BEYOND BORDERS: HOW DIGITAL CURRENCIES ARE RESHAPING INTERNATIONAL TRADE LAW

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ABSTRACT

The increasing adoption of digital currencies, particularly Central Bank Digital Currencies (CBDCs) and cryptocurrencies, is reshaping global trade and financial systems. While CBDCs offer state-backed stability, regulatory oversight, and improved financial inclusion, cryptocurrencies provide decentralized, borderless transactions that challenge traditional financial structures. However, the integration of digital currencies into international trade presents significant legal and regulatory challenges, including regulatory fragmentation, compliance with Anti-Money Laundering (AML) and Counter-Terrorism Financing (CFT) laws, taxation complexities, and enforceability of smart contracts.

This paper critically examines the divergent regulatory approaches adopted by major economies. China has banned most private cryptocurrencies while promoting the Digital Yuan (e-CNY) for cross-border settlements, whereas the European Union's MiCA regulation provides a structured framework for regulating crypto-assets. India, meanwhile, has taken a dual approach, advancing the Digital Rupee while imposing restrictions on private cryptocurrencies. These varying regulatory landscapes create trade barriers, compliance burdens, and jurisdictional conflicts that hinder seamless cross-border transactions.

Additionally, the paper explores the role of smart contracts and blockchain technology in automating trade agreements and proposes a Global Digital Trade and Smart Contract Framework (GDTSCF) to harmonize legal recognition, establish an interoperable multi-CBDC settlement system, and create a dedicated dispute resolution mechanism for digital transactions. The study emphasizes the need for coordinated regulatory efforts by the IMF, BIS, WTO, and UNCITRAL to ensure global consistency in digital currency trade regulations.

By addressing regulatory gaps, cybersecurity risks, and financial transparency concerns, this paper provides policy recommendations to facilitate the seamless adoption of digital currencies in international trade, balancing innovation, legal certainty, and economic stability.

Introduction

Evolution of Money and the Emergence of CBDCs

The nature of money has undergone significant transformations throughout history, continuously adapting to the evolving needs and complexities of societies. From its origins in barter systems to its modern digital forms, money has consistently evolved to facilitate trade, preserve value, and serve as a unit of account. The latest advancement in this progression is the rise of Central Bank Digital Currencies (CBDCs), which aim to modernize money for the digital era and redefine the financial ecosystem.

Understanding Central Bank Digital Currencies (CBDCs)

Picture a world where physical cash becomes obsolete, replaced entirely by digital money issued and regulated by central banks. This concept is no longer a distant possibility but a reality that many central banks worldwide are actively exploring through the development of CBDCs.

CBDCs function as digital counterparts of a nation's official currency, carrying the credibility and security of central bank backing. Unlike cryptocurrencies, which operate on decentralized and private networks, CBDCs are fully regulated and fall under government control. Designed to complement existing monetary systems, they offer the same legitimacy and reliability as traditional cash but in a digital format.

CBDCs are primarily classified into two categories: retail and wholesale. Retail CBDCs cater to individuals and businesses, enabling seamless digital transactions using central bank money. Wholesale CBDCs, in contrast, serve financial institutions, facilitating large-scale settlements within the banking sector with greater efficiency.

So, why has the concept of CBDCs gained such prominence? With cash usage declining and digital payment systems becoming the norm, central banks must adapt to maintain their role in monetary policy and financial stability. By introducing CBDCs, they can offer a direct and secure digital alternative, reducing reliance on intermediaries such as commercial banks and payment processors.

Beyond convenience, CBDCs present several advantages. They can lower the costs associated

with printing and managing physical currency while fostering financial inclusion. In many regions where traditional banking infrastructure is limited, a state-backed digital currency could empower the unbanked population, enabling transactions through mobile devices without the need for a conventional bank account.

However, CBDCs also pose challenges. Concerns surrounding privacy, cybersecurity threats, and potential disruptions to the existing banking system are key issues that central banks must address. Despite these hurdles, the global push toward CBDCs is well underway, with countries such as China and Sweden taking the lead in their implementation.

1.3 Key Differences Between CBDCs and Cryptocurrencies

The emergence of digital currencies has fundamentally altered the landscape of financial transactions, prompting debates over their legal recognition, regulatory frameworks, and implications for international trade. Among these, Central Bank Digital Currencies (CBDCs) and cryptocurrencies have emerged as two distinct financial instruments, each with its own governance structure, economic role, and legal challenges. While both exist in digital form, they diverge significantly in their centralization, regulatory oversight, volatility, and role in financial markets. As digital currencies begin to shape cross-border trade, understanding their differences becomes crucial in evaluating the need for legal frameworks that can balance innovation with economic stability.

One of the most fundamental distinctions between CBDCs and cryptocurrencies lies in their governance model. CBDCs are state-backed digital currencies issued and controlled by central banks, ensuring that they remain under the direct purview of monetary authorities. Governments retain full discretion over their creation, distribution, and policies governing their use, allowing for direct intervention in monetary policy.[1] For example, China's Digital Yuan (e-CNY) is a centrally controlled currency that enables the People's Bank of China (PBOC) to track transactions and regulate capital flows.[2] This level of control contrasts sharply with cryptocurrencies, which operate on decentralized networks that are neither issued nor regulated by any central authority.[3] Cryptocurrencies such as Bitcoin and Ethereum are based on

[1] Douglas W. Arner, Raphael Auer & Jon Frost, *Stablecoins: Risks, Potential & Regulation*, BIS Working Papers No. 905 (Bank for Int'l Settlements 2020).
[2] Barry Naughton, *China's Digital Currency: A Strategic Perspective*, 34(3) Asia Pol'y 5 (2022).
[3] Rosa M. Lastra & Jason Grant Allen, *Virtual Currencies in the Eurosystem: Challenges Ahead*, 19 ERA F. 379 (2018).

blockchain technology, where transactions are verified by a network of independent nodes rather than a centralized entity. This decentralized nature is at the core of the crypto movement, aiming to provide an alternative to traditional banking and governmental control.

The divergence in governance structures leads to another significant difference—legal recognition and regulatory compliance. CBDCs are generally recognized as legal tender, ensuring that they are backed by the full faith of the issuing government. They are subject to stringent financial regulations, including anti-money laundering (AML) laws, counter-terrorism financing (CFT) protocols, and Know Your Customer (KYC) requirements. In contrast, the legal status of cryptocurrencies varies widely across jurisdictions. Some countries, such as El Salvador, have embraced Bitcoin as legal tender, incorporating it into their national payment systems, while others, such as China and India, have placed severe restrictions on private cryptocurrencies due to concerns over financial instability and illicit transactions. [4]The European Union's MiCA (Markets in Crypto-Assets) Regulation, which came into effect in 2023, represents a significant step toward creating a unified regulatory framework for digital assets, mandating compliance measures for cryptocurrency service providers to enhance transparency and reduce financial risks.[5] However, the fragmented approach to cryptocurrency regulation globally continues to create legal uncertainty for businesses and traders who engage in international transactions using digital assets.

