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To whom it may concern:

Ripple Labs Inc. (Ripple) welcomes the opportunity to comment on the White House Office of Science and Technology Policy's (OSTP) request for information entitled "Request for Information; Digital Assets Research and Development" (the RFI). The RFI was issued in response to President Biden's [Executive Order](#), "Ensuring Responsible Development of Digital Assets," and following OSTP's report, "Technical Evaluation for a U.S. CBDC System", which prompted further questions regarding digital assets research and development (R&D).

Ripple strongly believes that the United States can and should be a leader in the digital assets space. This requires not only implementation of a proper regulatory framework, but also robust investment in developing and applying the technology underlying digital assets. As identified in the RFI, there are myriad opportunities to leverage digital assets to achieve key policy objectives, ranging from advancing financial inclusion and equity goals to supporting environmental and sustainability objectives. A coordinated, comprehensive and strategic approach to digital assets R&D will allow the United States to leverage these technologies and apply them in ways that will benefit the nation and its citizens.

Introduction

Using blockchain technology, Ripple allows financial institutions to process payments instantly, reliably, cost-effectively, and with end-to-end visibility anywhere in the world. Our customers are financial institutions that want tools to effect faster and less costly cross-border payments, as well as eliminate the uncertainty and risk historically involved in moving money across borders using interbank messaging alone. All this is done in compliance with AML/BSA regulations.

Some customers, in addition to deploying Ripple’s “blockchain” based software solution (RippleNet), leverage a digital asset known as XRP. Just as Bitcoin is the native asset to the open-source Bitcoin ledger, and Ethereum is the native asset to the open-source Ethereum ledger, XRP is the native asset to the open-source XRP Ledger. XRP, given its unique design, can serve as a near instantaneous bridge between fiat currencies (or any two representations of value), further reducing the friction and costs for commercial financial institutions to transact across multiple global markets.

Although Ripple utilizes XRP and the XRP Ledger in its product offerings, XRP is independent of Ripple. The XRP Ledger is decentralized, open-source, and operates on what is known as a “consensus” protocol, eliminating the need for mining and making it one of the most environmentally-friendly ledgers in the digital asset space. While there are well over a hundred known use cases for XRP and the XRP Ledger, Ripple leverages XRP for use in its product suite because of XRP’s suitability for cross-border payments. Key characteristics of XRP include speed, scalability, energy efficiency, and cost efficiency, all of which benefits the consumer and helps reduce friction in the market for cross-border payments.

With this overview, Ripple respectfully submits the following response to the OSTP’s RFI.

Sincerely,

Ripple Labs Inc.

Response to RFI

Goals, sectors, or applications that could be improved with digital assets and related technologies

Ripple's vision is the Internet of Value, where value flows over the internet as easily, freely, and cheaply as information does today. Digital assets, as defined in the RFI, play an instrumental role in allowing us to pursue this vision as discussed below. As adoption of digital asset applications and development of blockchain technology continues to increase, the benefits and positive impacts likewise trend upward.

Cross-border payments

Cross-border payments are costly, full of friction, and slow. Much of this friction is the result of processes followed in cross-border payments, long the domain of incumbent or correspondent banks. Correspondent banking has been described as “the provision of current or other liability account and related services to other financial institutions (including affiliates), used for the execution of third-party payments and trade finance as well as its own cash clearing, liquidity management, short-term borrowing and investment needs in a particular currency.”¹

As this definition highlights, banks use correspondent relationships – a network of bilateral, accounts-based relationships – spread across the world to process payments originating from their corporate and retail clients. Although widely proliferated, the market structure of correspondent banking injects significant friction, delay and costs in processing payments for the respondent banks, primarily due to the need to pre-fund accounts. In various instances, these costs are also then passed down to retail customers.

This is best exemplified in the case of remittances. U.S. workers with relatives overseas are often saddled with high transaction fees when sending money home, which are sometimes so egregious that senders are disincentivized to make the transaction.² This is because remittance providers have historically enabled payments through the cumbersome correspondent account ecosystem, which not only traps enormous amounts of capital, but also creates compliance costs and foreign exchange and counterparty risks that often must be hedged. Additionally, these remittance corridors are sometimes too small to warrant adequate attention from major financial institutions, and therefore cannot reach the economies of scale needed in order to reduce costs. As a result, the process can limit the reach of efficient payment solutions to only

¹ <https://www.bis.org/cpmi/publ/d136.pdf>.

