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White House Updates List of Critical and Emerging Technologies That Are Significant to National Security

In mid-February, the White House Office of Science and Technology Policy ("OSTP")[1] released a revised list of critical and emerging technologies ("CETs") that it calls "potentially significant to U.S. national security" (the "CET List").[2] The CET List does not cause immediate changes to the regulatory regimes administered by U.S. national security agencies, but it does provide notice concerning the types of emerging technologies that are likely to draw attention from these agencies.

Background and Takeaways

In 2020, the National Science Technology Council ("NSTC")[3] created the Fast Track Action Subcommittee on Critical and Emerging Technologies (the "Subcommittee") to "identify critical and emerging technologies to inform national security-related activities."[4] In support of its mission, the Subcommittee coordinates with the NSTC and the National Security Council "to identify priority critical and emerging technology subfields" to be added to the CET List at least every two years; the last update to the CET List was in February 2022.[5]

According to the NSTC, CETs are a "subset of advanced technologies that are potentially significant to U.S. national security."[6] The 2024 update to the CET List aims to further the objectives of the Biden Administration's National Security Strategy, which highlights that "technology is central to today's geopolitical competition and to the future of our national security, economy and democracy."[7] The NSTC says the CET List is meant to serve as a resource to "inform government-wide and agency-specific efforts concerning U.S. technological competitiveness and national security" and *should not* be interpreted "as a priority list for either policy development or funding."[8] As such, the CET List does not directly or immediately affect regulatory regimes administered

1 Established in 1976, the OSTP provides the President and others within the Executive Office with advice on, among others, the scientific, engineering, and technological aspects of the economy, national security, homeland security, health, foreign relations, the environment, and the technological recovery and use of resources. *See* Presidential Science and Technology Advisory Organization Act of 1976 at 42 USC 6611.

2 The White House, *White House Office of Science and Technology Policy Releases Updated Critical and Emerging Technologies List* (Feb. 12, 2024), available here.

3 The NSTC is a cabinet-level council of advisors and the "principal means by which the Executive Branch coordinates science and technology policy across the diverse entities that make up the Federal research and development enterprise." National Science and Technology Council, *Critical and Emerging Technologies List Update* (Feb. 12, 2024), available here.

4 *Id*.

5 National Science and Technology Council, *Critical and Emerging Technologies List Update* (Feb. 2022), available here.

6 *Id*. at 3.

7 The White House, National Security Strategy (Oct. 2022), available here.

8 *Id.* at 3.

by the Committee on Foreign Investment in the United States ("CFIUS"), Team Telecom, the Commerce Department's Bureau of Industry and Security ("BIS"), or the State Department's Directorate of Defense Trade Controls ("DDTC"), or how they may affect the regulatory regimes that will be established to administer outbound investment restrictions.[9]

For example, one element of the CFIUS regime subjects non-controlling investments in "critical technologies"[10] to a mandatory filing. CFIUS tethers its definition of critical technologies to a host of federally controlled lists, administered principally by DDTC and BIS. This means that unless BIS revises the Commerce Control List to reflect the CET List, the scope of authority conferred to CFIUS remains unchanged.

While the CET List does not affect CFIUS jurisdiction or authority, CFIUS can be expected to assign heightened scrutiny to transactions that involve these technologies.[11] Similarly, the export control agencies can be expected to pay particular attention to whether the transfer of these technologies is being appropriately restricted, and to enforcing export control regulations that target these typologies.

Foreign persons investing in the United States should perform heightened diligence when a U.S. target appears to be involved with these technologies in order to determine (i) how sensitive that technology is, (ii) whether the transaction creates CFIUS jurisdiction, and (iii) if so, whether a CFIUS filing is necessary or advisable. Failure to file, even when only voluntary under the regime, could result in CFIUS initiating a non-notified inquiry, either before or after closing—something CFIUS is doing with increasing frequency.[12]

Critical and Emerging Technologies List

CETs are "those technologies that have been identified and assessed by the [National Security Council] to be critical, or to potentially become critical to the United States' national security advantage, including military, intelligence, and economic advantages."[13]

The 2024 reorganization includes 18 categories of technologies. Although this is down from 19 in 2022, several categories have been combined or enlarged, making the 2024 list more extensive. New primary CET categories include, "Data Privacy, Data Security, and Cybersecurity Technologies" and "Positioning, Navigation and Timing (PNT) Technologies." The complete CET List is attached as "The CET Annex."

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9 *See* Paul, Weiss, *President Biden Issues Executive Order Creating Unprecedented Outbound Investment Review Prohibitions Targeting China* (Aug. 10, 2023), available here.

10 CFIUS targets non-controlling investments in U.S. businesses "that produce, design, test, manufacture, fabricate, or develop one or more critical technologies." *See* U.S. Dep't of Treasury, FACT SHEET: Final CFIUS Regulations Implementing FIRRMA (Jan. 13, 2020), available here.

11 The manner in which the CET List affects CFIUS is comparable to the way it currently analyzes the effects of certain transactions that impact supply chain resilience, which President Biden highlighted in his 2022 Executive Order directed at CFIUS. *See* The White House, *Executive Order 14083 on Ensuring Robust Consideration of Evolving National Security Risks by the Committee on Foreign Investment in the United States* (Sep. 15, 2022), available here (establishing considerations for transactions that relate to supply chain resilience and security specific to the defense industrial base, in manufacturing capabilities, or technologies that are fundamental to national security, including microelectronics and artificial intelligence).

