

THE EVOLUTION OF CROSS-BORDER PAYMENTS: FROM SWIFT TO DLT

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Executive Summary

This paper is a comprehensive report on the evolution of cross-border payments from bills of exchange in the olden days to the modern day digital payment systems, highlighting key developments and challenges in the industry. It emphasizes the potential of Distributed Ledger Technology (DLT) to address longstanding issues and improve the efficiency of international transactions.

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1. **Historical Context:** Cross-border payments have evolved from ancient bills of exchange to modern electronic systems, with significant advancements in the 1970s through the establishment of CHIPS and SWIFT.
2. **Current Landscape:** The global value of cross-border transactions is growing rapidly, with projections indicating an increase from \$150 trillion in 2017 to over \$250 trillion by 2027.
3. **G20 Initiative:** In 2020, the G20 endorsed a roadmap to enhance cross-border payments, addressing challenges such as high costs, low speed, limited access, and lack of transparency.
4. **DLT Benefits:** Distributed Ledger Technology offers several advantages for cross-border payments, including:
 - Shared ledger for improved interoperability
 - Reduced transaction times
 - Enhanced transparency
 - Elimination of intermediaries
 - Improved compliance and security
 - Potential for greater financial inclusion
5. **Emerging Use Cases:** Financial institutions like JPMorgan, Fnality International, and collaborative projects between central banks are exploring DLT-based solutions for cross-border payments.

6. **Blade Labs' Approach:** The document highlights Blade Labs' Digital Asset Platform (DAP) as an innovative solution for cross-border payments, offering:

- Interoperability and standardisation
- Tokenization and programmability
- Enhanced risk management
- Improved efficiency and cost reduction
- Alignment with international standards(ASAP model)

As we look to the horizon, it's clear that the evolution of cross-border payments is far from over. With technology-driven solutions paving the way, we're moving towards a future where international transactions are smoother, faster, and more secure than ever before. This evolution promises not just to transform how we conduct business, but to redefine the very fabric of global trade and commerce.

As the cross-border payments landscape continues to evolve, DLT-based solutions like those offered by Blade Labs are poised to play a crucial role in shaping a more efficient, transparent, and accessible ecosystem for international financial transactions.

Introduction

Cross-border payments as the name suggests, are financial transactions where the payer and the recipient are based across borders meaning, in different countries.

These transactions encompass both wholesale and retail payments, including remittances, and can be conducted through various methods such as bank transfers, credit card payments, and alternative payment methods like e-money wallets and mobile payments.

Importance of Cross Border Payments in the Global Economy:

The significance of cross-border payments in the global economy cannot be overstated:

1. Facilitating International Trade:

Cross-border payments are an integral part of global commerce, enabling businesses to purchase goods and services from foreign suppliers and sell to international customers.

2. Supporting Global Investment:

They allow for the flow of capital across borders, facilitating foreign direct investment and portfolio investment in international markets.

3. Enabling Remittances:

Cross-border payments play a crucial role in supporting families and economies in developing countries through remittances from migrant workers.

4. Fostering Economic Integration:

Efficient cross-border payment systems promote economic integration between countries and regions, supporting efforts of globalization.

5. Driving Financial Innovation:

The challenges inherent in cross-border transactions have spurred technological innovations in the financial sector, leading to the development of new payment solutions and platforms.

6. Economic Growth:

By facilitating international business and investment, efficient cross-border payment systems contribute to overall economic growth and development.

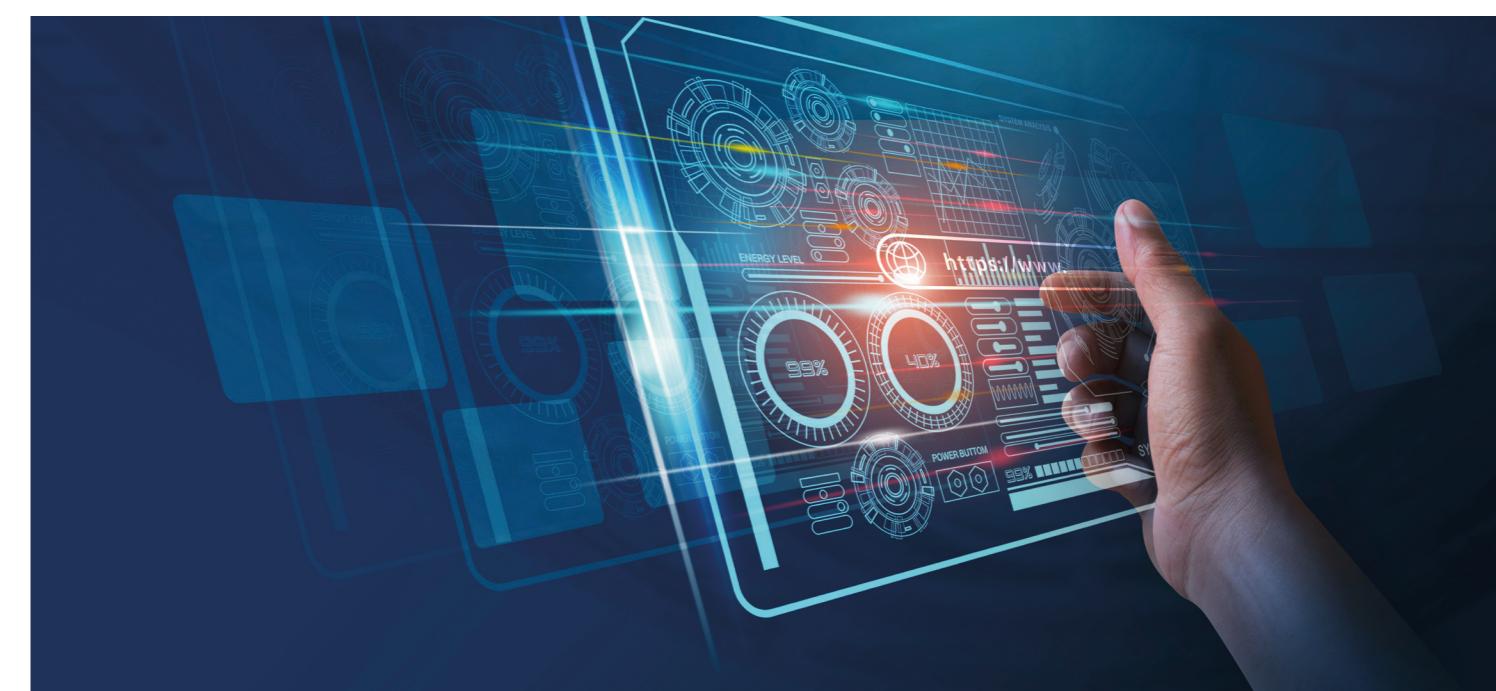
A Brief History of the Evolution of Cross Border Payments