Another major distinction between CBDCs and cryptocurrencies lies in their stability and volatility. CBDCs are pegged to the national currency, ensuring they retain a stable value equivalent to their fiat counterpart. This stability is essential for maintaining economic order and facilitating trade without the risk of sudden value fluctuations. Cryptocurrencies, on the other hand, are notorious for their high volatility, which can create significant risks in trade and financial markets. Bitcoin, for example, experienced a dramatic price surge from $10,000 in 2020 to $68,000 in 2021, followed by a sharp decline to $16,000 in 2022.[6] This unpredictability makes cryptocurrencies less reliable for international trade, as businesses cannot afford to expose their transactions to such extreme fluctuations. Some attempts to mitigate this volatility have emerged in the form of stablecoins—digital assets pegged to fiat currencies or

[4] Douglas W. Arner, Raphael Auer & Jon Frost, *Stablecoins: Risks, Potential & Regulation*, BIS Working Papers No. 905 (2020)..
[5] Douglas W. Arner, Raphael Auer & Jon Frost, *Stablecoins: Risks, Potential & Regulation*, BIS Working Papers No. 905 (2020)..
[6] Rosa M. Lastra & Jason Grant Allen, *Virtual Currencies in the Eurosystem: Challenges Ahead*, 19 ERA F. 379 (2018).

commodities. However, stablecoins still lack the regulatory backing that CBDCs enjoy, leaving them vulnerable to legal and financial uncertainties.

The regulatory implications of CBDCs and cryptocurrencies in global trade are also markedly different. CBDCs, being fully integrated into national monetary policies, are governed by established trade laws and international financial regulations. They align with traditional banking systems and provide governments with a direct mechanism to regulate and facilitate cross-border transactions. Cryptocurrencies, however, often bypass traditional financial intermediaries, creating challenges for AML enforcement and tax compliance in global trade.[7] The pseudonymous nature of cryptocurrency transactions has raised concerns about their potential use in money laundering, tax evasion, and even sanctions avoidance. For instance, countries such as Russia and Iran have explored the use of cryptocurrencies to bypass Western financial sanctions, creating diplomatic tensions and highlighting the urgent need for international regulatory cooperation.[8]

As digital currencies continue to shape the future of finance, the contrast between CBDCs and cryptocurrencies becomes a pivotal issue in legal and economic policymaking. While CBDCs represent a government-controlled alternative that integrates seamlessly with existing regulatory structures, cryptocurrencies challenge the status quo by offering a decentralized financial ecosystem free from central authority oversight. These differences present unique challenges and opportunities in international trade, requiring governments, central banks, and global financial institutions to craft legal frameworks that address regulatory gaps while ensuring financial stability. The next section delves into these legal challenges, trade implications, and policy recommendations, providing a comprehensive analysis of the evolving role of digital currencies in the global economy.

2. Role of Digital Currencies in Global Trade

The increasing digitization of financial systems has paved the way for digital currencies to play a transformative role in international trade. With cross-border transactions often hindered by inefficiencies, high costs, and regulatory bottlenecks, digital currencies present an opportunity

[7] European Commission, *Regulation on Markets in Crypto-Assets (MiCA)* (2023), https://finance.ec.europa.eu (last visited Mar. 5, 2025).
[8] European Commission, *Regulation on Markets in Crypto-Assets (MiCA)* (2023), https://finance.ec.europa.eu (last visited Mar. 5, 2025).

to create a faster, more transparent, and cost-effective global trading environment. Both Central Bank Digital Currencies (CBDCs) and cryptocurrencies offer unique advantages and challenges in facilitating trade, ranging from streamlined payment settlements to decentralized financial autonomy. However, their integration into global trade raises significant questions about regulation, stability, and legal enforceability, requiring a critical examination of their impact on international commerce.

2.1 CBDCs As A Trade Facilitator

CBDCs have the potential to revolutionize cross-border payments by offering a state-backed, digital alternative to traditional banking systems. One of the primary challenges in international trade is the reliance on correspondent banking networks, which involve multiple intermediaries, leading to delays, high transaction costs, and foreign exchange inefficiencies.[9] CBDCs can bypass these intermediaries, allowing for direct, real-time transactions between trading partners, significantly reducing the settlement time and operational costs associated with global trade.

A key advantage of CBDCs is their stability and government-backed legitimacy, ensuring they remain free from the volatility and speculative risks associated with cryptocurrencies.[10] For example, China's Digital Yuan (e-CNY) has been integrated into its Belt and Road Initiative (BRI) to facilitate cross-border trade and investment while maintaining full regulatory oversight.[11] Similarly, Project mBridge, a joint initiative by the Bank for International Settlements (BIS) and central banks of China, Thailand, Hong Kong, and the UAE, is exploring how CBDCs can be used for instant cross-border transactions without relying on the traditional SWIFT network.[12]

Beyond transaction efficiency, CBDCs can also play a critical role in financial inclusion, particularly in emerging economies where access to banking services remains limited. By allowing businesses and individuals to engage in digital trade using government-backed digital wallets, CBDCs can provide a secure, low-cost alternative for those previously excluded from

[9] Int\'l Monetary Fund, *CBDCs & Cross-Border Payments: Opportunities & Risks* (2022), https://www.imf.org (last visited Mar. 5, 2025).
[10] Int\'l Monetary Fund, *CBDCs & Cross-Border Payments: Opportunities & Risks* (2022), https://www.imf.org (last visited Mar. 5, 2025).
[11] Barry Naughton, *China's Digital Currency: A Strategic Perspective*, 34(3) Asia Pol'y 5 (2022).
[12] Bank for International Settlements, *Project mBridge: Building a Multi-CBDC Platform for Cross-Border Payments* (Oct. 2023), https://www.bis.org (last visited Mar. 5, 2025).

international financial markets. Countries such as Nigeria, with its eNaira, and the Bahamas, with its Sand Dollar, have adopted CBDCs to bridge the gap between digital finance and financial accessibility, offering a model for how state-backed digital currencies can enhance global trade participation.[13]

Despite these advantages, the adoption of CBDCs in cross-border trade is not without challenges. Regulatory fragmentation, interoperability concerns, and privacy issues remain key obstacles in their widespread adoption. Many central banks remain cautious about currency sovereignty, fearing that a foreign CBDC—such as the Digital Yuan—could undermine national monetary control if widely adopted in international trade. As a result, global regulatory coordination is essential to ensure that CBDCs function as trade facilitators rather than economic disruptors.

