Centre for International
Governance Innovation

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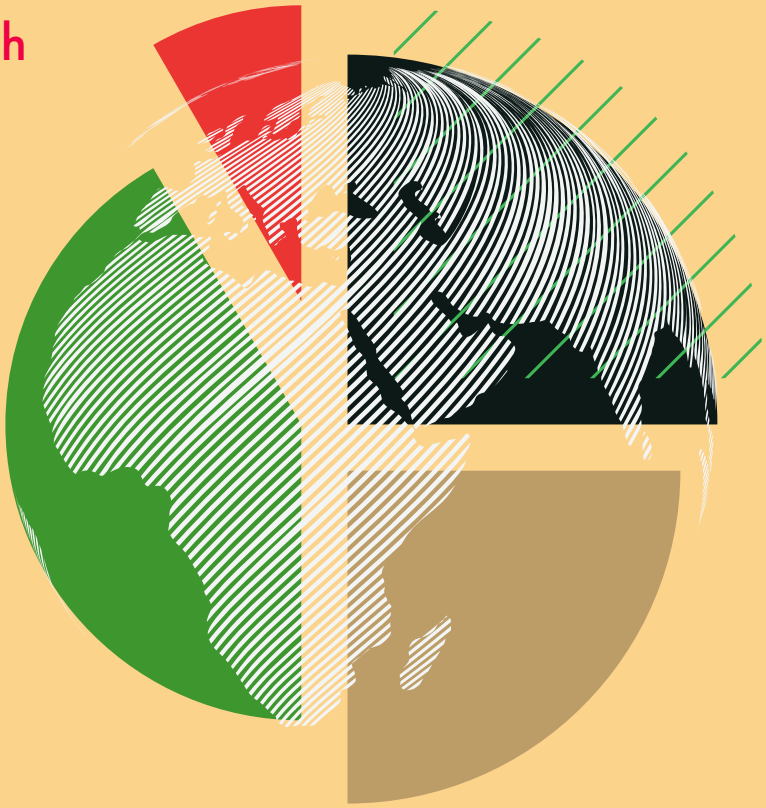
How the Bank for International Settlements Is Redesigning the World Economy

S. Yash Kalash



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About the Author

S. Yash Kalash is a senior fellow at CIGI and an expert in strategy, public policy, digital technology and financial services. He has experience in emerging markets across India, MENA (Middle East and North Africa) and the Asia-Pacific and a distinguished track record advising governments and the private sector on emerging technologies. His expertise spans various industries, including fintech, AI and digital assets, and their impact on geopolitics. His career includes key roles at Roland Berger, the Government of India, Adani Group and KPMG, where he spearheaded strategic digital projects, advised clients on their digital assets and AI strategy, and informed policy and regulatory developments. With an M.Sc. in management from Imperial College London and a B.Sc. in international relations and politics from the University of Bath, Yash combines deep strategic insight with strong training, making him a versatile and impactful leader in the field of digital economy.

Acronyms and Abbreviations

AI	artificial intelligence
AMMs	automated market makers
API	application programming interface
ASEAN	Association of Southeast Asian Nations
AU	African Union
BIS	Bank for International Settlements
CBDCs	central bank digital currencies
DLT	distributed ledger technology
DPI	digital public infrastructure
fintech	financial technology
FMIs	financial market infrastructures
FSB	Financial Stability Board
FX	foreign exchange
GPA	governing protocols assembly
GVCs	global value chains
HKMA	Hong Kong Monetary Authority
IETF	Internet Engineering Task Force
IMF	International Monetary Fund
ISO	International Organization for Standardization
MAS	Monetary Authority of Singapore
MDFO	multipolar digital financial order
NGFS	Network for Greening the Financial System
NYIC	New York Innovation Center
rCBDC	retail central bank digital currency
RegTech	regulatory technology
RTGS	real-time gross settlement
SDRs	special drawing rights
SMEs	small and medium-sized enterprises
SNB	Swiss National Bank
SupTech	supervisory technology
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TCP/IP	transmission control protocol/ internet protocol
UAE	United Arab Emirates

Executive Summary

This paper argues that the Bank for International Settlements (BIS) has quietly evolved from being the "central bank of central banks" into the architect of the digital global economy. Through its expanding innovation hub network and projects spanning central bank digital currencies (CBDCs), tokenized assets, artificial intelligence- (AI-) driven digital financial supervision and quantum-safe cryptography, the BIS is no longer merely coordinating pilots; it is increasingly involved in shaping the emerging digital financial infrastructure, with potential implications for global governance.

The paper contends that these initiatives, though branded as discrete experiments, constitute a coherent global architecture linking money, markets, intelligence and infrastructure into what the BIS terms the "finternet" — an interoperable network of programmable value systems. This emerging "internet of finance" is underpinned by the convergence of tokenized money, digital identity and algorithmic governance, with the BIS positioning itself as an influential facilitator in the development of interoperability standards, though questions remain about the inclusivity of this process.

While the BIS presents this transformation as multilateral and inclusive, its governance remains anchored in central bank sovereignty and technocratic control. This paper situates this evolution within the geopolitical economy of digital finance, arguing that BIS-led standard setting functions as a pre-emptive effort to consolidate global interoperability within a Western-aligned, rules-based core, amid China's state-led digital currency model, the United States and European Union's regulatory fragmentation and BRICS+[1] ambitions for alternative payment rails.

The paper introduces two guiding concepts: interoperable sovereignty, or the capacity for nations to connect to global financial systems on their own terms, and a proposed multipolar digital financial order (MDFO), a global framework to redefine digital financial governance for the programmable age. Together, these ideas offer a pathway toward an inclusive, plural and transparent digital monetary order.

Ultimately, the BIS's evolving role suggests a significant institutional shift from monetary coordination to infrastructural influence, raising important questions about transparency, inclusion and accountability. To understand the emerging digital global order, one must see the BIS not merely as a bank, but rather as the protocol layer of twenty-first-century power — the invisible architect engineering the standards through which the world's next financial system will operate.

1 BRICS+ is a bloc of countries that consists of Brazil, Russia, India, China, South Africa, Egypt, Ethiopia, Indonesia, Iran, Saudi Arabia and the United Arab Emirates (UAE).

Introduction: The Quiet Architect of the Digital Economy

For most of its history, the BIS has occupied a discreet but powerful position within the global financial architecture as the bank for central banks (Jones 2025). Established in 1930 to manage Germany's war reparations, it evolved into a convener for monetary authorities with the goal of being a guardian of systemic stability. Its reputation has long rested on prudence, discretion and continuity, serving as a forum where central bankers could deliberate away from the political noise that often shapes fiscal policy.

But in the twenty-first century — as the foundations of finance shift from paper and institutions to data, code and computation — the BIS has quietly assumed a new and far more ambitious role. It is no longer simply the custodian of central bank cooperation; it is now playing a central role in the governance of the financial order. Through its innovation hub network — stretching across hubs in the euro zone, Hong Kong, London, New York, Singapore, Switzerland and Toronto — the BIS has become a laboratory for re-engineering the very infrastructure of money and markets.

The bank's dual mandate of financial stability and innovation now translates into a delicate balancing act: how to enable the benefits of digitalization, tokenization and automation while safeguarding the trust and resilience on which modern economies depend. On one hand lies the

pursuit of efficiency through the development of instantaneous cross-border payments, programmable monetary policy and real-time supervision powered by AI. On the other hand lies the duty of prudence, ensuring these digital instruments remain safe, interoperable and anchored to the credibility of public institutions.

What makes the BIS's new role especially significant is not merely the number of projects it undertakes but the coherence emerging beneath them. Each pilot, experiment or proof of concept may appear discrete, yet collectively, these are not separate initiatives. They are the components of a single, integrated architecture designed to redefine how money, markets and intelligence interact in a digitized world.

Today, the BIS functions as the digital infrastructure lab of the global financial system, quietly stitching together the technological foundations of what it envisions as the finternet. Where the International Monetary Fund (IMF) manages liquidity crises and the World Bank finances development, the BIS builds the rails upon which the next generation of financial activity will run.

This paper argues that the BIS's diverse portfolio of innovation projects, often viewed as isolated experiments, in fact constitutes a coherent system of systems, one that links the future of sovereign money, financial market infrastructure and algorithmic governance into a unified digital architecture. Understanding this transformation is important for economists, regulators and policy makers concerned with how institutional authority, financial inclusion and sovereignty will be mediated through digital systems.

The Technological Foundations

The BIS Innovation Hub's work can be understood as an attempt to rebuild the technological foundation of the international financial system one layer at a time. Beneath the public language of experiments and proofs of concept lies a systematic effort to re-engineer how value, data and governance flow across borders. Each family of projects (see Table 1) addresses a distinct layer of the digital financial stack: the movement of money, the tokenization of assets, the supervision of markets through AI and the protection of all these layers through quantum-safe infrastructure. Together, they form the backbone of what the BIS itself has begun to call the "finternet" (see Figure 1), or a programmable, interoperable and secure network for the future of global finance (Carstens and Nilekani 2024).