12 *See* Paul, Weiss, *2023 Year in Review CFIUS, Outbound Investments and Export Controls* (Dec. 21, 2023), available here (analyzing CFIUS's increased focus on identifying and bringing in non-notified transactions).

13 The White House, *National Strategy for Critical and Emerging Technologies* (Oct. 2020), available here.

This memorandum is not intended to provide legal advice, and no legal or business decision should be based on its content. Questions concerning issues addressed in this memorandum should be directed to:

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The CET Annex

Primary Field	Subfield
Advanced Computing	• Advanced supercomputing, including for AI applications • Edge computing and devices • Advanced cloud services • High-performance data storage and data centers • Advanced computing architectures • Advanced modeling and simulation • Data processing and analysis techniques • Spatial computing
Advanced Engineering Materials	• Materials by design and material genomics • Materials with novel properties to include substantial improvements to existing properties • Novel and emerging techniques for material property characterization and lifecycle assessment
Advanced Gas Turbine Engine Technologies	• Aerospace, maritime, and industrial development and production technologies • Full-authority digital engine control, hot-section manufacturing, and associated technologies
Advanced and Networked Sensing and Signature Management	• Payloads, sensors, and instruments • Sensor processing and data fusion • Adaptive optics • Remote sensing of the Earth • Geophysical sensing • Signature management • Detection and characterization of pathogens and of chemical, biological, radiological and nuclear weapons and materials • Transportation-sector sensing • Security-sector sensing • Health-sector sensing • Energy-sector sensing • Manufacturing-sector sensing • Building-sector sensing • Environmental-sector sensing
Advanced Manufacturing	• Advanced additive manufacturing • Advanced manufacturing technologies and techniques including those supporting clean, sustainable, and smart manufacturing, nanomanufacturing, lightweight metal manufacturing, and product and material recovery

Artificial Intelligence	• Machine learning • Deep learning • Reinforcement learning • Sensory perception and recognition • AI assurance and assessment techniques • Foundation models • Generative AI systems, multimodal and large language models • Synthetic data approaches for training, tuning, and testing • Planning, reasoning, and decision making • Technologies for improving AI safety, trust, security, and responsible use
Biotechnologies	• Novel synthetic biology including nucleic acid, genome, epigenome, and protein synthesis and engineering, including design tools • Multi-omics and other biometrology, bioinformatics, computational biology, predictive modeling, and analytical tools for functional phenotypes • Engineering of sub-cellular, multicellular, and multi-scale systems • Cell-free systems and technologies • Engineering of viral and viral delivery systems • Biotic/abiotic interfaces • Biomanufacturing and bioprocessing technologies
Clean Energy Generation and Storage	• Renewable generation • Renewable and sustainable chemistries, fuels, and feedstocks • Nuclear energy systems • Fusion energy • Energy storage • Electric and hybrid engines • Batteries • Grid integration technologies • Energy-efficiency technologies • Carbon management technologies
Data Privacy, Data Security, and Cybersecurity Technologies	• Distributed ledger technologies • Digital assets • Digital payment technologies • Digital identity technologies, biometrics, and associated infrastructure • Communications and network security • Privacy-enhancing technologies • Technologies for data fusion and improving data interoperability, privacy, and security • Distributed confidential computing • Computing supply chain security • Security and privacy technologies in augmented reality/virtual reality
Directed Energy	• Lasers • High-power microwaves • Particle beams
Highly Automated, Autonomous, and Uncrewed Systems (UxS), and Robotics	• Surface • Air • Maritime • Space • Supporting digital infrastructure, including High Definition (HD) maps • Autonomous command and control
Human-Machine Interfaces	• Augmented reality • Virtual reality • Human-machine teaming • Neurotechnologies
Hypersonics	• Propulsion • Aerodynamics and control • Materials, structures, and manufacturing • Detection, tracking, characterization, and defense • Testing
Integrated Communication and Networking Technologies	• Radio-frequency (RF) and mixed-signal circuits, antennas, filters, and components • Spectrum management and sensing technologies

	• Future generation wireless networks • Optical links and fiber technologies • Terrestrial/undersea cables • Satellite-based and stratospheric communications • Delay-tolerant networking • Mesh networks/infrastructure independent communication technologies • Software-defined networking and radios • Modern data exchange techniques • Adaptive network controls • Resilient and adaptive waveforms
Positioning, Navigation, and Timing (PNT) Technologies	• Diversified PNT-enabling technologies for users and systems in airborne, space-based, terrestrial, subterranean, and underwater settings • Interference, jamming, and spoofing detection technologies, algorithms, analytics, and networked monitoring systems • Disruption/denial-resisting and hardening technologies
Quantum Information and Enabling Technologies	• Quantum computing • Materials, isotopes, and fabrication techniques for quantum devices • Quantum sensing • Quantum communications and networking • Supporting systems
Semiconductors and Microelectronics	• 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 • Microelectromechanical systems (MEMS) and Nanoelectromechanical systems (NEMS) • Novel architectures for non-Von Neumann computing
Space Technologies and Systems	• In-space servicing, assembly, and manufacturing as well as enabling technologies • Technology enablers for cost-effective on-demand, and reusable space launch systems • Technologies that enable access to and use of cislunar space and/or novel orbits • Sensors and data analysis tools for space-based observations • Space propulsion • Advanced space vehicle power generation • Novel space vehicle thermal management • Crewed spaceflight enablers • Resilient and path-diverse space communication systems, networks, and ground stations • Space launch, range, and safety technologies