



*Submitted electronically*

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Dr. Arati Prabhakar  
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Executive Office of the President  
Eisenhower Executive Office Building  
1650 Pennsylvania Avenue  
Washington, D.C. 20504

**RE: Request for Information on Digital Assets Research and Development (Federal Register Document Citation 88 FR 5043)**

Dear Dr. Prabhakar:

On behalf of the Alliance for Innovation Regulation (AIR), a nonprofit of which I am CEO and Co-Founder, I appreciate the opportunity to submit this comment in response to the Office of Science and Technology Policy's (OSTP) Request for Information (RFI) on Digital Assets Research and Development.

AIR launched in 2019 to help governments get a better handle on the digital transformation of the financial system. Since then, we have quadrupled in size and are actively engaged with the innovation efforts of public-sector entities on three continents.<sup>1</sup> AIR's activities include consulting with regulators on how to strengthen their digital capabilities; partnering with agencies on hackathon-style competitions known as "TechSprints" to develop digital-focused solutions to regulatory problems; and advocating for a digital-native regulatory approach to address an increasingly digital-native economy.<sup>2</sup>

We are fully aware that the rapid development of digital assets and blockchain technologies is a double-edged sword. On the one hand, digital assets offer privacy protections and potentially lower transaction costs, among other benefits. Meanwhile, blockchains hold promise for improving formerly analog processes in multiple sectors, including the public sector; better analyzing data used to fight global corruption and other crimes; and expanding access for consumers to more efficient, safer and fairer tools.<sup>3</sup>

On the other hand, some digital assets are rife with risks, ranging from volatility in cryptocurrency prices and associated losses, to the ability of bad actors to use digital-asset technologies in fraud or illicit money-laundering schemes.<sup>4</sup> Some risks associated with blockchains include the inability at times to remove data from a permissionless blockchain and a lack of interoperability in certain cases.

**Key Areas for Research**

As previously discussed, digital-asset technologies present both risks and opportunities for financial services and other industries. While recent volatility in the crypto market is a cause for concern, government officials have policy options to bring necessary transparency and stability.

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<sup>1</sup> "Three years ago, AIR didn't even have a logo. We've come a long way since," [regulationinnovation.org/airs-third-anniversary/](https://regulationinnovation.org/airs-third-anniversary/)

<sup>2</sup> <https://regulationinnovation.org/techsprints/>

<sup>3</sup> <https://www.weforum.org/platforms/shaping-the-future-of-blockchain-and-digital-assets>

<sup>4</sup> "Regulating the Crypto Ecosystem: The Case of Unbacked Crypto Assets," International Monetary Fund, September 2022, <https://www.imf.org/-/media/Files/Publications/FTN063/2022/English/FTNEA2022007.ashx>

Furthermore, both digital assets and their underlying technologies show potential to have a positive impact on fighting financial crime, expanding financial inclusion and mitigating effects of climate change, among other things. To maximize the positive impact of digital-asset technologies, we recommend that the U.S. government’s Research and Development (R&D) agenda zero in on the following topics for further study:

- Digital use cases that improve and expand financial inclusion;
- Potential benefits of central bank digital currencies for improving cross-border and digital payments;
- Broader use cases of distributed-ledger technologies in medicine, agriculture, supply-chain management, carbon capture and sequestration, and real estate;
- How an immutable blockchain with a history of every transaction could help identify financial activity related to corruption, money laundering, CSAM and other crimes; and
- Alternative “consensus-mechanism” technologies that are less energy-intensive and therefore leave a smaller carbon footprint.

### **Assessing Risks and Opportunities in Blockchain Technology for Regulators and Law Enforcement**

AIR commends the OSTP for undertaking this effort to examine R&D opportunities pertaining to digital assets, part of the Biden Administration’s recent Executive Order issued in March 2022. We believe that there are ample opportunities for the U.S. government and nations around the globe to employ beneficial uses of blockchain and other distributed-ledger technologies (DLT) while being vigilant about dangers associated with digital assets. Potential benefits include combating illicit financial crimes, expanding financial inclusion and monitoring efforts to mitigate climate change.

