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Via email: DARD-FTAC-RFI@nitr.gov

**Office of Science and Technology Policy
Executive Office of the President
1650 Pennsylvania Ave., NW
Washington, DC 20504**

Response to Request for Information: OSTP Digital Assets R&D Agenda

I. Introduction

PayPal appreciates the opportunity to provide this letter in response to the [Request for Information](#) (RFI) issued by the Office of Science and Technology Policy (OSTP) to help identify priorities for research and development related to digital assets and various underlying technologies. Outreach with industry and experts in the digital asset field is critical as the government considers developing a framework for enhancing U.S. economic competitiveness and innovation related to digital assets and infrastructure.

Digital assets and their associated technologies offer immense possibilities to create more efficient and effective payments systems. We believe digital payments, including through the use of stablecoins and CBDCs, can be a key area where the United States has a competitive advantage given the quality of technology and domestic law and regulation. Further, if properly designed, CBDCs hold promise in providing individuals and small businesses with substantial benefits, including increased access to financial services, lower costs, faster transaction speeds, enhanced privacy, and greater optionality, leading to overall improved financial health.

II. The Future of Money

Advances in technology, including the use of digital assets and smart contracts, have the potential to fundamentally change the way in which payment and financial activities are conducted. Digital asset infrastructure represents the next generation for a digital economy – bringing enhanced efficiencies, programmability, speed, accountability, and access. Through proper understanding and exploration of the benefits of tokenization, blockchain, and distributed ledger technology (DLT), we can develop modern financial infrastructure that better serves American consumers and small businesses.

We note and acknowledge at the outset, however, that the fundamental potential that digital asset technology presents can at times be obscured by high-profile failures of certain actors or specific financial assets they have developed. As with financial services and markets more broadly, some assets

and platforms are well-designed, while others lack transparency or clear value propositions. It is important to separate the objectively real elements of innovation from hyperbole.

To do this, we should consider policies that unlocked past periods of digital innovation, including with respect to early Internet development. A sound combination of government collaboration, public research funding, private innovation, global attraction of talent, and appropriate regulation cemented the role of the United States at the center of the digitization of communications, media, commerce, and Internet-based financial services, but that was not inevitable. It took forward-leaning leadership, as is being demonstrated today with this RFI.

We have been learning a great deal about digital assets, establishing in early 2022 an internal cross-disciplinary advisory council for our Blockchain, Crypto and Digital Currencies unit comprised of some of the world's leading experts in cryptography, distributed technology, regulation, economics, and capital markets. And we're committed to working with governments and regulators to help responsibly shape the future of digital financial services. We believe CBDCs, digital currencies, and stablecoins could be great additions to the payment options available to businesses and consumers and complement the current retail payments system. It is critical for the U.S. government to play a leadership role in supporting the rise of domestic industry and fostering a cohesive global policy framework for the digital asset ecosystem.

III. Payments Innovation & Financial Inclusion - Clear Goals for Research & Development (Question 1)

A. Payments Innovation and US Global Competitiveness

As it stands today, the current payment rails are inconvenient and expensive, taking days to settle transactions, providing limited visibility to businesses conducting international payments, and charging high fees – especially to lower-income and underbanked segments of the population that are forced into costly check cashing, money order, payday lending, and remittance services.

New technologies and thoughtful regulation provide an opportunity to reshape the financial system to benefit the underserved; to support businesses, professionals, and creators with faster, lower cost payments as well as access to credit; and, to relieve financial stress for the general public. Responsible innovation in payment systems, lending, digital currencies, digitized protocols, digital identity and in the fight against fraud and financial crime can bring a new era of equitable, low cost, and accessible financial services. The time is ripe to modernize and upgrade the technological infrastructure of the financial system – and the United States is well-positioned to lead both in terms of private sector innovation and public sector engagement.

