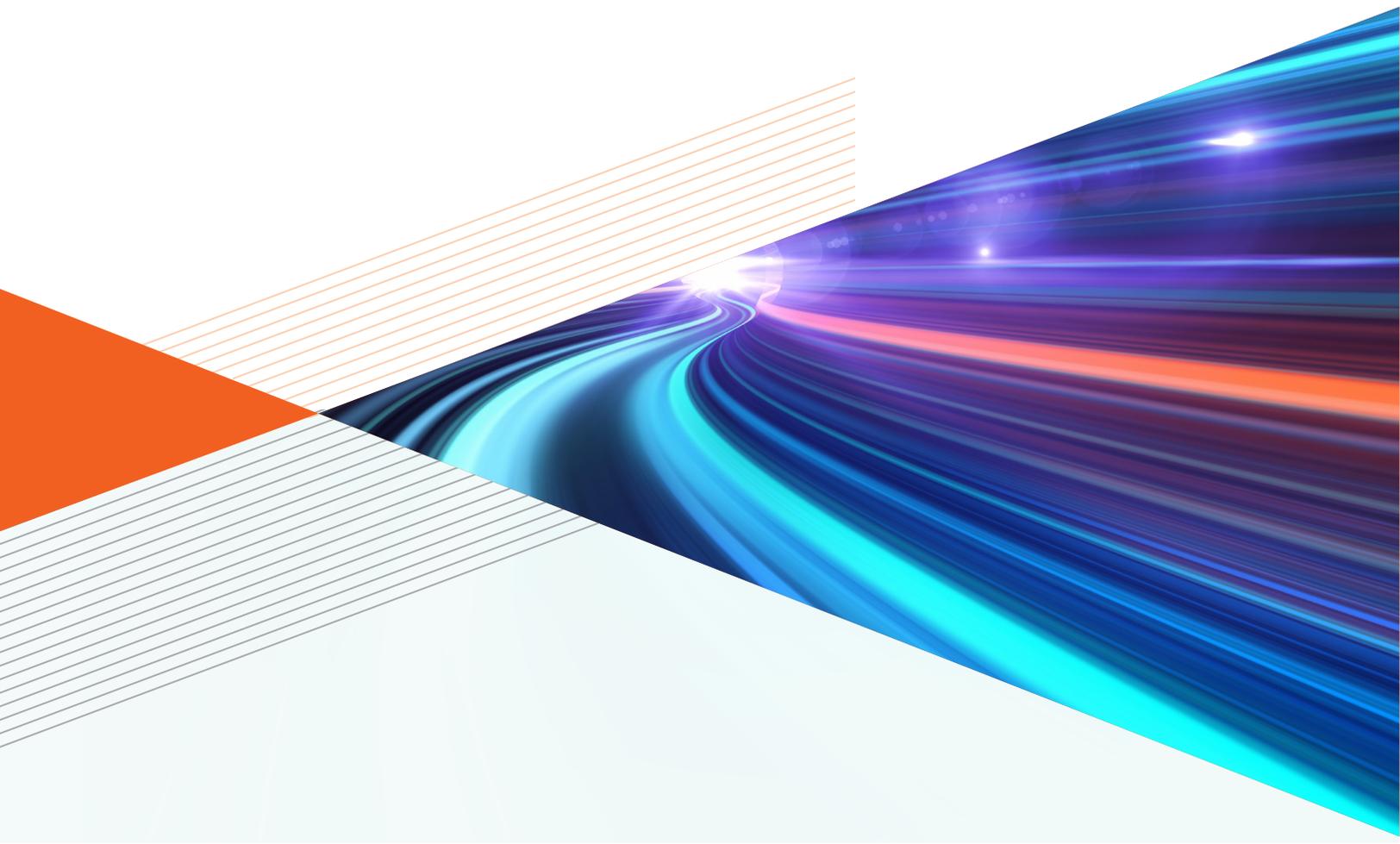


# Innovation in Payments

MULTIPLE PATHS, ONE DESTINATION



# Executive Summary

When it comes to the future of payments, the destination is clear: ***a world where all have the expectation and ability to move money instantaneously, 24/7/365 and with full transparency.*** As the industry moves forward on this journey, an array of new industry initiatives and emerging technologies are transforming payments.

While the destination seems fixed, there is no single, fixed path that will take us there. In fact, there are multiple paths. Real-time payments, SWIFT gpi, SWIFT's transaction manager, artificial intelligence, blockchain and digital currencies —to name just a few —are each providing banks with opportunities to make domestic and cross-border transactions faster, more frictionless, efficient, transparent and cost-effective.

As banks look to navigate the evolving landscape, they should invest in a suite of payment solutions, from legacy rails to the latest technologies, to ensure they are able to cater to the individual and varied needs of their clients, both now and in the future.