It is interesting to note that the history of cross-border payments dates back to ancient times when merchants used bills of exchange to facilitate trade across regions. However, the modern era of cross-border payments began in the 19th century with the establishment of correspondent banking relationships. This system allowed banks in different countries to maintain accounts with each other, enabling the transfer of funds across borders without physically moving currency.

The 70s marked a significant leap forward, with the implementation of key systems like the Clearing House Interbank Payments System (CHIPS) in 1970 and the founding of the Society for Worldwide Interbank Financial Telecommunication (SWIFT) in 1973. [1]

While the CHIPS was created in the US to process and settle large-value domestic and international U.S. dollar payments between financial institutions, SWIFT aimed to standardize international financial messaging. Eventually both these networks marked important milestones in the evolution of modern cross-border payment systems.

The infrastructure provided by these networks proved to be the catalyst revolutionizing the space of international bank communications. Since then, the landscape has continued to evolve rapidly, driven by technological advancements, globalization, and the rise of fintech companies, leading to more efficient and diverse cross-border payment solutions.



The Current Landscape of Cross-Border Payments

In recent years, the landscape of cross-border payments has undergone significant transformation. The global value of these transactions has grown exponentially, driven by factors such as expanding international supply chains, cross-border asset management, global investment flows, international trade, e-commerce, and remittances.

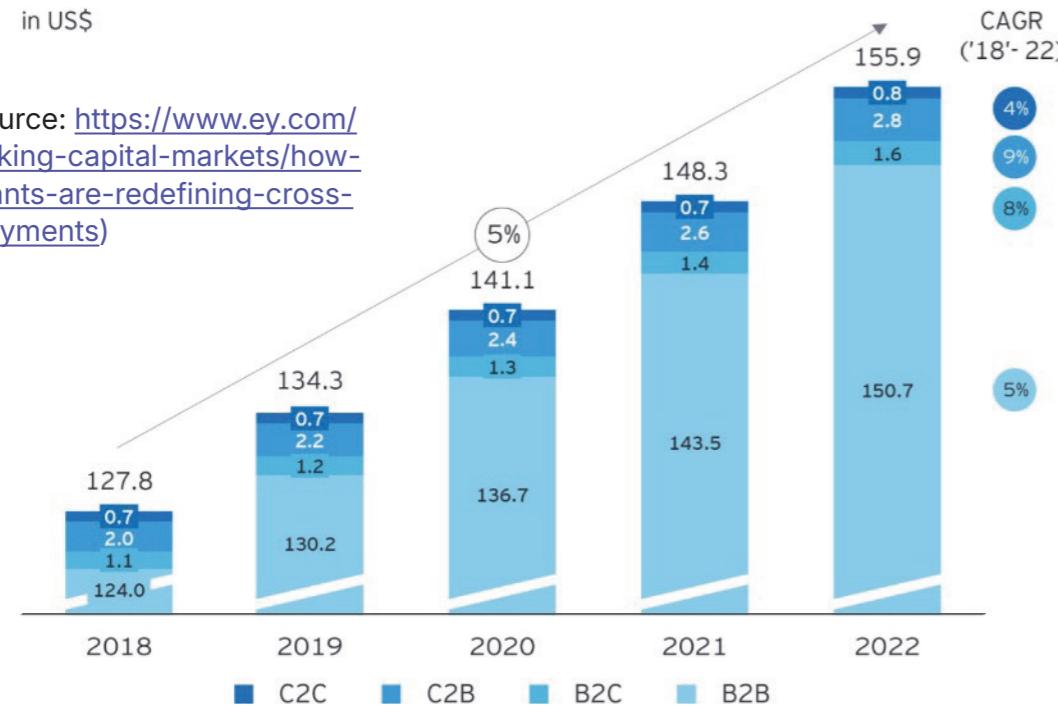
An analysis provided by the team of Integrated Research (Ir) (<https://www.ir.com/about-us>) states that the size of the international payments market is growing at a rate of 5% (CAGR) a year.

