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GFTN
GLOBAL FINANCE & TECHNOLOGY NETWORK

From Data and Models to Impact: Inclusive Digital Trade and Finance

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About

The Global Finance & Technology Network (GFTN) (formerly known as Elevandi) is a not-for-profit organisation established by the Monetary Authority of Singapore (MAS) in 2024 to harness technology and foster innovation for more efficient, resilient, and inclusive financial ecosystems through global partnerships. GFTN organises convening forums, offers advisory services on innovation ecosystems, provides access to transformative digital platforms, and invests in technology startups with the potential for growth and positive social impact through its venture fund.

For more information, visit www.gftn.co

The Digital Standards Initiative (DSI) is a global initiative based in Singapore, backed by an international Governance Board comprising leaders from the International Chamber of Commerce (ICC), Enterprise Singapore, the Asian Development Bank, the World Trade Organisation and the World Customs Organisation.

The ICC Digital Standards Initiative aims to accelerate the development of a globally harmonised, digitalised trade environment, as a key enabler of dynamic, sustainable, inclusive growth. We engage the public sector to progress regulatory and institutional reform, and mobilise the private sector on standards harmonisation, adoption, and capacity building.

For more information, visit https://www.dsi.iccwbo.org/

Introduction

The Insights Forum roundtable, titled From Data and Models to Impact: Inclusive Digital Trade and Finance, brought together key industry leaders and policymakers* on November 4, 2024, under Chatham House Rules. Hosted by Pamela Mar, Managing Director, ICC Digital Standards Initiative and Ivan Mortimer-Schutts, Financial & Digital Markets Advisor, Dataswyft, the session explored strategies to harness secure and interoperable data flows to drive inclusive trade and finance, particularly for small and medium enterprises (SMEs) and underserved markets.

Structured around three core themes integrating digital trade and finance, leveraging technology for inclusion, and the policymaker's role in promoting interoperability, the discussions aimed to identify inclusive, sustainable solutions. This report synthesises key insights and proposed actions to unlock the potential of digital trade and finance for SMEs while fostering innovation and mitigating associated risks.

*The roundtable participants included discussants from Swift, FNA, Proxtera, Magnati, Siemens, BIS Innovation Hub Hong Kong, BlueOnion, and PingCap / TiDB.

A Fragmented Landscape: Challenges in Interoperability

SMEs are crucial to global trade development but face significant barriers in accessing cross-border finance. Traditional financing methods require extensive collateral and costly intermediaries, disproportionately disadvantaging SMEs. MSMEs, which make up over 90% of all firms and account for 60-70% of total employment and 50% of GDP worldwide, face a $5.7 trillion financing gap according to the SME Finance Forum1. This gap can be bridged through innovative, inclusive platforms that enable these enterprises to thrive in digital trade systems.

Digital platforms and fintech solutions offer alternative ways for SMEs to secure financing by utilizing technology to cut costs, enhance transparency, and improve accessibility. For example, trade finance platforms using blockchain technology streamline transaction processing and document verification, allowing SMEs to more readily leverage their trade documents and receivables as collateral. Blockchain's decentralized ledger technology provides security and traceability, boosting lender confidence and encouraging participation.

Although digital trade and finance increasingly rely on shared pools of structured data, achieving seamless interoperability is challenging due to fragmented standards, divergent policies, and inconsistent technology adoption. Fragmentation incurs significant costs for businesses and economies. The IMF estimates that the long-term cost of trade fragmentation could reach 7% of global output, or about $7.4 trillion.

Increased compliance costs arise as businesses adapt to diverse regulatory requirements[1], such as data localisation laws that force firms to duplicate infrastructure across jurisdictions. SMEs in developing countries struggle with fragmented digital landscapes and risk falling behind due to gaps in connectivity, ICT infrastructure, and a predictable legal and regulatory environment. This threatens the inclusivity of digital trade and finance.

In addition, SMEs face additional barriers such as limited technical capacity and financial resources. Without affordable and accessible technologies, they remain excluded from many digital trade benefits.