Table 1: Taxonomy of Stablecoins

Date	Project	Domain Cluster	Description	Innovation Hub/ Key Partners	Latest Status
March 18, 2021	Aurum	CBDCs	Explored a prototype for a two-tier CBDC	BIS Hong Kong Innovation Hub and Hong Kong Monetary Authority (HKMA)	Completed
December 8, 2021	Jura	CBDCs	Explored cross-border settlement of tokenized assets between financial institutions in wholesale CBDCs on a distributed ledger technology- (DLT-) enabled platform	Banque de France, BIS Innovation Hub Swiss Centre, Swiss National Bank (SNB) and a private-sector consortium	Completed
January 13, 2022	Helvetia	CBDCs	Explored how central banks could offer settlement in central bank money in a future in which more financial assets are tokenized and financial infrastructures run on DLT, focusing on operational, legal and policy questions	BIS Innovation Hub Swiss Centre, SNB and the financial infrastructure operator SIX	Completed
March 22, 2022	Dunbar	CBDCs	Explored how a common platform for multiple CBDCs could enable cheaper, faster and safer cross-border payments	The Reserve Bank of Australia, the Bank Negara Malaysia, the Monetary Authority of Singapore (MAS) and the South African Reserve Bank, with the BIS Innovation Hub Singapore Centre	Completed
March 6, 2023	Icebreaker	CBDCs	Concluded experiment for a new architecture for cross-border retail CBDCs (rCBDCs)	BIS and the central banks of Israel, Norway and Sweden	Completed
January 16, 2023	Rosalind	CBDCs	Developed prototypes for an application programming interface (API) to distribute an rCBDC	BIS Innovation Hub London Centre and Bank of England	Completed
September 12, 2023	Sela	CBDCs	Explored the feasibility of an rCBDC ecosystem that combines accessibility, competition and preventive cybersecurity while retaining key advantages of physical cash	BIS, central banks of Hong Kong Special Administrative Region and Israel	Completed

Date	Project	Domain Cluster	Description	Innovation Hub/ Key Partners	Latest Status
September 28, 2023	Mariana	CBDCs	Explored automated market makers (AMMs) for the cross-border exchange of hypothetical Swiss franc, euro and Singapore dollar wholesale CBDCs	BIS and the central banks of France, Singapore and Switzerland	Completed
November, 29, 2023	Tourbillon	CBDCs	Demonstrated cash-like anonymity for rCBDC	BIS Innovation Hub Swiss Centre	Completed
November 11, 2024	Bridge	CBDCs	Explored a multi-CBDC platform shared among participating central banks and commercial banks, built on DLT to enable instant cross-border payments and settlement	BIS Innovation Hub Hong Kong Centre, the Bank of Thailand, the Central Bank of the UAE, the Digital Currency Institute of the People's Bank of China, the HKMA and the Saudi Central Bank	Completed
October 26, 2023	Polaris	CBDCs	Focused on designing secure and resilient CBDC systems, online and offline	BIS Innovation Hub Nordic Centre	Ongoing
November 15, 2023	Mandala	CBDCs	Explores the feasibility of encoding jurisdiction-specific policy and regulatory requirements into a common protocol for cross-border use cases, such as foreign direct investment, borrowing and payments	BIS Innovation Hub Singapore Centre, the Bank of Korea, the Central Bank of Malaysia, the MAS and the Reserve Bank of Australia	Ongoing
March 6, 2024	Aurum 2.0	CBDCs	Testing the feasibility of a technological stack that integrates a wholesale interbank system and a retail e-wallet in its first phase; Project Aurum 2.0 will now focus on how to enhance privacy for rCBDCs	BIS Innovation Hub Hong Kong Centre and HKMA	Ongoing

Date	Project	Domain Cluster	Description	Innovation Hub/ Key Partners	Latest Status
February 13, 2025	Rialto	CBDCs	Explores how instant cross-border payments could be improved using a modular foreign exchange (FX) component combined with settlement in tokenized wholesale central bank money	BIS Innovation Hub Eurosystem and Singapore Centre; the central banks of France, Italy and Malaysia; and the MAS	Ongoing
April 30, 2024	Raven	Cybersecurity	Aims to create a new solution to help authorities comprehensively assess the cybersecurity and resilience maturity readiness of their countries' financial systems	BIS Innovation Hub Nordic Centre	Ongoing
July 9, 2025	Leap	Cybersecurity	Aims to prepare the central banking community for the challenges posed by emerging quantum computers, which may be able to break the cryptographic algorithms widely used today to secure financial transactions and data	BIS Innovation Hub Eurosystem Centre, Bank of France, Bank of Italy, Deutsche Bundesbank, Nexi-Colt and the Society for Worldwide Interbank Financial Telecommunication (SWIFT)	Ongoing
November 4, 2021	Genesis 1.0	Green finance	Explores creating prototype digital platforms for green-bond tokenization	BIS Innovation Hub and HKMA	Completed
July 20, 2022	Genesis 2.0	Green finance	Explored smart contract-based carbon credits attached to green bonds	BIS Innovation Hub Hong Kong Centre, HKMA and UN Climate Change Global Innovation Hub	Completed
June 12, 2024	Virdis	Green finance	Explored a climate-risk platform for financial authorities	BIS Innovation Hub Singapore Centre and the MAS	Completed

Date	Project	Domain Cluster	Description	Innovation Hub/ Key Partners	Latest Status
March 19, 2024	Gaia	Green finance	Seeks to help analysts search corporate climate-related disclosures quickly and efficiently	BIS, Banco de España, Deutsche Bundesbank and European Central Bank	Ongoing
August 21, 2024	The Network for Greening the Financial System (NGFS) Data Directory	Green finance	A growing resource for climate-risk data	BIS Innovation Hub Singapore Centre, the Bank of France, the MAS and the NGFS	Ongoing
September 5, 2025	Danu	Green finance	Monitors emerging risks by leveraging digital twin technology	BIS Innovation Hub Eurosystem, Hong Kong and Singapore Centres	Ongoing
October 17, 2025	Symbiosis	Green finance	Aims to reduce the information gaps related to climate and environmental risks by employing targeted and simplified AI methodologies in supply chains	BIS Innovation Hub Hong Kong Centre and HKMA	Ongoing
April 19, 2023	Meridian	Next-generation financial market infrastructures (FMIs)	Investigated how recent rapid advances in financial technology (fintech) could deliver innovations in the real-time gross settlement (RTGS) systems operated by central banks	BIS and the Bank of England	Completed
November 5, 2024	Nexus	Next-generation FMIs	Aimed to connect domestic instant payment systems to improve access to, as well as the speed, cost and transparency of, cross-border payments	BIS Innovation Hub Singapore Centre and the central banks of India, Malaysia, the Philippines, Singapore and Thailand	Completed

Date	Project	Domain Cluster	Description	Innovation Hub/ Key Partners	Latest Status
April 23, 2025	Promissa	Next-generation FMIs	Explored how to simplify the management of the notes and provide a single source of truth for all counterparties throughout the notes' life cycles, while preserving confidentiality and sovereignty	BIS Innovation Hub Swiss Centre, SNB and the World Bank	Completed
April 24, 2025	Meridian FX	Next-generation FMIs	Provided insights on how operators of RTGS systems could enable interoperability with new payments technologies such as DLT	BIS Innovation Hub's Eurosystem and London Centres; the central banks of England, France, Germany and Italy; and the European Central Bank	Completed
May 14, 2025	Pine	Next-generation FMIs	Explored if and how central banks can continue implementing monetary policy operations in a tokenized world	BIS Innovation Hub Swiss Centre and the New York Innovation Center (NYIC)	Completed
March 27, 2024	Aurora	Next-generation FMIs	Explores the use of privacy-enhancing technologies, AI, machine learning and network analysis in collaborative monitoring and learning approaches for combatting money laundering	BIS Innovation Hub Nordic Centre	Ongoing
April 19, 2024	FuSSE	Next-generation FMIs	Aims to modernize FMIs for the demands of the digital age	BIS and the Inter-American Development Bank	Ongoing
September 16, 2024	Agora	Next-generation FMIs	Aims to test the desirability, feasibility and viability of a multi-currency, unified ledger for wholesale cross-border payments	BIS, seven central banks and 40 private financial institutions	Ongoing

Date	Project	Domain Cluster	Description	Innovation Hub/ Key Partners	Latest Status
February 19, 2021	Digitizing Trade Finance	Open finance	Sought to address the significant gap in global trade financing by working with the public and private sectors to identify and develop technologies (for example, corporate digital identity) that facilitate connections between digital islands, trade-finance inclusion for small and medium-sized enterprises (SMEs) and trade technology for emerging market economies	BIS	Completed
June 7, 2023	Dynamo	Open finance	Explored how institutional investors can be encouraged to finance SMEs through the programmability and transferability of digital trade tokens on a public blockchain	BIS Innovation Hub Hong Kong Centre and HKMA	Completed
October 16, 2024	Aperta	Open finance	Aims to connect the domestic open-finance infrastructures of different jurisdictions using interoperable and harmonized standards and protocols	BIS Innovation Hub Hong Kong Centre, the Banco Central do Brasil, the Central Bank of the UAE, the Financial Conduct Authority of the United Kingdom, HKMA, the Global Legal Entity Identifier Foundation, the International Chamber of Commerce Digital Standards Initiative and the Hong Kong University Standard Chartered Foundation FinTech Academy	Ongoing

