Interoperability Standards for Digital Assets

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THE DIGITAL DOLLAR PROJECT

EXPLORING CENTRAL BANK DIGITAL CURRENCY:
EVALUATING CHALLENGES & DEVELOPING INTERNATIONAL STANDARDS

Atlantic Council
GEOECONOMICS CENTER

This working paper was prepared by the Digital Dollar Project in partnership with the Atlantic Council's GeoEconomics Center and is being published for broad public consideration. The paper is meant to guide a public discourse on international interoperability standards and highlights activities and concepts for further exploration. This working paper is non-exhaustive and does not endorse final conclusions or solutions.

To ensure that its work is guided by a diversity of experiences, perspectives, and expertise, the authors will continue to collaborate with a variety of partners, including economists, business leaders, technologists, innovators, lawyers, academics, consumer advocacy, and human rights experts, and ethicists to explore and evaluate international standards and frameworks.

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Abstract

Over the past few years, the global financial landscape has undergone a significant transformation marked by the emergence and integration of digital assets. Looking into the twenty-first century, the global financial terrain is set to include a spectrum of both sovereign and non-sovereign digital currencies, both centralized and decentralized networks. This future brings the promise of enhanced efficiency, inclusion, transparency, and choice to global payments. To fulfill this promise, the international community must develop interoperability standards that prioritize a fast, highly scalable and resilient architecture. The flexibility of this architecture to adapt configurability based on policy and economic considerations is critical to its success.

The rapid growth of Central Bank Digital Currencies (CBDCs) worldwide underscores the importance of aligning approaches to their development, adoption, and implementation across technical, regulatory, and governance levels. Today, there is a 'patchwork' of first steps undertaken by both public and private-sector entities, aimed at achieving disparate objectives. These efforts, as further described below, have focused on frameworks, guiding principles, and, in some cases, the broad development of standards for digital assets. Some are CBDC-specific, while others have general applicability in the payments sector. As governments and stakeholders collaborate to establish consistent benchmarks for CBDC development, it's crucial to identify, organize, and align standard-setting endeavors. This process involves assessing existing efforts to pinpoint gaps and create a foundation for international standards that remain open and flexible for future development and innovation.

This working paper is a foundational step towards a broader, global dialogue about digital asset standards. To further this conversation, the Digital Dollar Project and the Atlantic Council's GeoEconomics Center will host a global convening, “Exploring Central Bank Digital Currency: Evaluating Challenges and Developing International Standards,” in November 2023. Government officials, industry members, academics, policymakers, trade associations, and other interested individuals and groups are invited to attend the convening and to comment on this paper's findings by contacting info@digitaldollarproject.org.

Introduction

The global financial landscape has witnessed a profound transformation in recent years characterized by the accelerated rise and integration of digital assets. As a subset of these assets, Central Bank Digital Currencies (CBDCs) have captivated the interest of countries worldwide. The CBDC landscape has rapidly evolved with 130 countries, representing 98 percent of the global economy, actively researching and, in some cases, deploying CBDCs.[1] A recent survey by the Bank for International Settlements (BIS) revealed that the number of central banks likely to issue a CBDC within the next three years has grown in the last year from 15 percent to 18 percent for Retail CBDCs (rCBDC) and from 8 percent to 15 percent for wholesale CBDCs (wCBDC).[2]

CBDCs, in their promise and potential, are emblematic of a broader shift—a movement towards a more efficient, frictionless digital infrastructure, shaping the future of international trade, cross-border payments, and global financial integration. However, with transformative potential comes inherent complexity. As fiat currencies become more intertwined with technology, there are significant implications on privacy, human rights, cybersecurity, digital financial inclusion, and the movement of money across borders for international trade, aid, investment and other payments. If designed without a common framework of standards and collaboration, a shortsighted and fragmented approach to CBDC development could lead to the emergence of *walled gardens*.

At the core of establishing standards lies the concept of interoperability—the ability for diverse systems to interact seamlessly and reduce frictions. In this context, interoperability extends beyond technical objectives alone; it requires a broader framework including regulatory and governance standards, paving the way for streamlined cross-border transactions, reducing operational frictions, and bolstering trust among participating entities. While not a panacea, technical, regulatory, and governance benchmarks are instrumental in navigating the complexities of the international payments systems. In order to achieve interoperability, CBDC exploration should prioritize a thorough discussion on establishing technical, regulatory, and governance standards.

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[1] Atlantic Council, "Central Bank Digital Currency Tracker," Atlantic Council, https://www.atlanticcouncil.org/cbdctracker/.

[2] Bank for International Settlements, "Central Bank Digital Currency: Motivations and Implications," BIS Papers No. 136, November 2020, Bank for International Settlements, https://www.bis.org/publ/bppdf/bispap136.htm.

