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**Subject: RFI Response: Digital Assets R&D Agenda  
(88 FR 5043; Document Number 2023-01534)**

To Whom It May Concern:

The Stellar Development Foundation (“SDF”) submits this letter in response to a Request for Information (RFI) on “Digital Assets Research and Development,” which was made by the Office of Science and Technology Policy (OSTP) on January 26, 2023.<sup>1</sup> Like the RFI itself, this letter builds upon terms and subject matter defined in Executive Order 14067 (issued on March 9, 2022, and entitled “Ensuring Responsible Development of Digital Assets”).<sup>2</sup> The RFI covers six specific topics and invites general input on research and development related to digital assets.

SDF appreciates that OSTP is carefully studying this emerging and complex field, as part of an interagency process. Digital assets have the potential to fundamentally transform how people across the world think about and use money, and to expand access to fast, affordable, and transparent financial services for all. The term “digital assets” is broadly defined by Executive Order 14067 and captures a wide range of tokens, technologies, services, and projects – including stablecoins and central bank digital currencies.<sup>3</sup> Those digital assets may serve different purposes and use cases, have different pros and cons from a policy perspective, and are all likely to co-exist, overlap, and in some cases inter-operate in the years ahead. As a whole, the U.S. government has a critical role to play in shaping the evolution of the digital assets sector and promoting financial stability, consumer protection, and responsible innovation -- while also reinforcing U.S. global leadership and preserving national security.

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<sup>1</sup> Office of Science and Technology Policy, *Digital Assets Research and Development: Request for Information*, 88 FR 5043 (Jan. 26, 2023), <https://www.federalregister.gov/documents/2023/01/26/2023-01534/Request-for-information-digital-assets-research-and-development>.

<sup>2</sup> Executive Office of the President, *Ensuring Responsible Development of Digital Assets*, 87 FR 14143 (Mar. 14, 2022), <https://www.federalregister.gov/documents/2022/03/14/2022-05471/ensuring-responsible-development-of-digital-assets> (hereinafter, the “Order” or “Executive Order”).

<sup>3</sup> Executive Order at Sec. 9(c)-(d).

OSTP, in particular, is uniquely positioned to examine the technical dimensions of digital assets and the engineering implications of developing digital asset systems for particular contexts. Specifically, this letter addresses two key points for OSTP’s consideration:

- (1) Software interoperability and the ways in which OSTP and the broader federal government could explore and develop the benefits of enabling digital assets and digital asset systems to freely interoperate; and
- (2) Novel forms of programmability of digital assets, which OSTP should research, particularly as it pertains to future government programs and services.

We hope this material is useful for OSTP’s ongoing efforts.

### **Stellar Development Foundation**

By way of background, SDF is a US-based nonstock, nonprofit organization that contributes to the development and growth of the Stellar network (“Stellar”) and the “Stellar ecosystem” – the individuals, developers, and businesses who build on or interact with Stellar. Stellar is an open-source network that connects the world’s financial infrastructure. Founded in 2014, SDF helps maintain Stellar’s codebase, supports the technical and business communities building on the network, and serves as a speaking partner with policymakers, regulators, and institutions. Our mission is to create equitable access to the global financial system, using the Stellar network to unlock the world’s economic potential through blockchain technology.

From a technology standpoint, Stellar offers a decentralized, fast, scalable, and sustainable network for financial products and services. It is both a cross-currency transaction system and a platform for digital asset issuance that offers unique, robust asset issuer controls. Financial institutions and fintechs worldwide issue assets and settle payments on the Stellar network, which has grown to more than 7 million accounts. As of February 2023, over 10 billion operations have been processed on the Stellar network.

In Washington, D.C., SDF has engaged in public commentary, Congressional testimony,<sup>4</sup> committee briefings,<sup>5</sup> and proactive consultations with U.S. lawmakers, administration officials, and regulators, both one-on-one and through industry associations.