Large disparities in internet-supportive infrastructure currently exist.

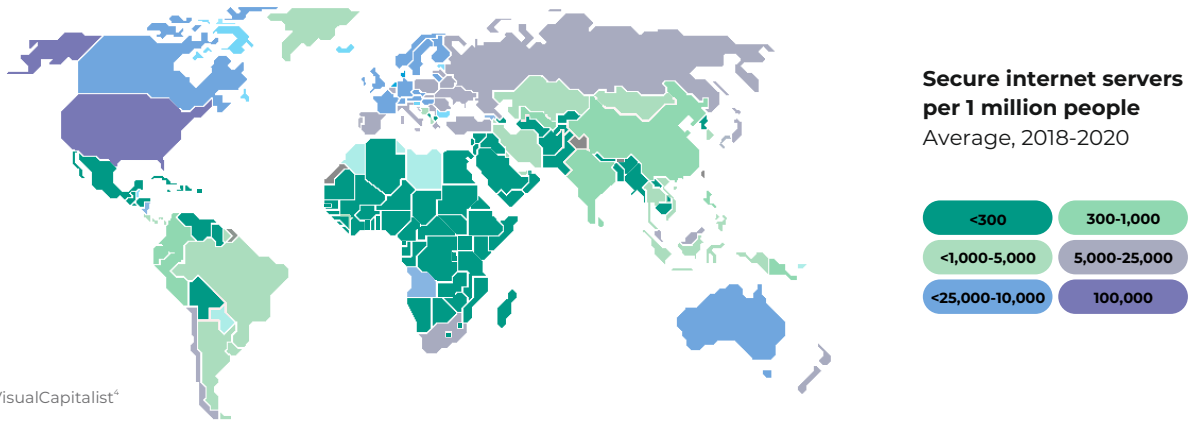

Image by VisualCapitalist[4]

1 A recent GlobalTrade report describes governments "initiating nearly 3000 legal and regulatory steps over the last 3 years." While the objective of these measures is to retain national sovereignty, they act as a form of "digital protectionism" and, often exacerbate fragmentation.[3]

Previous initiatives such as Tradelens, Serai, and we.trade were ambitious platforms designed to enhance trade data interoperability and offer symmetrical access to service providers. However, they failed to scale due to a lack of coherent government support and inadequately addressing of SME-specific challenges. These examples underscore that technology alone cannot resolve fragmentation and highlight the importance of public-private alignment in fostering sustainable platforms. Aligning global policies with technological solutions ensures that investments are not wasted and businesses of all sizes, especially in developing economies, can participate equitably in the global trade ecosystem.

The notion of collecting data versus connecting data is also crucial. The aforementioned platform failures were partly due to concerns about aggregating data in one place. However, with today's technology, data can be connected and passed through while preserving traceability and authentication. The narrative has shifted from one of data aggregation to one of data interoperability.

The transition from traditional financial instruments like Letters of Credit to open-account trade, where goods are shipped and delivered before payment is due, presents new complexities. While open-account systems reduce reliance on intermediaries, they create fragmented data ownership and operational silos. Tackling these issues requires trust-building mechanisms, streamlined processes, and incentives for stakeholders to collaborate across the trade and finance ecosystems.

Integration Models: Linking Trade and Finance

Achieving integration between digital trade and finance hinges on creating structured, interoperable data flows. Frameworks like the ICC DSI's Key Trade Documents and Data Elements (KTDDE)[5] are essential for standardising data and ensuring compatibility across systems. By connecting financial institutions, corporates, and supply chain actors, these frameworks reduce inefficiencies and foster collaboration.

Saudi Aramco's supply chain financing (SCF) model exemplifies this approach. Through collaboration with Taulia and the Saudi Industrial Development Fund (SIDF), Aramco leveraged digital tools to gather and analyse data across its extensive supply chain[6]. This initiative allowed Aramco to provide deep-tier financing to its smaller suppliers, many of whom face significant barriers to accessing capital. By offering real-time visibility into transaction and payment processes, the program enhanced trust and liquidity throughout the supply chain, enabling suppliers to improve operational efficiency and invest in growth opportunities. This model highlights how end-to-end data transparency can address financial inclusion challenges while strengthe-ning supply chain resilience.