This paper is intended as a catalyst to stimulate a broader, global dialogue about CBDC standards. It provides a 'stocktake' of existing activities, begins to define how these efforts may be coordinated and aggregated into a set of globally accepted best practices, and offers a baseline for addressing 'gaps' or deficiencies in defining best practices.

The Call for Standards

CBDCs are a digital form of a country's national currency, issued and backed by the country's central bank. They come in two forms: retail CBDCs (rCBDC), accessible to individual consumers and usable for everyday purchases and peer-to-peer payments, and wholesale CBDCs (wCBDC) utilized by financial institutions or other major entities for interbank settlements and large financial transactions. The motivations behind rCBDCs and wCBDCs are distinct. The deployment of rCBDCs is usually motivated by financial inclusion, payment efficiency, privacy, and safety. Interest in wCBDCs is aimed at addressing cross-border frictions to improve international payments—including limited operating hours, long transaction chains, restrictions on legacy technology platforms, data fragmentation, high costs, complex funding, and compliance issues.[3]

Ultimately, rCBDCs and wCBDCs would operate in conjunction with each other to achieve both the domestic and cross-border needs of a country.[4] Therefore, the deployment of domestic CBDCs must not be considered in isolation or the result will be *walled gardens* that stand apart from global commerce and economic trends. Creating a CBDC in a silo is unlikely to achieve the desired outcomes in the short or long term, as it will replicate the frictions of the existing payments systems. CBDCs' potential to provide a simpler and more efficient way to move money can only be realized as long as the CBDCs can interoperate with one another.

If deployed, a CBDC must be able to operate across various transactions, institutions, and users. Many CBDC initiatives and explorations recognize the complex and interconnected ecosystem in which financial activity takes place and the interdependencies of the different participants in transaction settlements. By agreeing on standards upfront—which is by no means a simple task—CBDCs can hopefully escape some of the growing pains that we have seen with the development of new financial technology (such as automated teller

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[3] Josh Lipsky and Ananya Kumar, "It's Official: The United States is Developing a Bank-to-Bank Digital Currency," New Atlanticist, December 15, 2022, Atlantic Council, https://www.atlanticcouncil.org/blogs/new-atlanticist/its-official-the-united-states-is-developing-a-bank-to-bank-digital-currency/.

[4] Bank for International Settlements, "Project Icebreaker Concludes Experiment for a New Architecture for Cross-border Retail CBDCs," Bank for International Settlements. https://www.bis.org/about/bisih/topics/cbdc/icebreaker.htm.n

machines that could only be used by customers of a specific bank) or new digital technology (such as the challenges posed by the early years of closed-loop email).

Concentrating on developing and implementing clear and accessible global standards can enable greater industry collaboration and competitiveness through interoperability, transferability, consistency, and safety across various industries and economies. With this clarity, countries can direct their efforts toward aligning and promoting key principles such as privacy, free enterprise, the rule of law, and economic liberty within the global financial landscape.[5]

Defining Standards

At the heart of this paper is the effort to promote interoperability in payments systems and prevent the creation of *walled gardens*. We, therefore, define standards as the technical, regulatory, and governance benchmarks needed to achieve interoperable systems in the long run. It is crucial to recognize that standards do not emerge arbitrarily; instead, they evolve from fundamental principles, embodying intentional consideration and consensus.

Standards specific to CBDCs are not unchanging; they must reflect and be responsive to technological development, market shifts, and experience. Standards are established by technical and governance bodies, often made up of diverse stakeholders, and reflect a consistent floor for pragmatic implementation across jurisdictions. Therefore, they must have built-in flexibility to adjust to changing circumstances across a variety of market structures.

Our use of a narrow definition of standards as a means to achieve interoperable payments systems helps navigate the complex technical, governance, and regulatory environment. In the following section, we catalog existing standards on digital assets and the institutions responsible for setting them.

[5] Digital Dollar Project, "Exploring a US CBDC", available at: https://digitaldollarproject.org/wp-content/uploads/2021/05/Digital-Dollar-Project-Whitepaper_vF_7_13_20.pdf

A Comprehensive Overview of Current Standards on Digital Assets

Methodology

Due to their rapid growth, global standard-setting bodies have had to regulate and harmonize the adoption and use of digital assets across borders. In this section, we provide an overview of the prominent organizations that play a pivotal role in shaping the digital asset landscape. Understanding these bodies' functions, roles, and importance is critical for fostering a safe, competitive, and inclusive digital economy. We explore global governance institutions—International Monetary Fund (IMF) and Bank for International Settlements (BIS)—as well as regulatory standard setters—including the Basel Committee on Banking Supervision (BCBS), the Financial Action Task Force (FATF), the International Organization of Securities Commissions (IOSCO), the Committee on Payments and Market Infrastructures (CPMI), and the Financial Stability Board (FSB)—and technical bodies like the ISO. Since rCBDC projects have largely been in the pilot, development, and research stage, and wCBDC projects are currently limited, standard-setting efforts in some bodies have focused on broader digital asset developments.