### **(1) The federal government should promote interoperability among digital assets, including through the development of standards and in consultative public forums.**

Interoperability among technology products and platforms – including in the digital assets space – benefits the public interest. The government should explore technical and standard-setting measures to

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<sup>4</sup> See, e.g., Stellar Development Foundation, *Digital Assets and the Future of Finance: Testifying Before the US House Committee on Financial Services*, SDF Blog (Dec. 8, 2021), <https://www.stellar.org/blog/digital-assets-and-the-future-of-finance-testifying-before-the-us-house-committee-on-financial-services?locale=en>.

<sup>5</sup> See, e.g., Stellar Development Foundation, *House Financial Services Committee Briefing Takeaways*, SDF Blog (Sept. 28, 2020), <https://www.stellar.org/blog/sdf-on-capitol-hill?locale=en>.

promote interoperability among digital assets, as well as between digital asset systems and traditional financial systems.

In other technological contexts, both OSTP<sup>6</sup> and other federal entities<sup>7</sup> have repeatedly recognized the value and importance of interoperability, within the government, as part of particular government-supported programs, and across organizations and industries. For good reason: interoperability can promote competition, innovation, efficiency, and consumer rights. A prime example is the set of protocols and specifications that undergird the World Wide Web, known as the “Internet layer.” At a practical level, interoperability at the Internet layer means that any person can open up nearly any web page from any device -- and that one email service readily can communicate with another.<sup>8</sup> At a higher level, that interoperability is central to the extraordinary growth of the Internet over the last thirty years and its revolutionary potential. SDF adheres to that same principle of interoperability today.

The affirmative benefits of interoperability extend to the digital assets space. Namely, being able to quickly, easily, and safely exchange digital assets or move them from one platform, financial institution, or wallet to another is generally good for consumers and markets alike. These forms of interoperability –

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<sup>6</sup> See, e.g., OSTP, “Request for Information on Advancing Privacy-Enhancing Technologies,” 87 Fed. Reg. 35250, 35252 (June 9, 2022) (seeking information where Privacy-Enhancing Technologies might assist in data portability and interoperability); OSTP, “Request for Information on Data Collection for Emergency Clinical Trials and Interoperability Pilot,” 87 Fed. Reg. 65259, 65260 (Oct. 28, 2022) (seeking input on “Fast Healthcare Interoperability Resources . . . in the pre-emergency phase as well as in an emergency setting.”); Director John P. Holdren, OSTP, “Memorandum for the Heads of Executive Departments and Agencies” (Feb. 22, 2013) <https://www.osti.gov/ostp-public-access-memo-2013> (discussing why scientific publications and data must contain features that encourage innovation in interoperability and accessibility).

<sup>7</sup> See, e.g., “Federal Cybersecurity Research And Development Strategic Plan,” National Science & Technology Council, Cyber Security And Information Assurance Interagency Working Group Subcommittee On Networking & Information Technology Research & Development Committee On Science & Technology Enterprise (Dec. 2019), <https://www.nitrd.gov/pubs/Federal-Cybersecurity-RD-Strategic-Plan-2019.pdf> (outlining how the government can, *inter alia*, “expand American influence abroad to extend the key tenets of an open, interoperable, reliable, and secure Internet.”) (citations omitted); U.S. National Artificial Intelligence Office, “Advancing Trustworthy AI,” 2022, <https://www.ai.gov/strategic-pillars/advancing-trustworthy-ai/> (discussing “[m]etrics, assessment tools, and technical standards are essential for ensuring that AI technologies meet critical objectives for functionality and interoperability”); NIST, “Smart Grid National Coordination” (Jan. 6, 2021), <https://www.nist.gov/programs-projects/smart-grid-national-coordination> (discussing a “national public-private stakeholder partnership effort to accelerate development of interoperability standards for the smart grid, fulfilling NIST’s statutory responsibility under the Energy Independence and Security Act of 2007”); U.S. Department of Energy, *Transforming the Nation’s Electricity System: The Second Installment of the Quadrennial Energy Review* at S-7 (Jan. 2017), <https://www.energy.gov/sites/prod/files/2017/02/f34/Quadrennial%20Energy%20Review%20Summary%20for%20Policymakers.pdf> (“Interconnection standards and interoperability are critical requirements for seamless integration of grid-connected devices, appliances, and building energy-management systems, without which grid modernization and further energy efficiency gains may be hindered”); U.S. Department of Commerce, “Spectrum Policy For The 21st Century: The President’s Spectrum Policy Initiative: Report” (June 2004), [https://www.ntia.doc.gov/legacy/reports/specpolini/presspecpolini\\_report1\\_06242004.htm](https://www.ntia.doc.gov/legacy/reports/specpolini/presspecpolini_report1_06242004.htm) (recommending that “[t]he Department of Homeland Security (DHS) and NTIA as well as the Office of Science and Technology Policy (OSTP) . . . coordinate with the Departments of Defense, Justice, Agriculture, and the Interior and other appropriate federal agencies and entities, including the FCC, to develop and implement a plan to address the spectrum needs of federal, state, and local communication interoperability and the continuity of government operations in light of continuing terrorist threats, emergencies, and day-to-day operations.”).

