388.pdf>

¹⁰ China's Technology Transfer Strategy: How Chinese Investment in Emerging Technology Enable a Strategic Competitor to Access the Crown Jewels of U.S. Innovation, by Michael Brown and Pavneet Singh, DIUx report, January 2018;
[https://admin.govexec.com/media/diux_chinatechnologytransferstudy_jan_2018_\(1\).pdf](https://admin.govexec.com/media/diux_chinatechnologytransferstudy_jan_2018_(1).pdf)