International Monetary Fund (IMF):

As a key institution in international monetary cooperation and exchange rate stability, the IMF is instrumental in assisting its 190 member countries in managing economic change. Its expertise in macro-financial surveillance can help identify vulnerabilities associated with digital assets and it can offer policy advice to enhance the resilience of economies.

In November 2023, the IMF released a Virtual Handbook on CBDCs, designed as a comprehensive guide for policymakers and experts in central banks and finance ministries. This evolving handbook plans to offer about twenty chapters by 2026, with periodic updates to reflect the latest findings and viewpoints.[6] The initial chapters address key topics like the framework for exploring CBDCs, product development, impacts on monetary policy, capital flow management, and financial inclusion.

The "IMF Approach to Central Bank Digital Currency Capacity Development," released in April 2023, outlines the IMF's efforts to facilitate peer learning and develop analytical underpinnings for advising member countries on CBDCs. In addition to research, the IMF provides technical assistance, including the X-C Platform initiative.[7] This project aims to

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[6] International Monetary Fund, "Central Bank Digital Currency Virtual Handbook," https://www.imf.org/en/Topics/fintech/central-bank-digital-currency/virtual-handbook.

[7] International Monetary Fund, "IMF Approach to Central Bank Digital Currency Capacity Development," Policy Paper (International Monetary Fund, April 12, 2023), https://www.imf.org/en/Publications/Policy-Papers/Issues/2023/04/12/IMF-Approach-to-Central-Bank-Digital-Currency-Capacity-Development-532177.

deepen understanding of cross-border digital asset platforms and their potential impacts on international financial stability. Recently, the IMF proposed creating a centralized global ledger for cross-border payments within the X-C platform, allowing participation from commercial banks alongside central banks.[8] This platform is seen as an evolution of wholesale CBDC, offering services like foreign exchange markets and compliance, and focuses on tokenizing existing central bank money. The X-C platform is designed to be compatible with existing central bank systems and is structured into three layers: a settlement layer, a programming layer for smart contracts, and an information layer. In the future, the IMF hopes that this platform will serve as a valuable resource for policymakers, offering insights into emerging trends and the risks associated with them.[9]

Bank for International Settlements (BIS):

The BIS acts as the central bank for central banks, fostering monetary and financial stability globally. It actively explores the impact of digital currencies on the financial system and central bank operations. The BIS Innovation Hub facilitates research and development on digital innovation, helping member countries adapt to the rapidly evolving digital asset landscape. Its membership consists of sixty-three central banks and monetary authorities.[10]

Recent significant projects include Project Mariana, which tested cross-border trading using CBDCs and decentralized finance technology, and Project Icebreaker, which focused on using retail CBDCs for international payments through a novel hub-and-spoke model, both completing their testing phase in 2023.[11] Most recently, Project Sela, a collaboration between the BIS Innovation Hub Hong Kong Centre, the Bank of Israel, and the Hong Kong Monetary Authority, focused on exploring rCBDC features including accessibility, cyber security, and effective public-private collaboration, with an emphasis on central banks overseeing retail ledgers and private intermediaries managing customer-facing services.[12]

In July 2023, the BIS presented the results of a survey showing that 93 percent of central banks are engaged in CBDC work, with retail CBDC development more advanced than

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[8] Tobias Adrian, Tommaso Mancini Griffoli, Federico Grinberg, Robert M. Townsend, and Nicolas Zhang, "The Rise of Payment and Contracting Platforms," IMF Fintech Note 2023/005 (International Monetary Fund, Washington, DC, 2023)

[9] International Monetary Fund, "IMF Approach to CBDC Capacity Development," 15.

[10] Bank for International Settlements, "Member Central Banks,"https://www.bis.org/about/member_cb.htm.

[11] "BIS Innovation Hub projects," Bank for International Settlements, accessed November 26, 2023, https://www.bis.org/about/bisih/projects.htm?m=268&#8203

[12] Bénédicte Nolens, "Project Sela: an accessible and secure retail CBDC ecosystem," a joint experiment by the Bank for International Settlements (BIS) and the central banks of Hong Kong SAR and Israel, September 12, 2023

wholesale CBDC.[13] The survey reveals most central banks recognize the value of having both a retail CBDC and a fast payment system.[14] By 2030, there could be fifteen retail and nine wholesale CBDCs publicly circulating, while stablecoins and crypto-assets are rarely used for payments outside the crypto ecosystem.[15] This followed its June 2021 report where the BIS discussed its survey on CBDCs and found that while many central banks haven't decided on issuing a CBDC, there's a tentative inclination towards allowing cross-border use by tourists and non-residents. In March 2021, the BIS explored the potential for multi-CBDC (mCBDC) arrangements to improve cross-border payments by leveraging interoperable central bank digital currencies. Technology could play a role in addressing inefficiencies, and the paper discusses the dimensions of payment system interoperability and the benefits of mCBDC arrangements.[16]