<sup>8</sup> See e.g., Sukhi Gulati-Gilbert et al., *Preserving the Open Internet Through Interoperability*, Center for Democracy & Technology (July 21, 2022), <https://cdt.org/insights/preserving-the-open-internet-through-interoperability/>.

both across blockchains and between blockchain networks and traditional financial systems – fosters consumer choice, competition and innovation among private companies, asset liquidity, and convenience in payment mechanisms.

The principle of interoperability is particularly important because we expect there will continue to be multiple digital asset types and providers, both private and public alike. In the years ahead, we assume that several types of digital currencies will co-exist and be exchanged for one another, and will also interact with fiat currencies, including: (1) privately issued digital currencies, both centralized and decentralized (such as Bitcoin and Ethereum); (2) fiat-backed stablecoins (such as USD Coin); and (3) central bank digital currencies (CBDCs). We detailed these forms of co-existence in our August 8, 2022, letter to the U.S. Treasury Department.<sup>9</sup>

While we understand that the U.S. government has not yet made a decision about whether to pursue its own CBDC,<sup>10</sup> we know that several other U.S. allies are moving forward with CBDC development,<sup>11</sup> and that other stablecoins remain in wide circulation.<sup>12</sup> There too, interoperability remains functionally important for consumers and potentially strategically important for the U.S. Moreover, Washington should take on a leadership role in setting global standards on interoperability and encourage the development of CBDC standards that allow for these currencies to interact with one another, regardless of underlying system or protocol. Likewise, the Board of Governors of the Federal Reserve System has also noted the value of interoperability in some of its recent reports.<sup>13</sup>

The Stellar network itself is designed with interoperability in mind. As an open, interoperable payments platform, Stellar has robust documentation, software tools, and a developer community that support quick integration with and connection to the network. The core protocol is complemented by ecosystem proposals (SEPs) that facilitate interoperability between financial entities connected to blockchain infrastructure and the traditional banking system. Through these SEPs, the Stellar ecosystem is unique in focusing on connections between traditional financial markets and decentralized finance. For

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<sup>9</sup> See SDF, *Ensuring Responsible Development of Digital Assets; Request for Comment (87 FR 40881; Document Number 2022-14588)*, Letter to the U.S. Treasury Department (Aug. 8, 2022), <https://resources.stellar.org/hubfs/SDF%20Treasury%20Comment%20Letter%20-%208-22.pdf>; SDF, *"We Must Prioritize Interoperability Going Forward: SDF's Response to Treasury's Request for Comment"* (Aug. 8, 2022), <https://stellar.org/blog/response-to-the-treasury-on-digital-assets>.