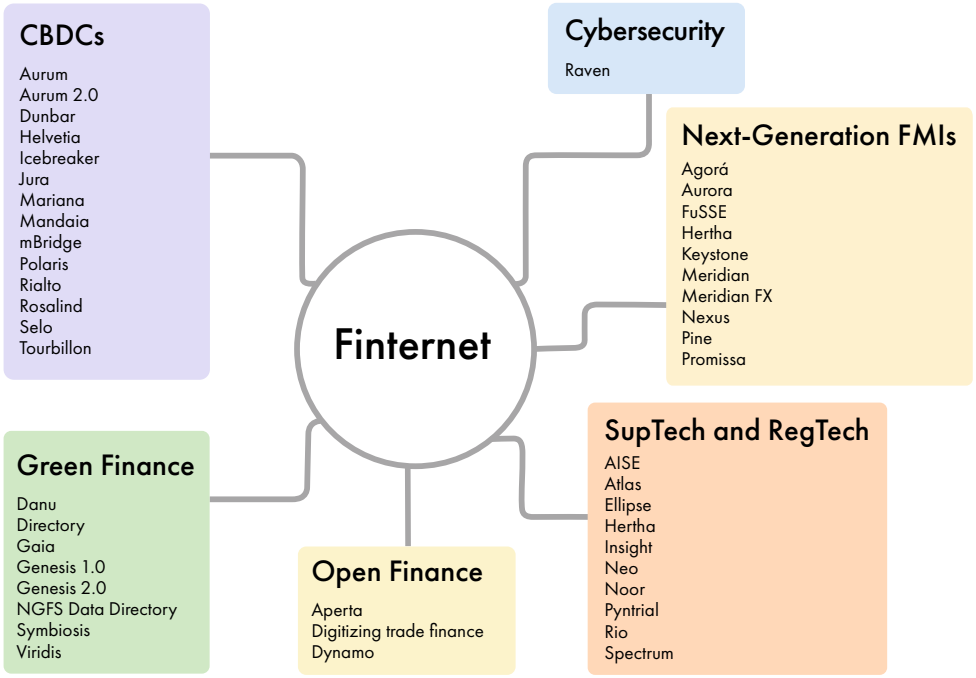
Date	Project	Domain Cluster	Description	Innovation Hub/ Key Partners	Latest Status
March 31, 2022	Ellipse	Supervisory technology (SupTech) and regulatory technology (RegTech)	Explored how supervision could become insights-based and data-driven using an integrated regulatory data and analytics platform	BIS	Completed
October 4, 2023	Atlas	SupTech and RegTech	Developed a data platform that derives cross-border flows of cryptoassets	BIS, De Nederlandsche Bank and Deutsche Bundesbank	Completed
July 31, 2024	Pyxtrial	SupTech and RegTech	Explored technology solutions to enable the monitoring of balance sheets of asset-backed stablecoins	BIS Innovation Hub London Centre	Completed
March 26, 2021	Rio	SupTech and RegTech	A prototype of a central bank-specific, real-time capable market-monitoring platform; the cloud-based, stream-processing platform will analyze real-time financial data feeds and compute relevant liquidity and market-risk measures	BIS	Ongoing
March 27, 2024	Neo	SupTech and RegTech	Aims to ensure that central bank policy-making decisions are grounded in timely and precise intelligence	BIS Innovation Hub Swiss Centre and SNB	Ongoing

Date	Project	Domain Cluster	Description	Innovation Hub/ Key Partners	Latest Status
July 8, 2024	Insight	SupTech and RegTech	Seeks to build a timely and comprehensive monitor of global value chains (GVCs) that can support central banks, policy makers and international organizations in monitoring critical developments in GVCs and assessing the associated economic and financial impacts	BIS Innovation Hub Hong Kong Centre, the BIS Monetary and Economic Department, the Asian Development Bank, DIW Berlin (German Institute for Economic Research), HKMA, the IMF, the Organisation for Economic Co-operation and Development, the United Nations and the World Trade Organization	Ongoing
November 19, 2024	Spectrum	SupTech and RegTech	Explores how the power of AI can be used to enhance inflation nowcasting	BIS	Ongoing
April 3, 2025	AISE	SupTech and RegTech	Develops a flexible AI-driven tool kit designed to support financial supervisors in handling the growing complexity of regulatory oversight	BIS Innovation Hub Toronto Centre	Ongoing
June 5, 2025	Hertha	SupTech and RegTech	Explores how network analytics could help identify financial crime patterns while utilizing a minimum set of data points	BIS Innovation Hub London Centre and the Bank of England	Ongoing
August 18, 2025	Noor	SupTech and RegTech	Seeks to equip financial supervisors with independent, practical tools to evaluate and interpret the inner workings of AI models used by banks and other financial institutions	BIS Innovation Hub Hong Kong Centre, the Financial Conduct Authority of the United Kingdom and HKMA	Ongoing
September 4, 2025	Keystone	SupTech and RegTech	Explores how technology can enhance the analytical use of ISO 20022 data	BIS Innovation Hub London Centre and the Bank of England	Ongoing

Source: www.bis.org/about/bisih/projects.htm.

Note: AISE = Artificial Intelligence Supervisory Enhancer; ISO = International Organization for Standardization.

Figure 1: Breakdown of the Finternet



Source: Author.

CBDC and Payment Interoperability

At the heart of the BIS's experimentation lies the question of sovereign digital money, or how central banks can issue and exchange digital currencies across borders without recreating the inefficiencies of today's correspondent banking system.

Projects such as mBridge, Icebreaker and Dunbar represent the most visible expressions of this ambition.

- **Project mBridge,** led by the Hong Kong innovation hub alongside the central banks of China, Hong Kong, Thailand and the UAE, seeks to build a multi-CBDC platform where different national currencies can transact instantly and directly, eliminating the need for intermediaries or nested accounts. It effectively transforms liquidity geography: instead of liquidity pools held in New York or London, settlement can occur anywhere a node of trust exists (BIS Innovation Hub 2022d).
- **Project Icebreaker,** developed by the Nordic hub, extends this principle to rCBDCs, designing a model where citizens in different jurisdictions can transact using their domestic CBDCs through an automated FX bridge (BIS Innovation Hub 2023a).
- **Project Dunbar,** an earlier multi-CBDC pilot with the Bank Negara Malaysia, the MAS, the Reserve Bank of Australia and the South African Reserve Bank, tested shared infrastructure for cross-border settlement among central banks (BIS Innovation Hub 2022a).

Collectively, these initiatives aim to create a plural yet interoperable monetary ecosystem — a world where digital currencies of different nations can coexist and interact seamlessly, governed by shared technical and legal standards rather than by the dominance of any single reserve currency. In doing so, they begin to redefine the geography of liquidity, shifting the gravitational centre of global payments from legacy financial hubs to distributed networks of central bank nodes.

Tokenization

Parallel to its currency experiments, the BIS has been advancing the tokenization of financial instruments and market infrastructure. Here, the goal is to transform static instruments, bonds, deposits

or securities into programmable tokens that can interact autonomously through smart contracts.

Projects such as Guardian, Mariana and Atlas occupy this frontier.

- **Project Guardian,** developed with the MAS, explores the interoperability of tokenized assets across different blockchain networks and jurisdictions, establishing templates for compliance and settlement in tokenized finance (Guardian Foreign Exchange Industry Group 2025).
- **Project Mariana,** a collaboration among the Eurosystem, Singapore and Swiss centres, prototypes AMMs to enable cross-currency transactions between wholesale CBDCs, effectively adapting decentralized finance mechanisms to regulated environments (BIS Innovation Hub 2023d).
- **Project Atlas,** a data-driven platform by the Eurosystem hub, provides supervisors with visibility into global crypto-asset flows, linking on-chain activity to macro-financial indicators (BIS Innovation Hub 2023f).

In aggregate, these efforts point toward the emergence of programmable finance or a market structure in which the functions of clearing, settlement and reporting are embedded in code. Tokenization is not merely about digitizing existing assets; it is also about creating a shared language of value, allowing assets, currencies and contracts to be represented, exchanged and enforced automatically within a unified digital infrastructure.

While this paper emphasizes wholesale infrastructure and interbank settlement, the retail layer especially involving stablecoins warrants deeper analysis that is beyond the scope of this investigation. The limited mention of stablecoins should not be taken as dismissal; rather, it reflects the BIS's institutional orientation toward systemic infrastructure. However, private-sector developments, such as US dollar-backed stablecoin, and public-private hybrids, such as Brazil's Pix, pose significant challenges and alternatives to BIS-led architectures.

AI and RegTech

If tokenization and CBDCs address how value moves, the BIS's AI and SupTech projects focus on how that movement is governed. With the explosion of transaction data and the proliferation of algorithmic trading, human oversight alone is no longer sufficient. The next frontier of central banking is algorithmic supervision, which uses AI to monitor, interpret and regulate financial activity in real time.