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[13] Anneke Kosse and Ilaria Mattei, "Making headway - Results of the 2022 BIS survey on central bank digital currencies and crypto," BIS Papers, no. 136 (Bank for International Settlements, July 10, 2023), https://www.bis.org/publ/bppdf/bispap136.htm&#8203

[14] Anneke Kosse and Ilaria Mattei, "Making headway - Results of the 2022 BIS survey on central bank digital currencies and crypto," BIS Papers, no. 136 (Bank for International Settlements, July 10, 2023), https://www.bis.org/publ/bppdf/bispap136.htm&#8203

[15] Ibid.

[16] Project mBridge: experimenting with a multi-CBDC platform for cross-border payments," Bank for International Settlements, last updated October 31, 2023.https://www.bis.org/about/bisih/topics/cbdc/mcbdc_bridge.htm

Table 1: BIS wCBDC Projects and Country Participants

Bank for International Settlements wCBDC Projects	Countries
Project mBridge	• Bank of Thailand • People's Bank of China • Hong Kong Monetary Authority • Central Bank of the UAE
Project Sela	• Hong Kong Monetary Authority • Bank of Israel
Project Icebreaker	• Bank of Israel • Norges Bank • Sveriges Riksbank
Project Mariana	• Banque de France • Swiss National Bank • Monetary Authority of Singapore
Project Jura	• Banque de France • Swiss National Bank
Project Rosalind	• Bank of England
Project Aurum	• Hong Kong Monetary Authority
Project Helvetia	• Swiss National Bank
Project Polaris	• BIS Innovation Hub Nordic Centers
Project Nexus	• Bank of Italy • Bank Indonesia • Bank Negara Malaysia • Monetary Authority of Singapore • Bangko Sentral ng Pilipinas • Bank of Thailand
Project Tourbillon	• BIS Swiss Centre

The BIS favors a system grounded in central bank money, offering a sounder basis for innovation, stable and interoperable services across borders, and a virtuous circle of trust through network effects.[17]

Basel Committee on Banking Supervision (BCBS):

The BCBS is the global body for setting prudential standards for banking supervision and regulation. With the emergence of digital assets and their potential impact on banking operations and risk management, the BCBS is studying the implications for financial institutions. The committee's membership includes central banks and banking supervisory authorities from twenty-eight countries.[18]

The BCBS standard, "Prudential treatment of crypto asset exposures," integrates crypto assets into the BASEL Framework for banks. Joint reports by CPMI, BIS, the IMF, and the World Bank on "Central bank digital currencies for cross-border payments" emphasize CBDCs' potential to enhance cross-border payments through international cooperation and coordination.[19]

Financial Action Task Force (FATF):

FATF primarily focuses on combating money laundering and terrorist financing, and has had less emphasis on specific guidelines for CBDCs. Its recommendations function as guidance on regulating virtual assets and virtual asset service providers (VASPs) to ensure the prevention of illicit financial activities. Over 200 jurisdictions have committed to implementing FATF standards, making the organization a key player in shaping regulatory frameworks to maintain transparency and security in the digital asset sphere.[20] FATF has thirty-nine member countries, including major economies and financial centers worldwide.[21]

FATF has published several papers related to virtual assets and virtual asset service providers (VASPs). The first version of their Guidance for a Risk-Based Approach to Virtual Assets and VASPs, released in June 2019, focused on risk assessment and monitoring, particularly for anti-money laundering and counter-terrorist financing issues.[22] A twelve-

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[17] "The future monetary system," Bank for International Settlements,https://www.bis.org/publ/arpdf/ar2022e3.htm&#8203

[18] "The Basel Committee - overview," Bank for International Settlements, https://www.bis.org/bcbs/

[19] Prudential treatment of cryptoasset exposures," Basel Committee on Banking Supervision, December 16, 2022, Bank for International Settlements, https://www.bis.org/bcbs/publ/d545.htm.

[20] Financial Action Task Force (FATF)," FATF, https://www.fatf-gafi.org/en/home.html.

[21] Ibid

[22] Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers," Financial Action Task Force (FAT 2019),https://www.fatf-gafi.org/en/publications/Fatfrecommendations/Guidance-rba-virtual-assets.html.

month review of the revised FATF Standards on Virtual Assets and VASPs was conducted in July 2020, showing progress in implementing these standards among some jurisdictions, but not yet sufficient progress to create a global AML/CFT regime for virtual assets.[23] A second twelve-month review in July 2021 revealed continued progress but indicated that implementation was still insufficient and certain challenges remained, such as the implementation of the "travel rule."[24] The travel rule is a legal obligation that requires financial institutions—such as banks and cryptocurrency service providers—to collect and share detailed information about the parties involved in a financial transaction.