# How the Industry is *Transforming*

The ongoing, rapid evolution of sophisticated, high-tech capabilities across multiple sectors and industries has driven a shift in client expectations when it comes to payments. This has fueled the need for banks to deliver faster, smarter, more transparent and convenient transactions. To facilitate this, a range of emerging technologies are presenting opportunities to enhance existing processes, and banks are leveraging these to best effect.

The expanding fintech market is acting a catalyst for innovation as well, by bringing industry players together through various collaborative approaches. Banks are collaborating with fintechs to meld their strengths and optimize their offerings; consortiums involving various types of industry contributors are driving new developments; and many banks have launched innovation centers to facilitate greater collaboration with both fintechs and clients.

Whether banks choose to innovate through partnerships with fintechs, on their own, or via industry initiatives involving other banks, the importance of delivering enhanced payments processes is clear. And banks are committed to applying technology to bring about value-added change to meet clients' evolving needs and support their digital journeys.



# Industry Initiatives

## Real-Time Payments

- More than 50 countries now have their own domestic real-time payments capabilities, such as the Real-Time Payments (RTP®) Network in the U.S., with demand driven by today's fast-paced digital lifestyles<sup>1</sup>
- Payments can be cleared and settled 24/7/365 in real time, with robust messaging capabilities; instead of receiving an end-of-day file, the originator and beneficiary can receive immediate confirmation of payment and notification of receipt
- With cutoff times and business-hour restrictions a thing of the past, improved flexibility and convenience are changing how and when consumers and businesses choose to transact
- The enhanced transparency of reliable, up-to-the-second liquidity is helping businesses improve their cash management and reconciliation capabilities
- A common global messaging structure for greater interoperability and streamlined payments is crucial; the upcoming implementation of the ISO 20022 messaging standard for cross-border payments—in combination with other technologies, such as application programming interfaces (APIs)—could play a role in helping different domestic real-time networks to integrate

## SWIFT gpi

- One of transaction banking's most powerful developments in recent years, SWIFT gpi addresses the multitude of inefficiencies that previously encumbered cross-border payments—bringing accelerating processing and increasing transparency surrounding fees and payment execution
- As of September 2020, 41% of SWIFT gpi payments are credited to end-beneficiaries within 5 minutes, over 56% within 30 minutes, 78% within 6 hours and almost 100% within 24 hours<sup>2</sup>
- By using SWIFT's existing network, the gpi Tracker enables end-to-end, real-time visibility over a transaction's lifetime; this can help to lower enquiry costs by up to 50% because delays are reported as they happen, and clients receive customized message alerts
- The scope of SWIFT gpi is also expanding beyond just providing visibility to payments during processing, offering new capabilities, such as the gpi Case Resolution service (gCASE) and the gpi Stop and Recall (gSRP) service—and exploring a new pre-validation service—which are driving efficiencies and removing friction in the pre- and post-payment processing stages

<sup>1</sup> <https://www.fisglobal.com/en/flavors-of-fast#:~:text=FIS's%20Annual%20Global%20Faster%20Payments%20Report%20%2D%20Flavors%20of%20Fast%202019&text=Now%20in%20its%20sixth%20edition,are%20being%20developed%20on%20them>

