

**TMT** INSIGHTS

From the Debevoise Technology, Media &amp; Telecommunications Practice

# What Is On The Horizon For Export Controls on “Emerging Technologies”? Industry Comments May Hold A Clue

**Department of Commerce Proposed Representative Categories of “Emerging Technologies”**

- Biotechnology (e.g., synthetic biology)
- Artificial intelligence & machine learning
- Position, Navigation, & Timing
- Microprocessor technology (e.g., Systems-on-Chip)
- Advanced computing (e.g., memory-centric logic)
- Data analytics (e.g., visualization)
- Quantum information and sensing
- Additive manufacturing (e.g., 3D printing)
- Logistics technology (e.g., mobile electric power)
- Brain-computer interfaces
- Robotics (e.g., swarming technology or smart dust)
- Advanced Materials (e.g., adaptive camouflage)
- Hypersonics (e.g., flight control algorithms)
- Advanced surveillance technologies

Following last year’s enactment of the Foreign Investment Risk Review Modernization Act (“FIRRMA”), the U.S. Department of Commerce (“DOC”) is currently reviewing the public comments it has received on how to define and identify a new category of “critical technologies” created by FIRRMA: “emerging technologies.” In November 2018, the DOC [published](#) an Advance Notice of Proposed Rulemaking (“ANPRM”) to assist it in developing criteria for identifying “emerging technologies” that are essential to U.S. national security. Once identified, these will be subject to U.S. export controls and also will be considered “critical technologies” for purposes of review by the Committee on Foreign Investment in the United States (“CFIUS”), including under the CFIUS Pilot Program enacted last November.

The [ANPRM](#) is the first major step taken by the DOC as part of an inter-agency process provided by the Export Control Reform Act of 2018 (“ECRA”) to identify which “emerging” and “foundational” technologies are essential to U.S. national security and should be covered by U.S. export controls. The ANPRM [invited public comment](#) on 14 broad categories of technologies – including artificial intelligence (“AI”), machine learning (“ML”), nanotechnology, additive manufacturing, and biotechnology – each of which included several subcategories.

## Key Takeaways

- The DOC’s ANPRM signals an important step in the expansion of CFIUS’s purview – including under the Pilot Program – to review foreign investments in a new category of “emerging technologies” created by FIRRMA.
- Although the DOC has yet to issue final rules to identify emerging technologies – or even propose rules – the ANPRM signals DOC’s desire to take an expansive look at many important U.S. technologies, including AI, ML, additive manufacturing, robotics, and quantum computing.
- The DOC’s processes will culminate in a final list of Export Control Classification Numbers for any covered “emerging technologies.”
- Because any technology that is identified by the DOC as “emerging” will also be considered a “critical technology” by CFIUS, companies involved in any of the technologies so identified should consult with counsel about whether voluntary or mandatory CFIUS filings will be required in the event of foreign investments.

## Export Controls for “Emerging Technologies”: The Public Weighs In

In response to the ANPRM, nearly 250 foreign and domestic corporations, industry associations, advocacy groups, and educational institutions submitted comments. A consensus of many of the principal commenting parties urged DOC to reject a broad brush approach to defining “emerging technologies” because that could negatively affect U.S. technological innovation and global competitiveness. Moreover, they noted, most of the ANPRM’s “representative” technologies – such as AI, ML, biotechnology and additive manufacturing – have already been in widespread, commercial use for years, so they are hardly “emerging” and should not be subject to export controls. As one commentator noted, “[t]here is no need to control a technology that is already widely available in the global marketplace.” Other commentators have suggested that technologies should not be considered “emerging” too early in their development lifecycles (i.e., before they have a viable proof of concept).

Commenters generally urged that:

- “Emerging” technologies be limited to early-stage, developmental technologies – not those that are widely available or are in broad production use;
- Technologies should be subject to controls only if they are both “essential” to national security and not already covered by existing export control regimes;
- The DOC should specify controlled technologies with precision and only if the military needs or national security applications that give rise to the need for concern are identified;
- Any export controls should be based on particular applications, end uses or end users, not on the technologies as such;
- The DOC should rely on industry expertise with respect to identifying particular technologies that are candidates for control;
- Government controls should be implemented through multilateral regimes, with exceptions for allies; and
- Technologies that the DOC concludes might warrant controls should be subject to further public comment.