² According to an IMF Working Paper, [How do Transaction Costs Influence Remittances](#), between 5 and 15 percent of remittances are “lost” due to high transaction costs, depending on the country and the amounts sent home.

high-volume currency pairs, adding further opacity to the fees charged to remittance-sending customers.³

Digital assets specifically designed for payments have the potential to reduce these limitations by enabling payments without the need to pre-fund accounts overseas. For example, Ripple's software leverages the digital asset XRP as a bridge between currencies. This allows financial institutions to access liquidity on demand through digital asset exchanges without having to pre-fund accounts in the destination country. The payer and payee continue to use fiat currency for their payment, with XRP incorporated as a bridge between the regulated financial institutions that are facilitating the remittance transaction. This is particularly helpful for smaller institutions with limited capital.

Micropayments

Digital assets are also helpful for the facilitation of micropayments (i.e., payments made for very small amounts - sub \$5), the increase of which could well enable new business models. Currently, the transaction costs associated with micropayments made in fiat currency are often too high to support their execution. Enabling the ability to pay for a single news article or television episode - or even to pay per second or per page of content - rather than a full subscription service has the ability to fundamentally transform commerce.

The facilitation of micropayments similarly has the power to transform remittances. The World Bank estimates that remittances to low- and middle-income countries will reach a high of \$630 billion in 2022, following an almost record recovery of 8.6 percent in 2021.⁴ At the same time, the average cost of sending \$200 to lower and middle income countries was estimated to be as high as 6 percent in the fourth quarter of 2021, double the Sustainable Development Goal target of 3 percent by 2030.⁵ These costs reduce in tangible and measurable ways the impact of money being sent to populations for which literally every dollar matters. Digital assets like XRP can help solve these problems based on its speed, scalability, energy efficiency, and cost.

Digital wallets

It is worth noting that one of the bigger drivers of financial inclusion over the past decade has been the rise of financial services from outside the banking sector, including

³ In announcing the final rule that would revise the Electronic Fund Transfer Act ("EFTA") as it relates to remittance transfer providers, the Consumer Financial Protection Bureau stated it "believe[d] that expanded adoption of ... Ripple's suite of products could ... allow banks and credit unions to know the exact final amount that recipients of remittance transfers will receive before they are sent" contrary to the current state of play. See 85 Fed. Reg. 34870, 34880 (final rule); see also 84 Fed. Reg. 67132, 67142 (proposed rule).

⁴ World Bank, [Remittances to Reach \\$630 billion in 2022 with Record Flows into Ukraine](#) (May 11, 2022).

⁵ *Id.*

digital wallets. These services are pioneering new offerings and alternative experiences for traditional banking users. The creation of digital wallets offer consumers ownership of digital assets and allow for a faster and more efficient method of distribution of money.⁶ Digital wallets that enable payments, whether made domestically or cross-border, without requiring a bank account could succeed in promoting financial inclusion for the unbanked and underbanked population, which may not be adequately served by the traditional banking system.

Energy efficiency and environmental use cases

As we continue to experience the severe impacts of climate change, it is critical to understand how digital asset technologies and services can be leveraged to increase economic activity and achieve goals like financial inclusion without putting additional strain on the environment. Globally, the damages from climate change are projected to amount to almost 3% of GDP by 2060.⁷

Ripple strongly believes, however, that digital assets can be compatible with a low-carbon economy that emphasizes renewable energy and reduces its environmental footprint. As an example of how digital assets can align with climate change goals, in 2020, Ripple partnered with Energy Web (EW) and the Rocky Mountain Institute (RMI) to decarbonize public blockchains – starting with the XRP Ledger, the first major global blockchain to do so.⁸ Ripple as a company has also pledged to achieve carbon net zero by 2030 or sooner.