The report provides with the below transaction breakdown: [2]

Business-to-Business (B2B) transactions make up the largest share by far, expected to account for US\$150t.

- ▲ **Consumer-to-Business (C2B)** transactions, such as cross border eCommerce and offline tourism spend, are forecast to reach US\$2.8t.
- ▲ **Business-to-Consumer (B2C)** transactions, which include wage salaries or interest payments, are expected to amount to US\$1.6t in 2022.
- ▲ **Consumer-to-Consumer (C2C)**, or remittance payments, contribute the least – expected to reach US\$0.8t in 2022.

Global cross-border payments flow split by use case



On the other hand, industry projections indicate that the total value of cross-border payments is expected to increase from almost \$150 trillion in

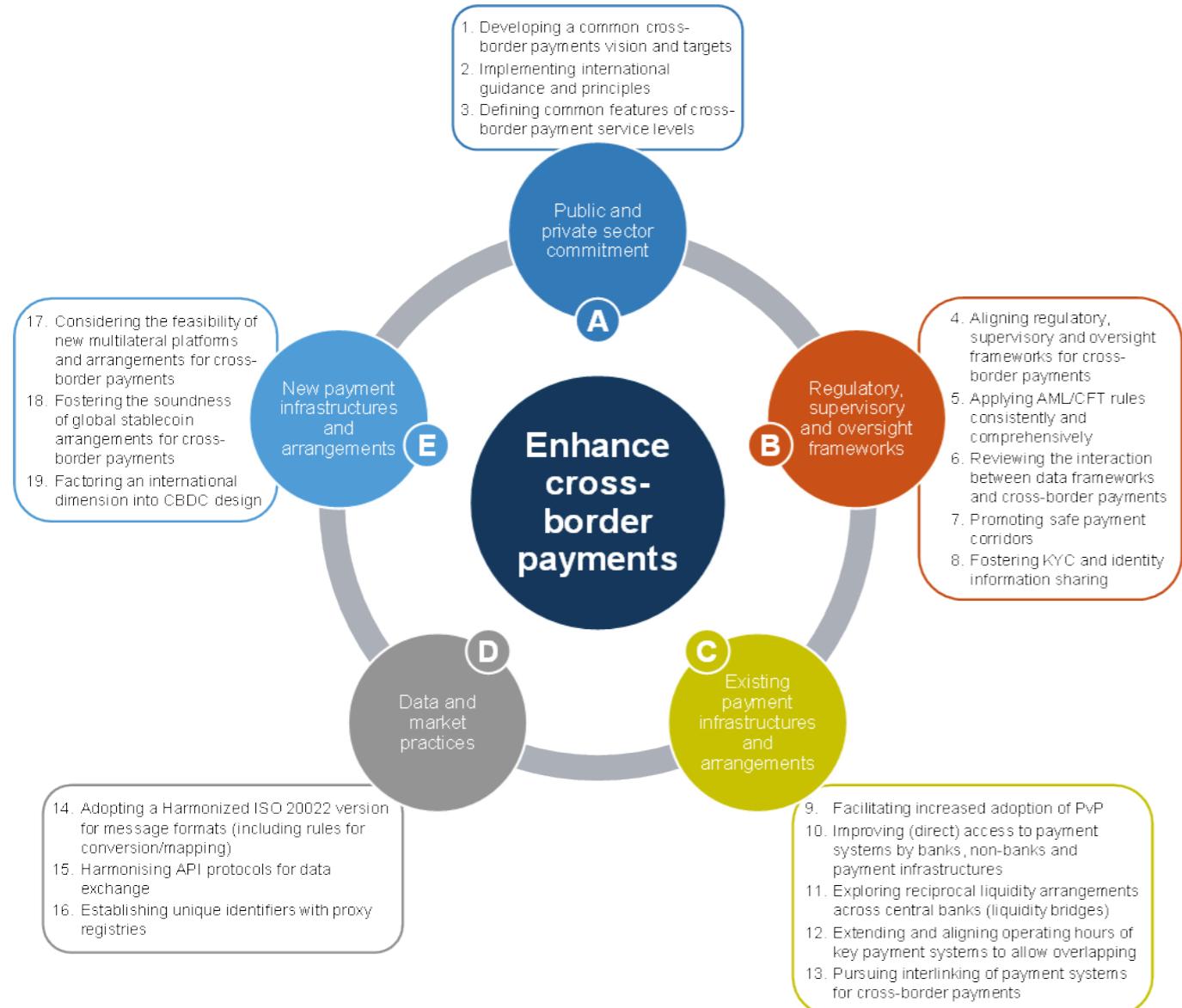
2017 to over \$250 trillion by 2027, representing a growth of over \$100 trillion in just a decade. [3]

The G20 Initiative to Enhance Cross-Border Payments

The current cross-border payments market is characterized by both challenges and innovations. Recognizing the urgency for improved international payments, the G20 countries endorsed a roadmap in October 2020. This roadmap set a target to create faster, cheaper, and more transparent cross-border transactions and identified four challenges to be addressed in its ambitious roadmap. These four challenges were [4] -

- ▲ **Limited access:** the challenge includes limitations for users in accessing services and for payment service providers in accessing payment systems and other arrangements;
- ▲ **Limited transparency:** limited transparency about costs, speed, processing chain, and payments status present challenges for end-users and (other than single-platform proprietary services) for providers alike.