Perhaps most importantly, as blockchains and similar innovations enable the ongoing digital transformation of the private sector, it is also of utmost importance for regulators and other public-sector agencies to keep pace and to adopt these powerful kinds of technology for their own use. They must educate personnel about digital assets and other transformative technologies and explore how to replace their analog data analysis mechanisms with digital-native “Suptech” capabilities.

The gap between industry’s digital capability and that of the government continues to widen, which exacerbates the risks posed by digital assets and other new products to consumers. An aggressive R&D agenda by OSTP and other government entities can help narrow that gap.

### **Additional Comments**

Our additional comments for the RFI focus on how digital assets and related technologies could improve certain applications; how digital assets pose specific risks or harms; and opportunities to advance responsible innovation in the digital-assets ecosystem. Our responses generally pertain to the use of digital assets in the financial sphere.

### **A Holistic Approach to Managing Technologies Underlying Digital Assets**

We believe an R&D agenda related to digital assets should aim to maximize the positive impact of blockchain and other distributed-ledger technologies while aggressively managing the risks. In many areas, the technological innovations that have enabled the growth of digital assets — and in some cases

precipitated financial-stability and consumer-safety concerns — could also enable solutions to enduring global challenges.

The development of digital currencies could in the future lead to a broad-scale reduction in the cost of cross-border payments. This includes the establishment of Central Bank Digital Currencies (CBDC) around the world, which has the potential to enhance market efficiency. The creation of a U.S.-based CBDC, which the Federal Reserve and other government entities are exploring, could also preserve the U.S. Dollar’s position as the world’s reserve currency.<sup>5</sup> We applaud these efforts. In non-financial arenas, blockchain technology has proven beneficial in improving the registration of property titles,<sup>6</sup> the healthcare industry,<sup>7</sup> event ticketing<sup>8</sup> and other uses.

We offer further detail in the following areas:

- Recent failures of digital-asset companies have prompted some observers to sound the alarm about financial stability and consumer safety. Policymakers could mitigate that risk by clarifying protections for digital-asset customers and investors, and the regulatory guidelines for digital-asset firms.
- As criminals have used digital assets to stay hidden, law enforcement has used new technologies to their advantage, including in anti-money-laundering and cracking down on distributors of Child Sex Abuse Material (CSAM). Additionally, blockchain technology has emerged as a potential anti-corruption tool.
- While supporters of CBDCs point to financial-inclusion benefits, additional blockchain-related technologies utilized by non-governmental organizations and emerging markets also offer hope for reaching underbanked consumers. Digital-identity tools are required to reach the full potential of the benefits of digital assets. Various public- and private-sector initiatives are addressing this need and we applaud these efforts.
- Some consensus mechanisms that validate cryptocurrency transactions, such as Proof-of-Work (PoW) used by the Bitcoin network, are very energy-intensive and leave a sizable carbon footprint. Some private-sector solutions have aimed to mitigate this carbon impact.<sup>9</sup> Alternatives to PoW consensus mechanisms should be explored.
- A key element of ensuring responsible innovation in the digital-asset ecosystem is equipping regulators overseeing that innovation with the digital know-how, systems upgrades and human-capital improvements necessary to supervise the digital transformation of our financial markets.

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<sup>5</sup> Digital currencies and the future of the monetary system, Remarks by Agustín Carstens, Bank for International Settlements, January 2021, <https://www.bis.org/speeches/sp210127.pdf>

<sup>6</sup> “How Blockchain and Cryptocurrency Are Influencing the Real Estate Market,” Realtor Magazine, June 2022, <https://www.nar.realtor/magazine/real-estate-news/technology/how-blockchain-and-cryptocurrency-are-influencing-the-real-estate>.

<sup>7</sup> “Blockchain technology applications in healthcare: An overview,” International Journal of Intelligent Networks, 2021, <https://www.sciencedirect.com/science/article/pii/S266660302100021X>.

<sup>8</sup> “How Mobile Blockchain Ticketing Is Changing The Events Industry,” Forbes, March 2022, <https://www.forbes.com/sites/forbesbusinesscouncil/2022/03/18/how-mobile-blockchain-ticketing-is-changing-the-events-industry>.