To address these challenges and based on the two reviews, FATF published an updated Guidance for a Risk-Based Approach to Virtual Assets and VASPs in October 2021. The 2021 Guidance includes updates in six key areas, including clarifying the definitions of virtual assets and VASPs, guidance on stablecoins, and additional guidance on peer-to-peer transactions and information-sharing among VASP supervisors.[25] However, the latest update on the implementation, published in June 2023, indicated that jurisdictions still struggle with fundamental requirements.[26] The report also emphasizes the need for appropriate risk identification and mitigation measures, especially for DeFi and unhosted wallets, which have the potential for misuse. In 2020, FATF has also reported to the G20 on stablecoins, outlining its specific views on the application of anti-money laundering and counter-terrorist financing requirements.[27] There is ongoing work needed to ensure consistent and effective implementation of FATF standards in the digital asset sphere, and some jurisdictions are still struggling with fulfilling the fundamental requirements outlined by FATF.

International Organization of Securities Commissions (IOSCO):

As the leading international standard-setting body for securities regulation, IOSCO plays a critical role in ensuring the stability and efficiency of capital markets. With a growing interest in digital securities, IOSCO's principles on issuer and investor protection, market integrity, and risk mitigation have significant implications for the global adoption of

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[23] Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers (2021)," Financial Action Task Force (FATF), https://www.fatf-gafi.org/en/publications/Fatfrecommendations/Guidance-rba-virtual-assets-2021.html.

[24] Virtual Assets: Targeted Update on Implementation of the FATF Standards on Virtual Assets and Virtual Asset Service Providers," Financial Action Task Force (FATF,)https://www.fatf-gafi.org/en/publications/Fatfrecommendations/Targeted-update-virtual-assets-vasps.html

[25] Ibid

[26] Ibid

[27] Source

tokenized assets. IOSCO has more than 120 members, including national securities regulators and exchanges from various jurisdictions.[28]

While debates on which digital assets count as securities are ongoing in the United States, IOSCO has been actively engaged in providing insights into the realm of digital asset markets through a series of consultation reports and public reports. The Policy Recommendations for Crypto and Digital Asset Markets, published in May 2023, stands out as a comprehensive consultation report proposing eighteen recommendations that address six key areas of concern. These areas include conflicts of interest resulting from vertical integration, market manipulation, cross-border risks, custody and client asset protection, operational and technological risks, and retail access, suitability, and distribution.[29] IOSCO aims to finalize these recommendations after conducting extensive consultations by the fourth quarter of 2023.[30]

In March 2020, IOSCO released the Global Stablecoin Initiatives report, emphasizing the applicability of PFMI to stablecoin arrangements with systemically important functions. IOSCO's work on ETFs and Crypto-Asset Trading Platforms may also apply to global stablecoins.[31] In March 2022, IOSCO presented the Decentralized Finance Report, highlighting regulatory concerns like fraud risks, flash loans, cybersecurity, and spillover effects on traditional markets. Additionally, in December 2020, they published the Investor Education on Crypto-Assets report to educate the public and investors on crypto-assets and risk mitigation.[32]

Committee on Payments and Market Infrastructures (CPMI):

Under the BIS, the CPMI provides a platform for central banks to promote the safety and efficiency of payment systems worldwide. With digital assets gaining recognition, the CPMI is actively engaging in discussions concerning the potential role of CBDCs and their interplay with private cryptocurrencies. The CPMI has twenty-eight members, representing major central banks and monetary authorities.

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[28] FATF Recommendations," Financial Action Task Force (FATF) https://www.fatf-gafi.org/en/publications/Fatfrecommendations/Fatf-recommendations.html.

[29] IOSCO's Global Stablecoin Initiatives Report (March 2020):
International Organization of Securities Commissions (IOSCO), "Global Stablecoin Initiatives," March 23, 2020. Available at: https://www.iosco.org/library/pubdocs/pdf/IOSCOPD649.pdf.

[30] IOSCO's Decentralized Finance Report (March 2022):
International Organization of Securities Commissions (IOSCO), "Decentralized Finance Report," March 24, 2022.

[31] IOSCO's Investor Education on Crypto-Assets Report (December 2020):
International Organization of Securities Commissions (IOSCO), "Investor Education on Crypto Assets," December 22, 2020. Available at: https://www.iosco.org/library/pubdocs/pdf/IOSCOPD668.pdf.

[32] Ibid.