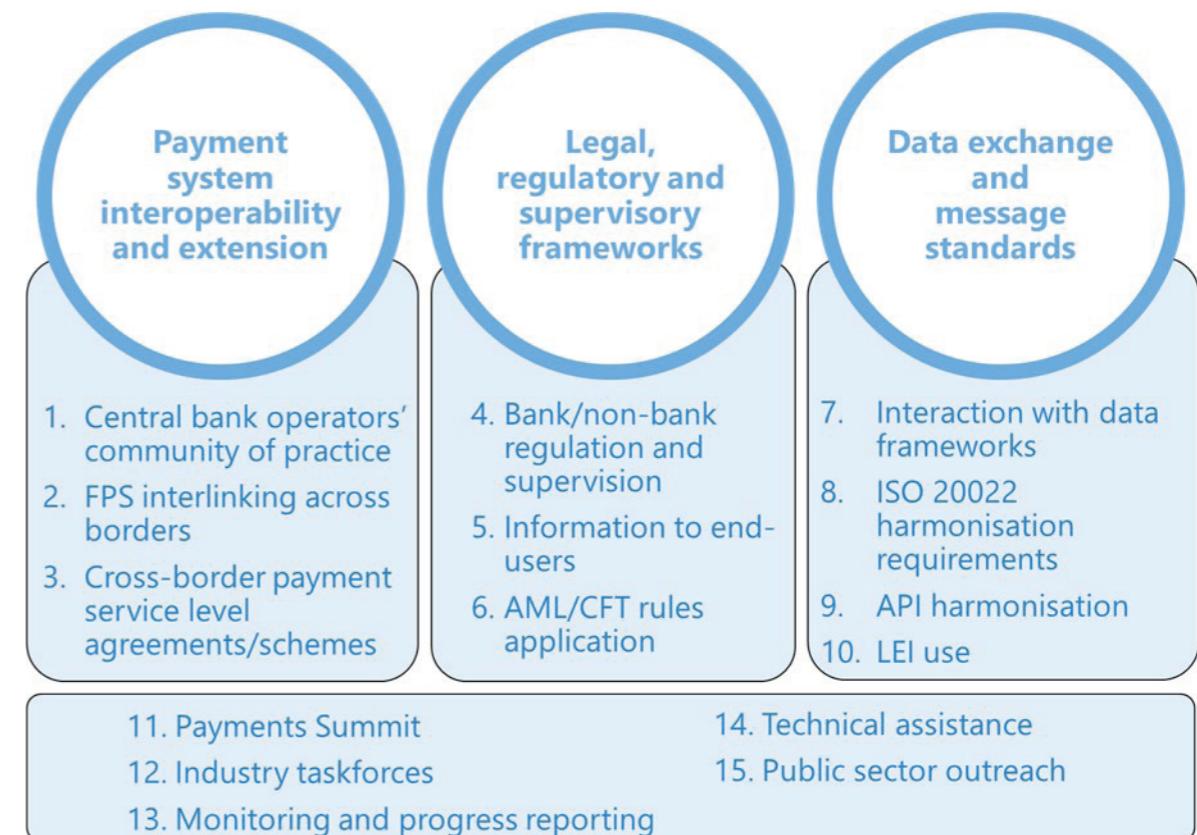
Recognizing the critical importance of enhancing cross-border payments, the G20 has taken significant steps to address these challenges. At the request of the G20, the Financial Stability Board (FSB), in coordination with other international organizations, developed a roadmap to enhance cross-border payments. This roadmap consists of 19 building blocks designed to address the various frictions underlying the challenges in cross-border payments. [5]



(Image source: Financial Stability Board)

Based on this foundational work the FSB in February 2023 laid down a [revised G20 Roadmap](#) centred around 15 priority actions that addressed the four key challenges focusing on three key areas in order to propel the roadmap towards realization and achieve the set targets by the eagerly anticipated date of 2027:

- ▲ Payment System Interoperability & Extension
- ▲ Legal, Regulatory, and Supervisory Frameworks
- ▲ Cross-Border Data Exchange and Message Standards



(Image source: Financial Stability Board)





Distributed Ledger Technology in Cross-Border Payments

As we move forward, the cross-border payments landscape continues to evolve, shaped by technological advancements, regulatory changes, and shifting consumer expectations. Building upon the technological advancements in cross-border payments, Distributed Ledger Technology (DLT) and blockchain have emerged as promising solutions to address longstanding challenges in the industry. These innovative technologies offer a range of benefits that could dramatically alter how international transactions are conducted.

Infact, DLT can play a significant role in complementing the FSB's roadmap for enhancing cross-border payments. DLT can contribute to the three interconnected themes identified in the roadmap:

1. Payment system interoperability and extension: DLT can facilitate seamless interoperability between different payment systems by providing a shared, immutable ledger. This can enable real-time settlement and reduce the need for intermediaries, potentially lowering costs and increasing speed.

2. Legal, regulatory, and supervisory frameworks: While DLT introduces new challenges for regulators, it also offers opportunities for enhanced compliance and oversight. Smart contracts on DLT platforms can automate regulatory reporting and ensure adherence to cross-border payment rules.