Projects such as Rio and Ellipse illustrate this transition.

- **Project Rio,** from the Swiss hub, builds a real-time data analytics platform capable of detecting anomalies and stress indicators across fast-moving markets such as FX.[2]
- **Project Ellipse,** led by the Singapore hub, integrates disparate regulatory data streams into a unified interface, allowing supervisors to visualize systemic risk dynamically and test policy interventions (BIS Innovation Hub 2022b).

Through these initiatives, the BIS is effectively embedding machine intelligence into the rules that govern the global financial system. While this enhances supervisory capability, it also raises pressing questions about privacy, algorithmic accountability and the risk of programmable oversight over financial behaviour. The goal is not just to digitize compliance but to move toward predictive supervision or a regime where risks are detected and mitigated algorithmically, often before they crystallize into crises.

Quantum and Cybersecurity

No digital economy can function without trust, and in an era of post-quantum computing, that trust must be mathematically guaranteed. The BIS's Project Leap represents its most forward-looking safeguard, which provides a quantum-safe migration framework for global payment systems (BIS Innovation Hub 2023b). By experimenting with post-quantum cryptographic algorithms, the BIS and its partner central banks are preparing for the day when quantum computers could render current encryption obsolete.

2 See www.bis.org/about/bisih/topics/suptech_regtech/rio.htm.

Together, these initiatives comprise the invisible security layer of the BIS's digital architecture or the foundations of trust upon which programmable money and algorithmic supervision can safely operate.

The BIS's technological foundations are not a collection of disconnected pilots. They represent a stacked architecture in which each layer reinforces the next. What emerges is a digital operating system for the global economy in which liquidity, assets and intelligence circulate through interoperable, programmable and secure channels engineered under the BIS's quiet stewardship.

The Finternet Vision: From Interoperability to Integration

In 2024, the BIS introduced a conceptual framework that crystallized what its scattered innovation projects had been building toward: the finternet. Described in the BIS Working Paper No. 1178, "Blueprint for the Finternet," the idea captures the next evolutionary stage of the global financial system, a shift from a collection of siloed networks and institutions toward a unified, programmable financial internet, where digital money, tokenized assets, identity credentials and compliance logic operate seamlessly across jurisdictions (Carstens and Nilekani 2024).

At its core, the finternet is not a new network; it is a meta-network of interoperable financial systems, rather than an architecture that enables cross-border, cross-asset and cross-institutional coordination through shared digital standards. Much as the internet linked discrete communication networks through transmission control protocol/internet protocol (TCP/IP), the finternet seeks to link disparate financial systems through interoperable digital primitives: tokenization standards, digital identity credentials, programmable logic layers, and governance (APIs that embed compliance rules and regulatory logic into digital financial transactions).

The Convergence

The finternet vision rests on the convergence of four technological pillars that the BIS has been building experimentally through its project clusters.

- **Tokenized money:** Tokenized money replaces static account balances with programmable, ledger-based currency units. Each unit can carry metadata on ownership, jurisdiction and permitted use, effectively transforming money from a passive store of value into an active element of a digital contract.
- **Tokenized assets:** The BIS envisions all financial instruments, such as bonds, deposits, promissory notes and carbon credits, as standardized digital tokens that can move across networks in real time. In a finternet world, assets and money are no longer separate categories; they coexist on a common ledger framework, enabling automatic delivery versus payment and real-time collateral reallocation.
- **Digital identity:** Trust and compliance in the finternet hinge on verifiable digital identity. Drawing from initiatives such as Projects Mandala (cross-border compliance protocols) and Sela (access-enabler models for rCBDCs) (BIS Innovation Hub 2024e, 2023b), the BIS architecture embeds identity as infrastructure: not as surveillance, but as the fabric that ties a user, an institution or a transaction to a verifiable trust anchor.
- **Programmable logic:** The fourth layer is the code that governs how money and assets interact. Projects such as Rosalind, which explored APIs for rCBDC programmability (BIS Innovation Hub 2023c), and Pine, which designs smart-contract tool kits for central bank operations, illustrate how financial logic instruments such as interest payments, taxes, compliance checks and even monetary policy triggers can be embedded directly into tokens and payment instructions (BIS Innovation Hub 2025a).

Together, these four pillars form the technological stack of the finternet. They promise a world where liquidity and compliance are natively digital, where settlement and supervision are instantaneous, and where financial activity operates under shared digital protocols rather than under fragmented intermediaries.

From Interoperability to Integration

Earlier BIS projects, such as mBridge and Dunbar, aimed primarily at interoperability: connecting separate systems so that value could move smoothly between them. The finternet vision goes further; it proposes integration. Instead of linking systems through external bridges, it imagines a common architecture where all forms of financial value are natively compatible.

This is a profound conceptual shift. In the legacy world, payment systems, securities registries and identity databases are separate silos connected through institutional intermediaries, including correspondent banks, clearing houses or custodians. In the finternet model, these silos collapse into a modular yet unified ecosystem, where digital assets, currencies and data share a standardized trust fabric.

In effect, the BIS is creating the protocol layer of global finance, analogous to the internet's TCP/IP stack, by defining how value packets are formatted, authenticated, transmitted and settled across networks (Parziale et al. 2006). The goal is to make financial interactions as seamless as sending an email: a transaction should be instantaneous, composable and verifiable, regardless of geography or jurisdiction.

Thus, the finternet vision is increasingly converging toward the idea of a global unified ledger, which is a shared infrastructure on which money, assets and data coexist and transact within common, programmable frameworks. A unified ledger does not imply a single database or centralized authority; rather, it is a network of interoperable ledgers linked through standardized APIs, digital identity frameworks and verifiable credential systems (Nilekani, Varma and Shetty 2024).

The benefits of a unified ledger approach are threefold: efficiency, transparency and composability. Efficiency arises from atomic settlement (that is, eliminating intermediaries and reducing reconciliation time). Transparency comes from programmable compliance and shared audit trails that reduce duplication and fraud. And composability introduces the ability to combine money, assets and smart contracts, enabling new financial services to be built like applications atop an open finternet. In this sense, the finternet mirrors the India stack principle of open, interoperable and sovereign digital public infrastructure (DPI), in which each layer comprising identity, payments and data consent operates independently yet integrates seamlessly into the broader economy (Mukherjee and Sankritik 2025).

BIS as the de Facto Internet Governance Forum of Finance

While the BIS does not formally describe itself as a regulator, its growing influence in defining the technical and governance standards of this emerging system is unmistakable. Through its innovation hubs, global working groups, and partnerships with central banks and private-sector consortia, the BIS has effectively become a node in shaping the rules for how digital finance works globally:

- **Trust:** Determining who or what qualifies as a verified node in the finternet — a central bank, a licensed financial institution or potentially an algorithmic agent.
- **Authentication:** Establishing interoperable credential systems so that identity and compliance proofs can travel securely across borders.
- **Data portability:** Designing standards that allow financial data, once tokenized, to move between jurisdictions without losing legal validity or privacy protections.

By shaping these foundational rules, the BIS is quietly defining not only the technology of the future financial system but its governance model. Much as the Internet Engineering Task Force (IETF) once defined the digital communications era,[3] the BIS Innovation Hub is playing a critical role in defining the parameters of digital monetary sovereignty and interoperability.

The Critical Question: Whose Rules, Whose Values, Whose Nodes?

Yet the finternet vision also raises uncomfortable questions about power and governance. If this architecture succeeds, it will embed the norms of its architects into the operating system of global finance. Whose rules will the finternet enforce: those of advanced economies, whose central banks

3 See www.ietf.org/about/introduction/.

dominate the BIS, or those of a genuinely inclusive multilateral order? Whose values of transparency, privacy, financial inclusion or capital control will be prioritized when programmable logic becomes law by code? And, crucially, whose nodes will form the backbone of this new finternet? Will they be geographically distributed, or concentrated in a handful of jurisdictions with the technical capacity to host them?

The BIS envisions the finternet as a public good, an interoperable system serving all. But, in practice, governance will likely reflect the asymmetric capabilities and political leverage of its participants. Yet its current governance structure remains centralized among a small set of advanced economy central banks, which risks reproducing the very asymmetries that a global, interoperable architecture aims to overcome. For developing economies, the challenge will be to participate not merely as users of global standards, but as co-authors of the protocols that will define financial sovereignty in the digital age.

The Governance Architecture Behind the Technology

If the finternet represents the BIS's technological imagination, then the innovation hub network represents its political geography — a global architecture that mirrors both the ambitions and asymmetries of contemporary financial power. The BIS Innovation Hubs are not randomly distributed laboratories; they are strategically positioned nodes in the global monetary order, each situated in or near a major financial centre, including the euro zone (Frankfurt/Paris), Hong Kong, London, New York, Singapore, Stockholm (Nordic Centre), Switzerland and Toronto. Together, these hubs form a multilateral architecture that appears collaborative, but which, in practice, reaffirms the central role of the world's most powerful central banks in defining the future of digital finance.

The Geography of Innovation and Influence

The spatial distribution of BIS Innovation Hubs reflects an intentional mapping of financial influence.