<sup>10</sup> See e.g., Inbar Preiss, *The Fed has 'not decided to proceed' with a digital dollar, says Powell*, The Block (Sept. 27, 2022) <https://www.theblock.co/post/173111/the-fed-has-not-decided-to-proceed-with-a-digital-dollar-says-powell>; cf. Governor Christopher J. Waller, *The U.S. Dollar and Central Bank Digital Currencies*, Symposium of the Harvard National Security Journal (Oct. 14, 2022), <https://www.federalreserve.gov/newsevents/speech/waller20221014a.htm>.

<sup>11</sup> See generally Atlantic Council, *Central Bank Digital Currency Tracker* (2022), <https://www.atlanticcouncil.org/cbdctracker/> (last visited Feb. 27, 2022).

<sup>12</sup> See generally CoinMarketCap, *Top Stablecoin Tokens by Market Capitalization* (last visited Feb. 27, 2022), <https://coinmarketcap.com/view/stablecoin/>.

<sup>13</sup> See Board of Governors of the Federal Reserve System, *Money and Payments: The U.S. Dollar in the Age of Digital Transformation* at 15 (Jan. 2022) (“CBDC has the potential to streamline cross-border payments by using new technologies . . . and creating additional opportunities for cross-jurisdictional collaboration and interoperability.”). See also U.S. Department of Treasury, *The Future of Money and Payments: Report Pursuant to Section 4(b) of Executive Order 14067* at 22 (Sept. 2022) (“Interoperability between central-bank operated payment systems is relatively uncommon today due to the risks and technical complexity, as well as considerations related to jurisdictions’ economic governance, rule of law, national security, and the need to align regulations”).

example, SDF and its partner MoneyGram International in 2022 announced MoneyGram Access, a first-of-its-kind global on/off-ramp service for digital wallets utilizing the Stellar network. With the launch of this program, digital wallet users can now move seamlessly from cash to digital assets to cash again—all without requiring a bank account or credit card yet still subject to local compliance standards. MoneyGram International agents, as the designated on- and off-ramps, perform required compliance screening, ensuring that strong know-your-customer mechanisms remain in place. MoneyGram Access creates an important bridge between digital assets and cash, demonstrating that blockchain can – and should be – interoperable with traditional financial infrastructure.

Conversely, the *lack* of interoperability can cause serious problems both within and outside of the digital asset context. Outside the context of digital assets, systems and software that cannot interoperate often cause costly outages and malfunctions and serious emergencies.<sup>14</sup> Within the universe of digital assets too, when large-scale digital assets systems are not interoperable, it can cause considerable inefficiency for consumers, market fragmentation, or liquidity issues (in the case of tokens that are traded).<sup>15</sup> For open source digital asset projects, interoperability can be exacerbated by the problem of orphaned code, which arises when a piece of software continues to be used, but the engineers who originated or maintained it are no longer involved or around.<sup>16</sup> Indeed, promoting the continued interoperability and vitality of open source projects also aligns with this Administration’s examination of how to “prioritize the most important open source projects and put in place sustainable mechanisms to maintain them.”<sup>17</sup>

Furthermore, the history of the Internet also underscores the broader significance of interoperability for frontier technologies. I have direct experience with the critical role interoperability plays in fostering innovation and accessibility. Prior to becoming CEO and Executive Director of SDF, I served as the Chief Operating Officer of Mozilla, the maker of the free and open-source Firefox web browser. At Mozilla, I advocated for the need for openness and interoperability in technology. My experience there shaped my understanding of the importance of common standards that allow systems to freely interact with one another. Today, at SDF, I continue to push for these same values of openness and interoperability in the blockchain industry, so that we can encourage competition and innovation – just as we did in the early days of the Web. Interoperability at the Internet layer has made the world a different and better place. This same