Additionally, Ripple is a supporter of the Crypto Climate Accord⁹ (CCA) – an initiative organized by EW, RMI and the Alliance for Innovation Regulation (AIR) focused on decarbonizing cryptocurrencies to ensure the global financial system is less harmful and more sustainable. Key objectives of the CCA, which counts over 200 companies and individuals as supporters,¹⁰ include:

- Enable all of the world’s blockchains to be powered by 100% renewables by the 2025 UNFCCC COP Conference
- Develop an open-source accounting standard for measuring emissions from the cryptocurrency industry
- Achieve net-zero emissions for the entire crypto industry, including all business operations beyond blockchain and retroactive emissions by 2040

⁶ Wallets are the leading e-commerce payment method in several Asian countries; a McKinsey survey reported that more than 70% of respondents said they use digital wallets. [Sustaining digital payments growth: Winning models in emerging markets](#) (October 13, 2022).

⁷ OECD, [Economic interactions between climate change and outdoor air pollution](#) at 3 (July 3, 2019).

⁸ <https://ripple.com/ripple-press/ripple-leads-sustainability-agenda-to-achieve-carbon-neutrality-by-2030/>.

⁹ <https://cryptoclimate.org/>.

¹⁰ <https://cryptoclimate.org/supporters/>.

While many currencies (whether digital or physical) are not environmentally friendly, the XRP Ledger processes transactions through a unique “consensus”¹¹ mechanism that consumes negligible energy. Specifically, the XRP Ledger utilizes a distributed agreement protocol which establishes super-majority agreement, or consensus, around a given transaction without the need for energy intensive mining characteristic of other digital assets. Further, XRP itself was designed with sustainability in mind; it is an inherently green currency. All XRP is already in existence, meaning no unsustainable mining practices or additional energy is ever required to produce more.

Finally, as OSTP researches the climate impact of digital asset-related technologies and services, there is an emerging consensus among digital asset industry members and climate advocacy organizations that blockchain is an important, potentially transformative technology with respect to helping global carbon markets modernize and scale to accelerate progress toward globally agreed climate goals (e.g., the Paris Agreement).

Blockchain's native characteristics make it a natural fit to address persistent pain points in carbon markets, including unclogging supply bottlenecks, reducing time to market for carbon credit producers, and bringing about dramatically higher transparency and data integrity. Blockchain can also help enable fairer price discovery and deliver a more equitable return to those engaged in high quality carbon removal activity (i.e., additive, permanent, verifiable removals). Finally, blockchain can improve the tracking and tracing of carbon removal activity and carbon market transactions, making it easier for buyers to meet their ESG commitments and both shareholder and regulatory reporting requirements.¹² Far from exacerbating global emissions problems, blockchain can help solve them by creating a more powerful market infrastructure to accommodate the needs of both suppliers and buyers of carbon credits.

R&D that should be prioritized for digital assets

Each of the above identified areas where digital assets have the potential to provide significant value to the public and warrant further focus and study by OSTP. Additionally, we would highlight the following technical areas as worthy of attention by OSTP:

- *Custody*: Regulated institutions and their technology partners having been practising key management for over 20 years, whereby they or the associated system issue a key and can reissue where required. Standards and practices will need to be extended that remove risk from this process when leveraging keys

¹¹ David Schwartz, [The Environmental Impact: Cryptocurrency Mining vs. Consensus](#) (July 8, 2020).

¹² For example, Ripple has partnered with Xange, a climate focused fintech backed by the UN, which is building its carbon credit verification, tokenization and exchange functionality on XRPL. Xange chose to build on the XRP Ledger given its performance, scalability and inherently green attributes. Key focus points of Xange.com include the prevention and mitigation of illicit financial transactions and on carbon emission initiatives using blockchain technology to bring transparency to carbon accounting by avoiding double counting of emission reductions or removals.

generated by a public ledger allowing recoverability, ensuring the highest levels of security are maintained whilst preventing a user from being barred access to an asset or account in the event of a key loss or issue.

