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New export control and CFIUS restrictions on emerging technologies becoming a reality

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The Commerce Department is soliciting public input on identification of certain "emerging technologies" for purposes of new export controls and the recently expanded jurisdiction of the Committee on Foreign Investment in the United States (CFIUS).

The Commerce Department's Bureau of Industry and Security (BIS) yesterday published in the Federal Register an advanced notice of proposed rule-making (ANPRM) requesting the public's assistance in developing criteria for defining and identifying emerging technologies that are essential to U.S. national security, including identifying specific areas of emerging technology. This is an initial step in fulfilling the mandate of the Commerce Department set forth in section 1758 of the Export Control Reform Act (ECRA) to identify and control the export of emerging and foundational technologies through an interagency process.

Impact on export controls and foreign investment

The implications of this process are potentially far-reaching. Pursuant to the ECRA, emerging technologies that are essential to the national security of the United States ultimately will be identified on an export control list and subject to export controls. According to the ANPRM, the interagency process is anticipated to result in proposed rules for new export control classification numbers (ECCNs) on the Commerce Control List (CCL) that will, at minimum, impose licensing requirements for exports to countries subject to a U.S. arms embargo, such as China. In sum, the ANPRM is the first step in an interagency process that is likely to result in significant new controls on certain emerging technologies that previously were not subject to licensing requirements to China and other countries subject to a U.S. arms embargo.

This process will also affect the reach of CFIUS. The Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA) expanded the definition of covered transactions that are subject to the jurisdiction of CFIUS to include, among other triggers, certain non-controlling investments by a foreign person in a U.S. business that "produces, designs, tests, manufactures, fabricates or develops" critical technologies. FIRRMA's expanded definition of "critical technologies" includes emerging and foundational technologies controlled pursuant to the process set forth in section 1758 of the ECRA. Accordingly, CFIUS's review authority, which prior to FIRRMA had been limited to transactions involving the transfer of control to a foreign person

of a U.S. business, extends to certain non-controlling investments in companies with activities involving emerging and foundational technologies. For more information on CFIUS's expanded jurisdiction, including as it relates to emerging and foundational technologies, see our 30 July 2018 client alert.

While FIRRMA's provisions on non-controlling investments have not yet taken full effect, the Department of the Treasury established a pilot program effective 10 November 2018 implementing a discrete set of FIRRMA provisions related to foreign investments in certain U.S. critical technology companies. Once identified, emerging and foundational technologies will constitute a new subcategory under the definition of critical technologies under FIRRMA generally and the pilot program specifically. See our 12 October 2018 client alert for more information on the CFIUS pilot program.

As described in the ANPRM, the process for identifying emerging and foundational technologies must consider

- the development of emerging and foundational technologies in foreign countries;
- the effect export controls may have on the development of such technologies in the United States; and
- the effectiveness of export controls on limiting the proliferation of emerging and foundational technologies in foreign countries.

Areas for comment

Although section 1758 of the ECRA mandates the establishment of an export control regime for emerging *and* foundational technologies, this ANPRM focuses only on emerging technologies, with a separate ANPRM to be published for foundational technologies. With respect to emerging technologies, the BIS specifically invites comment on

- how to define emerging technology to assist identification of such technology in the future;
- criteria to determine whether there are specific technologies within the general categories of technology (listed below) that are important to U.S. national security;
- sources to identify such technologies;
- other general technology categories that warrant review to identify emerging technologies that are important to U.S. national security;
- the status of development of these technologies in the United States and other countries;
- the impact of specific emerging technology controls on U.S. technological leadership; and
- any other approaches to the issue of identifying emerging technologies important to U.S. national security, including the stage of development or maturity level of an emerging technology that would warrant consideration for export control.

