

## Updated Critical and Emerging Technologies List & CFIUS Critical Technology Determinations

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On February 8, 2022, the interagency Fast Track Action Subcommittee on Critical and Emerging Technologies of the National Science and Technology Council (the “Subcommittee”) published an updated list of Critical and Emerging Technologies (the “CET List”) identifying certain advanced technologies that the Subcommittee has determined may be significant to the national security of the United States. The CET List focuses on core technologies and, by design, does not cover adjacent objectives, such as technological applications, responsible development / deployment or accessibility or interoperability of identified technologies.

The Subcommittee emphasized in an accompanying report that the CET List “should not be interpreted as a priority list for either policy development or funding”, but rather is intended to inform a forthcoming comprehensive strategy on U.S. technological competitiveness and national security (the “Comprehensive Technology Strategy”) as to the kinds of critical and emerging technologies likely to be the focus of particularized scrutiny over the coming years. To that end, the Subcommittee has encouraged U.S. government departments and agencies to consult the CET List when developing initiatives to identify technologies that support national security missions, compete for international talent, and protect sensitive technology from misappropriation or misuse.

Additionally, the CET List can be expected to have a significant impact on the scope of critical technology items captured under the Commerce Control List (the “CCL”) of the U.S. Export Administration Regulations administered by the U.S. Department of Commerce (the “Commerce Department”) and, thereby, on the classification of transactions subject to the jurisdiction of the Committee on Foreign Investment in the United States (“CFIUS”). Specifically, it is likely that the Commerce Department will draw from the CET List and the forthcoming Comprehensive Technology Strategy for the expansion of the CCL to cover some or all of the critical technology items identified on the CET List. If and when such expansion occurs, certain transactions that could result in foreign control of a U.S. business dealing in such critical technology items will become subject to a mandatory filing requirement under the prevailing CFIUS regulations. U.S. businesses that deal in critical technology items identified on the CET List, and foreign persons that may invest in such U.S. businesses, should be mindful of the fluid regulatory environment around such items and associated legal and regulatory considerations.

## **The CET List**

- Advanced Computing (e.g., supercomputing; edge computing; cloud computing; data storage; computing architectures; data processing and analysis techniques)
- Advanced Engineering Materials (e.g., materials by design and material genomics; materials with new properties; materials with substantial improvements to existing properties; material property characterization and lifecycle assessment)
- Advanced Gas Turbine Engine Technologies (e.g., aerospace, maritime, and industrial development and production technologies; full-authority digital engine control, hot-section manufacturing, and associated technologies)
- Advanced Manufacturing (e.g., additive manufacturing; clean, sustainable manufacturing; smart manufacturing; nanomanufacturing)
- Advanced and Networked Sensing and Signature Management (e.g., payloads, sensors, and instruments; sensor processing and data fusion; adaptive optics; remote sensing of the Earth; signature management; nuclear materials detection and characterization; chemical weapons detection and characterization; biological weapons detection and characterization; emerging pathogens detection and characterization; transportation-sector sensing; security-sector sensing; health-sector sensing; energy-sector sensing; building-sector sensing; environmental-sector sensing)
- Advanced Nuclear Energy Technologies (e.g., nuclear energy systems; fusion energy; space nuclear power and propulsion systems)
- Artificial Intelligence (e.g., machine learning; deep learning; reinforcement learning; sensory perception and recognition; next-generation AI; planning, reasoning, and decision making; safe and/or secure AI)
- Autonomous Systems and Robotics (e.g., surfaces; air; maritime; space)
- Biotechnologies (e.g., nucleic acid and protein synthesis; genome and protein engineering including design tools; multi-omics and other biometrology, bioinformatics, predictive modeling, and analytical tools for functional phenotypes; engineering of multicellular systems; engineering of viral and viral delivery systems; biomanufacturing and bioprocessing technologies)
- Communication and Networking Technologies (e.g., radio-frequency (RF) and mixed-signal circuits, antennas, filters, and components; spectrum management technologies; next-generation wireless networks, including 5G and 6G; optical links and fiber technologies; terrestrial/undersea cables; satellite-based communications; hardware, firmware, and software; communications and network security; mesh networks/infrastructure independent communication technologies)
- Directed Energy (e.g., lasers; high-power microwaves; particle beams)
- Financial Technologies (e.g., distributed ledger technologies; digital assets; digital payment technologies; digital identity infrastructure)
- Human-Machine Interfaces (e.g., augmented reality; virtual reality; brain-computer interfaces; human-machine teaming)
- Hypersonics (e.g., propulsion; aerodynamics and control; materials; detection, tracking, and characterization; defense)
- Networked Sensors and Sensing

- Quantum Information Technologies (e.g., quantum computing; materials, isotopes, and fabrication techniques for quantum devices; post-quantum cryptography; quantum sensing; quantum networking)
- Renewable Energy Generation and Storage (e.g., renewable generation; renewable and sustainable fuels; energy storage; electric and hybrid engines; batteries; grid integration technologies; energy-efficiency technologies)
- Semiconductors and Microelectronics (e.g., design and electronic design automation tools; manufacturing process technologies and manufacturing equipment; beyond complementary metal-oxide-semiconductor (CMOS) technology; heterogeneous integration and advanced packaging; specialized/tailored hardware components for artificial intelligence, natural and hostile radiation environments, RF and optical components, high-power devices, and other critical applications; novel materials for advanced microelectronics; wide-bandgap and ultra-wide-bandgap technologies for power management, distribution, and transmission)
- Space Technologies and Systems (e.g., on-orbit servicing, assembly, and manufacturing; commoditized satellite buses; low-cost launch vehicles; sensors for local and wide-field imaging; space propulsion; resilient positioning, navigation, and timing (PNT); cryogenic fluid management; entry, descent, and landing)

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This Client Alert is not comprehensive and provides only a high-level overview as to the CET List, its history and expected impact.

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