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<sup>14</sup> See, e.g., Ajay Harish, *When NASA Lost a Spacecraft Due to a Metric Math Mistake*, SimScale Blog (Oct. 17th, 2022), <https://www.simscale.com/blog/nasa-mars-climate-orbiter-metric/>; Bipartisan Policy Center, *Tenth Anniversary Report Card: The Status of the 9/11 Commission Recommendations* at 14 (Sept. 2011) (examining the 9/11 Commission’s recommendation on radio interoperability for first responders’ communications systems), <https://bipartisanpolicy.org/download/?file=/wp-content/uploads/2019/03/CommissionRecommendations.pdf>; Michael P. Gallaher et al., *Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industry*, NIST (Aug. 2014), <https://nvlpubs.nist.gov/nistpubs/gcr/2004/nist.gcr.04-867.pdf> (“Inadequate interoperability increases the cost burden of construction industry stakeholders and results in missed opportunities”).

<sup>15</sup> Currently, the digital asset ecosystem includes thousands of tokens in various shapes and sizes, some of which may decrease in popularity, become obsolete, or be subject to regulation. SDF does not mean to suggest that interoperability between and among *all* of these tokens and their corresponding projects or products is equally necessary or beneficial, for the federal government or otherwise.

<sup>16</sup> See, e.g., Klint Finley, *Giving Open-Source Projects Life After a Developer's Death*, Wired (Nov. 6, 2017), <https://www.wired.com/story/giving-open-source-projects-life-after-a-developers-death/>.

<sup>17</sup> See White House, *Readout of White House Meeting on Software Security* (Jan. 13, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/01/13/readout-of-white-house-meeting-on-software-security/>; Andrew Martin, *White House Enlists Software Industry to Improve Open-Source Security*, Yahoo News (Dec. 23, 2021), <https://finance.yahoo.com/news/white-house-enlists-software-industry-213026544.html>.

commitment to interoperability must guide our approach to digital assets. Without it, we will end up with less innovation and more concentrated ownership in the industry – much like what we have seen develop in the content layer on the web. Blockchain technology has the potential to enhance the current financial infrastructure by eliminating fragmentation and reducing barriers to access. But to make this a reality, we need policies that intentionally promote and encourage interoperability. The Biden Administration therefore has an essential role to play in shaping the future of the blockchain industry and the digital assets space, and in laying the groundwork for blockchains and traditional payments and banking infrastructure to interoperate. The United States can be a leader in building a truly open and accessible financial system. I applaud the U.S. government’s efforts so far to direct research and development on interoperability and look forward to seeing how that informs global standards.

More specifically, the role of World Wide Web Consortium (W3C) in the early days of the Internet is a useful analogy for the digital asset realm, since W3C was pivotal in developing critical Internet technologies and ultimately ensuring the success of the Web. Over the years, W3C has fostered the development of hundreds of open standards in fair, free, and consensus-driven processes and has long valued interoperability as a critical design principle.<sup>18</sup> The U.S. government has supported W3C in various ways, including in 1994 through seed funding from DARPA (alongside the European Commission), and today through continued membership in W3C (e.g., by NIST and the Defense Information Systems Agency).<sup>19</sup> Nonetheless, the U.S. government has rightly been careful in balancing its support and leadership with W3C’s independence and the benefits of an open, predominantly non-governmental community, and has shown important restraint in avoiding the creation of policies or regulations prematurely. Key to the development of common standards through W3C is that no one company (or entity) owns or controls the process or product.

Specifically, OSTP and the U.S. government should:

- Promote interoperability as a significant federal prerogative, including identifying areas that could benefit from greater interoperability and common technical standards, such as data portability, message forms, and digital identity.
- Conduct a review of core government processes to determine where digital assets projects may improve operational efficiencies and service provision (e.g., procurement, digital identification, CBDCs, etc.), and task relevant agencies and departments as well as industry groups to develop potential standards and interoperability solutions.
- Encourage U.S. federal agencies and departments that participate in the Small Business Innovation Research and the Small Business Technology Transfer programs—including but not limited to the Department of Commerce, the Department of Defense, the Department of Energy, the Department of Homeland Security, the Environmental Protection Agency, and the National Science

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<sup>18</sup> See generally W3C, *W3C to become a public-interest non-profit organization* (June 28, 2022), <https://www.w3.org/2022/06/pressrelease-w3c-le.html.en>; Karl Dubost, *Open Standards Interoperability*, W3C Blog (May 20, 2008), <https://www.w3.org/blog/2008/05/open-standards-interoperability/>.