2.2 Cryptocurrencies in International Transactions

While CBDCs offer centralized efficiency, cryptocurrencies provide an entirely different trade model based on decentralization and financial autonomy. Cryptocurrencies such as Bitcoin and Ethereum have gained traction in cross-border trade, primarily due to their ability to bypass traditional financial systems and offer direct, peer-to-peer transactions. This is particularly valuable in regions with currency restrictions, banking sanctions, or inefficient payment infrastructures, where cryptocurrencies serve as an alternative financial instrument for global commerce.[14]

One of the key advantages of cryptocurrencies in international trade is their speed and accessibility. Unlike traditional banking systems, which may take days to clear international payments, cryptocurrency transactions can be completed within minutes, regardless of location.[15] This is particularly useful for small and medium-sized enterprises (SMEs) that struggle with high fees and delays in international remittances and supplier payments. Moreover, stablecoins such as USDT (Tether) and USDC (USD Coin) offer a way to reduce the volatility associated with traditional cryptocurrencies, providing businesses with a stable

[13] Bank for International Settlements, *Project mBridge: Building a Multi-CBDC Platform for Cross-Border Payments* (Oct. 2023), https://www.bis.org (last visited Mar. 5, 2025).
[14] Int\'l Monetary Fund, *CBDCs & Cross-Border Payments: Opportunities & Risks* (2022), https://www.imf.org (last visited Mar. 5, 2025).
[15] Kevin P. Gallagher, *The Political Economy of CBDCs: The Global South Perspective*, 14(1) Glob. Pol'y 87 (2023).

digital asset pegged to fiat currency for trade transactions.[16]

However, the use of cryptocurrencies in trade is not without significant risks. The extreme price volatility of assets such as Bitcoin creates uncertainty in transactions, as the value of payments can fluctuate dramatically within short periods. For instance, a company that accepts Bitcoin for a $100,000 trade payment today could see its value drop to $80,000 within days due to market instability.[17] Additionally, cryptocurrencies operate outside of traditional regulatory frameworks, raising concerns about money laundering, tax evasion, and fraud. Countries such as Russia and Iran have explored using cryptocurrencies to bypass international sanctions, highlighting the geopolitical and legal risks associated with their unregulated use in trade.[18]

Regulatory uncertainty remains a major barrier to cryptocurrency adoption in global commerce. While some jurisdictions, such as El Salvador, have legalized Bitcoin as a form of payment, others, including China and India, have imposed strict restrictions on crypto transactions due to concerns over financial stability and capital flight[19]. The European Union's MiCA regulation represents a step toward regulatory clarity, aiming to establish uniform rules for cryptocurrency transactions and service providers across Europe[20]. However, a lack of global regulatory consensus continues to create challenges for businesses seeking to use cryptocurrencies in international trade.

2.3 Smart Contracts and Trade Automation

One of the most transformative applications of digital currencies in trade is the use of blockchain-based smart contracts to automate trade agreements and reduce transactional friction. Smart contracts are self-executing contracts with terms directly written into code, enabling parties to automatically execute trade agreements, release payments, and verify compliance without intermediaries. By leveraging blockchain technology, smart contracts offer transparency, security, and efficiency in trade settlements, minimizing the need for manual

[16] Caitlin Long, 'The Future of Crypto in Trade Finance: Can Bitcoin Replace SWIFT?' (2023) Stan. J. Blockchain L. & Pol\'y 6(2), 121.
[17] IMF, 'The Rise of Digital Money: Implications for Financial Stability & Trade' (2021) https://www.imf.org accessed 5 March 2025.
[18] Fin. Stability Bd., 'Regulation, Supervision & Oversight of Global Stablecoin Arrangements' (October 2022) <https://www.fsb.org> accessed 5 March 2025.
[19] Brett Scott, 'The War on Cash & the Rise of Cryptocurrencies' (2023) Econ. Aff. 43(4), 245.
[20] uropean Commission, 'Regulation on Markets in Crypto-Assets (MiCA)' (2023) https://finance.ec.europa.eu accessed 5 March 2025.

processing and third-party oversight.[21]

The use of smart contracts in global trade has significant implications for reducing disputes and enhancing contractual enforcement.[22] Traditional trade agreements often involve lengthy verification processes, paperwork, and legal uncertainties, leading to delays and increased transaction costs. With smart contracts, parties can automate compliance verification, ensuring that contractual terms are met before funds are released. This is particularly valuable in international supply chain finance, where payments can be automatically triggered upon the delivery of goods, eliminating delays caused by manual document processing.

However, despite their technological potential, the legal enforceability of smart contracts in international trade remains a critical issue. Most legal systems still operate under traditional contract laws, which require written agreements, identifiable parties, and jurisdictional oversight. Since smart contracts operate autonomously on blockchain networks, questions arise regarding which jurisdiction governs a dispute, how breaches are handled, and whether automated agreements comply with international trade laws. For example, in the case of cross-border transactions involving multiple legal frameworks, the lack of clarity on how courts interpret and enforce smart contracts poses a significant legal challenge.[23]

Several countries and organizations have begun addressing these concerns by developing regulatory frameworks for smart contract enforceability. The United Kingdom's Law Commission has proposed legal reforms to recognize smart contracts as legally binding agreements under English law. Similarly, the United Nations Commission on International Trade Law (UNCITRAL) has explored guidelines for electronic contracts in international commerce.[24] Despite these efforts, widespread legal adoption of smart contracts remains in its early stages, requiring greater coordination between regulators, financial institutions, and blockchain developers.

As digital currencies continue to influence global trade, smart contracts represent a powerful tool for automating transactions and reducing trade inefficiencies.[25] However, their full

[21] Kevin Werbach, 'The Blockchain & the New Architecture of Trust' (MIT Press 2020).
[22] Kevin Werbach, 'The Blockchain & the New Architecture of Trust' (MIT Press 2020).
[23] Clément Perarnaud & Maxime Engel, 'Smart Contracts in International Trade Law: A Path to Legal Certainty?' (2023) Int\'l Bus. L.J. 31(2), 79.
[24] UNCITRAL (UNCITRAL), 'Electronic Contracts in Cross-Border Commerce' (2023) <https://uncitral.un.org> accessed 5 March 2025.
[25] UK Law Comm\'n, 'Smart Legal Contracts: Advice to Government' (November 2021)

integration into international trade requires legal clarity, standardization, and widespread industry adoption. Ensuring that blockchain-based trade agreements align with existing legal structures will be crucial in unlocking their full potential in cross-border commerce.