Across the globe, governments are actively studying the merits of CBDCs, with 114 countries (representing over 95 percent of global GDP) noting active exploration.¹ We accordingly believe the United States should take a leadership role in this space, especially with respect to establishing global standards.

The U.S. dollar plays a critical role not just domestically, but across the globe. As the primary global reserve currency, the dollar is used to conduct international transactions based on the availability and prevalence of financial instruments denominated in dollars as well as the depth and integrity of U.S. financial markets. The relative stability of the dollar against other currencies instills trust and confidence that dollars will serve as an effective medium of exchange and store of value. The importance of dollars in international transactions makes the Federal Reserve one of the leading central banks that can provide international liquidity.

If the U.S. dollar is to remain the world's primary reserve currency in the unfolding century, then being at the forefront of technological innovation that reduces friction in payments should be an area of focus. Accordingly, the U.S. government and the OSTP should actively explore and consider new digital forms of money that can most effectively operate in an increasingly digital world. PayPal believes that a digital dollar could be a logical next iteration to futureproof the U.S. dollar. A properly designed digital dollar could promote diversification of the payment system and spur financial innovation, inclusion, and global currency interoperability.

To maximize its benefits and reduce disruptions or causing instability, we believe a future digital dollar should embody certain key tenets, including:

- Operate alongside existing and future payment options and innovations, including but not limited to ACH, wire, credit, and private digital currency payment solutions;
- Be offered to retail and wholesale users;
- Be facilitated and distributed through accounts and digital wallets at regulated banks and financial services companies, such as trust companies and money transmitters;
- Ensure individual privacy, while satisfying law enforcement requirements;
- Promote global digital currency and network interoperability
- Be flexible in its design to account for future technology, policy, or economic changes; and
- Encourage private sector innovation and collaboration.

B. Financial Innovation Should Be Viewed through the Lens of Financial Health & Inclusion

We believe that financial health and inclusion can and should be a key goal of any research and development effort regarding blockchain technology. We believe financial innovation and access are key

¹ Atlantic Council - Central Bank Currency Tracker, accessed 03/01/23, <https://www.atlanticcouncil.org/cbdctracker/>.

prerequisites to maintaining the broader goal of “Financial Health.” Helping people to accomplish and/or maintain strong financial health is at the heart of PayPal’s mission to democratize the movement and management of money.

It is well documented that nearly 7.1 million households in America remain unbanked, with the majority of such households being Black and Hispanic. Notably, a 2021 survey found that one of the primary reasons individuals remain unbanked is due to distrust of banks given experience with surprise punitive fees, such as overdraft.² The underbanked represent an additional subsegment of the U.S. population that is currently underserved by the financial system. Approximately 20% of U.S. households are considered underbanked, meaning that they used alternative financial products outside the banking system.³ A further 69% of Americans are living paycheck-to-paycheck, meaning they would experience financial difficulty if paychecks were delayed for a week.⁴ And, 77% of Americans report feeling anxious about their financial situation.⁵

We firmly believe that how we pay for goods and services is fundamental to financial health, meaning that consumers must have choice in payment methods, understanding of payment options, visibility into their financial standing, financial options to achieve their goals, and the ability to exercise those needs in the coming digital age. The advent of stablecoins and CBDCs presents another option that could be widely used, as it is pegged to fiat currency and could enable faster cheaper financial transactions in the digital environment and, depending on design, could potentially fulfill currently unmet and future payments needs.

First, if crypto currencies, including stablecoins and CBDCs, were made available through a digital wallet service offered by regulated financial services firms, it is likely that a meaningful percentage of **currently un- and underbanked individuals would find benefits.**⁶ There are numerous and complex causes that contribute to unbanked and underbanked populations. We need to study these and address them individually – there will be no one solution to this global problem. It is a problem that deserves thought and action, which may need to come in small doses to test solutions for effectiveness or recalibrate to achieve the desired results. While a U.S. CBDC may not succeed in converting all unbanked and underbanked persons into those that fully utilize the needed financial services, even impacting a small

² Federal Deposit Insurance Corporation, *How America Banks: Household Use of Banking and Financial Services 2019*, Oct 2020, <https://www.fdic.gov/analysis/household-survey/2019execsum.pdf>.