3. Cross-border data exchange and message standards: DLT can standardize data formats and enable secure, real-time data sharing across borders. This can improve transparency and traceability of transactions, addressing the roadmap's goal of enhancing payment status visibility

By leveraging DLT, the cross-border payments ecosystem can potentially achieve the G20 targets of making transactions cheaper, faster, more transparent, and more accessible.

Benefits of DLT in Cross-Border Payments

Over the years, DLT has emerged as a transformative force to enhance cross-border payments. Traditional cross-border payment systems, such as those facilitated by SWIFT, have long been criticized for their high costs, slow settlement times, and lack of transparency.

Below is a brief of some of the advantages of an infrastructure provided by the DLT to enhance cross-border payments [6]

Shared Ledger: At the core of DLT's appeal is its ability to create a shared, distributed infrastructure for payments. This shared ledger, synchronized across multiple entities, enables the creation of a multilateral arrangement for both public and private Payment Service Providers (PSPs). Such an arrangement operates under a set of agreed-upon business and operational rules, as well as technical standards, forming a new and robust infrastructure for seamless cross-border payments.

Reduced Transaction Time: One of the most significant advantages of DLT is its potential to dramatically reduce transaction processing times. With DLT, cross-border payments could approach near real-time settlement, a stark contrast to the days-long process often associated with traditional systems.

Transparency: The implementation of a DLT based infrastructure can resolve the long-standing issue of lack of transparency in cross border payments. For instance, the technology can provide greater visibility into transaction fees and status, allowing both senders and recipients to track their payments more effectively. This increased transparency could help address concerns about hidden costs and uncertain delivery times that have plagued traditional cross-border payment and remittances networks.

Eliminating Intermediaries: Another key advantage of DLT is its potential to reduce intermediary risk. By enabling more direct transactions between parties, DLT can potentially eliminate some of the intermediaries in the payment chain, thereby reducing associated risks and costs. This streamlining of the process not only enhances efficiency but also contributes to overall cost reduction.

Financial Inclusion: Perhaps one of the most impactful benefits of DLT in cross-border payments is its ability to enhance financial inclusion. By lowering costs and reducing barriers to entry, DLT-based systems could make cross-border payment services more accessible to underserved populations.

This could be particularly transformative for remittance transfers, which are often criticized for their high costs.

Compliance and Security: Regulatory compliance across jurisdictions remains one of the most significant challenges in cross-border payments. For instance, every country has its own set of regulations, including Anti-Money Laundering (AML) and KYC rules, data protection laws, foreign exchange controls, and sanctions compliance.

DLT offers promising solutions to navigate through complicated legal mandates of financial institutions. By providing an immutable and transparent record of transactions, DLT can enhance compliance efforts and reduce associated costs. DLT-based systems can facilitate real-time KYC and AML checks, automating compliance processes across multiple jurisdictions. Furthermore, smart contracts built on DLT platforms can automatically enforce regulatory rules, ensuring compliance at every step of a transaction.

This could potentially streamline cross-border payments by reducing the need for manual interventions and minimizing the risk of regulatory breaches. While challenges remain in terms of standardization and regulatory acceptance, DLT holds significant potential to transform compliance in cross-border payments, making them more efficient, secure, and aligned with diverse regulatory frameworks.

These potential benefits of an infrastructure relying on DLT explains as to why many central banks and private entities are exploring and testing such innovative solutions to address longstanding challenges in cross-border payments. As we move forward, the cross-border payments landscape continues to evolve, shaped by technological advancements, regulatory changes, and shifting consumer expectations. The industry is poised for further innovation and transformation, with the potential to significantly impact global economic activities and financial inclusion.