The role of digital currencies in global trade is expanding rapidly, offering both opportunities and challenges in cross-border transactions, financial inclusion, and trade automation. While CBDCs present a stable and government-backed solution for trade settlements, cryptocurrencies provide an alternative model of decentralized finance with unique benefits and risks. Additionally, smart contracts offer a glimpse into the future of automated trade agreements, though their legal enforceability remains a key issue.[26] As governments, financial institutions, and trade organizations grapple with the implications of digital currencies, developing harmonized regulatory frameworks and technological infrastructure will be essential in ensuring a smooth transition toward a digital trade ecosystem.

3. Legal and Regulatory Challenges in Digital Currency Adoption for Trade

As digital currencies increasingly shape global trade, they bring forth a complex web of legal and regulatory challenges that affect their adoption and legitimacy. While Central Bank Digital Currencies (CBDCs) and cryptocurrencies offer new opportunities for financial efficiency, transparency, and inclusion, they also create significant hurdles related to jurisdictional divergence, compliance with international trade laws, and cybersecurity risks.[27] The absence of a uniform global regulatory framework has led to fragmented policies, inconsistent enforcement, and legal uncertainty, complicating the role of digital currencies in cross-border trade transactions. Understanding these challenges is crucial for policymakers, businesses, and financial institutions aiming to navigate the evolving landscape of digital finance.

3.1 Regulatory Divergence Across Jurisdictions

One of the most pressing challenges in the adoption of digital currencies for trade is the lack of regulatory harmonization across jurisdictions. While some countries have embraced CBDCs and certain forms of digital assets, others have imposed strict prohibitions or taken a cautious

<https://www.lawcom.gov.uk> accessed 5 March 2025.

[26] UK Law Comm\'n, 'Smart Legal Contracts: Advice to Government' (November 2021) <https://www.lawcom.gov.uk> accessed 5 March 2025.

[27] Arner DW, Auer R, & Frost J, 'Stablecoins: Risks, Potential & Regulation' (2020) **BIS Working Papers** No 905.

approach due to concerns over financial stability, capital control, and consumer protection.[28] This regulatory divergence creates trade barriers, compliance risks, and inefficiencies, making it difficult for businesses to conduct seamless cross-border transactions using digital currencies.

A striking example of regulatory inconsistency is China's dual approach to digital currencies. While China has banned most private cryptocurrencies, citing concerns over financial instability and illicit transactions, it has simultaneously accelerated the adoption of its state-controlled Digital Yuan (e-CNY) as a means of modernizing payments and facilitating cross-border trade under its Belt and Road Initiative (BRI).[29] In contrast, the United States has taken a regulatory enforcement approach, with agencies such as the Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC) imposing strict oversight on crypto exchanges and digital asset offerings. [30]Meanwhile, the European Union's MiCA (Markets in Crypto-Assets) framework seeks to create a standardized regulatory environment for digital assets, requiring service providers to comply with licensing, consumer protection, and anti-money laundering (AML) requirements.[31]

This disparity in regulatory approaches complicates international trade, as businesses operating across multiple jurisdictions must navigate conflicting laws governing the use of digital currencies.[32] For example, a European company using stablecoins for trade settlements with Chinese suppliers may face difficulties due to China's restrictions on private digital assets. Similarly, firms dealing with U.S. markets must ensure compliance with securities laws when using certain crypto-based payment mechanisms.[33] As long as governments fail to adopt a cohesive global framework, businesses will continue to struggle with legal uncertainty and operational challenges in integrating digital currencies into trade finance.

3.2 Compliance with International Trade and Financial Laws

The integration of digital currencies into global trade also raises critical compliance challenges

[28] Dan Awrey, 'The European Union's Regulatory Approach to Cryptocurrencies: MiCA & Beyond' (2023) J. Fin. Reg. 9(1), 67.
[29] SEC, 'Crypto Assets & Securities Regulation' (SEC, 2023) <https://www.sec.gov> accessed 6 March 2025.
[30] Commodity Futures Trading Comm\'n, 'Digital Assets: Emerging Regulatory Frameworks' (2023) <https://www.cftc.gov> accessed 6 March 2025.
[31] World Econ. Forum, 'The Role of Blockchain in International Trade' (2022) <https://www.weforum.org> accessed 5 March 2025.
[32] World Econ. Forum, 'The Role of Blockchain in International Trade' (2022) <https://www.weforum.org> accessed 5 March 2025.
[33] Commodity Futures Trading Comm\'n, 'Digital Assets: Emerging Regulatory Frameworks' (2023) <https://www.cftc.gov> accessed 6 March 2025.

related to anti-money laundering (AML), counter-terrorism financing (CFT), and taxation. Traditional financial systems rely on established banking networks, regulatory reporting requirements, and transaction monitoring mechanisms to track financial flows and prevent illicit activities.[34] However, the pseudonymous nature of cryptocurrencies and the direct peer-to-peer nature of many digital transactions pose significant risks in enforcing these compliance measures.

One of the primary concerns surrounding digital currencies in trade is their potential use in money laundering and terrorism financing. Cryptocurrencies such as Bitcoin and Monero have been linked to illicit financial activities, as they allow users to transfer large sums of money across borders without intermediaries or regulatory oversight.[35] This lack of transparency makes it challenging for authorities to detect, investigate, and prosecute financial crimes related to digital asset transactions. The Financial Action Task Force (FATF) has introduced the "Travel Rule," requiring crypto service providers to share transaction information to improve transparency.[36] However, many jurisdictions lack enforcement mechanisms, making it easy for bad actors to exploit regulatory loopholes in crypto-friendly nations.

Another major compliance issue is taxation. Digital currencies complicate cross-border tax enforcement, as crypto transactions are often difficult to trace and classify under traditional tax laws. Unlike fiat currency transactions that pass through regulated banking systems, crypto payments can be conducted through decentralized exchanges, private wallets, and even peer-to-peer transfers without centralized oversight. [37]Governments struggle with establishing accurate tax reporting mechanisms, leading to concerns over tax evasion and revenue loss. For example, the United States' Internal Revenue Service (IRS) has tightened cryptocurrency reporting requirements, mandating that businesses and individuals disclose their digital asset holdings.[38] However, in many countries, tax frameworks remain outdated, failing to address the complexities of crypto-based trade settlements.

[34] Financial Action Task Force (FATF), 'Guidance on the Risk-Based Approach to Virtual Assets & Virtual Asset Service Providers' (October 2021) <https://www.fatf-gafi.org> accessed 6 March 2025.
[35] IMF, 'The Rise of Digital Money: Implications for Financial Stability & Trade' (2021) <https://www.imf.org> accessed 6 March 2025.
[36] IRS, 'Taxation of Virtual Currencies: Updated Guidelines' (IRS, 2023) <https://www.irs.gov> accessed 6 March 2025.
[37] IRS, 'Taxation of Virtual Currencies: Updated Guidelines' (IRS, 2023) <https://www.irs.gov> accessed 6 March 2025.
[38] David Gerard, 'Regulatory Arbitrage in Crypto Finance: A Threat to Global Compliance?' (2023) Harvard Law Review 136(3), 214.