Beyond SCF programs, peer-to-peer lending platforms and crowdfunding models have become popular as alternative financing options, allowing SMEs to bypass traditional banks and connect directly with investors or donors interested in funding their projects. These systems democratise access to capital and offer SMEs more flexible and customised financial solutions. Additionally, data-driven credit assessment tools that evaluate alternative data sources, such as transaction histories and digital footprints, enable lenders to accurately determine the creditworthiness of SMEs with limited financial records, broadening financing opportunities for businesses that were previously overlooked. Success stories abound, such as MYBank, who were able to offer interest rates of 6-16% where traditional banks offered 20-40%, while maintaining a default rate of around 1%[7].

Inclusive platforms extend beyond financing to promote wider participation in digital trade. Digital marketplaces like Alibaba and Amazon provide SMEs with access to international markets, offering tools for marketing, logistics, and payment processing. These platforms often feature integrated financial services such as microloans, supply chain financing, and payment guarantees, which assist SMEs in managing cash flow and mitigating the risks associated with international trade. By lowering entry barriers and promoting financial literacy, they create more opportunities for growth.

The need for integration goes beyond technology. Defining clear use cases and demonstrating tangible commercial benefits to stakeholders are crucial for driving adoption. Without such incentives, businesses and platforms struggle to justify the costs of transitioning to interoperable systems.

Technology as a Catalyst: Blockchain and Beyond

Emerging technologies like blockchain, tokenization, and digital identity tools are transforming data management and sharing. Blockchain's decentralised, tamper-proof ledgers support secure and verifiable transactions, ensuring all records are visible and immutable. In digital trade and finance, blockchain enables smart contracts—self-executing agreements written into code—that automate processes like payments, reducing intermediaries, cutting transaction costs, and speeding up traditionally slow cross-border payments.

Tokenization in supply chains uses blockchain and distributed ledger technologies (DLTs) to improve transparency, efficiency, and traceability. By converting physical assets into digital tokens, it simplifies supply chain management and ensures essential data remains unchangeable and readily available in real time. This process also facilitates the digitisation of trade finance, allowing businesses to use digital and digitised assets as collateral to obtain financing, addressing liquidity challenges that often hinder SMEs.

For instance, Siemens adopted a programmable payments solution using blockchain technology to enhance its treasury operations[8]. This system automated conditional payments in real time, allowing a wider range of rules than conventional conditional payments and giving Siemens greater control over liquidity. Siemens also issued a digital bond using blockchain[9], streamlining the bond management process, eliminating intermediaries, & significantly reducing settlement times.

The Universal Trusted Credentials (UTCs), developed by the UNDP[10] and other partners, provide a framework for verifying identity and transactions while maintaining privacy. These tools are critical for SMEs, which often face trust deficits when dealing with larger players. Additionally, scalable and affordable payment[11] can bring SMEs into formal financial systems.

Artificial intelligence (AI) can revolutionise supply chain management by providing predictive insights into demand, inventory, and logistics. AI systems can analyse data to predict trends and anomalies, making global supply chains more resilient, efficient, and less wasteful[12]. AI also enhances fraud detection, automates customs procedures, and improves decision-making by processing large datasets quickly.

IoT and big data are crucial for tracking and managing goods in transit. IoT-enabled sensors and devices provide real-time data on the movement, temperature, and condition of goods, optimising logistics and avoiding supply chain bottlenecks. Combining these technologies with big data analytics empowers the public and private sector to make informed decisions based on real-time data and trends, improving the speed and certainty of international trade[13].