<sup>9</sup> “Consensus Mechanisms” described on Ethereum website: <https://ethereum.org/en/developers/docs/consensus-mechanisms/>

## **Financial Stability and Consumer Protection**

The recent failures of the exchange FTX and other digital-asset-related firms in the wake of a dramatic drop in crypto-asset values last year revealed immediate consumer- and investor-protection concerns.<sup>10</sup> As the digital-asset sector grows and becomes more entwined with traditional finance, there is greater risk that volatility in these markets could spill over to broader financial markets, exacerbating investor and customer losses.

In order to foster responsible innovation of the digital-asset sector, policymakers should set out to create a legal framework that clarifies the regulatory status of crypto tokens, which regulatory agencies have appropriate jurisdiction over different aspects of the digital-asset industry, and how federal protections for crypto assets differ from those of more traditional bank deposits.

U.S. bank regulators, particularly the Federal Deposit Insurance Corporation, have acted appropriately to assert that funds stored with crypto exchanges do not enjoy the same type of FDIC backing afforded to traditional bank deposits.<sup>11</sup> Making this distinction clear and providing additional levels of transparency about how digital-asset firms reserve for crypto-assets they hold are key to ensuring a benchmark level of consumer and investor protection. We also applaud a recent joint statement by the U.S. bank regulators advising institutions to manage liquidity risks associated with providing services to digital-asset firms.<sup>12</sup>

Regulators and lawmakers should aim to develop a more formal policy framework to address consumer and investor protections for digital-asset users. One model for how the U.S. ultimately regulates crypto exchanges could be the framework developed by Japan, which established broad standards following earlier failures of crypto firms.<sup>13</sup> Most notably, the country's Financial Services Agency (FSA) requires crypto exchanges to keep a customer's fiat money and digital assets completely segregated from the exchange's own crypto-asset holdings.

## **Fighting Financial Crime**

Unfortunately, criminals ranging from drug traffickers to distributors of CSAM have often resorted to hiding their financial transactions and laundering funds by utilizing crypto-assets to avoid scrutiny from banks' anti-money-laundering (AML) controls. The anonymity and pseudonymity afforded by digital-asset technology poses a significant money-laundering risk for authorities, similar to the difficulty law enforcement has in tracking physical cash. Monitoring onramps and offramps in a cryptocurrency transaction are key to combating money laundering and other crimes.

At the same time, blockchains can actually make it more difficult for criminals to hide financial activity, because a record of the transaction always remains in a DLT system.<sup>14</sup> Like cash, cryptocurrency is

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<sup>10</sup> "What Went Wrong with FTX—and What's Next for Crypto?" Kellogg Insight, Kellogg School of Management, Northwestern University, <https://insight.kellogg.northwestern.edu/article/ftx-collapse-future-crypto>

<sup>11</sup> "Advisory to FDIC-Insured Institutions Regarding Deposit Insurance and Dealings with Crypto Companies," FDIC Financial Institution Letter, <https://www.fdic.gov/news/financial-institution-letters/2022/fil22035.htm>

<sup>12</sup> <https://www.occ.gov/news-issuances/news-releases/2023/nr-ia-2023-18.html>

<sup>13</sup> "Japan Was the Safest Place to Be an FTX Customer," CoinDesk, December 2022, <https://www.coindesk.com/consensus-magazine/2022/12/13/japan-was-the-safest-place-to-be-an-ftx-customer/>

<sup>14</sup> "Why criminals can't hide behind Bitcoin," Science, March 2016, [www.science.org/content/article/why-criminals-cant-hide-behind-bitcoin](http://www.science.org/content/article/why-criminals-cant-hide-behind-bitcoin)

anonymous at the point of transaction, but unlike cash, it is readily traceable because all the transactions are visible on the associated blockchain. This makes it possible for the financial industry and law enforcement to detect patterns of possible crime and, after gaining appropriate legal permissions, to determine the identities of users. This identity information is collected by the crypto exchanges.