³ Federal Deposit Insurance Corporation, *2017 FDIC National Survey of Unbanked and Underbanked Households*, updated Dec 2021, <https://www.fdic.gov/analysis/household-survey/2017/index.html>.

⁴ PRNewswire, *Number of Americans Living Paycheck to Paycheck on Decline Despite Pandemic*, Sept 2020, <https://www.prnewswire.com/news-releases/number-of-americans-living-paycheck-to-paycheck-on-decline-despite-pandemic-301134207.html>.

⁵ CNBC, *77% of Americans are anxious about their financial situation—here’s how to take control*, May 2022, <https://www.cnbc.com/select/how-to-take-control-of-your-finances/>.

⁶ See, e.g., The Digital Dollar Project, *Exploring a US CBDC*, May 2020, http://digitaldollarproject.org/wp-content/uploads/2021/05/Digital-Dollar-Project-Whitepaper_vF_7_13_20.pdf.

percentage of the 20% of U.S. households that are underbanked is worthwhile and should be fully considered.

Digital wallets could be tailored to offer access to digital dollars, custody, and related payments services. These offerings would be in parallel with other payments services, providing competition and consumer choice. Once onboarded through a digital wallet service, a previously unbanked or underbanked individual would find herself connected to the global financial system and e-commerce platforms.

Second, the impact on G2P payments could be immense. Far too many Americans waited months to receive stimulus checks at the onset of the COVID-19 pandemic. A combination of tools like CBDCs, stablecoins, and digital identity could enable these individuals to receive their money through direct deposit in a far more timely manner. G2P payments provide a lifeline to millions of Americans and can be made far more efficient with digital assets.

The pandemic underscored the importance of access to accurate, timely, safe, efficient, and affordable payments for all Americans and the high cost associated with being unbanked and underbanked. Approximately 35 million individuals had to wait for months to receive their stimulus checks, if they received them at all.⁷ PayPal was honored to participate in the disbursement of stimulus checks. In the first round alone, 100,000 payouts were made to PayPal and Venmo accounts using the Direct Deposit feature. In the second round, 117,000 were made via PayPal and Venmo using that feature. Instead of waiting for physical checks to be printed and mailed and later cashed and deposited, individuals and households could submit their PayPal account details directly to the IRS website and elect to receive their stimulus payment through Direct Deposit into a PayPal CashPlus account. The challenges of getting relief payments to these households highlighted the benefits of delivering payments more quickly, cheaply, and seamlessly through **new digital infrastructure**, and CBDCs can be a means of increasing financial inclusion and improving financial health.⁸

Third, given the likely speed, efficiency, and cost benefits of certain digital assets, low-income individuals should be able to **shift certain financial activity away from high-cost legacy providers**, including check-cashers and payday lenders, that often come with significantly higher fees.

Fourth, cross-border **remittance transactions could become more efficient and cost effective.** Many individuals face high fees sending money across borders due, in part, to numerous intermediaries; an interoperable digital dollar that could be readily exchanged across borders and converted into another digital fiat currency holds promise in connecting funds more directly, quickly, and efficiently to those who need them.

⁷CNBC, *35 million stimulus checks are still outstanding. What you need to know if you're waiting for your money*, June 2020, <https://www.cnn.com/2020/06/08/35-million-stimulus-checks-havent-been-sent-out-who-is-waiting-for-money.html>.