Emerging Use Cases

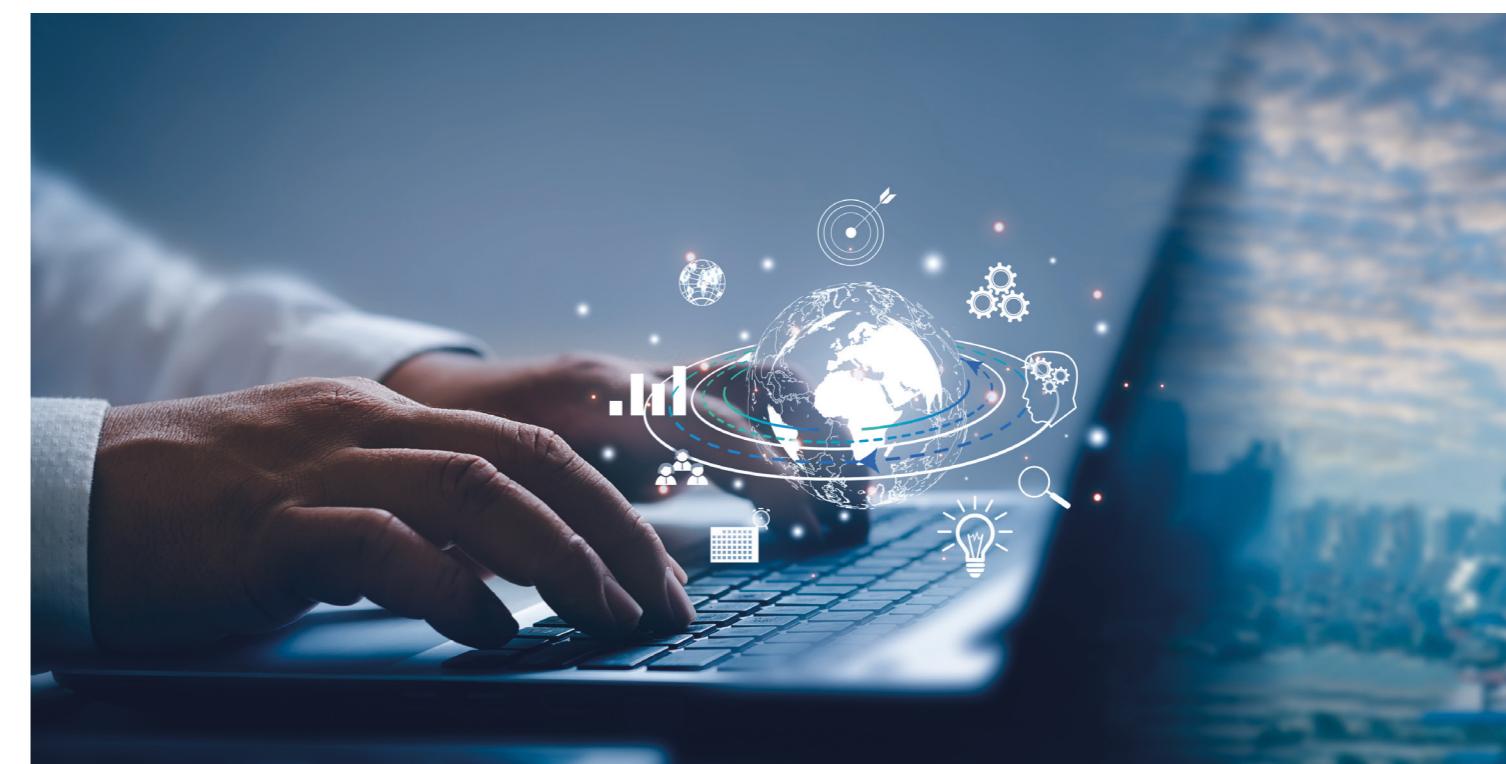
Some of the notable use cases of DLT solutions for cross-border payments by financial institutions and banks: [7]

For instance, in 2017 JPMorgan developed the Interbank Information Network (IIN), a blockchain-based platform that has grown to include over 400 banks globally since its inception. This network that was later rebranded as Liink [8] aims to streamline information sharing and reduce delays caused by compliance checks and data-related inquiries. Complementing this network is JPMorgan's Xpedite solution, which offers easy-to-integrate cross-border payment options for financial institutions.

On the other hand, Fnality International's Utility Settlement Coin (USC) backed by a consortium of global banks, including UBS, Barclays, and Santander, to create a blockchain-based digital cash system for financial market settlement. The USC aims to facilitate faster, cheaper, and more secure transfer of value between financial institutions.

Furthermore, Project Jasper-Ubin which was a collaborative drive by the Bank of Canada and Monetary Authority of Singapore is another example that leveraged DLT to enable cross-border payments. This project connected two different DLT platforms, facilitating payment-versus-payment (PvP) settlement without the need for a trusted third-party intermediary.

These use cases demonstrate how financial institutions are leveraging DLT to address challenges in cross-border payments, including high costs, slow processing times, and lack of transparency. While many of these initiatives are still in pilot or early implementation stages, they show the potential of DLT to transform the cross-border payments landscape.





BladeLabs' Innovative Approach to Cross-Border Payments

Blade Labs has emerged as a noteworthy player, offering enterprise grade white-label solutions for token design minting and distribution, well-suited to help organizations participate effectively in cross-border payments. By leveraging DLT to facilitate seamless cross-border settlements, Blade can enable businesses to drastically simplify cross-border transactions.

At the core of Blade's innovative approach is the Digital Asset Platform (DAP), an advanced solution to enhance the efficiency and interoperability of cross-border payments. Some of key aspects of Blade's DAP that can assist businesses, enterprises and financial institutions, in smooth and seamless cross border payments:

Interoperability and Standardization: One of the primary challenges in cross-border payments is the lack of interoperability between different financial systems. Blade's DAP addresses this issue by providing a unified infrastructure that facilitates seamless interaction and integration between multiple platforms.