The 2018 Markets Committee report on “Central Bank Digital Currencies” introduces and defines CBDCs, assessing their potential implications on monetary policy and central bank operations.[33] It recommends further research on various aspects like interest rates, financial stability, and exchange rates. The report also warns against the risks of private digital tokens due to their volatility and lack of protection for investors and consumers, making them unsuitable for widespread use in payments.

Financial Stability Board (FSB):

The FSB's mandate is to oversee and coordinate global financial regulation, identifying and addressing systemic risks to foster stability in the financial system. Recognizing the growing importance of digital assets, the FSB monitors developments and potential risks arising from their use and ensures that the digital asset market operates within established stability parameters.[34] The FSB is broadly focused on the global regulatory framework for crypto-asset activities, and has not released any specific research or guidelines on CBDC development. The board’s membership includes a combination of G20 economies, other major economies, and international organizations. [35]

Technical Standard Setter (ISO):

The ISO/TS 23526:2023 (Security aspects for digital currencies) focuses on providing a security framework for the issuance and management of digital currencies in general, using cryptographic mechanisms standardized by ISO and other references. The document aims to integrate security aspects into the design of digital currency systems, as opposed to adding them later as an extra layer, to accommodate legacy infrastructures .[36] ISO does not have any explicit references or guidelines on CBDCs’ technical security, but instead has a broader focus on digital currencies overall.

Organization	Relevant Papers (Year)

[33] CPMI's Report on Central Bank Digital Currencies (March 2018):
Committee on Payments and Market Infrastructures (CPMI), "Central Bank Digital Currencies," March 12, 2018. Available at: https://www.bis.org/cpmi/publ/d174.htm

[34] Financial Stability Board, "Crypto-assets and Global 'Stablecoins'." No publication date was provided. Available at: https://www.fsb.org/work-of-the-fsb/financial-innovation-and-structural-change/crypto-assets-and-global-stablecoins/.

[35] Ibid

[36] ISO/TS 23526:2021," International Organization for Standardization, accessed November 26, 2023, https://www.iso.org/obp/ui/en/#iso:std:iso:ts:23526:ed-1:v1:en.

Financial Action Task Force (FATF)	● Guidance for a Risk-Based Approach to Virtual Assets and VASPs (2019) ● Revised FATF Standards (2020) ● Updated Guidance (2021) ● Implementation Progress Report (2023)
International Organization of Securities Commissions (IOSCO)	● Global Stablecoin Initiatives (2020) ● Investor Education on Crypto-Assets (2020) ● Decentralized Finance Report (2022) ● Policy Recommendations for Crypto and Digital Asset Markets (2023)
IOSCO-Committee on Payments and Market Infrastructures (CPMI)	● Application of the Principles for Financial Market Infrastructures to stablecoin arrangements (2021)
Financial Stability Board (FSB)	● Regulation, Supervision, and Oversight (2020) ● Review of the FSB High-level Recommendations (2022) ● Regulation, Supervision, and Oversight of Crypto-Asset Activities and Markets (2022)
International Monetary Fund (IMF)	● Regulating the Crypto Ecosystem (2022) ● Elements of Effective Policies for Crypto Assets (2023) ● IMF Approach to Central Bank Digital Currency Capacity Development (2023)

	• Central Bank Digital Currency (CBDC) - Virtual Handbook (2023)
Bank for International Settlements (BIS)	• Exploring Multi-CBDC Arrangements (2021) • Survey on Central Bank Digital Currencies (2021) • Survey on CBDCs (2023)
Basel Committee on Banking Supervision (BCBS)	• Joint reports on CBDCs for cross-border payments (2021) • Prudential Treatment of Crypto Asset Exposures (2022)
Committee on Payments and Market Infrastructures (CPMI)	• Central Bank Digital currencies (2018)
Technical Body – ISO	• ISO/TS 23526:2023 (2023)

As the above section shows, there have been some efforts in creating standards for interoperability of CBDCs. However, these efforts are concentrated in specific areas and overlook some crucial gaps that must be addressed in any evolving framework for standards.

Evaluating gaps in standard setting

As the above section shows, there have been some efforts in creating standards for interoperability of CBDCs, but these efforts are concentrated in a few areas, and there are critical gaps identified in the following examples.

The rCBDC experimentation space has provided countries with some experience in building CBDCs, largely driven by domestic objectives. These experiments are at very different stages and use a range of private-sector vendors that are not subject to the same regulations due to a slower pace of crypto-asset regulation globally.

Within wCBDC experimentation, operating frameworks in technology and regulation have emerged, led by entities like the BIS Innovation Hub, SWIFT, and other private sector players. However, they are constrained by the limited number of participating countries, furthering the issue of fragmentation in cross-border CBDCs. Current experimentation should incorporate SSBs such as FSB, BCBS, CPMI, ISO, and FATF as participants and observer lists to ensure better collaboration in the development of standards.