⁸ PayPal, *Addressing Your Questions About Government Stimulus Payments*, accessed May 5, 2022, <https://newsroom.paypal-corp.com/covid-19-addressing-your-questions-about-government-stimulus-payments#:~:text=Elect%20to%20receive%20your%20stimulus,and%20you%27re%20all%20set.>

Fifth, stablecoins, CBDCs, and related technologies could **support small business merchants** by providing them (and customers) with a new form of payment, especially given reduced physical cash dealings and the trend toward reduced cash usage. Indeed, as economies move away from physical money, it is prudent to offer the public access to a modern, digital form of cash. A digital dollar can offer important competition against other forms of payment and allow participants access to central bank money through regulated intermediaries.

Finally, digital assets would be **responsive to clearly shifting preferences** among consumers. Younger generations are increasingly reliant on mobile access to digital services, and a digital dollar meets them where they are. Offering public money in a digital format would appear to be the next step in the natural evolution of the dollar.

III. Understand Privacy and Climate Impact to Mitigate Potential Risks (Question 3)

A. Getting Privacy Right

One of the most important elements of digital assets broadly, and a U.S. CBDC more specifically, is ensuring user privacy while satisfying legitimate law enforcement requirements, and we encourage the OSTP to focus research and development efforts in this area. Many have expressed concern that CBDCs could allow for government surveillance of citizen payment transactions, especially to the extent that the digital currency transacts upon highly centralized government rails. On the other hand, some worry that treating as a pure analog to cash along with its anonymity features will facilitate illicit activity and threaten national security.

Given these important considerations, it is imperative that the United States gets privacy right. With thoughtful design and implementation, the digital dollar could enjoy competitive advantages relative to other national CBDCs that permit unchecked surveillance. One advantage the United States already enjoys is existing legal due process and protections when it comes to individual financial information. These protections, which include those under the 4th Amendment of the U.S. Constitution, should be embedded within the design of a digital dollar and associated authorizing legislation.

Notwithstanding the importance of privacy, it is also important that CBDCs, stablecoins, and digital assets more generally be capable of meeting key law enforcement requirements and objectives. A design that relies on regulated entities to serve as digital wallet service providers can ensure implementation of key KYC/AML requirements. We encourage the OSTP to actively explore leading-edge privacy technologies that can help satisfy privacy and law enforcement objectives simultaneously.

For example, zero-knowledge proofs are an area of development that allows network participants to validate certain information without having direct access to underlying, sensitive information. In the context of KYC/AML, this might mean verifying that an individual is not on a sanctions list without revealing the identity of the individual to the entity seeking verification.

B. Mitigate Climate Risk

PayPal is focused on advancing our mission of democratizing financial services, while responsibly managing and reducing our environmental impact. PayPal is proud to have supported the development of the [Crypto Climate Impact Accounting Framework](#), co-authored by the Crypto Carbon Ratings Institute (CCRI) and South Pole.⁹ This initial effort enables better understanding of how companies involved in the cryptocurrency ecosystem can begin to account for their emissions, which is a first step in determining how to reduce those emissions. We welcome to opportunity to continue this work alongside the OSTP to better research, track, and understand climate emissions associated with digital assets.

IV. Prioritize CBDC Technology in R&D Efforts (Question 4)

A. CBDC Technology

We encourage the OSTP to focus R&D research on greater automation. Digital asset technology holds the promise to drive key benefits across the payments system including increased speed and efficiency; greater security; innovative new functionality; interoperability; and programmability.

One of the central benefits of digitized modern payments rails that leverage some of the innovations in blockchain and cryptography is the ability to **automate** the settlement of payments and maintenance of the ledger. It is this automation that can eliminate costly, time-consuming, and sometimes manual processes associated with legacy infrastructure. This advantage can reduce transaction times and costs. It can further simplify the payments system by removing siloed databases and providing access to consumers and businesses to previously closed networks.