Beyond taxation and AML risks, digital currencies also raise questions about contractual enforcement and consumer protection in trade transactions. Since many trade agreements are governed by traditional financial laws, integrating blockchain-based digital assets into contractual obligations remains legally ambiguous.[39] If a supplier in one country accepts Bitcoin for a trade deal but later disputes the transaction's validity, determining which legal jurisdiction governs the dispute becomes a significant challenge. Without clear international agreements on how digital currency-based contracts are interpreted and enforced, businesses will continue to face uncertainty in their legal rights and obligations when using digital assets for trade.

3.3 Cybersecurity and Fraud Risks

Alongside regulatory and compliance challenges, cybersecurity threats pose one of the greatest risks to digital currency adoption in global trade. Unlike traditional banking systems, where transactions are processed through regulated financial institutions with security protocols, digital currency transactions occur in a decentralized, digital environment, making them highly vulnerable to hacking, fraud, and cyberattacks.[40] The rapid digitization of financial systems has opened new avenues for cybercriminals, targeting businesses that engage in crypto-based trade settlements.

One of the most alarming threats in digital currency trade transactions is trade-based money laundering (TBML). Criminal organizations use crypto payments to manipulate trade invoices, misrepresent transaction values, and move illicit funds across borders without detection.[41] This is particularly problematic in industries such as international shipping, luxury goods, and supply chain finance, where digital assets can be used to obscure payment trails and evade regulatory scrutiny. The use of privacy-focused cryptocurrencies such as Monero and Zcash further complicates law enforcement efforts, as these digital assets allow for anonymous transactions, making it nearly impossible to trace illicit funds.[42]

Another major cybersecurity risk involves ransomware attacks. In recent years, hackers have

[39] David Gerard, 'Regulatory Arbitrage in Crypto Finance: A Threat to Global Compliance?' (2023) Harvard Law Review 136(3), 214.
[40] World Econ. Forum, 'Cybersecurity Risks in the Digital Financial Ecosystem' (2022) <https://www.weforum.org> accessed 6 March 2025.
[41] Kevin Werbach, 'The Blockchain & the New Architecture of Trust' (MIT Press 2020).
[42] Kevin Werbach, 'The Blockchain & the New Architecture of Trust' (MIT Press 2020).

increasingly targeted multinational corporations and financial institutions, demanding ransom payments in cryptocurrencies to avoid traceability.[43] High-profile ransomware incidents, such as the Colonial Pipeline attack in the United States, have demonstrated how cybercriminals exploit the decentralized nature of digital currencies to launder money and evade law enforcement.[44] As ransomware payments often occur in Bitcoin or other cryptocurrencies, businesses engaged in cross-border digital currency transactions face heightened risks of financial exposure.

Beyond criminal threats, the vulnerability of digital currency infrastructure itself poses a significant risk to global trade stability. Hacking incidents on cryptocurrency exchanges, smart contract vulnerabilities, and phishing attacks on digital wallets have resulted in billions of dollars in financial losses. For example, in 2022, the Ronin Network hack resulted in the theft of over $600 million worth of digital assets, raising concerns about security weaknesses in blockchain-based financial systems.[45] As businesses increasingly integrate digital currencies into trade, ensuring robust cybersecurity protections, regulatory safeguards, and technological resilience will be essential in mitigating financial risks.[46]

The adoption of digital currencies in global trade presents unparalleled opportunities for efficiency, speed, and financial inclusion, yet it also raises significant legal and regulatory challenges. The lack of a cohesive global regulatory framework, the complexity of AML and tax compliance, and the growing cybersecurity threats highlight the urgent need for stronger international cooperation, clearer legal definitions, and robust enforcement mechanisms. While CBDCs provide a structured and regulated pathway for digital trade, the decentralized nature of cryptocurrencies continues to challenge existing financial systems and trade laws. As the world moves toward a digital trade ecosystem, governments, financial institutions, and businesses must work together to develop solutions that balance innovation with economic security, ensuring that digital currencies serve as a tool for trade facilitation rather than financial disruption.

[43] Fin. Stability Bd., 'The Role of Cryptocurrencies in Trade-Based Money Laundering' (2023) <https://www.fsb.org> accessed 6 March 2025.
[44] Fin. Stability Bd., 'The Role of Cryptocurrencies in Trade-Based Money Laundering' (2023) <https://www.fsb.org> accessed 6 March 2025.
[45] BBC News, 'Ronin Network Hack: How $600 Million Was Stolen in a Crypto Heist' (31 March 2022) <https://www.bbc.com/news> accessed 6 March 2025.
[46] Kevin Werbach, 'The Blockchain & the New Architecture of Trust' (MIT Press 2020).

4. Comparative Analysis of Digital Currency Regulations in Trade

As digital currencies gain prominence in global trade, countries have adopted divergent regulatory approaches, reflecting their economic priorities, financial stability concerns, and geopolitical strategies. While some nations, such as China, have embraced state-controlled digital currencies (CBDCs) to maintain financial sovereignty and control over trade transactions, others, such as the European Union, have opted for a regulatory framework that seeks to balance innovation with risk management.[47] Meanwhile, India's approach demonstrates a hybrid model, promoting a centralized CBDC while imposing restrictions on private cryptocurrencies. This section examines how these three major economies have developed distinct legal frameworks for digital currencies and their impact on trade and financial governance.

4.1 China's e-Yuan: A Model for State-Controlled Digital Trade?

China has taken a decisive approach toward digital currency regulation by developing a state-backed CBDC, the Digital Yuan (e-CNY), while simultaneously banning most private cryptocurrencies. The People's Bank of China (PBOC) has positioned the e-Yuan as a strategic financial tool to enhance monetary control, streamline domestic transactions, and facilitate cross-border trade under state oversight. By integrating digital currency into its economy, China aims to reduce reliance on the U.S. dollar in international trade settlements, a move that aligns with its broader objective of reshaping the global financial order.[48]

Domestically, the e-Yuan has been introduced through pilot programs across major cities, with millions of individuals and businesses adopting it for everyday transactions. Unlike decentralized cryptocurrencies, the e-Yuan operates on a permissioned blockchain controlled by the central bank, ensuring state surveillance over financial transactions.[49] This has enabled China to combat tax evasion, monitor illicit financial flows, and prevent capital flight, reinforcing its stringent capital control policies.