There are encouraging signs of progress with investigators being able to overcome tactics used by bad actors. New innovations offer hope that in some cases blockchain technologies can aid banks in establishing AML controls, and even help investigators catch criminals in the act.<sup>15</sup> For instance, my organization, AIR, held a TechSprint in 2020 on how crypto traceability could be used to thwart CSAM users.<sup>16</sup> During the event, one participating team actually identified a transaction occurring in real time, and referred it to law enforcement.

In another example, we partnered last year with the U.S. State and Treasury departments on the Anti-corruption Solutions through Emerging Technologies (ASET) TechSprint. The program, cited by the White House among government efforts to promote democracy around the globe, aims to accelerate solutions to thwart transactions related to corruption, such as bribery.<sup>17</sup> Among the prototypes is a proposal to use blockchain-enabled “smart contracts” to improve transparency in disaster relief contracts.

Other higher-profile cases included the seizure last year of \$3.6 billion in bitcoin and arrest of a couple for allegedly trying to launder the funds. Prosecutors said they were able to trace the funds as they were hacked and then funneled through various accounts.<sup>18</sup> In another notable case, a blockchain analytics tool developed by Chainalysis aided government agencies in nabbing the largest distributor of online CSAM.<sup>19</sup>

## **Financial Inclusion, Digital Identity and Payments**

Another area where blockchain technology shows promise is in helping more consumers access financial services. Proponents of CBDCs often cite broader financial inclusion as a goal, especially in emerging markets. However, blockchains may also help in other financial-inclusion efforts.

For example, blockchain-related solutions can provide consumers with digital identification options. A blockchain-based ID system can be used by private organizations to issue security credentials and other applications.<sup>20</sup> But it also could help overcome one of the hurdles to economic development for consumers in developing nations — particularly women — who often lack access to identity documents.<sup>21</sup> This hurdle compounds their difficulty in accessing financial services, since identity verification is required for a financial institution to onboard customers and comply with AML requirements.

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<sup>15</sup>“Can blockchain turn the tide on financial crime compliance?” Deloitte Perspectives, <https://www2.deloitte.com/mt/en/pages/financial-services/articles/mt-risk-article-can-blockchain-turn-the-tide-on-financial-crime-compliance.html>

<sup>16</sup> <https://regulationinnovation.org/crypto-techsprint/>

<sup>17</sup>[www.whitehouse.gov/briefing-room/statements-releases/2022/11/29/fact-sheet-summit-for-democracy-progress-in-the-year-of-action/](https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/29/fact-sheet-summit-for-democracy-progress-in-the-year-of-action/)

<sup>18</sup> “Feds arrest married couple, seize \$3.6 billion in hacked bitcoin funds,” Washington Post, February 2022, <https://www.washingtonpost.com/national-security/2022/02/08/bitfinex-hack-bitcoin-arrests/>

<sup>19</sup> “Inside the Bitcoin Bust That Took Down the Web’s Biggest Child Abuse Site,” WIRED, <https://www.wired.com/story/tracers-in-the-dark-welcome-to-video-crypto-anonymity-myth/>

<sup>20</sup> <https://www.ibm.com/blockchain-identity>

<sup>21</sup> “Using Digital Solutions to Address Barriers to Female Entrepreneurship: A Toolkit,” The World Bank, [https://digitalforwomen.worldbank.org/sites/gender\\_toolkit/themes/barrier/pdf/Toolkit-v2.pdf](https://digitalforwomen.worldbank.org/sites/gender_toolkit/themes/barrier/pdf/Toolkit-v2.pdf)

Many innovators have looked at ways to establish digital identity platforms — backed by blockchain technology — that consumers can access through a personal device. A well-known effort to bring underserved consumers into the financial services fold is India’s Aadhaar project, which created a national biometric-based identification system, but the project has also led to privacy concerns.<sup>22</sup> More recently, researchers have worked on an upgraded version of the digital-identity framework that would incorporate blockchain-based technology.<sup>23</sup>