These features can result in a dramatically **more efficient and speedy financial system**. This in turn could result in reduced costs compared to the current system. The use of a digital dollar that transacts on more efficient rails should include regulated digital wallet providers who can process payments on the designated rails (and help manage or ensure proper governance of the rails) and the central bank operator of the CBDC system. Settlement times that today take days can be reduced to minutes, and errors that can be introduced due to the many intermediaries and systems through which a payment typically flows can be significantly reduced. As a result, financial system participants will not only have greater transparency into the movement of funds but will also enjoy greater liquidity and improved cash flow, further stimulating the economy.

A properly designed CBDC can also serve as a foundation for a **safer and more secure** payments network. Because digital currencies can employ multi-layer security in addition to strong authentication and authorization assurances, they can be subject to secure processes like multiparty authentication or

⁹ Crypto Carbon Ratings Institute and South Pole, *Crypto Climate Impact Accounting Framework*, <https://www.southpole.com/reports/report-accounting-for-cryptocurrency-climate-impacts>.

enhanced transaction verification. Additional features embedded in a digital currency can facilitate compliance with reporting requirements, support AML and anti-terrorist financing efforts, and assist law enforcement in the prosecution of financial crimes. Notably, emerging encryption technologies can provide these benefits while preserving consumer privacy and control in how their data is used and shared.

The third feature of CBDC technologies is the ability to **spur additional innovations** across the financial sector. At PayPal, we have seen firsthand the impact that digitization has had on the economy and society. The ability to perform many different kinds of financial transactions directly on a mobile device has improved accessibility, particularly in rural locations and banking deserts. Giving small businesses the ability to accept payments digitally has enabled them to compete on a national or global scale. With more aspects of our lives taking place online, it's easy to see that a secure and open digital dollar could power use cases that we cannot conceive of today.

The fourth key feature of CBDC-related technology is the potential for **enhanced interoperability**. Domestically, this means operating alongside, and easily convertible to, other forms of digital currency as well as digital representations of fiat currency. The system should facilitate consumer and business optionality and choice. The breaking down of silos provides an opportunity to connect digital economic systems, including other global CBDCs and financial networks. Interoperability, however, is predicated on careful coordination between the central bank issuers of CBDCs and related stakeholders, along with the development of standards. For this reason, **we urge the OSTP to research and promote interoperability standards, including with respect to privacy and security.**

The final technological benefit of a CBDC is its **programmable nature**. This refers to “smart contracts” which enable tokens or currencies to be “programmed” to perform specific functions, like paying a mortgage on a certain date. Programmable money could help to reduce money laundering and terrorist financing by embedding eKYC and sanctions screening functionality. Tied to the concept of automation, digitized money can be wrapped in smart contracts and coded to include certain features and behave in determinable ways. The programmable nature of digital money means that regulation and compliance requirements can be embedded in money itself, and that business logic can drive desired outcomes. For example, a digital dollar could be programmed for humanitarian distribution in a disaster zone and only usable for the purchase of essential food and medical supplies in the first instance. In the context of financial markets, digital dollars could be programmed to facilitate clearing and settlement of transactions at efficient intervals.

With OSTP spearheading research and development, in partnership with the private sector and industry, the United States has an opportunity to lead global efforts for the advancement of critical technology infrastructure for digital assets.

V. Advance Responsible Innovation through Standards Setting & Private Sector Participation (Question 5)



Given the potential for the technologies underpinning digital assets to form the next generation of financial services infrastructure, governments around the world are taking steps to champion domestic innovation and industry. It is well known that China is the global leader in piloting its CBDC, the digital yuan (or e-CNY), and that leading jurisdictions, including Europe, the UK, and Korea, are taking steps to support digital asset development. This accordingly marks a unique time where a “whole of government” approach is needed to support U.S. digital asset innovation that incorporates core democratic values and a focus on privacy, security, and consumer protection.

For this reason, we recommend exploring the formal development of public-private platforms to advance digital asset standards. By investing in standards and including leading U.S. private sector expertise, we can ensure that the future of global and interconnected digital infrastructure is imbued with U.S. norms, values, and know-how.