- **The Eurosystem Centre,** spanning Frankfurt and Paris, is dedicated to SupTech, data analytics and AI governance, a domain that reflects the European Union's broader emphasis on regulatory sophistication and data sovereignty.
- **The Hong Kong Centre** anchors the BIS's relationship with East Asia. It is the home of Project mBridge, arguably the most geopolitically consequential BIS initiative, which links central banks from both advanced and emerging economies to test cross-border wholesale CBDC settlement.
- **The London Centre** plays a bridging role, addressing rCBDC infrastructure (Project Rosalind) and market integrity (Project Hertha), aligning the BIS's experimental work with the Bank of England's regulatory leadership in digital finance.
- The newly established **NYIC**, a partnership with the US Federal Reserve, represents the BIS's transatlantic anchor, focusing on monetary policy operations in tokenized environments (Project Pine) and settlement architectures (Project Agorá).
- **The Singapore Centre** functions as the laboratory for tokenization, green finance and digital compliance — the site of Projects Guardian, Mandala and Viridis. Singapore's role as a neutral innovation hub for both Western and Asian financial institutions makes it the ideal staging ground for developing globally interoperable standards.
- **The Nordic Centre** in Stockholm anchors the BIS's engagement with the Nordic region and broader European digital finance ecosystem. Hosted by the Sveriges Riksbank, it reflects the region's reputation as a laboratory for advanced payment systems, cash-light economies and trusted digital identity frameworks. The centre focuses on next-generation monetary and financial infrastructure, including rCBDC experimentation, offline payments resilience,

cybersecurity and scalable cross-border interoperability solutions.

- **The Swiss Centre,** operating out of Zurich, has often focused on cybersecurity, RegTech and quantum resilience, spearheading Project Leap and Project Rio. Switzerland's long-standing reputation for trust and financial stability gives its hub the symbolic role of securing the infrastructure of global trust in a digital age.
- **The Toronto Centre,** launched in collaboration with the Bank of Canada in 2024, serves as the BIS's hub for digital finance resilience, cyber-physical infrastructure and cross-border policy innovation. Positioned strategically within North America's fintech and quantum research corridor, it focuses on AI safety in financial systems, climate-risk data integration and DPI interoperability between advanced and emerging markets.

This distribution creates a cartography of capability and influence. Each hub corresponds to a cluster of strengths, ensuring that the BIS Innovation Hub system collectively mirrors the balance of global monetary power. But it also ensures that the command centres of digital finance remain concentrated in the same jurisdictions that historically defined the architecture of Bretton Woods and SWIFT.

The "Network of Networks": A Multilateral Façade Anchored in Sovereignty

On paper, the BIS Innovation Hub structure embodies the ethos of multilateral cooperation. Each project involves multiple central banks, often from diverse economies, collaborating to design systems that promote inclusivity and interoperability. The organizational model resembles a federated innovation network, where expertise, data and technical capacity are shared across jurisdictions.

However, beneath this cooperative veneer lies a deeper logic: the preservation of central bank sovereignty within a globalized technological system. Every BIS project is framed as public infrastructure, but access, participation and governance remain tightly controlled by central banks.

The "network of networks" model, therefore, represents a hierarchical multilateralism. While it invites public-private collaboration, including with fintech firms, technology vendors and academia, authority ultimately always resides with the central banking community. The BIS's governance DNA is cautious by design: it seeks to democratize the infrastructure of participation while centralizing the infrastructure of trust.

This duality produces what might be called technocratic sovereignty: a system where financial interactions become increasingly borderless, yet the power to define their parameters remains within the closed circle of public monetary institutions (Martino 2024).

The Multilateral Coordination Nexus

To understand the BIS's governance reach, one must look beyond its own hubs to its institutional ecosystem. The BIS operates as the connective tissue linking some of the world's major financial governance bodies, including but not limited to:

- **The IMF and World Bank,** with which the BIS collaborates on cross-border payment systems and CBDC policy coordination, ensuring that new infrastructures complement global liquidity frameworks and capital-flow surveillance mechanisms (Boar et al. 2023). The IMF's *CBDC Virtual Handbook*[4] draws heavily on the BIS's technological experiments, effectively merging BIS-led innovation with IMF-led macroeconomic governance.
- **The Financial Stability Board (FSB),** hosted by the BIS, acts as the policy harmonizer, translating BIS innovations into regulatory norms for cross-border payments, digital assets and financial stability. Together, BIS and FSB define the standards that shape how private actors interact with digital money and tokenized instruments (FSB 2025).

This web of coordination allows the BIS to exert influence not through direct regulation, but through standard-setting power, embedding its protocols into the technical, legal and institutional DNA of global finance. Once codified, these standards have the potential to become nearly immutable, guiding

4 See www.imf.org/en/topics/digital-payments-and-finance/central-bank-digital-currency/virtual-handbook.

not only how countries transact but how they conceptualize financial sovereignty itself.

The Paradox: Democratizing Infrastructure, Centralizing Governance

The BIS's digital transformation narrative carries an inherent paradox. On the surface, it promises democratized access to global finance characterized by interoperable systems, lower transaction costs, broader inclusion and enhanced transparency.

Yet beneath this narrative lies a centralization of governance power unprecedented in modern finance. The same architectures that democratize access to payments also consolidate decision-making authority in the institutions designing the code.

Programmability and standardization, while efficient, also embed policy preferences and compliance norms directly into the digital fabric of money. When rules become code, and code becomes the infrastructure of global value exchange, technological design becomes an instrument of governance.

In this sense, the BIS-led system risks replicating the very asymmetries it seeks to overcome. By anchoring the finternet within a club of central banks and advanced economies, it preserves a world in which emerging nations participate largely as implementers rather than architects. The rhetoric of interoperability masks the reality of dependency on a digital order that is more inclusive in access, yet not necessarily equitable in influence.

The governance architecture of the BIS's innovation ecosystem thus stands at a crossroads. It could evolve into a truly pluralistic multilateral framework, where emerging and developing nations help shape the digital standards that will govern their economies. Or it could harden into a technocratic core, where central banks of major economies become the ultimate arbiters of global financial code.

In either case, one thing is clear: the BIS is now at the centre of the emerging digital financial system. Its innovation hubs are helping to build a new global framework where financial trust is created through technology, national authority is shaped by technical standards and rules are built into software. The key challenge is to ensure that this transformation supports fairness and inclusion rather than quietly concentrating control in the hands of a few.

The Geopolitical Economy of BIS Innovation

Beneath its technical vocabulary and institutional neutrality, the BIS's innovation agenda is fundamentally geopolitical. Its projects are not simply about technological efficiency: they are about governance power in a world where the architecture of finance is being rewritten in code. The BIS today sits at the crossroads of a silent contest between competing visions of the digital global economy: China's state-centric model of digital sovereignty, the United States and European Union's fragmented regulatory approach and the BRICS+ bloc's search for parallel infrastructures.

In this contest, BIS initiatives represent a pre-emptive move to consolidate the rules, standards and trust architecture of global digital finance within a Western-aligned, rules-based core, one that is multilateral in appearance but still rooted in the institutional DNA of the transatlantic monetary order.

China's Participation in Project mBridge: Sovereignty Through Integration

China's participation in Project mBridge is perhaps the clearest indication that the geopolitical stakes of BIS innovation extend well beyond technical collaboration. The digital yuan (e-CNY) is already one of the world's most advanced CBDCs, operating domestically with sophisticated programmability, offline functionality and integration into major retail ecosystems, such as Alipay and WeChat Pay (Kapronasia, n.d.). Yet, by joining mBridge alongside Hong Kong, Thailand, the UAE and later observers such as Saudi Arabia, the People's Bank of China signalled its intent to shape global standards for cross-border digital money.

From Beijing's perspective, mBridge serves dual purposes. It offers a platform to test the interoperability of e-CNY with other CBDCs, and it advances China's ambition to reduce reliance on the US-dominated SWIFT network. For the BIS,

however, China's participation provides legitimacy and an opportunity to embed its projects in a truly global network rather than a Western-centric club.

Yet this collaboration is strategic, not neutral. The mBridge protocol architecture, built on a permissioned DLT with central bank nodes and standardized APIs, aligns with BIS principles of regulated interoperability, not with the more state-controlled vision of China's domestic system. In effect, the BIS provides a multilateral wrapper around what might otherwise have evolved into a China-led initiative. It allows China to participate without ceding control, while ensuring that interoperability standards remain BIS-governed rather than Beijing-defined.

This delicate balance of inclusion without dominance epitomizes the BIS's geopolitical method. Through cooperation, it absorbs potential challengers into a shared technical ecosystem that still adheres to rules-based multilateralism.

The United States and the European Union: Fragmentation Within the Core

While China experiments with integrated state-led models, the United States and the European Union face the opposite challenge: regulatory fragmentation and institutional inertia. The United States has no single digital currency road map. The Federal Reserve remains cautious on an rCBDC, preferring limited experimentation through the NYIC and collaborations such as Project Pine (monetary policy operations in tokenized markets) and Project Agorá (unified ledgers for cross-border payments) (BIS Innovation Hub 2025b). Meanwhile, the US private sector, from stablecoin issuers such as Circle and PayPal to tokenized-asset consortia, has raced ahead of the public sector, creating a patchwork of innovation with little federal coherence.