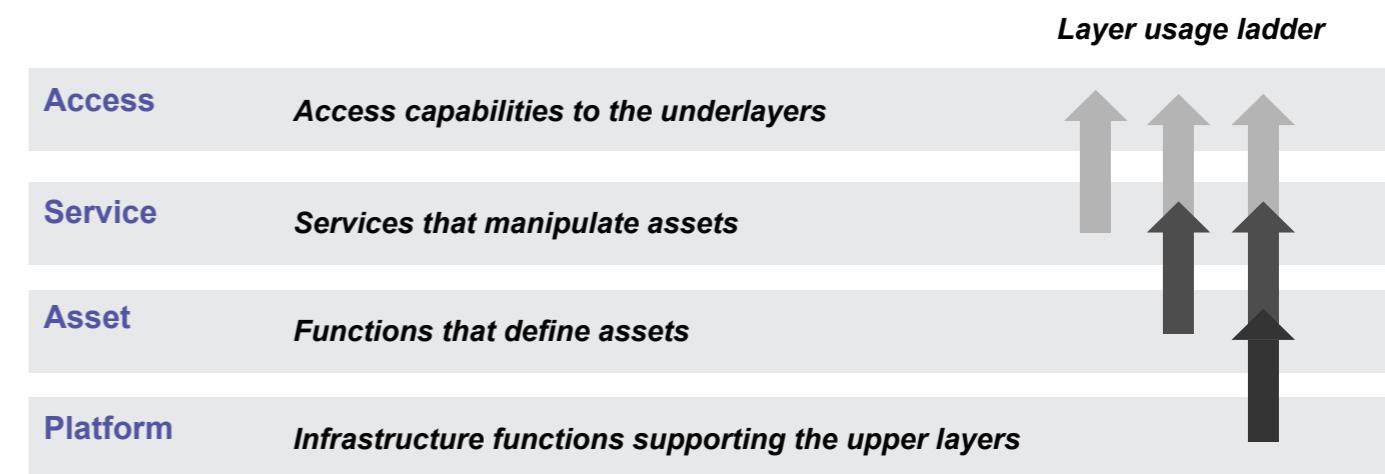
Tokenization and Programmability: Tokenization is a fundamental feature of any DAP that allows assets to be represented digitally, facilitating their effortless transfer and management across borders. This modular approach separates the management of assets from the platform, enhancing security and reducing the need for trust in any single operator. Furthermore, the programmability of Blade's DAP can enable organizations to customize their financial services, enabling automated and conditional transactions, which are particularly beneficial for complex cross-border payment scenarios.

Risk Management: The layered architecture of Blade's DAP solution allows for independent governance and risk assessment at each layer, ensuring the security of cross-border transactions. Additionally, the ability to develop and implement customizable smart contracts and other programmable features also adds an extra layer of security by automating compliance and reducing human error.

Efficiency and Cost Reduction: By leveraging Blade's DAP, financial institutions can significantly reduce the costs associated with cross-border payments. The automation and standardization of processes minimize the need for intermediaries, reducing transaction fees and processing times. This efficiency is particularly beneficial for remittances and other high-volume, low-value transactions common in cross-border payments.

Innovation and Inclusion: Blade's DAP fosters innovation by providing a flexible, scalable and customizable infrastructure for financial services.

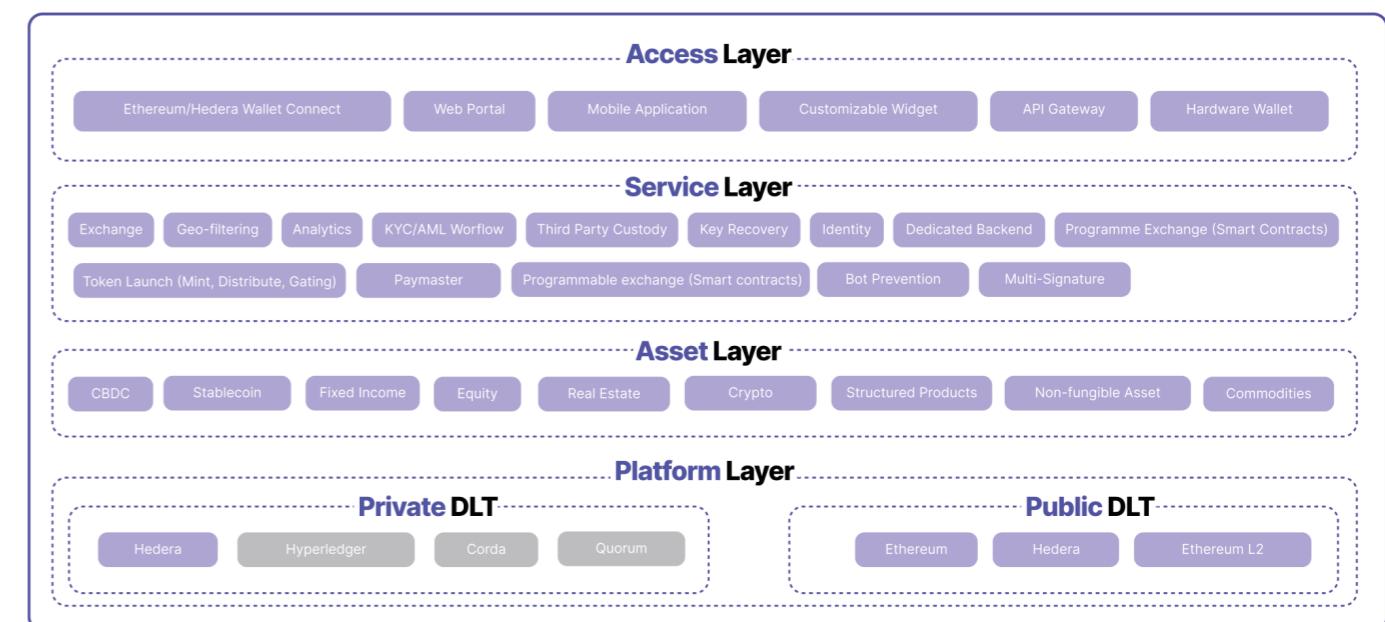
Through this DAP, Blade offers a comprehensive and flexible infrastructure that can assist businesses, enterprises and financial institutions with end-to-end solution, right from token design, minting to distribution. Most importantly, Blade's DAP meets international standards, very much in line with the ASAP model for digital asset platforms outlined in the International Monetary Fund's February 2024 report. [9]