VI. The Importance of Regulated Non-Bank Financial Services Providers in Issuance and Distribution

PayPal has long worked to expand financial inclusion and health in the digital realm. We frequently work in partnership with banks and traditional financial institutions as a regulated financial services provider. We believe that digital assets hold particular promise in advancing inclusion and financial health if it recognizes the benefits of open systems and broad distribution of digital dollars by regulated entities beyond traditional banks.

The traditional banking system has faced challenges in reaching all segments of the population, especially historically disadvantaged, minority, and low-income groups. Regulated payments providers like PayPal and Venmo typically offer free onboarding and carry no minimum balance. Additionally, PayPal’s two-sided platform connects both consumers and merchants in a seamless manner. Our services provide a favorable experience for the consumer and entree into a digital marketplace that does not typically accept cash or checks.

Recent research underscores this dynamic by noting that regulated payments providers were far more effective in reaching minority-owned businesses during the COVID-19 pandemic to offer them Paycheck Protection Program (PPP) relief.¹⁰ For example, PayPal’s PPP loan program is over-indexed in the majority of the top 30 counties that have the highest density of Black business activity and heightened incidence of COVID-19. More specifically, the coverage rate for PayPal-facilitated PPP loans is above

¹⁰ Washington Post, *Racial bias affected Black-owned small businesses seeking pandemic relief loans, study finds*, Oct 2021, https://www.washingtonpost.com/national/ppp-bias-black-businesses/2021/10/15/b53e0822-2c4f-11ec-baf4-d7a4e075eb90_story.html.

average in 23 out of these 30 counties¹¹, in sharp contrast to the overall PPP, in which the coverage rate is below average in 22 out of these 30 counties.¹²

Indeed, there is clear evidence that regulated payments providers are increasingly providing key services for underserved women and minority consumers.¹³ For example, PayPal Working Capital (PPWC) loans are distributed to areas with greater concentrations of minority populations, helping to close the gap in access for minority entrepreneurs. The percentage of total PPWC loans going to census tracts with greater than 25% African American population share is slightly higher than traditional SMB loans (13% vs. 11%). Also, this same group of borrowers are growing more quickly than the average SMB (22% vs. 9%).¹⁴

Given the ability of regulated payments providers to reach broader populations, it is critical that a U.S. CBDC be offered and distributed through both regulated banks and non-banks, including state-regulated money transmitters and trust companies. Regulated payments providers specialize in nimble, consumer-friendly applications, as well as connectivity with other service providers. A U.S. CBDC offers a unique opportunity to leverage a broader set of regulated entities to help expand access to digital financial services.

We appreciate the opportunity to comment on this letter and are happy to engage with you further as you consider R&D involving digital assets.

¹¹ PayPal, *Resilience and Growth During the COVID-19 Pandemic: A Study of Digital Small Businesses*, Sept 2021, https://publicpolicy.paypal-corp.com/sites/default/files/2021-09/C19_and_Digital_SMBs_PayPal.pdf.

¹² Federal Reserve Bank of New York, *Double Jeopardy: COVID-19's Concentrated Health and Wealth Effects in Black Communities*, Aug 2020, https://www.newyorkfed.org/medialibrary/media/smallbusiness/DoubleJeopardy_COVID19andBlackOwnedBusinesses.

¹³ Federal Reserve Bank of Cleveland, *Fintech Lenders and Their Potential to Reach Underserved Women- and Minority-Owned Small Businesses*, accessed 05/12/22, <https://www.clevelandfed.org/newsroom-and-events/events/2017/policy-summit/coverage/fintech-lenders-and-small-business.aspx>.

¹⁴ PayPal, *Alternative SMB Financing: Fueling Underserved Entrepreneurs*, Nov 2020, https://publicpolicy.paypal-corp.com/sites/default/files/2020-11/Alternative_SMB_Financing_Fueling_Underserved_Entrepreneurs.pdf.