NATIONAL OBJECTIVES FOR DIGITAL ASSETS RESEARCH AND DEVELOPMENT

A Report by the

FAST–TRACK ACTION COMMITTEE ON DIGITAL ASSETS
RESEARCH AND DEVELOPMENT

NETWORKING AND INFORMATION TECHNOLOGY
RESEARCH AND DEVELOPMENT SUBCOMMITTEE

of the

NATIONAL SCIENCE AND TECHNOLOGY COUNCIL

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About the Office of Science and Technology Policy

The Office of Science and Technology Policy (OSTP) was established by the National Science and Technology Policy, Organization, and Priorities Act of 1976 to provide the President and others within the Executive Office of the President with advice on the scientific, engineering, and technological aspects of the economy, national security, health, foreign relations, the environment, and the technological recovery and use of resources, among other topics. OSTP leads interagency science and technology policy coordination efforts, assists the Office of Management and Budget with an annual review and analysis of Federal research and development in budgets, and serves as a source of scientific and technological analysis and judgment for the President with respect to major policies, plans, and programs of the Federal Government. More information is available at https://www.whitehouse.gov/ostp.

About the National Science and Technology Council

The National Science and Technology Council (NSTC) is 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. A primary objective of the NSTC is to ensure science and technology policy decisions and programs are consistent with the President's stated goals. The NSTC prepares research and development strategies that are coordinated across Federal agencies aimed at accomplishing multiple national goals. The work of the NSTC is organized under committees that oversee subcommittees and working groups focused on different aspects of science and technology. More information is available at https://www.whitehouse.gov/ostp/nstc.

About the Subcommittee on Networking & Information Technology Research & Development

The Networking and Information Technology Research and Development (NITRD) Program has been the Nation's primary source of federally funded work on pioneering information technologies (IT) in computing, networking, and software since it was first established as the High-Performance Computing and Communications program following passage of the High-Performance Computing Act of 1991. The NITRD Subcommittee of the NSTC guides the multiagency NITRD Program in its work to provide the R&D foundations for ensuring continued U.S. technological leadership and for meeting the Nation's needs for advanced IT. The National Coordination Office (NCO) supports the NITRD Subcommittee and its Interagency Working Groups (IWGs) (https://www.nitrd.gov/about/).

About the Fast–Track Action Committee on Digital Assets R&D

The Fast-Track Action Committee on Digital Assets R&D is a multi-agency venue to build a whole-of-government approach for research and development related to digital assets.

About This Document

This document lays out national objectives for R&D related to digital assets, as defined in Executive Order 14067. This includes R&D on technology that underpins digital assets, such as blockchain and other distributed ledger technology (DLT), as well as applied R&D for digital assets both inside and outside of the financial ecosystem.

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Introduction

The United States is committed to maintaining U.S. leadership in the responsible research and development (R&D) of digital assets that reinforces democratic values. This document lays out national objectives for R&D related to digital assets, as defined in President Biden's Executive Order (E.O.) on [Ensuring the Responsible Development of Digital Assets](#).[1] This includes R&D on techniques and technology that supports digital assets, such as blockchain and other distributed ledger technology (DLT), applied R&D for digital assets both inside and outside of the financial ecosystem, and translational R&D to pilot, prototype, and deploy digital assets technologies.[2]

These national objectives are the first step in crafting a National Digital Assets R&D Agenda, as called for in the report titled "Technical Evaluation for a U.S. Central Bank Digital Currency (CBDC) System," which was published by the White House Office of Science and Technology Policy (OSTP) in response to the President's E.O.[3] These national objectives will be expanded upon in the forthcoming final R&D agenda to advance foundational, applied, and translational R&D related to digital assets.

The National Digital Assets R&D Agenda is being developed by a Fast-Track Action Committee (FTAC) under the National Science and Technology Council's Networking and Information Technology Research and Development Subcommittee. Launched in October 2022, the FTAC developed these national objectives with input from experts in the field from across government, academia, industry, civil society, and the public. Engagement activities included the following:

- A request for information[4] that was issued on January 26, 2023, and garnered over 100 responses from the public.

- Discussions with Federal agencies on their priorities for Digital Assets R&D.

- Informational presentations from a range of researchers, developers, and practitioners from government, academia, industry, and civil society.