(Image Source : IMF Working Paper; ASAP: A Conceptual Model for Digital Asset Platforms)

This approach allows Blade to create a modular and interoperable system that separates core asset characteristics from programmable services, enhancing flexibility and risk management. Blade can assist organisations

to potentially improve cross-border payment efficiency while maintaining clear governance boundaries between different platform components across the ASAP framework. [10]



(Image Source - <https://bladelabs.io/digital-asset-platform/>)



Starting from the ground up, the Platform layer forms the foundation of Blade's solution. It's designed with flexibility in mind, currently operational on both Hedera and Ethereum networks, with plans to expand to additional blockchain platforms. This multi-chain approach ensures that enterprises can leverage the most suitable underlying infrastructure for their specific needs, enhancing the solution's adaptability to various cross-border payment scenarios.

Moving up to the Asset layer, Blade showcases versatility by supporting a wide array of digital assets. From Central Bank Digital Currencies (CBDCs) to tokenized real estate, issuance of Stablecoins and even non-fungible tokens (NFTs), Blade's solution can accommodate diverse asset classes. This flexibility is crucial in the context of cross-border payments, where different regions may prefer or require specific types of digital assets for transactions.

Through the Service layer Blade can offer sophisticated suite of services essential for seamless and compliant cross-border transactions. Through strategic partnerships along with innovative solutions Blade provides advanced asset management services including robust KYC/AML workflows, geo-filtering, and key recovery mechanisms. For instance, Blade's recent collaboration with Muinmos can ensure that cross-border payments facilitated through Blade's platform adhere to international compliance requirements. [11]

At the top, the Access layer demonstrates Blade's commitment to user-friendly integration. Here, Blade offers customizable white label solutions for distributing asset tokens, ranging from APIs and widgets to SDKs as embedded custodial or non-custodial wallets in multiple interfaces. These can be seamlessly integrated into websites or mobile applications, providing enterprises with the flexibility to create tailored user experiences for their cross-border payment solutions.

By offering this modular approach across all layers of the ASAP framework, Blade can empower enterprises to craft bespoke cross-border payment solutions. Companies can mix and match components from each layer, ensuring their final implementation aligns perfectly with their unique use cases and regulatory landscapes. This level of customization is invaluable in the diverse and complex world of international payments, where one size rarely fits all. Additionally, this comprehensive and adaptable framework is also well-suited for implementation by financial institutions, banks, and proof-of-concept (POC) projects in the banking sector.

It is worth mentioning that Blade also ensures industry-standard procedural compliance with its trust centre, which is complete with certifications and audits. [12] The achievement of GDPR certification alongside SOC2 and ISO 27001, underscores Blade's dedication to data safety and security – which are critical factors in international financial transactions.

As the cross-border payments landscape continues to evolve, solutions like those offered by Blade will play a crucial role in shaping a more efficient, transparent, and accessible ecosystem. By harnessing the power of DLT and aligning with emerging standards and models, Blade is well-positioned to address the complex regulatory and operational challenges of international finance.

Conclusion

The evolution of cross-border payments represents a critical juncture in the history of global finance. From the ancient bills of exchange to today's advanced technologies, we've witnessed a remarkable journey of innovation and adaptation. As we stand on the brink of a new era in international transactions, it's clear that the challenges of high costs, slow processing times, limited access, and lack of transparency are being met with unprecedented technological solutions.

DLT has emerged as a powerful force in reshaping the landscape of cross-border payments. Its potential to create a shared, transparent, and efficient infrastructure aligns closely with the G20's ambitious goals for enhancing global financial transactions. The benefits of DLT – from near real-time settlements to improved security and compliance – promise to address longstanding issues in the industry. As financial institutions, central banks, and innovative companies continue to explore and implement DLT-based solutions, we're likely to see a transformation in how value moves across borders.

The Digital Asset Platform (DAP) offered by Blade Labs, with its modular and interoperable approach, exemplifies the kind of forward-thinking solutions that will drive this change. By aligning with international standards and offering customizable, secure, and efficient services, Blade is paving the way for a more inclusive and interconnected global financial system.

However, this transformation doesn't come without challenges. Regulatory considerations, technological standardization, and the need for widespread adoption remain significant hurdles. Yet, the momentum behind these innovations suggests that we're moving steadily towards a future where cross-border payments are faster, cheaper, more transparent, and accessible to a broader range of participants.

As we look ahead, it's clear that the evolution of cross-border payments will continue to accelerate. The fusion of traditional financial infrastructure with cutting-edge technologies is not just enhancing existing systems but redefining them. This evolution has the potential to unlock new economic opportunities, foster greater financial inclusion, and ultimately contribute to a more interconnected global economy.

In conclusion, the future of cross-border payments is bright, driven by technological innovation and a collective desire for improvement. As we embrace these changes, we move closer to a world where the barriers of international finance are significantly reduced, opening up new possibilities for businesses, individuals, and economies worldwide. The journey that began with ancient merchants continues, propelling us towards a more efficient, transparent, and inclusive global financial ecosystem.

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