The membership of SSBs significantly influences the establishment of goals and priorities of these institutions. Additionally, while emerging market economies (EMEs) often surpass developed economies in the development of digital infrastructure, including CBDCs, they sometimes find themselves underrepresented in setting norms and establishing benchmarks. This underrepresentation can result in an inadequate consideration of their technological advancements within the organization's priorities.

Moreover, apart from the Financial Action Task Force (FATF), there seems to be a shortage of robust frameworks for assessing the global standards' impact and implementation lags. In order to address the evolving landscape of financial technologies, it is imperative that new and non-financial Standards Setting Bodies (SSBs) be actively involved in these discussions, leveraging their expertise in technological matters and regulatory concerns.

Establishing Standards

A transparent and collaborative multi-stakeholder approach is crucial for establishing frameworks for standards related to digital currencies. Standardization is driven by consultation processes with governments, industry specialists, consumers, regulators, and civil society organizations (CSOs). Historically governments have provided the necessary legal and governance paradigms, in turn creating environments conducive to standard development and assimilation across multi-stakeholder groups. Central banking authorities, driven by the imperative of maintaining financial stability and directing monetary policy, contribute a nuanced perspective essential for shaping these standards. The private sector's technological advancements and practical exposure play a critical role, not just in ideation, but in the tangible implementation of these standards, ensuring their practical efficacy. Lastly, the participation of CSOs provides reflection and inclusion of key social elements, serving as a check by society on the suitability of resulting standards.

The goal of this collaborative process is the establishment of a guiding framework for standards. To begin this process, the following outline aligns with the G7 principles proposed in 2021, to identify the key themes necessary to begin building a framework. These key themes are (1) Governance (2) Privacy and Data Protection (3) Competition and Consumer Protection (4) Global Impact and Sustainability (5) Transferability and Accessibility. Within each theme, we describe the areas of framework development needed for the establishment of standards.

The Key Themes for CBDC Framework Creation

Governance

Effective governance of CBDCs requires a nuanced approach, placing a focus on maintaining public policy objectives and central bank mandates including monetary and financial stability. To achieve this, the framework should involve the creation of dynamic mechanisms that not only monitor but also proactively mitigate potential destabilizing effects. Stress-testing frameworks are essential tools for central banks to assess the comprehensive impact of CBDCs on economic stability. The principle of "do no harm" dictates that economic stability must be safeguarded at every stage of CBDC implementation, through concrete guidelines and risk assessments. In parallel, there is an imperative to establish legal and governance frameworks, offering clear definitions of regulatory benchmarks.

Privacy and Data Protection

The protection of privacy and data involves specifying requirements for user data protection, consent, and disclosures.[37] Mechanisms for cross-border data transfer should be designed to navigate the complexities of various data protection laws across jurisdictions, ensuring compliance, individual privacy protections, and seamless transactions. Operational resilience and cybersecurity require technology standards for resilience against cyber, fraud, and operational risks, including security measures, encryption standards, and incident response protocols.[38]

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[37] Digital Dollar Project, "Exploring a US CBDC", available at: https://digitaldollarproject.org/wp-content/uploads/2021/05/Digital-Dollar-Project-Whitepaper_vF_7_13_20.pdf

[38] Fortune Crypto, "3 keys to ensuring the U.S. maintains dollar primacy in the age of digital money." Available at: https://fortune.com/crypto/2023/08/22/3-keys-to-ensuring-dollar-primacy-digital-money-cbdc/

Competition and Consumer Protection

CBDCs should coexist with existing means of payment and should operate in an open, secure, resilient, transparent, and competitive environment that promotes choice and diversity in payment options. Promoting fair competition and consumer protection requires the development of international standards for open-access APIs, ensuring competition and interoperability, thereby enhancing the overall efficiency of the CBDC ecosystem. It is also crucial to strike a balance between the demand for faster, more accessible payments and the necessity to combat illicit finance and protect the right to personal privacy. Establishing protocols for collaboration between CBDC operators and regulatory authorities, including law abiding information sharing, joint investigations, and the development of responsive regulatory frameworks, is vital to address and mitigate potential risks associated with illicit finance.[39]

Global Impact and Sustainability

Considering the global impact and sustainability of CBDCs, spillovers can begin to be addressed by establishing technical principles for cross-border transaction reporting and information sharing. Energy and environmental considerations are crucial; hence, international standards for the energy efficiency of CBDC infrastructure should be created, specifying benchmarks for sustainable operations.