Beyond its domestic applications, China has also sought to integrate the Digital Yuan into

[47] Rosa M Lastra & Jason Grant Allen, 'The Regulation of Digital Currencies: Comparative Perspectives' (2023) Cambridge J. Int\'l L. 14(2), 98.
[48] Barry Naughton, 'China's Digital Currency: A Strategic Perspective' (2022) Asia Policy 34(3), 5.
[49] Kevin P Gallagher, 'China's Digital Yuan & the Belt & Road Initiative: A Shift in Global Trade Power?' (2023) Global Policy 14(1), 87.

cross-border trade, particularly through its Belt and Road Initiative (BRI).[50] By encouraging partner countries to settle trade transactions in e-Yuan instead of the U.S. dollar, China is attempting to expand its economic influence while reducing exposure to Western financial sanctions. Additionally, projects such as mBridge, a multi-CBDC platform developed in collaboration with Hong Kong, Thailand, and the UAE, aim to facilitate instant cross-border trade settlements using digital currencies, bypassing traditional banking intermediaries.[51]

However, China's strict control over the e-Yuan has raised concerns about financial privacy and economic coercion.[52] Unlike decentralized cryptocurrencies, where transactions are validated through distributed networks, the e-Yuan provides the Chinese government with real-time transaction tracking capabilities, raising fears of financial surveillance and state intervention in economic activities. [53]Moreover, while China's ban on private cryptocurrencies aims to eliminate financial risks, it has also driven crypto-related innovation and investment out of the country, benefiting jurisdictions with more flexible regulatory environments.

4.2 The EU's MiCA Regulation: A Balanced Approach?

Unlike China's state-controlled digital currency model, the European Union has opted for a comprehensive regulatory framework for digital assets, aiming to balance financial innovation with consumer protection and market stability.[54] The Markets in Crypto-Assets (MiCA) Regulation, which came into effect in 2023, represents one of the world's most structured legal frameworks for digital currencies, providing clarity and oversight for crypto-assets and service providers operating within the EU.[55]

MiCA establishes a clear legal distinction between different categories of digital assets, including utility tokens, stablecoins, and asset-referenced tokens, ensuring that each class is subject to appropriate regulatory oversight.[56] A key focus of the framework is enhancing

[50] Josh Lipsky & Ananya Kumar, 'China's CBDC Experiment: What It Means for Global Trade & the Dollar's Dominance' (2023) Atlantic Council GeoEconomics Center.
[51] Barry Naughton, 'China's Digital Currency: A Strategic Perspective' (2022) Asia Policy 34(3), 5.
[52] Kevin P Gallagher, 'China's Digital Yuan & the Belt & Road Initiative: A Shift in Global Trade Power?' (2023) Global Policy 14(1), 87.
[53] Rosa M Lastra & Jason Grant Allen, 'The Regulation of Digital Currencies: Comparative Perspectives' (2023) Cambridge J. Int\'l L. 14(2), 98.
[54] Dan Awrey, 'The European Union's Regulatory Approach to Cryptocurrencies: MiCA & Beyond' (2023) J. Fin. Reg. 9(1), 67.
[55] European Commission, 'Regulation on Markets in Crypto-Assets (MiCA)' (2023) <https://finance.ec.europa.eu> accessed 6 March 2025.
[56] Caitlin Long, 'MiCA & the Future of Stablecoin Regulation in Cross-Border Trade' (2023) Stan. J. Blockchain L. & Pol\'y 6(2), 121.

consumer protection by mandating transparency and disclosure requirements for crypto issuers and exchanges.[57] Unlike China's outright ban on private cryptocurrencies, the EU's approach recognizes the role of crypto-assets in trade and finance while imposing regulatory safeguards to mitigate risks such as fraud, money laundering, and financial instability.

A crucial aspect of MiCA's regulatory approach is its oversight of stablecoins, which are increasingly used for cross-border trade settlements and remittances.[58] Under the framework, stablecoin issuers are required to maintain sufficient reserves to back their digital assets, ensuring that they do not threaten the stability of fiat currencies.[59] This regulation is particularly relevant given the rise of USDT (Tether) and USDC (USD Coin) in international trade, as businesses increasingly opt for stablecoins to avoid exchange rate fluctuations and speed up transactions.

MiCA also sets operational and licensing requirements for crypto service providers, including exchanges, wallets, and trading platforms, ensuring that entities operating within the EU comply with Anti-Money Laundering (AML) and Counter-Terrorism Financing (CFT) regulations. This approach fosters market stability while encouraging investment in digital finance, making the EU an attractive hub for blockchain-based trade applications.

However, while MiCA brings much-needed legal certainty to the digital asset industry, it also faces challenges in enforcement across 27 member states, each with its own financial regulatory landscape.[60] Moreover, as digital finance continues to evolve, questions remain about how the EU will adapt its legal framework to emerging trends such as decentralized finance (DeFi) and smart contract-based trade settlements. Nonetheless, MiCA stands out as a model for jurisdictions seeking to regulate digital currencies without stifling innovation.

4.3 India's Digital Rupee and Crypto Regulation

India has adopted a dual approach to digital currencies, advancing its own CBDC (the Digital Rupee) while imposing stringent regulations on private cryptocurrencies. This strategy reflects

[57] Dan Awrey, 'The European Union's Regulatory Approach to Cryptocurrencies: MiCA & Beyond' (2023) J. Fin. Reg. 9(1), 67.
[58] European Banking Authority, 'MiCA Guidelines: Implementation Challenges & Cross-Border Implications' (2023) https://www.eba.europa.eu accessed 6 March 2025.
[59] Caitlin Long, 'MiCA & the Future of Stablecoin Regulation in Cross-Border Trade' (2023) Stan. J. Blockchain L. & Pol\'y 6(2), 121.
[60] European Banking Authority, 'MiCA Guidelines: Implementation Challenges & Cross-Border Implications' (2023) <https://www.eba.europa.eu> accessed 6 March 2025.

India's broader concerns about financial stability, investor protection, and the potential misuse of digital assets for illicit activities.[61] By simultaneously promoting a state-controlled digital currency and limiting private-sector alternatives, India seeks to modernize its financial infrastructure while maintaining regulatory oversight.

The Reserve Bank of India (RBI) launched pilot programs for the Digital Rupee in 2022, focusing on both wholesale and retail applications. The primary objective of India's CBDC initiative is to enhance payment efficiency, reduce dependency on physical cash, and facilitate cross-border transactions with greater transparency.[62] Unlike cryptocurrencies, which operate on decentralized networks, the Digital Rupee is fully controlled by the central bank, ensuring that it aligns with monetary policy objectives and financial stability measures.