<sup>19</sup> See, e.g., W3C, *Facts about W3C*, <https://www.w3.org/Consortium/facts>; W3C, *Current Members*, <https://www.w3.org/Consortium/Member/List>.

Foundation—to designate awards under these programs to support research on interoperability solutions for the digital assets industry.

- In collaboration with National Institute of Standards and Technology (NIST), elements of the Federal Reserve, and other relevant U.S. government entities, explore technical measures that would allow digital assets, including a potential wholesale or retail CBDC, to implement principles of interoperability. Consider setting up an interagency task force on interoperability, particularly as other pilot programs evolve.
- Assert U.S. leadership in open and transparent organizations that develop technical standards regarding payments and/or digital assets, such as the World Wide Web Consortium and other multilateral, public fora.
- Carefully examine the potential downsides of interoperability among digital assets in instances of market contagion or high-profile cyber-security breaches.<sup>20</sup> In many instances, OSTP may find pre-existing tools and techniques that can help limit contagion and detect security breaches.

**(2) The programmability of digital assets could serve various public purposes, which OSTP and other relevant federal agencies and departments should research through hands-on experimentation and applied demonstrations.**

Federal agencies have recognized the overarching significance of programmability in various technological settings.<sup>21</sup> In the digital asset context too, there is a growing appreciation among policymakers that programmability offers unique and tangible benefits -- for public and private infrastructure alike.

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<sup>20</sup> *Accord* U.S. Department of Treasury, *The Future of Money and Payments*, *supra*, at 33 (“There are some countervailing considerations, however. As noted, high levels of interoperability between CBDCs could introduce counterparty, operational, and cyber risks.”).

<sup>21</sup> *See, e.g.*, Department of Defense, “DoD Digital Modernization Strategy” (July 12, 2019), <https://media.defense.gov/2019/Jul/12/2002156622/-1/-1/1/DOD-DIGITAL-MODERNIZATION-STRATEGY-2019.PDF> (emphasizing “network technology aimed at making the network as agile and flexible [through] . . . network virtualization, and automation through programmability.”); NIST, “Guide to Operational Technology (OT) Security: Initial Public Draft,” NIST Special Publication NIST SP 800-82r3, p. 202 (April 2022) (discussing networking technology that “acts as an abstraction layer for network programmability . . .”); U.S. Department of Energy, “Transition 2020: Issue Papers,” at 79-80 (“Over the past decade, DOE has become aware that future-generation systems will require significant changes in how high performance computers are designed, developed and programmed. . . . To mitigate this complexity, a portion of the R&D investments will create tools that improve the programmability of exascale computers.”).

Indeed, this has recently been the focus of reports and remarks at the Federal Reserve, Treasury Department,<sup>22</sup> and Bank for International Settlements.<sup>23</sup>

One of the unique benefits of digital assets, whether created by a private issuer or a public entity, is that they can offer novel forms of programmability that are not feasible with traditional physical assets or existing forms of fiat currency. For example, programmable digital assets can allow for scheduling, targeting, instant swapping, conditional transfers, and escrow-like functionality. Programmability could also introduce other innovations, like automatically initiating payments on the confirmed receipt of goods, routing tax payments directly to tax authorities at point of sale, and recording the ownership and transfer of stocks and other assets. Payment of interest on treasury securities could be automated using smart contracts—instead of the manual process used today—or payments for goods and services could be disbursed automatically following the completion of specified benchmarks or milestones. Many of these functionalities are simply not possible with paper money or physical coins.