The European Union, by contrast, is pursuing regulatory comprehensiveness through the Markets in Crypto-Assets Regulation (MiCA) and the digital euro project, yet faces political hesitancy and slow technological deployment. The European Central Bank's digital euro design remains focused on privacy, tiered limits and intermediate models more as a defensive adaptation than as a transformative leap (Panetta 2021).

Against this backdrop, the BIS's Innovation Hubs have become coordination platforms for the fragmented West. Through the Eurosystem, Canadian, Swiss and UK hubs, the BIS effectively provides a shared sandbox where Western central banks can experiment together without committing to full deployment. In doing so, it prevents fragmentation from becoming divergent, maintaining a baseline of technical interoperability even as domestic politics diverge.

In essence, the BIS serves as the glue of the transatlantic digital money alliance. It ensures that the financial core, despite regulatory pluralism, continues to speak a common technological language, using shared standards for messaging such as ISO 20022,[5] digital identity (verifiable credentials) and programmable payments.

BRICS+ and the Rise of Alternative Payment Ecosystems

Outside the BIS sphere, the BRICS+ coalition is constructing an alternative set of digital payment rails designed to challenge Western dominance over cross-border settlements. Initiatives such as the BRICS Bridge, the potential Eurasian payments union and regional stablecoin pilots (for example, mBridge-adjacent efforts in the Gulf Cooperation Council) all seek to create non-SWIFT, non-dollar clearing mechanisms.

Russia's System for Transfer of Financial Messages, China's Cross-Border Interbank Payment System and India's Unified Payments Interface internationalization strategy are each components of a broader attempt to re-route global payment flows around US sanctions infrastructure (*The Economic Times* 2024). When seen together, they signal a world in which the plumbing of finance is fragmenting into regional sovereignties — namely, the West, China, Russia and the Global South, loosely led by India.

The BIS Innovation Hubs' projects — particularly mBridge, Agorá and Nexus — can thus be read as a counter-fragmentation strategy: a means to preserve a degree of technical unity before competing blocs establish incompatible standards. By inviting BRICS economies into its projects but under BIS governance, the institution seeks to absorb divergence through multilateral inclusion,

5 See www.iso20022.org.

effectively pre-empting the formation of a rival finternet.

In this sense, BIS innovation functions as a geopolitical pressure valve: it channels the desire for digital sovereignty into structured cooperation that remains interoperable with the Western system. The message is implicit but clear: it is better to join the BIS-led finternet than to build a separate one.

Standard Setting as Strategy

In the analogue world, geopolitical influence was exercised through currencies, reserves and trade routes. In the digital era, power resides in protocols and thus in who defines the standards by which digital value moves and data is trusted. The BIS understands this shift perhaps better than any other institution.

By embedding these standards into open-source prototypes, central-bank collaborations and ISO-aligned rulebooks, the BIS ensures that financial interoperability remains governed by public, Western-led institutions rather than by private technology giants or state-capitalist alternatives. This strategy mirrors the early internet's governance model: decentralization in form, centralization in standard setting.

The result is a rules-based digital order, one that constrains fragmentation but also preserves hierarchy. Financial data may flow freely across borders, but the protocols of trust and authentication remain anchored in Basel, New York and Zurich.

Tensions in the Emerging Order

The BIS's global digital strategy is animated by a series of profound tensions that reflect the contradictory demands of an interdependent yet divided world, as seen in Table 2.

Table 2: The BIS's Global Digital Strategy

Tension	Manifestation	Implication
Inclusion vs control	Projects such as mBridge and Nexus include developing economies but governance remains BIS-centric.	Participation without parity risks digital dependency.
Innovation vs surveillance	Programmable money and AI-driven supervision enhance efficiency but enable real-time financial monitoring.	This raises questions of privacy, civil liberties and sovereign autonomy.
Multilateralism vs hegemony	BIS promotes cooperation under neutral banners while Western hubs dominate decision making.	This creates asymmetry between rulemakers and ruletakers.
Openness vs security	Interoperable ledgers require data sharing but cybersecurity and national security concerns limit openness.	This leads to selective transparency and fragmented trust networks.
Sovereignty vs interdependence	Digital rails empower national CBDCs yet rely on shared infrastructures.	Nations gain digital tools but lose policy insulation.

Source: Author.

These contradictions are not flaws in the BIS model; they are the conditions of its existence. The institution's genius lies in managing them in a way in which there is enough openness to attract participation, enough control to maintain order, enough multilateralism to appear neutral and enough hierarchy to remain indispensable.

Ultimately, the BIS's innovation ecosystem represents a new form of monetary hegemony, not through currency dominance but through infrastructural governance. By defining the technical foundations of the finternet, the BIS ensures that even in a multipolar world, the core logic of global finance remains interoperable with — and thus anchored to — the Western institutional order.

In the coming decade, the geopolitical economy of digital finance will not be determined by who issues the most powerful currency, but by who writes the code of the system through which all currencies interact. The BIS, operating behind the façade of technocratic neutrality, has positioned itself as the potential custodian of that code.

Whether this results in a genuinely inclusive digital commons or in a subtler form of digital empire will depend on how the world engages with this new financial order, not merely as followers of its standards, but as co-authors of the protocols that will define sovereignty, security and fairness in the digital century.

Critical Evaluation of the BIS: Promise and Peril

The BIS's innovation agenda presents itself as a blueprint for a more efficient, inclusive and resilient global financial system. In many respects, it delivers on that promise: through its projects, the BIS is modernizing financial infrastructure, making payments faster, compliance smarter and markets more transparent. Yet beneath this progress lies a set of structural risks, including political, ethical and institutional threats, that accompany the conversion of finance into code.

The same architectures that promise to democratize finance also carry the potential to centralize control; the same tools that enhance trust and transparency could deepen surveillance and asymmetry. To critically evaluate the BIS's digital transformation, it is essential to weigh its promises against its perils, not as binary opposites but as coexisting realities of a rapidly evolving system.

Promise: Greater Interoperability, Efficiency and Transparency

Peril: Reinforced Centralization and Technocracy

At the heart of BIS innovation lies the goal of interoperability, connecting fragmented systems of money, markets and regulation through shared technical standards. Initiatives such as mBridge, Dunbar and Nexus demonstrate how cross-border settlement can move from days to seconds, eliminating frictions that have long excluded smaller economies and SMEs from efficient participation in global trade.

By replacing bilateral correspondent banking networks with multi-CBDC ledgers, the BIS is building a foundation for real-time liquidity management, lower costs and greater transparency. Similarly, tokenized market pilots such as Mariana and Helvetia could eventually allow capital to flow across borders with fewer intermediaries, reducing risk concentration and settlement delays.

However, these gains in efficiency come with an underappreciated cost: institutional centralization and technocratic dependence. As interoperability becomes a public good, it is also becoming a centralized infrastructure service administered by a small number of central banks and BIS-affiliated hubs. In other words, the new financial architecture may be more seamless, but it is also more top-down, reinforcing the authority of those who define and maintain the standards.

This mirrors the paradox of the internet: a globally accessible system built on protocols governed by a few powerful actors. The BIS's vision risks creating a similar digital hierarchy or a technocratic oligopoly of standards where participation is open, but rulemaking remains exclusive.

Promise: Open Standards for Cross-Border Settlement

Peril: Risk of a Financial Panopticon via Programmable Money

The BIS's commitment to open standards, particularly in projects such as Rosalind, Agorá and mBridge, is often framed as an effort to keep the digital economy inclusive and interoperable. The adoption of open APIs, standardized messaging (ISO 20022) and transparent smart-contract frameworks allows fintechs and banks to innovate atop common rails. This openness, the BIS argues, ensures that the digital financial system remains competitive and adaptable, preventing monopolization by private technology giants or unilateral state systems.

Yet, in practice, programmable money and traceable settlement introduce a new regime of total visibility that some scholars have described as the financial "panopticon." The digital nature of this new form of money would potentially enable authorities or powerful institutions to monitor, record and audit nearly every financial interaction in real time. This creates a regime where financial behaviour is shaped not only by rules, but also by the ever-present awareness or fear of being continuously observed and evaluated (Gill 1995). Projects such as Tourbillon, which explores privacy-preserving digital cash, reveal that the BIS is aware of this tension (BIS Innovation Hub 2023g). However, privacy remains a feature, not a principle, within the current design paradigm. The implicit logic of programmable finance assumes that transparency equals trust, but this equation risks eroding financial autonomy and anonymity, especially for individuals and small enterprises.

In this world, control migrates from law to code. Monetary policies, tax enforcement and sanctions could all be executed algorithmically, without parliamentary or judicial oversight. The same systems that make financial crime detection seamless could make political and behavioural control programmable. Thus, the open architecture of programmable money may paradoxically enable a closed regime of algorithmic governance.

Promise: Quantum- and AI-Driven Resilience

Peril: Exclusion of Developing Nations from Standard Setting

By anticipating future vulnerabilities, from quantum decryption to real-time market instability, the BIS is helping central banks upgrade the defensive perimeter of finance. These efforts protect critical infrastructure from systemic threats and foster confidence in the digital transition.