At the same time, India has taken a restrictive stance on private cryptocurrencies, citing concerns about tax evasion, financial fraud, and capital flight. The Indian government introduced a 30% tax on crypto gains and a 1% tax deducted at source (TDS) on all crypto transactions, significantly discouraging crypto trading and investment.[63] Furthermore, the RBI has repeatedly called for an outright ban on cryptocurrencies, arguing that they pose a systemic risk to the economy.[64] However, despite regulatory pressures, India remains one of the largest cryptocurrency markets, with millions of users engaging in crypto-based remittances and investments.

India's approach to digital currency regulation has implications for international trade, particularly in how businesses navigate the restrictions on private crypto transactions while exploring the potential of CBDC-based trade settlements.[65] Unlike China, which has fully integrated the Digital Yuan into its trade infrastructure, India is still in the early stages of developing cross-border applications for the Digital Rupee. However, as India continues to expand its fintech ecosystem, there is potential for greater interoperability between its CBDC

[61] Varun Jaitly, 'India's Dual Approach to Digital Currencies: A Case for Regulatory Reform' (2023) NALSAR L. Rev. 15(2), 143.
[62] Varun Jaitly, 'India's Dual Approach to Digital Currencies: A Case for Regulatory Reform' (2023) NALSAR L. Rev. 15(2), 143.
[63] Ministry of Finance, 'Digital Assets & Taxation: A Policy Brief' (2023) <https://www.finmin.nic.in> accessed 6 March 2025.
[64] Reserve Bank of India, 'Concept Note on Central Bank Digital Currency' (October 2022) <https://rbi.org.in> accessed 6 March 2025.
[65] Ministry of Finance, 'Digital Assets & Taxation: A Policy Brief' (2023) https://www.finmin.nic.in accessed 6 March 2025.

and global digital payment networks, provided that regulatory challenges are addressed.

Despite its cautious approach to private cryptocurrencies, India's regulatory strategy reflects a broader trend among emerging economies—leveraging CBDCs to enhance financial inclusion while imposing stricter controls on decentralized digital assets.[66] As the RBI continues to refine its digital currency policies, India's regulatory framework for digital finance will play a crucial role in shaping the future of crypto and CBDC adoption in global trade.[67]

The regulatory landscape for digital currencies in global trade remains highly fragmented, with major economies adopting distinct approaches based on their financial priorities and risk assessments. China's state-controlled Digital Yuan reflects a model of centralized monetary control, the EU's MiCA framework seeks to create a balanced regulatory environment, and India's dual strategy highlights the tensions between promoting CBDCs and restricting private cryptocurrencies.[68] As digital assets continue to reshape international trade, the success of these regulatory models will depend on how effectively they address legal uncertainties, compliance challenges, and technological developments. Moving forward, greater international coordination will be essential in ensuring that digital currency regulations facilitate rather than hinder the evolution of global trade.

5. Policy for a Unified Global Regulatory Framework

As digital currencies continue to play a transformative role in global trade, the absence of a cohesive regulatory framework presents significant challenges for financial stability, legal compliance, and trade efficiency. The current regulatory landscape is fragmented, with different countries adopting conflicting policies on CBDCs and cryptocurrencies, leading to uncertainty for businesses, financial institutions, and governments. While some jurisdictions have implemented strict regulatory measures to control digital assets, others have taken a more open approach, fostering innovation but also exposing their economies to potential risks. The need for a globally coordinated regulatory framework has never been more pressing, as digital currencies become an integral part of international commerce, cross-border settlements, and

[66] Ministry of Finance, 'Digital Assets & Taxation: A Policy Brief' (2023) <https://www.finmin.nic.in> accessed 6 March 2025.
[67] Reserve Bank of India, 'Concept Note on Central Bank Digital Currency' (October 2022)< https://rbi.org.in> accessed 6 March 2025.
[68] Securities & Exch. Bd. of India, 'Crypto Asset Regulation & the Impact of the Digital Rupee' (2023) <https://www.sebi.gov.in> accessed 6 March 2025.

financial transactions.

A harmonized legal framework must address key concerns such as money laundering risks, tax evasion, jurisdictional conflicts, and the enforceability of smart contracts in digital trade. Additionally, international organizations, central banks, and trade bodies must collaborate to establish uniform standards that balance innovation with risk mitigation. This section outlines policy recommendations for achieving a unified, transparent, and legally robust regulatory environment for digital currencies in global trade.

5.1 Need for a Coordinated Approach to Digital Currency Regulations

A coordinated regulatory approach is essential to mitigate jurisdictional inconsistencies and ensure the smooth integration of digital currencies into international trade. Currently, different regulatory regimes create barriers to cross-border transactions, as businesses must navigate conflicting compliance requirements across multiple countries. A unified global framework would provide clarity, consistency, and legal certainty, allowing digital currencies to function as efficient tools for trade rather than sources of financial instability.

International financial institutions such as the International Monetary Fund (IMF), Bank for International Settlements (BIS), and World Trade Organization (WTO) must take a leading role in establishing regulatory standards that govern the use of CBDCs, cryptocurrencies, and blockchain-based trade mechanisms. The IMF, which already provides policy guidance on monetary systems, should work toward developing global principles for CBDC interoperability, ensuring that central bank digital currencies can function across multiple financial ecosystems without creating currency sovereignty conflicts. Similarly, the BIS can facilitate collaboration among central banks to create a universal set of best practices for digital currency issuance, monetary control, and risk management.

The WTO, as the primary governing body for international trade, must address how digital currencies impact trade agreements, customs regulations, and tariff structures. The inclusion of CBDCs and cryptocurrencies in WTO discussions on cross-border payments would help define legal frameworks for their use in trade settlements, preventing disputes and promoting fair competition among digital currency systems. Additionally, global regulatory bodies should work toward establishing guidelines for digital asset exchanges, stablecoins, and decentralized finance (DeFi) applications, ensuring that they comply with international financial laws while

supporting cross-border commerce.

While establishing a unified global regulatory framework is a complex challenge, a collaborative approach involving multiple stakeholders—including governments, financial regulators, trade organizations, and technology innovators—will be critical to ensuring that digital currencies enhance, rather than disrupt, international trade.

5.2 Ensuring Trade Transparency and Compliance

One of the primary concerns surrounding digital currencies in global trade is the risk of financial opacity, which can facilitate money laundering, terrorism financing, tax evasion, and regulatory arbitrage. Unlike traditional banking systems, where financial transactions are routinely monitored and reported, digital currencies—especially cryptocurrencies—operate in a decentralized, often anonymous environment, making regulatory oversight more challenging. Without robust compliance mechanisms, digital assets could be misused for illicit financial activities, threatening the stability of global trade.