Another challenge is enabling financial-inclusion projects in the developing world to interact seamlessly with other payments rails, a concept known as payments interoperability. One development of note is Mojaloop, an open-source platform developed as a collaboration between private-sector companies and non-governmental organizations, which aims to achieve interoperability among payments ecosystems in emerging markets. The Mojaloop Foundation notes on its website that while its software “does not use blockchain,” it “relies on the Interledger Protocol to operate, which is not a blockchain but uses some key concepts from blockchain technology, such as a decentralized design and cryptography-based security.”<sup>24</sup>

## **Climate Change**

Among the risks facing the digital-asset sphere is the enormous carbon footprint left by crypto miners through consensus mechanisms established in leading crypto systems. In crypto mining, validators receive financial rewards in bitcoin or other crypto as reward for solving computational problems. But this so-called PoW mechanism requires massive computing power and electricity resources.

Many throughout the industry and elsewhere have sought to establish alternative consensus mechanisms with a reduced impact on the energy grid. This includes the so-called “Proof-of-Stake” approach used by the Ethereum system that was adopted through the network’s “merge” in 2022. Further investigation of alternative mechanisms to mitigate the carbon impact of the crypto sector would be an appropriate objective of an overall R&D agenda for digital assets.

Crypto technologies may also enable greater transparency and monitoring of carbon dioxide (CO<sub>2</sub>) removal (CDR), as well as provide incentives to those that operate CDR systems. Today, the carbon credit market is broken because there is little transparency on how these offsets are being used and the amount of CO<sub>2</sub> being removed. Cryptocurrencies could be used to incent CDR by setting up competitions around the amount of CO<sub>2</sub> captured and sequestered.

## **Addressing Regulators’ Digital Capability**

To best understand and address the risks and opportunities of digital assets, U.S. government research efforts must also explore the digital capability of regulators overseeing financial services and other industries.

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<sup>22</sup> What Happens When a Billion Identities Are Digitized?

<https://insights.som.yale.edu/insights/what-happens-when-billion-identities-are-digitized>

<sup>23</sup> “Researchers working on blockchain-based digital ID system to improve India’s financial landscape,” Biometricupdate.com,

<https://www.biometricupdate.com/202204/researchers-working-on-blockchain-based-digital-id-system-to-improve-indias-financial-landscape>

<sup>24</sup> <https://mojaloop.io/faq-items/does-mojaloop-utilize-blockchain/>

The regulatory framework for cryptocurrencies and digital-asset technologies is still uncertain. But perhaps a bigger concern is the fact that federal regulatory agencies still largely operate through an analog lens — relying on legacy infrastructure, lacking the ability to catch threats in mountains of data and adopting change linearly — despite the exponential pace of digital transformation in the private sector. This gap puts them at an immediate disadvantage when trying to manage the risks and opportunities related to digital assets.

A key focus of federal R&D efforts should be how to strengthen human-capital resources across the regulatory agencies to ensure that the government can manage rapid digital change.<sup>25</sup> The first step toward addressing this is through education. We recommend that agencies and the government as a whole look into establishing teams of digital innovation specialists and offering training curricula on digital assets and other technologies as part of workforce development.

## Conclusion

We applaud the White House for prioritizing a focus on digital assets through President Biden’s executive order issued last year, and the Office of Science and Technology Policy for soliciting feedback on how to advance this effort through research and development.

Digital currencies, blockchains and other distributed-ledger technologies are increasingly part of the mainstream economy despite turmoil in the crypto market and remaining skepticism about their applicability for the consumer. Technology innovators, investors and an array of both startups and established companies are devoting a tremendous amount of resources to developing beneficial use cases for these technologies as well as solutions for addressing the related risks.

It is essential that the public sector be a part of this conversation to help foster prudent adoption of this technology for good. We at AIR are available as a continued resource to provide input to U.S. government officials as they develop the R&D agenda for digital assets.

Sincerely,



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Alliance for Innovative Regulation (AIR)

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<sup>25</sup> “Building a digital regulator: how the FCA is riding the innovation wave,”  
<https://www.fca.org.uk/news/speeches/building-digital-regulator-how-fca-riding-innovation-wave>