National Objectives

The Federal Government will support collaborative disciplinary and interdisciplinary R&D of digital asset technologies in line with these strategic objectives:

Accelerate R&D on fundamental techniques and technologies for digital assets
Federal R&D in digital assets should prioritize improving foundational methods, techniques, and technologies that support digital assets, such as DLT, identity, and cryptographic primitives, to improve the utility of digital assets across a range of domains that have different needs and constraints. R&D should ensure that key technical objectives (e.g., security, privacy, resilience, sustainability) can be manifested in real-world applications, as appropriate. R&D should make DLT and related technologies more resilient and sustainable, and advance assessments and mitigation of environmental impacts including understanding how DLT and related technologies may influence the trajectory of clean energy

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[1] https://www.whitehouse.gov/briefing-room/presidential-actions/2022/03/09/executive-order-on-ensuring-responsible-development-of-digital-assets/
[2] The Federal Reserve is already doing significant experimentation on CBDC systems and is leading a broad program rooted in the fundamental nature of a CBDC as a liability of the central bank.
[3] Technical Evaluation for a U.S. Central Bank Digital Currency System. (Sep. 2022). *Office of Science and Technology Policy.* https://www.whitehouse.gov/wp-content/uploads/2022/09/09-2022-Technical-Evaluation-US-CBDC-System.pdf
[4] Request for Information: Digital Assets Research and Development. *Office of Science and Technology Policy*. Federal Register Notice. https://www.federalregister.gov/documents/2023/01/26/2023-01534/request-for-information-digital-assets-research-and-development

system development. Additionally, applied R&D should be prioritized for a range of potential real-world applications. R&D should help support the development of U.S. and international standards that support these technological advancements.

Advance R&D that emphasizes security, privacy, and resilience of digital assets

Federal R&D in digital assets should prioritize advancing security, privacy, and resilience, as well as transparency, interoperability, and trustworthiness. For example, digital assets R&D should help strengthen the ability to ensure the cybersecurity and privacy of financial and other sensitive data that are collected, used, transferred, and maintained within the digital asset ecosystem, while also advancing important objectives such as anti-money laundering, combating the financing of terrorism, financial stability, the protection of human rights, and promoting consumer and investor protection and market integrity. R&D should also support advances that can improve the cost, efficiency, privacy, speed, and safety of payments and other financial products and services. R&D should emphasize tools and techniques for verifiably secure and trustworthy transactions, to improve services while protecting consumers and investors from fraud, victimization, privacy violations, and other misconduct. R&D should prioritize discovering new tools and governance approaches that increase transparency and accountability in digital assets, such as making digital assets safer and more understandable for consumers, investors, businesses, and the public. R&D should place special emphasis on improving privacy protections and guarantees.

Cultivate R&D to support a potential U.S. Central Bank Digital Currency

Federal R&D in digital assets should prioritize fundamental and translational R&D that would be useful in the assessment, design, implementation, and deployment of a potential U.S. CBDC,[5] including techniques and technologies that advances the Administration's Policy Objectives for a U.S. CBDC System.[6] R&D should explore innovative and secure architectural approaches and models of issuance, integration of secure hardware, support for interoperability, the programmability of transactions, and incorporation of diverse transactional modalities including offline transactions and governance structures. R&D should emphasize embedding privacy-enhancing and interpretability features, and support models and methodologies that could enable a potential U.S. CBDC system to be scalable, useable, resilient, adaptable, equitable, and environmentally sustainable.

Support R&D to advance equity and fairness in the development and use of digital assets

Federal R&D in digital assets should prioritize work, especially sociotechnical R&D, that could advance equity, including by expanding access to and usability of safe and beneficial uses of digital assets. R&D to expand access should include protections to not place greater risk (e.g., via predatory inclusion) on underserved and historically marginalized communities, including people of color; rural communities; individuals without the resources to maintain expensive devices or reliable Internet access; and individuals with cognitive, motor, or sensory impairments or disabilities. Through the development of educational materials, usability studies, and support for different communities, or through other design features of digital assets, R&D should ensure that systems do not create new inequities – including technological barriers to use. R&D should be prioritized to understand and mitigate the negative or unintended economic, social, and environmental impacts of creating and maintaining digital assets, even for communities that may not explicitly be users of the technology but are nevertheless impacted.

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[5] The National Objectives for Digital Assets R&D do not make any assessments or recommendations about whether a U.S. CBDC should be pursued, nor do they intend to suggest any design choices for a potential U.S. CBDC system.
[6] https://www.whitehouse.gov/wp-content/uploads/2022/09/09-2022-Policy-Objectives-US-CBDC-System.pdf