To address these concerns, international regulators must focus on strengthening Anti-Money Laundering (AML) and Counter-Terrorism Financing (CFT) frameworks for digital currency transactions. The Financial Action Task Force (FATF) has already introduced the "Travel Rule," which mandates that crypto exchanges and wallet providers collect and share customer transaction information to prevent illicit financial activities. However, enforcement remains inconsistent across jurisdictions, allowing bad actors to exploit regulatory gaps in countries with weak oversight. A globally standardized AML framework must be established, requiring all digital asset service providers to implement uniform Know Your Customer (KYC) and transaction monitoring protocols, regardless of their geographical location.

Tax compliance is another major challenge that must be addressed within the digital currency regulatory landscape. Cryptocurrencies lack clear tax reporting structures, making it difficult for governments to track and regulate crypto-based income and trade transactions. This has led to concerns over tax evasion, underreporting of crypto gains, and cross-border revenue losses. Establishing a standardized taxation framework for digital currencies, potentially through an international tax reporting system modeled after the OECD’s Common Reporting Standard (CRS), would improve financial transparency and ensure fair taxation of digital trade activities.

Additionally, mechanisms for trade dispute resolution involving digital currency transactions must be established. Unlike traditional financial disputes, which are governed by national laws and international arbitration frameworks, digital currency transactions often lack clear legal recourse mechanisms in the event of fraud, payment failures, or contractual breaches. The creation of an international digital trade dispute resolution body, modeled on existing structures such as the WTO's Dispute Settlement Mechanism, could provide a legal pathway for resolving conflicts arising from digital currency transactions, ensuring that businesses engaging in crypto-based trade settlements have access to legal remedies.

5.3 Standardizing Digital Contracts and Payment Settlements

With the increasing adoption of blockchain-based smart contracts and digital currencies in trade, the lack of a standardized legal framework has become a critical barrier to their widespread use. Smart contracts, which are self-executing agreements coded on blockchain networks, offer the potential to automate international trade transactions, reduce costs, and minimize disputes. However, their legal enforceability, jurisdictional clarity, and integration with existing financial regulations remain unresolved. Without a global framework for digital contract recognition and payment settlement, businesses face uncertainty in cross-border trade transactions involving digital currencies.

To address these challenges, this paper proposes a "Global Digital Trade and Smart Contract Framework" (GDTSCF)—a structured mechanism that harmonizes legal standards, technical interoperability, and enforcement mechanisms for digital currency transactions and blockchain-based trade contracts. This framework would operate through three core pillars:

1. Legal Recognition and Standardization of Smart Contracts

One of the most pressing challenges in digital trade is the absence of a unified legal approach to smart contracts. Traditional contract laws are not designed to accommodate self-executing blockchain agreements, leading to disputes over their enforceability in different jurisdictions. The GDTSCF proposes the following legal solutions:

- Adoption of UNCITRAL Model Laws for Smart Contracts: The United Nations Commission on International Trade Law (UNCITRAL) should develop a model legal framework that defines smart contract validity, liability, and dispute resolution

mechanisms in cross-border trade. This would provide a legal baseline for countries to incorporate smart contract recognition into their domestic laws.

- Recognition of Blockchain-Based Evidence in Trade Disputes: Many courts still lack clear guidelines on accepting blockchain transaction records as legal evidence. The framework would advocate for legal amendments recognizing blockchain-verified trade transactions and payment settlements as admissible evidence in international arbitration and litigation.

- Establishment of International Smart Contract Certification Standards: A global certification body should be created to audit and approve smart contract protocols before they are deployed in trade agreements. This would ensure that smart contracts comply with standardized legal and financial requirements, reducing the risk of contract failures and fraud.

2. A Global Interoperable Settlement System for Digital Currencies

A major barrier to integrating digital currencies into global trade is the lack of interoperability between different CBDCs and crypto-based payment systems. Countries are developing independent CBDCs with varying technical standards, leading to fragmentation in cross-border trade settlements. The GDTSCF proposes the following mechanisms to create an interoperable digital currency trade system:

- Creation of a Multi-CBDC Trade Settlement Network: Inspired by the mBridge initiative (developed by BIS and central banks of China, Thailand, Hong Kong, and the UAE), a global CBDC settlement platform should be established to enable real-time cross-border transactions between different national digital currencies. This would eliminate the reliance on intermediaries such as SWIFT, reducing transaction costs and processing delays.

- Integration of Stablecoins into Trade Finance under Regulatory Oversight: To accommodate private sector digital currencies, stablecoins such as USDT (Tether) and USDC (USD Coin) could be regulated under the same AML and KYC requirements as CBDCs, ensuring their safe use in trade settlements.

- Development of Smart Payment Protocols for Digital Trade: A global standard for programmable payments should be established, allowing smart contracts to automatically trigger payments in digital currencies once trade conditions are met. This would provide greater efficiency in supply chain financing and automated invoicing.

3. International Arbitration and Dispute Resolution for Digital Trade Contracts

One of the greatest challenges in cross-border digital transactions is the lack of an effective dispute resolution mechanism when smart contracts fail or when digital currency-based trade agreements are contested. Currently, there is no global arbitration body specifically designed to handle blockchain-based trade disputes. The GDTSCF framework proposes the creation of a specialized digital trade dispute resolution mechanism:

- Establishment of a Digital Trade Arbitration Court (DTAC): The WTO and UNCITRAL should establish an International Digital Trade Arbitration Court dedicated to handling disputes arising from smart contracts and digital currency trade transactions. This court would provide a neutral forum for resolving trade conflicts related to digital payments, contract failures, and blockchain transaction discrepancies.

- Development of an Automated Dispute Resolution System (ADRS): Leveraging artificial intelligence and blockchain technology, the ADRS would allow real-time verification of smart contract compliance and automatically trigger resolution mechanisms, such as partial refunds, escrow releases, or arbitration referrals, based on predefined rules agreed upon by the contracting parties.

- Mandatory Mediation Before Legal Action: Before disputes are escalated to formal litigation, businesses engaged in digital trade would be required to undergo blockchain-based mediation, where smart contract audits and blockchain transaction logs would be reviewed by AI-powered dispute resolution panels.

The proposed Global Digital Trade and Smart Contract Framework (GDTSCF) provides a comprehensive mechanism to address legal uncertainties, technical fragmentation, and enforcement challenges in digital currency-based trade transactions. By harmonizing smart contract laws, creating an interoperable CBDC settlement system, and establishing dedicated arbitration mechanisms, the GDTSCF would ensure that digital currencies and blockchain-

based contracts operate within a legally secure and globally recognized environment.

Moving forward, international cooperation among governments, financial regulators, and technology developers will be essential in implementing these recommendations and ensuring that digital currencies serve as effective tools for global trade rather than sources of legal and financial instability. By integrating legal clarity, technical standardization, and dispute resolution mechanisms, the GDTSCF can facilitate the seamless adoption of digital assets in international commerce, paving the way for a more efficient, transparent, and legally secure global trade ecosystem.