- *Identity and Privacy*: Identity and privacy are tightly coupled and can greatly impact the user experience. Existing proxy identifiers such as cell numbers or email addresses can be used to create a better identity framework for end users, however clear standards and possible technology developments need to be introduced to ensure this does not compromise privacy when a public ledger is leveraged. Consideration should also be made against existing privacy frameworks or standards and the 'right to be forgotten.' This becomes harder in a world where there are public ledgers and data is immutable, but needs to be taken into account with any new standards or changes to existing frameworks.
- *Interoperability*: Standards currently exist for the transfer of data related to a payment transaction (e.g., ISO 20022). These can be utilised (where appropriate) to provide a consistent format for passing data between participants and also where existing systems require data in order to record transactions correctly and ensure any compliance or regulatory frameworks can be adhered to. New protocols or standards may be required to pass this information between parties to remove all information being shared on a public ledger while ensuring that the benefits of the settlement model enabled by blockchain technology are still realized.
- *Participation / Security*: Unlike traditional centralised systems where there are clear governance and participation standards and rules, new standards will need to be developed to accommodate a distributed or decentralised approach which incorporates roles and responsibilities for running the network, service level agreements and network updates. Approaches to additional innovation such as programmability will need to be clearly defined so that any introduction of changes is carefully managed whilst ensuring the impact of these is maximised without compromising the integrity of the network. Standards will also need to be defined as to who can perform the various roles to ensure bad actors are not able to compromise the integrity of the network.

Opportunities to advance responsible innovation in the broader digital assets ecosystem

In addition to directly advancing R&D in digital assets, their underlying technology, and relevant applications, responsible innovation in the United States can also be furthered in other ways. First, establishing a clear regulatory framework for digital assets and digital asset ecosystem participants would be a monumental step toward ensuring responsible innovation remains onshore in the United States and is not driven to other countries. While not within OSTP's direct remit as related to digital asset R&D, the

provision of clear jurisdictional boundaries for regulators and establishment of common sense rules for businesses would help foster responsible U.S. innovation, which OSTP should support.

There is perhaps no greater obstacle to U.S. digital asset businesses' global competitiveness than the current U.S. regulatory landscape. To date, federal agencies have deployed what can only be described as an uncoordinated, piecemeal approach to regulation.¹³ Positions at times conflict, jurisdictional boundaries are unclear, and rules are subject to constant change, often with inadequate input from stakeholders.¹⁴ The resulting ambiguity makes it difficult, if not impossible, for U.S. digital asset companies to operate effectively given the constant threat of enforcement action from multiple federal authorities.

By contrast, several foreign jurisdictions have now established comprehensive frameworks with respect to digital assets, including Singapore (the Payment Services Act) and the European Union (Markets in Crypto-Assets Regulation). These laws, among other things, establish taxonomies covering cryptocurrencies and stablecoins, create clear oversight regimes, and seek to protect consumers from the risks associated with digital assets. Other jurisdictions taking meaningful steps toward establishing credible, comprehensive regulatory frameworks include the UK,¹⁵ Australia,¹⁶ and Brazil.¹⁷

While President Biden's Executive Order is a welcome first step toward establishing a clear path forward on the regulatory front, the United States must act now or else risk ceding its place as a digital assets leader to other jurisdictions. Like its foreign counterparts, the United States should move decisively in establishing a holistic framework governing digital assets, drawing upon the knowledge of industry and other market participants in doing so. Regardless of how much R&D in the technology or applications for digital assets is done, failure to resolve the regulatory gaps means risking the migration of U.S. talent, investment, and innovation offshore to jurisdictions that have not only declared their openness to the digital assets industry, but demonstrated their willingness to nurture and encourage development of the same.

¹³ An October 2020 report from the Department of Justice named at least seven federal agencies with some sort of regulatory authority over digital assets. Department of Justice, [Cryptocurrency: Enforcement Framework](#) at 22. Additional agencies are named in President Biden's Executive Order.

¹⁴ See [Hagerty, Colleagues Push Back on SEC's Back-Door Attempt to Restrain Crypto Market](#).

¹⁵

<https://www.gov.uk/government/consultations/future-financial-services-regulatory-regime-for-cryptoassets>.

¹⁶

<https://treasury.gov.au/sites/default/files/2023-02/c2023-341659-cp.pdf><https://treasury.gov.au/sites/default/files/2023-02/c2023-341659-cp.pdf>.

¹⁷ <https://www.coindesk.com/policy/2022/12/22/brazils-president-signs-crypto-regulations-into-law/>.