New Export Requirements for Emerging and Foundational Technologies

12.09.2018

The U.S. is adopting a major change in the export control laws. Under the recently enacted Export Control Reform Act of 2018 (?ECRA?),[1] the Commerce Department is imposing a new category of export controls on ?emerging? and ?foundational? technologies. This is a significant expansion of controls under current law and will impact many U.S. and foreign companies. It will also affect national security reviews of acquisitions of U.S. companies by foreign acquirers by the Committee on Foreign Investment in the United States (?CFIUS?).

?Emerging? and ?foundational? technologies are newly identified categories of products and technologies that are not currently listed on the Commerce Control List (?CCL?) or the U.S. Munitions List (?USML?) but considered essential to U.S. national security.[2] The first of these, ?emerging technologies,? are intended to cover technologies that may not yet have come into mainstream use but have significant long-term potential and warrant control even before mainstream adoption. Once designated, these technologies will be subject to licensing requirements for exports, reexports and in-country transfers. One of the countries of particular concern is China, and transfers of emerging technologies to China will be subject to a very high level of U.S. export controls.

Identification of Emerging Technologies. The new technologies will be identified through an interagency process led by the Commerce Department. The interagency group will consider both public and classified information, public comments, and inputs from advisory committees (including the Emerging Technology Technical Advisory Committee) and CFIUS.

As part of this process, Commerce has issued an Advanced Notice of Proposed Rulemaking (?ANPR?) [3] soliciting public comments to assist in identifying the ?emerging technologies? and the controls that will be imposed on them (**click here to view the proposed emerging technologies that have been identified to date**). The identification of ?foundational technologies? is being addressed separately, and Commerce will issue a separate advanced notice of proposed rulemaking for these at a future date.

In the ANPR, Commerce published a list of technologies as examples of those it is considering as ?emerging technologies.? These include artificial intelligence, biotechnology, microprocessor

technology, advanced computing technology, data analytics, quantum computing, additive manufacturing (such as 3D printing), robotics, brain-computer interfaces, advanced materials and advanced surveillance technologies such as faceprint and voiceprint technologies. (A complete list of the technologies published by Commerce in the ANPR is attached below.) Clearly, these are some of the most important groundbreaking U.S. technologies and hence the new controls will have a far-reaching impact across broad areas of the U.S. business community.

Commerce is requesting comments from interested parties on the following issues:

1. How to define emerging technologies to assist in the identification of such technologies in the future;
2. Criteria to apply to determine whether there are specific technologies within the general categories identified by Commerce in the ANPR that are important to U.S. national security;
3. Sources to identify such technologies;
4. Other general technology categories that warrant review to include as emerging technologies that are important to U.S. national security;
5. The status of the development of these technologies in the United States and other countries;
6. The impact that the specific export controls on the emerging technologies would have on U.S. technological leadership; and
7. 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.

In identifying emerging technologies, Commerce will consider a number of factors including: (i) the development of such technologies in foreign countries; (ii) the effect export controls may have on the development of such technologies in the United States; and (iii) the effectiveness of export controls on limiting the proliferation of such technologies in foreign countries. Commerce intends to regulate the technologies without hampering the ability of the U.S. commercial sector to keep pace with international advances in emerging fields.

Export Restrictions On Emerging Technologies. Once Commerce has identified the emerging technologies it will establish the appropriate level of export controls that will apply to each. Under ECRA §1758(b)(2)(C), at a minimum Commerce must require a license for exports, reexports and in-country transfers involving countries subject to U.S. embargoes, including arms embargoes. Since China is subject to a U.S. arms embargo, the export of emerging technologies to China will most likely be subject to an extremely high level of export controls. In enacting ECRA, members of Congress were particularly concerned about the risks of exports of emerging technologies to China and specifically addressed this minimum level of controls in the legislation.

Impact Beyond Business In Scientific, Research and Educational Institutions. The controls on emerging technologies will apply beyond traditional business exporters to other organizations involved in technology R&D including universities, early-stage companies and other public and private scientific and research organizations.

Action Steps For U.S. and Foreign Companies. The regulation of emerging technologies is an important

development in the export compliance world. Once the final regulations are adopted, in addition to reviewing items on the current CCL and USML, exporters will be required to review this third category of products/technologies in conducting their export classifications, and obtain export licenses for many exports, reexports and in-country transfers involving these technologies. Parties will also be subject to additional requirements including restrictions on:

- Disclosing emerging technologies to foreign nationals in the U.S.;
- Disclosing emerging technologies to your company?s foreign affiliates, including employees inyour company?s foreign offices and foreign national employees in your U.S. offices;
- Disclosing emerging technologies in conferences and business meetings where foreign nationals are present; and
- Bringing materials containing emerging technologies with you in foreign travel in laptops, iPhones and other devices.

These controls will be particularly important for U.S. companies with emerging technologies thatengage in business transactions with foreign companies, including small and emerging U.S. companies. U.S. companies will be required to obtain export authorization prior to disclosure of emerging technologies to foreign parties in a variety of instances including in many research and development agreements, licensing agreements, debt and equity financings and in acquisitions by foreign parties. Requirements will apply even in the early stages of such transactions, such as initial discussions and due diligence reviews, if emerging technologies will be disclosed. In light of the growing incidence of early-stage U.S. companies looking to foreign companies for financial and other types of support, these new controls will be particularly significant.