However, they also risk deepening the technological divide between the Global North and emerging economies. The cost, expertise and computational resources required to adopt quantum-safe infrastructure or AI-based SupTech systems are immense. While the BIS invites emerging economies to participate in pilot programs, the real governance of these technologies remains concentrated among advanced economies with the technical and fiscal capacity to operationalize them.

This creates a hierarchy of resilience: some nations can write and verify the cryptographic protocols of the new financial order, while others can only adopt and trust them. The very architecture meant to universalize trust may thus reinforce dependency. Without a deliberate strategy for technology transfer and inclusive capacity building, the BIS's digital agenda risks entrenching a two-tier global system, one of codemakers and codetakers.

Promise: Sustainable Finance Tokenization

Peril: Greenwashing via Technocratic Instruments

The BIS's foray into green and sustainable finance through projects such as Genesis (BIS Innovation Hub 2021), Gaia (BIS Innovation Hub 2024a) and Viridis (BIS Innovation Hub 2024c) reflects a recognition that digital infrastructure can serve planetary as well as monetary stability. Tokenized green bonds, real-time emissions tracking and AI-enhanced disclosure systems promise to channel capital more efficiently toward verified climate goals. The BIS's use of blockchain-based "mitigation outcome interests" in Genesis 2.0 is particularly innovative, allowing carbon credits to

be embedded directly into bond instruments (BIS Innovation Hub 2022c).

Yet this intersection of technology and sustainability is not immune to critique. Many of these instruments risk devolving into technocratic greenwashing, embedding the appearance of accountability without changing the underlying incentives that drive environmental harm. When sustainability data is tokenized, verified and monetized through algorithmic systems, it can create a false sense of precision and legitimacy. The environmental impact becomes a data point, not a transformation.

Furthermore, by placing green-finance infrastructure under the stewardship of the BIS and major central banks, the process becomes institutionally depoliticized. Climate action is reframed not as a question of justice or redistribution, but as a technical optimization problem. This reflects the broader risk of the BIS model: that the most existential challenges from inclusion to sustainability are being translated into programmable compliance logic, stripping them of democratic deliberation.

Taken together, the BIS's projects embody both technological utopia and infrastructural empire. On one hand, they push the boundaries of what a cooperative global financial system could look like: interoperable, transparent, resilient and sustainable. On the other hand, they extend a technocratic mode of global governance in which norms are embedded in protocols and authority migrates from public deliberation to engineered design.

This is not the hubris of the BIS alone; it is the structural logic of digital modernity. As finance becomes programmable, governance becomes infrastructural. The challenge is not to halt this transformation, but to steer it toward legitimacy, inclusivity and accountability. The promise of the BIS innovation agenda lies in its capacity to reimagine global finance as a shared public good. Its peril lies in the possibility that, under the guise of stability and innovation, it could crystallize a new kind of monetary technocracy, one in which code replaces consensus and where the rules of the global economy are written by a few for the many.

The Way Forward: Interoperable Sovereignty and an MDFO

The evolution of the BIS's innovation ecosystem reveals a deeper truth: the digital transformation of global finance is not just a technological shift but also a reconfiguration of sovereignty itself. In a world where value is encoded, transmitted and verified through programmable systems, control over code becomes control over capital. This makes the design of the emerging digital financial architecture a profoundly geopolitical exercise, one that will determine who commands the "operating system" of the world economy in the decades ahead.

For emerging and developing economies, the central challenge is therefore to secure sovereignty within interdependence to participate in global systems of digital money, payments and supervision without surrendering control to external technical or institutional powers. This principle can be encapsulated in the idea of interoperable sovereignty and it points toward the need for an MDFO — a new, inclusive dialogue to redesign the rules and institutions of digital finance for the programmable age.

Interoperable Sovereignty

The global financial order continues to transform from an analogue system of treaties, institutions and paper-based agreements to a digital system of protocols, ledgers and APIs. In this new environment, the levers of power are shifting. What once depended on political negotiation and institutional consensus is now determined by technical design via the standards and codebases that define how value, identity and data move across borders.

This shift carries an existential risk for many nations: in the pursuit of interoperability, or the ability to seamlessly connect with global systems, they could inadvertently become technologically subordinate, their domestic monetary and regulatory infrastructures hardwired into standards they neither wrote nor control. Just as the postwar financial order bound much of the world to the dollar and SWIFT network, the digital era could bind countries to a new layer of dependence, not on currency but on code.

To avoid this, emerging economies must pursue a strategy of interoperable sovereignty: the

ability to participate fully in the digital global economy while retaining control over their own infrastructures, data and decision making. Interoperable sovereignty does not reject globalization; rather, it redefines it, turning connectivity from a source of vulnerability into a source of strength. It is the art of remaining open to the world but never owned by it.

The Technical Dimension

At the technical level, interoperable sovereignty begins with architecture. Nations must build digital financial systems that are compatible but not captive, ones that can interact with global infrastructures and yet remain fully functional in isolation.

This requires three key design principles:

- **Control over nodes and keys:** Domestic nodes — whether of CBDC ledgers, instant payment systems or data repositories — must remain under the operational jurisdiction of national authorities. Encryption keys, validator rights and access credentials should never be ceded to foreign intermediaries or hosted exclusively on offshore infrastructure.
- **Open, auditable standards:** Nations should adopt open standards and transparent protocols (for example, ISO 20022 for payments, the World Wide Web Consortium for digital identity) to ensure interoperability while avoiding vendor lock-in. Proprietary systems may offer convenience but often at the expense of sovereignty, embedding invisible dependencies into national infrastructure.
- **Resilience through redundancy:** The architecture must be designed for autonomous continuity capable of operating offline or locally in the event of cyberattacks, sanctions or geopolitical disruptions. A sovereign CBDC or national payment system should not fail if global networks fragment; it should degrade gracefully, maintaining domestic liquidity and integrity.

Ultimately, interoperable sovereignty at the technical level is about owning the source code of one's connectivity, ensuring that integration with the global finternet happens on equal terms, not as digital subordination disguised as cooperation.

The Regulatory Dimension

At the regulatory level, interoperable sovereignty requires a nuanced balance between harmonization and autonomy. Global institutions — particularly the BIS, FSB, IMF and the Financial Action Task Force — are increasingly defining common standards for anti-money laundering, countering terrorism financing, data governance and operational resilience. While alignment with these frameworks facilitates international participation, blind adoption can erode policy flexibility and the ability to pursue domestic priorities.

To navigate this tension, nations must move from compliance to configuration, designing modular regulatory systems that can plug into global frameworks while maintaining local control. This modularity allows countries to:

- **Customize compliance logic** by, for example, embedding domestic thresholds for financial inclusion, local transaction caps or social safety parameters into programmable money systems.
- **Define data sovereignty boundaries** by certifying that data generated by domestic digital transactions is stored and processed under national jurisdiction, with selective disclosure protocols for cross-border sharing.
- **Negotiate reciprocity in data exchange** by verifying that participation in global data-sharing frameworks is conditional on equitable access and mutual recognition of privacy norms, not unilateral extraction by larger economies.
- **Preserve fiscal and capital policy discretion** by ensuring that programmable cross-border systems cannot bypass domestic taxation, capital control or macroprudential mechanisms.

In this model, interoperability does not mean uniformity; it means structured diversity or regulatory architecture that enables coordination without coercion.

The Institutional Dimension

True interoperable sovereignty extends beyond code and compliance into the institutional realm, the domain where standards are negotiated, norms are codified and legitimacy is conferred. Here lies the greatest risk for emerging economies: that they remain participants in implementation but are absent from authorship.

The BIS, FSB, IMF and ISO are rapidly becoming the institutional epicentres of global digital governance, shaping protocols for cross-border CBDCs, tokenized assets and AI-based supervision. If emerging economies are at the table as invitees and not as co-authors, they will inherit a system optimized for others' priorities.

Institutional sovereignty, therefore, requires strategic participation in three forms:

- **Technical diplomacy:** embedding national experts, engineers and policy makers within BIS and ISO working groups to influence standards at the design stage, not after deployment.
- **Knowledge production:** publishing open-source frameworks, white papers and domestic policy experiments (as India has done with its DPI stack) to shape global discourse with indigenous innovation.
- **Coalition building:** forming regional or thematic alliances (for example, the African Union [AU], the Association of Southeast Asian Nations [ASEAN], BRICS+ or the Global South Forum) that coordinate positions and jointly propose new standards to the BIS or the IMF.

By contributing not just policy perspectives but also technical artifacts such as source code, APIs and digital identity templates, emerging economies can embed their normative preferences into the global architecture itself. This transforms sovereignty from a defensive posture into a constructive power exercised through creation, not isolation.

The Philosophical Dimension

At its heart, interoperable sovereignty is a philosophy of power in a networked world. It recognizes that in the age of the finternet, sovereignty is no longer measured solely by territorial control or monetary independence, but by architectural agency or the ability to shape the rules, standards and interfaces through which one interacts with the world.

To be interoperable is to be connected; to be sovereign is to be self-determining. The challenge of the twenty-first century is to be both.