Many commentators also weighed in with specific comments on the “representative” categories or subcategories of technologies identified in the ANPRM, such as:

- **AI and ML.** AI and ML are mature technologies with applications across multiple industries. Neural networks, deep learning, and computer vision, and natural language processing have all progressed beyond the stage of fundamental research to wide-scale commercial deployment, and the U.S. is only one of several leading countries in this field. According to the commentators, placing export controls on AI and ML would not protect U.S. national security interests; instead, it would create barriers to U.S. technological leadership, particularly in that globally important and fast-paced industry.
- **Biotechnology.** Commentators urged DOC to recognize that biotechnology is a mature, global field. The specific subcategories identified by the ANPRM, such as synthetic biology and genetic engineering, have been in widespread use for decades in a competitive global market; for that reason, these technologies not well suited to export controls.
- **Quantum Information and Sensing Technology.** Although some commentators described quantum computing as in its infancy, quantum encryption is already used globally by financial institutions. As quantum computing continues to be a focus of U.S. university research programs, commentators cautioned that export controls could place the U.S. at a competitive disadvantage by preventing U.S. entities from participating in international research collaborations.
- **Additive Manufacturing (e.g., 3D Printing).** Although recent advances have enabled additive manufacturing techniques to be used for new materials (such as metals, ceramics, and conductors), commercial applications are used widely in the automotive, medical, and aerospace industries. Additionally, Germany, Sweden, Israel, China, South Korea, and Russia are global leaders in additive manufacturing technologies, and foreign companies have traditionally been attractive targets for acquisition by U.S. companies. Thus, while additive manufacturing may be used in the defense industry, commentators urged the DOC to limit export controls to specific tools, materials, or processes (e.g., explosives, warhead materials).
- **Microprocessors.** Although microprocessor technology is essential to defense objectives, it is already controlled under the current U.S. export regime. Accordingly, commentators suggested that additional controls on additional microprocessor tools or materials may be unnecessary.

## Next Steps and Opportunities for Further Comment

The DOC is expected to identify “emerging technologies” in a follow-on rulemaking, which will likely provide companies with another opportunity to submit comments. Once the DOC identifies the emerging technologies to be controlled, it will issue new Export Control Classification Numbers governing the technologies’ export, re-export or transfer.

Companies likely to be affected by the new designations should consider submitting comments in response to the subsequent rule-making processes. Alternatively, they could reach out to the DOC about the possibility of submitting comments on a confidential basis.

Separately, the DOC is also expected to issue an Advanced Notice of Proposed Rulemaking for “foundational technologies.” At this point, the DOC has not provided any guidance on which technologies this will cover nor a timeline for the rule-making process.

As we have previously [discussed](#), any technology identified as emerging or foundational by DOC will be considered a “critical technology” for the purposes of determining whether CFIUS review is warranted (or required, in the event of the Pilot Program) in the event of a foreign investment. Accordingly, companies that develop or use such technologies, are potential targets for foreign investment or are foreign investors focused on these sectors will want to pay attention to these developments and consult with counsel as to whether a CFIUS filing should (or must) be made.

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Please do not hesitate to contact us with any questions.

## Contributors

### Jeffrey P. Cunard

Partner – Washington, D.C.  
jpcunard@debevoise.com  
+1 202 383 8043

### Anna R. Gressel

Associate – New York  
argressel@debevoise.com  
+1 212 909 6485

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### Michael Diz

Partner – New York  
madiz@debevoise.com  
+1 212 909 6926

### Jonathan E. Levitsky

Partner – New York  
jelevitsky@debevoise.com  
+1 212 909 6423

### Jim Pastore

Partner – New York  
jjpastore@debevoise.com  
+1 212 909 6793

### Michael Schaper

Partner – New York  
mschaper@debevoise.com  
+1 212 909 6737

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