Transferability and Accessibility

Ensuring interoperability with existing and future payment solutions is necessary to achieve the goal of transferability and accessibility. Technical standards should be formulated for integrating CBDCs with emerging digital payment solutions, and interoperability protocols should be specified to facilitate seamless transactions between CBDCs and other payment instruments. Additionally, for payments to and from the public sector, protocols for cross-border collaboration among central banks and organizations must be defined, addressing the international dimensions of CBDC design. Technical requirements for cross-jurisdictional compatibility and seamless integration into global financial systems should be established. Additionally, technical reporting requirements should be instituted to ensure transparency in the utilization of CBDCs for international development initiatives.

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[39] MarketWatch, "Stablecoin and other digital assets are falsely framed as a choice between personal privacy and national security. We can have both." Available at: https://www.marketwatch.com/story/stablecoin-and-other-digital-assets-are-falsely-fram[…]-privacy-and-national-security-we-can-have-both-11658206072

These key themes illuminate the areas of framework development needed to achieve comprehensive standards for CBDCs. These areas are in no way an exhaustive list, but provide the first recommendations as the public sector, policymakers, and the private sector engage in CBDC development. As governments make regulation and the private sector engages in experimentation, often along with the public sector, they must address these themes. It is also imperative that global standard-setting bodies address the current gaps in their guidance, and are a part of these discussions—especially in the development of cross-border flows. Crucially, interoperability is imperative as any standards for CBDCs or digital assets broadly are developed, so that future systems of money do not increase friction in the global payments landscape.

Conclusion and next steps

As countries around the world explore CBDCs' potential for an advanced and seamless digital infrastructure, a unified standard framework will become necessary in order to foster harmony, quality, and trustworthiness worldwide. This working paper serves as a call to action for both public and private stakeholders to actively engage in standard-setting efforts with the goal of ensuring interoperability and efficiency, as well as embedding free society norms, values and rules of law in CBDCs.

As previously noted, standards ensuring consistency and seamless functionality are not static; they must be flexible enough to accommodate advancements in digital currency technology, shifts in economic priorities, and changing societal perspectives on digital assets. To further global dialogue on these topics, The Digital Dollar Project and Atlantic Council GeoEconomics Center are hosting a first-of-its-kind convening, "Exploring Central Bank Digital Currency: Evaluating Challenges & Developing International Standards," on November 27-29, 2023. This event will bring together international policymakers, technologists, financial services providers, innovators, and consumer and privacy advocates to discuss the ongoing impact of emerging technologies on the future of money, its infrastructure, and global payment systems. The convening will explore the complexities around digital currency, focusing on key technology and policy considerations, outlining areas for future public-private cooperation, and identifying potential pathways to standards that embed privacy protections, democratic values, and interoperability.

This paper serves as a level-setter for those seeking to understand the current state of international standards as well as existing gaps and areas for improvement. A paper following the conference will build on this document to incorporate recent developments in international standard setting and build on the framework offered here, in consideration for future global interoperability standards efforts.

Beyond the November 2023 Global Convening, the Digital Dollar Project and the Atlantic Council GeoEconomics Center will share this working paper with policymakers, business leaders, trade associations, and other interested parties. The DDP and Atlantic Council invite public and private sector leaders to share feedback on this work to promote collaboration in its development. Comments and questions can be sent to info@digitaldollarproject.org.

About the Digital Dollar Project

The Digital Dollar Project is a neutral, non-profit forum focused on exploring digital innovation in money and preserving the role of the U.S. Dollar in a world of decentralized and centralized sovereign and non-sovereign digital currency networks. The Digital Dollar Project believes that the U.S. should only consider issuing a digital dollar once key design elements are properly understood and democratically resolved relating to privacy, security, distribution, and economic stability. The Digital Dollar Project encourages the U.S. to assert principled leadership in research, experimentation at home, and digital currency standard setting abroad that is consistent with U.S. norms, values, and rule of law. For more information on The Digital Dollar Project, please visit https://digitaldollarproject.org.

About The Atlantic Council's GeoEconomics Center

The Atlantic Council is a nonpartisan organization that galvanizes U.S. leadership and engagement in the world, in partnership with allies and partners, to share solutions to global challenges. The Atlantic Council provides an essential forum for navigating the economic and political changes defining the twenty-first century by informing its network of global leaders. Through the papers it publishes and the ideas it generates, the Atlantic Council shapes policy choices and strategies to create a more free, secure, and prosperous world.

The GeoEconomics Center develops data-driven programs, publications, and thought leadership at the nexus of economics, finance, and foreign policy. The Center aims to bridge the divide between these oft-siloed sectors with the goal of helping shape a more resilient global economy. Our work is built on the idea that the United States must lead with allies or risk becoming a bystander in a reshaped international financial system. The Center is organized around three pillars - the Future of Capitalism, the Future of Money, and the Economic Statecraft Initiative.

For more information on The Digital Dollar Project, please visit
https://digitaldollarproject.org/

For more information on The Atlantic Council's GeoEconomics Center, please visit
https://www.atlanticcouncil.org/programs/geoeconomics-center/