Foreign companies, of course, will need to address these same issues from their perspective. They do not want to be involved in transactions where controlled technologies are improperly disclosed to them in order to avoid participation in U.S. export control violations and being subject to civil and criminal penalties.

Important Role In CFIUS Reviews. Finally, the new controls on emerging technologies will impact the CFIUS review process in acquisition of U.S. companies by foreign acquirers. Under recent CFIUS amendments,[4] if a foreign company is acquiring a U.S. business that develops or produces an emerging technology and the U.S. company utilizes such technology in one of the 27 ?Pilot Program Industries? identified by CFIUS,[5] the parties will be required to submit a mandatory declaration to CFIUS for the transaction.[6] (The requirement to submit mandatory declarations is a significant departure from prior CFIUS requirements.) If the foreign company is only acquiring a minority interest in the U.S. company, the parties will also be required to submit a mandatary declaration if the acquiring foreign company has access to material nonpublic technical information or acquires the level of management rights or influence over the U.S. company as specified in 31 CFR §801.209. Thus parties will have to be even more cognizant of the export classifications of the target company?s products and technologies in a CFIUS review than ever before.

Interested parties who wish to be involved in shaping the regulation of emerging technologies should

consider submitting comments and becoming involved in the rulemaking process. The deadline for submitting comments under the ANPR is December 19, 2018.

Complying with export controls on emerging and foundational technologies is only one step that companies can take in their export compliance activities. Other steps that have been discussed previously in these articles but bear repeating include: (i) proper classification of products, technologies and software being exported; (ii) compliance with licensing requirements (including licensing conditions and provisos); (iii) proper agreement administration for TAA?s, MLA?s and other authorizations; (iv) adoption of an Export Compliance Program with written policies and procedures; (v) employee training; (vi) procedures for screening against prohibited parties, prohibited countries and prohibited end-uses; (vii) compliance with export recordkeeping requirements; (vii) periodic compliance audits; and (ix) taking prompt remedial action in the event of suspected violations.

Proposed Emerging Technologies Identified In Commerce Department Advance Notice of Proposed Rulemaking

1. Biotechnology, such as:

i. Nanobiology;
ii. Synthetic biology;
iii. Genomic and genetic engineering; or
iv. Neurotech.

2. Artificial intelligence (AI) and machine learning technology, such as:

i. Neural networks and deep learning (*e.g.,* brain modelling, time series prediction, classification);
ii. Evolution and genetic computation (*e.g.,* genetic algorithms, genetic programming);
iii. Reinforcement learning;
iv. Computer vision (*e.g.,* object recognition, image understanding);
v. Expert systems (*e.g.,* decision support systems, teaching systems);
vi. Speech and audio processing (*e.g.,* speech recognition and production);
vii. Natural language processing (*e.g.,* machine translation);
viii. Planning (*e.g.,* scheduling, game playing);
ix. Audio and video manipulation technologies (*e.g.,* voice cloning, deepfakes);
x. AI cloud technologies; or
xi. AI chipsets.

3. Position, Navigation, and Timing (PNT) technology.

4. Microprocessor technology, such as:

i. Systems-on-Chip (SoC); or

ii. Stacked Memory on Chip.

5. Advanced computing technology, such as:

i. Memory-centric logic.

6. Data analytics technology, such as:

i. Visualization;
ii. Automated analysis algorithms; or
iii. Context-aware computing.

7. Quantum information and sensing technology, such as:

i. Quantum computing;
ii. Quantum encryption; or
iii. Quantum sensing.

8. Logistics technology, such as:

i. Mobile electric power;
ii. Modeling and simulation;
iii. Total asset visibility; or
iv. Distribution-based Logistics Systems (DBLS).

9. Additive manufacturing (*e.g.,* 3D printing);

10. Robotics such as:

i. Micro-drone and micro-robotic systems;
ii. Swarming technology;
iii. Self-assembling robots;
iv. Molecular robotics;
v. Robot compliers; or
vi. Smart Dust.

11. Brain-computer interfaces, such as:

i. Neural-controlled interfaces;
ii. Mind-machine interfaces;
iii. Direct neural interfaces; or
iv. Brain-machine interfaces.

12. Hypersonics, such as:

i. Flight control algorithms;

ii. Propulsion technologies;
iii. Thermal protection systems; or
iv. Specialized materials (for structures, sensors, etc.).

13. Advanced Materials, such as:

i. Adaptive camouflage;
ii. Functional textiles (*e.g.,* advanced fiber and fabric technology); or
iii. Biomaterials.

14. Advanced surveillance technologies, such as: Faceprint and voiceprint technologies.

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[1] Enacted as part of the National Defense Authorization Act for Fiscal Year 2019.

[2] Under ECRA, emerging and foundational technologies are defined as those essential to the national security of the United States and are not described in Section 721(a)(6)(A)(i)?(v) of the Defense Production Act of 1950, as amended.

[3] See 83 Federal Register No. 223, p. 58201, November 19, 2018.

[4] See the Foreign Investment Risk Review Modernization Act of 2018 (?FIRRMA?) and 31 CFR Part 801.

[5] See 31 CFR § 801.212 and Annex A to 31 CFR Part 801.

[6] See 31 CFR §801.401.

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