Programmability can also enhance safety and certainty for issuers. For example, the Stellar network already offers asset issuers a selection of programmable features designed to improve consumer protections and limit fraud. These innovative solutions include clawbacks that allow issuers to reverse transactions in cases of fraud or error, and an “authorization required” feature that give issuers the ability to verify that an asset holder has fulfilled compliance requirements set by the issuer, such as local know-your-customer and anti-money laundering obligations before an asset is transferred. This model may be particularly relevant to the RFI’s query about ensuring “fraud-resistant transaction programmability receive appropriate levels of R&D support.”<sup>24</sup>

These forms of programmability may benefit U.S. interests and policy initiatives in various ways, particularly around cash assistance and other social benefits. Cash-based social programs -- like CalWORKS in the State of California and Temporary Assistance for Needy Families in Washington, DC, as well as the U.S. government’s provision of COVID relief payments in 2020 and 2021 -- play an important role in helping individuals and families meet their basic needs. Programmability can allow local, state, and federal government agencies to precisely target support to those who need it most, and encourage increased efficiency, transparency, and convenience. Programmability also allows for the automation of microlending schemes, livelihood programs, and interventions for specific, vulnerable groups such as pregnant women

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<sup>22</sup> See, e.g., Board of Governors of the Federal Reserve System, *Money and Payments: The U.S. Dollar in the Age of Digital Transformation* 14 (Jan. 2022) (“a CBDC could potentially be programmed to, for example, deliver payments at certain times”); Alexander Lee, *What is programmable money?*, FEDS Notes 2021 (June 23, 2021); U.S. Department of Treasury, *The Future of Money and Payments: Report Pursuant to Section 4(b) of Executive Order 14067* at 21 (Sept. 2022) (a CBDC “could also facilitate the use of transaction programmability, to allow for additional functionality of money. For example, payroll, government, or bill payments could be automated using CBDC, similar to how ACH works today, or new functions could be designed to facilitate micro and machine-to-machine payments.”).

<sup>23</sup> See also Agustín Carstens, *Innovation and the future of the monetary system*, Bank for International Settlements (Feb. 22, 2023) (“there is great promise in developing the idea of a ‘unified ledger’ with a common programming environment . . . . Such a ledger allows for the use of smart contracts and composability. . . . With these new functionalities, any sequence of transactions in programmable money can be automated and seamlessly integrated. This reduces the need for manual interventions that delay transactions and reduces dependency on intermediaries, and also allows for simultaneous and near-instant payments and settlement.”).

<sup>24</sup> RFI, *supra* at 5044.

and the formerly incarcerated. Federal agencies could use programmable assets to help with the allocation and administration of government benefits or the real-time, targeted distribution of economic stimulus funds. In certain scenarios, the government could also consider conditional or time-delimited asset transfers (e.g., benefits that must be used within nine months; or forms of “helicopter money”).<sup>25</sup>

SDF has seen first-hand the ways in which programmability can add value in the context of international humanitarian aid and cash assistance programs. In collaboration with leading international aid organizations, SDF launched Stellar Aid Assist in December 2022, a first-of-its-kind disbursement system powered by the Stellar network to help aid organizations deliver urgently needed cash assistance to vulnerable populations quickly and transparently. Stellar Aid Assist enhances aid organizations’ existing cash assistance efforts by leveraging digital wallets and a digital asset, such as the USDC. The use of a digital dollar provides a stable store of value and gives individuals the ability to exchange for local currency anywhere in the world through the MoneyGram network or other available offramps. Individuals remotely receive the digital dollars and hold them securely over time in a digital wallet, giving aid organizations an alternative to providing physical cash. It does not require a bank account, debit card, or credit card and provides recipients with a more secure place to hold and transport funds until cash is needed. With 1.4 billion people unbanked worldwide, and more than 103 million people forcibly displaced, this is a critical new option for individuals who have historically been dependent on receiving and carrying physical cash. Using Stellar Aid Assist, recipients can manage their funds entirely on their phone, wherever they go. Additionally, the use of the Stellar public blockchain provides greater transparency for aid organizations and their donors through the traceability of funds. The United Nations Refugee Agency, UNHCR, and the International Rescue Committee announced live pilots of Stellar Aid Assist for displaced individuals in Ukraine in December 2022 using the USDC asset, Vibrant digital wallet, and MoneyGram network. The tool is provided free of charge to organizations by SDF and can be used in additional geographies.