The notice provides a list of representative categories of technologies that are subject to the Export Administration Regulations (EAR) but are subject to narrow controls, such as to embargoed countries, supporters of international terrorism, to certain end-users, or for certain end-uses. The general categories are:

- Biotechnology, such as
  - nanobiology;
  - synthetic biology;
  - genomic and genetic engineering; or
  - neurotech.
- Artificial intelligence (AI) and machine learning technology, such as
  - neural networks and deep learning (e.g., brain modeling, time series prediction, classification);
  - evolution and genetic computation (e.g., genetic algorithms, genetic programming);
  - reinforcement learning;
  - computer vision (e.g., object recognition, image understanding);
  - expert systems (e.g., decision support systems, teaching systems);
  - speech and audio processing (e.g., speech recognition and production);
  - natural language processing (e.g., machine translation);
  - planning (e.g., scheduling, game playing);
  - audio and video manipulation technologies (e.g., voice cloning, deepfakes);
  - AI cloud technologies; or
  - AI chipsets.
- Position, navigation, and timing technology.
- Microprocessor technology, such as
  - systems-on-chip; or
  - stacked memory on chip.
- Advanced computing technology, such as
  - memory-centric logic.
- Data analytics technology, such as
  - visualization;

  - automated analysis algorithms; or
  - context-aware computing.
- Quantum information and sensing technology, such as
  - quantum computing;
  - quantum encryption; or
  - quantum sensing.
- Logistics technology, such as
  - mobile electric power;
  - modeling and simulation;
  - total asset visibility; or
  - distribution-based logistics systems.
- Additive manufacturing (e.g., 3D printing).
- Robotics, such as
  - micro-drone and micro-robotic systems;
  - swarming technology;
  - self-assembling robots;
  - molecular robotics;
  - robot compilers; or
  - smart dust.
- Brain-computer interfaces, such as
  - neural-controlled interfaces;
  - mind-machine interfaces;
  - direct neural interfaces; or
  - brain-machine interfaces.
- Hypersonics, such as
  - flight control algorithms;
  - propulsion technologies;
  - thermal protection systems; or
  - specialized materials (for structures, sensors, etc.).

- Advanced materials, such as
  - adaptive camouflage;
  - functional textiles (e.g., advanced fiber and fabric technology); or
  - biomaterials.
- Advanced surveillance technologies, such as
  - faceprint and voiceprint technologies.

With respect to the technology categories, the BIS seeks to determine whether there are specific emerging technologies

- that are important to U.S. national security;
- for which effective controls can be implemented; and
- for which the effective controls avoid undermining U.S. leadership in the science, technology, engineering, and manufacturing sectors.

Given the pace of development in emerging technologies, industry and academia are uniquely qualified to provide relevant, current information that can help guide the process. The ANPRM has provided the opportunity to weigh in at an early stage in the interagency process that will result in these significant new export controls. Comments are due by **19 December 2018**.

Contacts

Anthony V. Capobianco
Partner, Washington, D.C.
T +1 202 637 2568
anthony.capobianco@hoganlovells.com

Lourdes Catrain
Partner, Brussels
T +32 2 505 0933
lourdes.catrain@hoganlovells.com

Brian P. Curran
Partner, Washington, D.C.
T +1 202 637 4886
brian.curran@hoganlovells.com

Aline Doussin
Partner, London
T +44 20 7296 2961
aline.doussin@hoganlovells.com

Aleksandar Dukic
Partner, Washington, D.C.
T +1 202 637 5466
aleksandar.dukic@hoganlovells.com

Ajay Kuntamukkala
Partner, Washington, D.C.
T +1 202 637 5552
ajay.kuntamukkala@hoganlovells.com

Robert D. Kyle
Partner, Washington, D.C.
T +1 202 637 5494
robert.kyle@hoganlovells.com

Warren H. Maruyama
Partner, Washington, D.C.
T +1 202 637 5716
warren.maruyama@hoganlovells.com

Beth Peters
Partner, Washington, D.C.
T +1 202 637 5837
beth.peters@hoganlovells.com

Stephen F. Propst
Partner, Washington, D.C.
T +1 202 637 5894
stephen.propst@hoganlovells.com

Roy (Ruoweng) Liu
Counsel, Washington, D.C.
T +1 202 637 4837
roy.liu@hoganlovells.com

Adam J. Berry
Associate, Washington, D.C.
T +1 202 637 2871
adam.berry@hoganlovells.com

Jordan M. Movinski
Associate, Washington, D.C.
T +1 202 637 6513
jordan.movinski@hoganlovells.com

www.hoganlovells.com