This requires thinking of financial infrastructure not as a technical utility, but as a strategic asset as vital to a nation's autonomy as its energy grid or defence network. The pipes of the finternet carry not only liquidity but also legitimacy, which is the ability to define and enforce one's own rules of participation in a global system.

Interoperable sovereignty is, therefore, the foundation of a truly plural digital order, where nations remain linked through shared protocols of trust, but none are structurally dependent on others' systems of control.

The Strategic Imperative

The coming decade will determine whether interoperability becomes a mechanism of inclusion or an instrument of hierarchy. For emerging economies, the choice is stark:

- either accept passive integration into infrastructures designed elsewhere, risking digital colonization in the name of efficiency; or
- pursue interoperable sovereignty that is embedding autonomy into the code, governance and economics of the digital financial order.

If the twentieth century was defined by the struggle for monetary sovereignty, the twenty-first will be defined by the struggle for digital architectural sovereignty, or the right to design, govern and adapt the systems through which value and information move.

Thus, interoperable sovereignty is the new frontier of independence, a doctrine for the digital era that reclaims control not by disconnecting from the world, but by mastering the terms of connection itself. It is, in essence, agency through architecture: the power to ensure that the global pipes of finance carry not only liquidity and efficiency, but also dignity, equity and national legitimacy.

Toward an MDFO: Reimagining Global Financial Governance

The Bretton Woods Conference of 1944 was not simply an economic negotiation; it was a moment of world building. At the end of a global war, 44 nations gathered in New Hampshire to design an architecture for stability: fixed exchange rates anchored to the US dollar, the creation of the IMF and World Bank, and a shared commitment to rebuild global trade and trust (Bordo 1993). It was a blueprint for the industrial and postwar world in which finance was slow, analogue and intermediated by human institutions.

Eighty years later, the world faces an equally profound inflection point. The new economy is digital, distributed and data driven. Value is no longer measured in bullion or bank balances but in bits and code. CBDCs, tokenized assets, decentralized finance and AI-driven market oversight are rewriting the grammar of money itself. Yet the institutions that govern this transformation remain frozen in the analogue age.

The BIS, through its innovation hubs, has emerged as a pivotal inventor of this new digital order. But as this paper has shown, its governance logic still mirrors the hierarchies of the twentieth century: a club of central banks, primarily from advanced economies, defining the rules of a system that claims universality. If left uncorrected, the digital globalization now unfolding could reproduce and even deepen the asymmetries of the Bretton Woods world: a digital core of rulemakers surrounded by a periphery of ruletakers.

What is needed now is an MDFO, a global process to reimagine financial governance for the era of programmable value. This is not merely a policy reform but a civilizational redesign: a chance to create an inclusive and plural digital financial order, where trust, transparency and sovereignty coexist with innovation and interoperability.

The Case for an MDFO

The digital transformation of finance has outpaced the institutions that manage it. We are witnessing a quiet but complete rewiring of monetary infrastructure. And yet, the global governance framework continues to operate through analogue paradigms: reports, committees and deliberations that lag behind the velocity of technological change.

This mismatch has created a governance vacuum, one that the BIS, through its project ecosystem, has partially filled. But it also raises a central question: Who gets to write the rulebook of the programmable economy?

An MDFO is therefore necessary, not just to manage the technology but also to democratize the governance of global finance itself.

Principles of an MDFO

- **Digital sovereignty as a shared global norm:** The cornerstone of any new global compact must be the recognition of digital sovereignty, which is the right of every nation to govern its monetary data, digital identities and programmable assets (Fleming 2025). But sovereignty cannot mean isolation. Instead, it must be interoperable sovereignty: participation in global systems without subordination to them. This principle would enshrine jurisdictional autonomy within shared digital frameworks, ensuring that national policies on privacy, taxation and capital controls remain enforceable even in fully networked environments.
- **Multilateral DPI principles:** Just as Bretton Woods institutions have gone on to define trade rules and monetary stability principles, the MDFO must define digital infrastructure principles. These should include global standards for data portability, interoperability and privacy-preserving authentication, ensuring that digital public goods such as identity systems, payment rails and data networks remain open, inclusive and non-extractive. The goal is to prevent the emergence of digital mercantilism, where technological dependence replaces economic dependence.
- **A digital reserve-asset framework:** The establishment of the US dollar as the anchor of global liquidity, later supplemented by the IMF's special drawing rights (SDRs), has had a significant impact on the postwar geoeconomic world order. In the digital era, neither fiat dominance nor fragmented stablecoins can serve as a stable foundation. A new digital reserve asset, possibly built on tokenized SDRs or multi-CBDC liquidity pools, could provide a neutral, programmable reserve system. Managed multilaterally, this framework would mitigate systemic reliance on single-currency networks while maintaining transparent, real-time settlement through distributed ledgers.
- **Democratization of standard setting:** The current architecture of standard setting, dominated by Western institutions, excludes much of the developing world from authorship. The MDFO must expand the circle of governance to include Group of Twenty members, as well as ASEAN, the AU, BRICS+ and Latin American blocs. Beyond governments, participation must extend to civil society, academia and open-source consortia, reflecting the multi-stakeholder nature of digital ecosystems. This ensures that the protocols of finance reflect the diversity of

human values, not merely the preferences of the most powerful economies.

- **Open-source governance for fintech:** The code that governs money is now as consequential as the laws that govern nations. MDFO should institutionalize open-source governance, requiring transparency in the algorithms that determine credit access, compliance scoring or liquidity allocation. This would create a form of algorithmic accountability, ensuring that financial systems remain subject to public oversight rather than corporate secrecy or geopolitical manipulation.

From a Conference to a Process: The Governing Protocols Assembly

Unlike in 1944, today's reordering cannot be captured in a single summit or treaty. The digital economy evolves continuously; its governance must do the same. An MDFO should therefore take the form of a permanent multilateral process — a governing protocols assembly (GPA) for the digital age.

This assembly would function as an institutional forum where states, regulators, technologists and civil society actors collaboratively:

- **Propose, debate and ratify global digital standards,** much as the IETF manages network protocols.
- **Audit and update existing financial codebases,** ensuring compliance with evolving principles of security, fairness and inclusion.
- **Mediate digital disputes**, such as cross-border data conflicts, algorithmic biases or the misuse of programmable currencies for surveillance.
- **Benchmark transparency and inclusivity,** publishing regular digital sovereignty reports assessing how nations exercise autonomy within interoperable systems.

The GPA would not replace existing institutions but complement them, providing a flexible, adaptive governance mechanism for an economy that changes faster than policy cycles. It would embody dynamic multilateralism or governance as an ongoing negotiation rather than a one-time consensus.

A New Social Contract for Digital Globalization

At its deepest level, the MDFO is not just an institutional blueprint but also a new social contract for digital globalization, one that acknowledges the reality of technological interdependence while reclaiming the principles of justice and equality that animated the original Bretton Woods vision.

The MDFO must recognize that:

- finance is now infrastructure and therefore a public good;
- data is the new reserve asset and must be governed with the same care as money; and
- code will be the new law and must be transparent, contestable and open to oversight.

The new social contract should balance the efficiency of automation with the ethics of accountability, ensuring that the systems of mediating global trust remain rooted in democratic legitimacy.

If such a reimagining does not occur, the alternative is clear: the digital order will fragment into competing techno-financial blocs, each with its own rules, currencies and surveillance architectures. Interoperability will become conditional, trust will be politicized and innovation will be constrained by strategic rivalry.

The original Bretton Woods system was born from crisis; the system that follows it must be born from foresight. The MDFO is not a utopian idea but a pragmatic necessity, a way to anchor global finance in a shared framework of fairness before competition hardens into conflict. In this new order, the role of developing and emerging economies must evolve from compliance to co-creation. Emerging economies cannot simply integrate into BIS-led systems designed elsewhere; they must help design the next generation of global standards.

Countries such as Brazil, India, Indonesia and South Africa already possess DPI models that demonstrate scalable, inclusive alternatives to Western fintech architectures. These models should be brought to the global stage as public goods: open APIs, modular identity layers, and interoperable payment frameworks that embody values of

inclusion and trust rather than surveillance and extraction. By contributing their own architectures, these countries can reshape the finternet into a plural system, one that accommodates multiple philosophies of financial governance. This is the practical expression of interoperable sovereignty: not withdrawal from global systems but leadership within them.

Conclusion

The BIS has quietly taken on a central role in shaping the digital foundations of the global financial system. Through its innovation hubs and projects, it is not just running experiments but also helping to design the basic systems through which money, markets and data will operate in the future. What may seem like isolated technical trials is actually a coordinated effort to build a new global financial infrastructure.

This shift marks a major change in the BIS's role: from a behind-the-scenes forum for central banks to a key player setting the rules of the digital economy. Its influence comes not through laws or treaties, but through the systems and standards that others must adopt to stay connected. These technical choices that define how software is built, how data flows and how financial rules are automated will shape global finance in profound ways.

Thus, the BIS is no longer just a financial institution. Its role has evolved, helping define how countries, markets and technologies interact. In this emerging system, understanding the BIS is essential to understanding how global power and financial governance are being redefined.

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