Cash-based transfers programs are a common form of development assistance even outside of emergency settings. For aid and development organizations, programmability gives the benefit of greater oversight (i.e., aid could be returned and repurposed if the recipient is deceased) while not violating the basic principles of cash-based assistance. In the future, programmable digital cash could be used to fulfill donor mandates on aid allocation and to set conditions, for instance, on where recipients can spend aid funds. Programs can be designed with smart contracts to automatically release funds once a certain set of conditions is met, which could automate and streamline efficiency within the aid sector.

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<sup>25</sup> See generally Hon. J. Christopher Giancarlo, Testimony to the House Committee on Financial Services, *Inclusive Banking During a Pandemic: Using FedAccounts and Digital Tools to Improve Delivery of Stimulus Payments* (June 11, 2020), <https://www.congress.gov/116/meeting/house/110778/witnesses/HHRG-116-BA00-Wstate-GiancarloJ-20200611.pdf>; Justice Clark Litle, *Programmable Digital Currencies Are Coming - Here's What That Means*, NASDAQ (Aug. 18, 2020), <https://www.nasdaq.com/articles/programmable-digital-currencies-are-coming-heres-what-that-means-2020-08-18> (“In terms of distributing stimulus or emergency funds, the U.S. government and Federal Reserve would have a level of fine-tuned control like never before. Payments could be sorted out by income level, employment status, geographical location, or any number of other things. Digital dollars would likely also be programmable in and of themselves, allowing for instant tax payments at the point of sale. Tax refunds and rebates could be instant, too.”).

Specifically, OSTP and the U.S. government should:

- Initiate pilot projects to explore various scenarios in which programmability may improve U.S. government services and benefit consumers. This sort of hands-on experience and experimentation can inform and illuminate policy discussions and also help the private sector better understand governmental programs and interests.
- Research the potential applications of programmability in the context of government aid and other federal programs and benefits.
- Convene policymakers at the Federal Reserve, the Treasury Department, and the U.S. Agency for International Development to study and how programmability might apply in the context of monetary policy and foreign policy and to consider ways to beta-test such applications in a discrete and safe environment.
- Also carefully examine some potential downsides of programmability, especially in the context of the automated execution of code based on inaccurate information. Moreover, OSTP could analyze how programmable digital assets might interact with malicious code or other cyber-security risks (e.g., an attacker who takes advantage of pre-programmed payment schedule to siphon off funds). Some of these security downsides may be amenable to technical improvements. Finally, as part of the broader focus on privacy in Executive Order 14067, OSTP should analyze the potential privacy implications of certain forms of programmability and the ability to preserve cash-like features.

Under all circumstances, the more hands-on experience and trial-and-error that OSTP and other relevant agencies can have with programmable assets, the quicker the U.S. government can determine whether and which of these features may be worth deploying in public infrastructure or promoting in the private sector.

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SDF appreciates the opportunity to respond to the RFI and would be pleased to provide additional information that OSTP might find useful. In the years ahead, different types of technologies and digital assets will come and go, coincide, evolve, and in some instances interoperate – with varying effects on federal objectives, for example around financial inclusion, consumer protection, national security, and systemic risk. We urge OSTP and the U.S. government writ large to research and develop forms of interoperability and programmability, as part of an overarching policy and regulatory framework that reflects the co-existence and complexity of the digital asset ecosystem.

Sincerely,



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Denelle Dixon  
Chief Executive Officer & Executive Director  
Stellar Development Foundation