However, implementing these innovations at scale requires substantial policy support and capacity-building efforts. Policymakers must ensure that the underlying technology is accessible and aligned with existing legal and regulatory frameworks. Governments should incentivise and subsidise scalable and affordable technologies and ensure that people understand emerging technologies enough to trust and use it confidently.

Policy Frameworks: Essential for Cross-Border Inclusivity

Policy plays a pivotal role in enabling interoperability and inclusivity, serving as the backbone of efforts to harmonise and streamline digital trade ecosystems. Domestic policies can only go so far due to the multi-stakeholder nature of international trade. Therefore, international dialogue, policies, and trade agreements are essential for modernising digital trade rules, integrating global standards, and addressing legitimate privacy concerns. For instance, the global advocacy campaign to promote the adoption of the Model Law on Electronic Transferable Records (MLETR)[14] helps create predictable, secure, and accessible legal environments that support global digital trade.

Regulatory frameworks must align with tokenization practices to ensure digital tokens are recognized as enforceable instruments. This includes developing policies on digital assets, cross-border data sharing[15], and dispute resolution. Effective policies provide clarity and consistency, encouraging stakeholders to adopt interoperable systems and fostering collaboration across industries and borders.

A notable example of enabling policies in action is the Beijing Two-Zone Pilot[16], which facilitated the first cross-border, end-to-end interoperable paperless trade between China and Singapore using a TradeTrust-enabled electronic bill of lading (eBL). By leveraging decentralized digitisation for transferable documents like eBLs and adopting an open, neutral, and trusted framework such as TradeTrust, the pilot demonstrated its ability to enhance cross-border trade and financing processes. It also proved beneficial for businesses in both countries, improving interoperability and scalability across systems[17].

Standardising data taxonomies is equally critical. Fragmented and inconsistent data formats limit usability. Policymakers must prioritise frameworks that unify these standards, simplifying compliance for businesses particularly SMEs, which often lack the resources to navigate complex regulatory environments.

Simplification does not mean compromising security and privacy. Cross-border data governance frameworks must balance enabling innovation and protecting sensitive information. Collaboration between governments and the private sector is essential to address these challenges effectively. Such partnerships can facilitate equitable access to data, ensuring all stakeholders—including SMEs and emerging markets—benefit from digital trade opportunities.

Vision and Actionable Insights: Charting the Path Forward

The roundtable envisioned a future global ecosystem where digital trade and finance enable seamless and inclusive participation across markets. Achieving this vision requires integrating advanced technologies, adopting standardized practices, and establishing robust policy frameworks.

Strengthening existing standardisation efforts, such as ISO 20022[18] as the open global standard for financial information and the ICC DSI's Key Trade Documents and Data Elements (KTDDE) framework, is a critical first step. These frameworks ensure system compatibility, reduce inefficiencies, and foster collaboration. Equally important are investments in scalable, affordable technologies like blockchain and decentralized finance tools, which lower barriers to entry and enable secure, real-time transactions, expanding access for SMEs.

Policymakers must harmonise cross-border data governance frameworks and build universal trust mechanisms, such as digital identities and verifiable credentials, to empower businesses to participate confidently in digital ecosystems. Governments and international organizations should collaborate with fintech companies to develop inclusive financing platforms tailored to SMEs' needs. Public-private partnerships can support these efforts by promoting blockchain-based trade finance systems and data-driven credit assessment tools. For example, governments could provide grants, tax incentives, or infrastructure investments to improve digital connectivity in underserved areas.

Participants highlighted the importance of collaborative platforms for sharing best practices. Many SMEs lack the expertise to navigate complex digital platforms or leverage innovative financial tools. Capacity-building initiatives, such as online training programs and workshops, can bridge this gap by equipping SMEs with skills in areas like digital marketing, export strategies, and financial management. Governments and trade associations should partner with digital trade platforms to offer tailored support, ensuring SMEs can fully benefit from the digital trade ecosystem.

This collective effort-spanning standardisation, technology adoption, policy alignment, and capacity building is essential to unlocking the potential of digital trade and ensuring its benefits are equitably distributed across global markets.

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