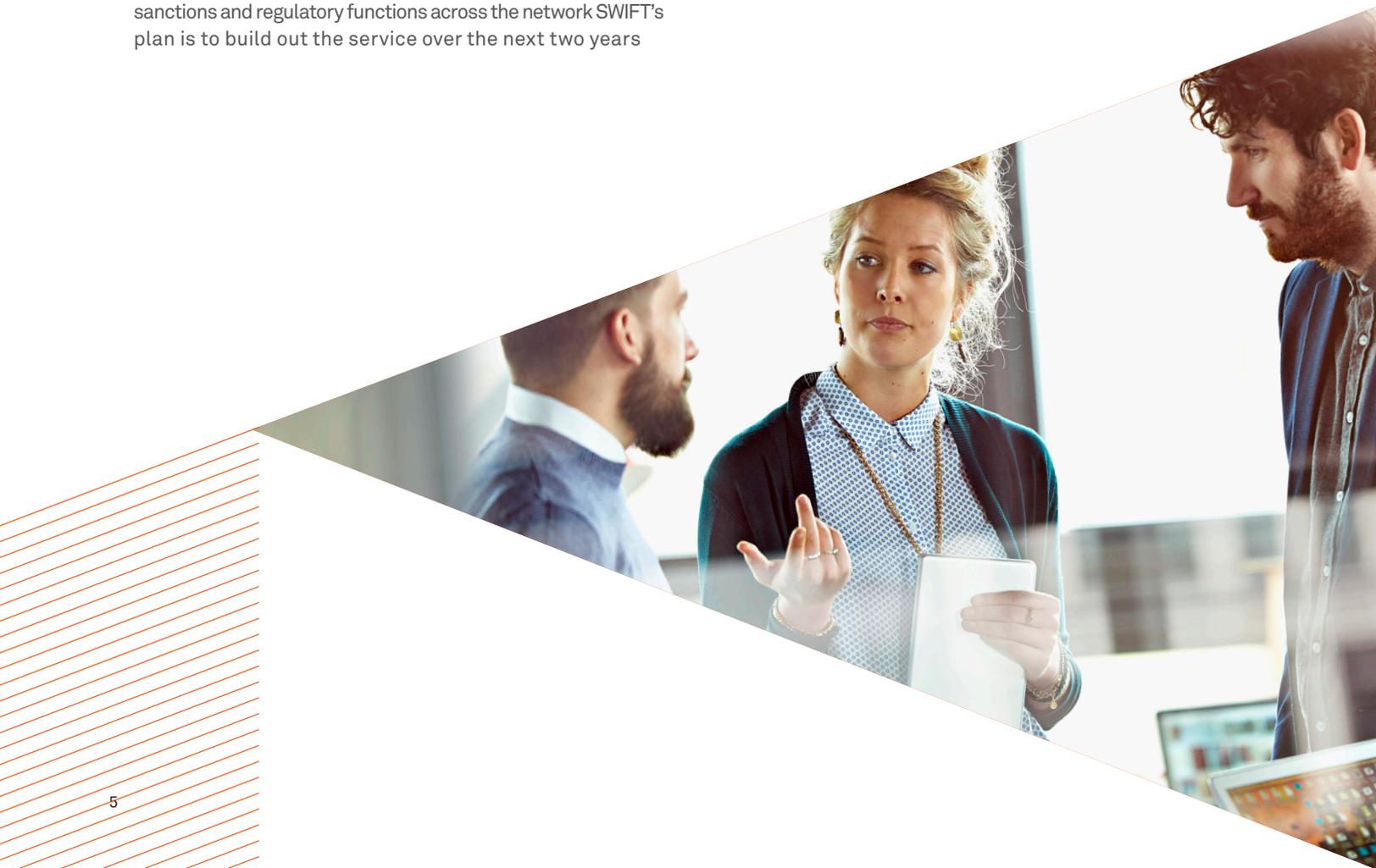
<sup>2</sup> <https://www.swift.com/news-events/press-releases/swift-enables-payments-to-be-executed-in-seconds>

# SWIFT Transaction Manager

- Recently, SWIFT has worked with many of the top global banks, including BNY Mellon, to propose a new platform to help reduce the remaining friction in the cross-border payment space
- The new platform will enable account-to-account transfers with transparency and predictability, as well as increased resilience and security
- Key to the platform is moving from the traditional message-based system, in which each party involved in a transaction acts somewhat independently of the last, to a payment system in which the end-to-end life cycle of a transaction can be managed across all parties—helping to reduce duplicate processes and streamline execution
- Leveraging APIs to connect participants to the platform, it is designed to support the complex migration process to ISO 20022 standards; introduce robust pre-validation of account data, fees and requirements in local jurisdictions for payment execution; and improve the management of sanctions and regulatory functions across the network SWIFT's plan is to build out the service over the next two years

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THE NEW PLATFORM  
WILL ENABLE ACCOUNT-  
TO-ACCOUNT TRANSFERS  
WITH TRANSPARENCY  
AND PREDICTABILITY.





# New Technologies

## AI/ Machine Learning/ Natural Language Processing (NLP)

- Fueled by big data, artificial intelligence (AI) – of which machine learning and NLP are subtypes – implementations are underway across the banking industry
- AI applications can be taught to use data to detect patterns and trends, gather insights and subsequently make recommendations in terms of action needed; tracking how those recommendations are used by human operators allows the applications to “learn” and improve at performing their function over time and with experience.
- AI is currently proving most effective in very specific use cases, including fraud monitoring, compliance and simple customer inquiries, paving the way for an AI-enhanced client experience and operational efficiencies. For example, AI is improving the speed and transparency of inquiry resolution by automating manually intensive processes and leveraging access to digitized data sources
- Banks are also exploring the potential to apply AI to higher-value activities – including treasury management functions such as liquidity management and payment channel optimization – although such capabilities remain several years away

## Blockchain/ Distributed Ledger Technology (DLT)

- DLT is a decentralized ledger that transparently records and stores the details of every transaction on a shared network
- Blockchain – a term often used interchangeably with DLT – is an example of a distributed ledger that consists of unchangeable, digitally recorded data contained in “blocks,” which are stored in a sequential chain
- Each block in the chain draws upon the previous one, to ensure that the data in the overall “blockchain” are operating from a single source”<sup>3</sup>
- This removes the need for multiple copies of the same information to be stored in separate silos, with reconciliation processes thereby significantly reduced
- The technology could bring huge advances to financial and business processes, with the added transparency, speed and security serving as a valuable means of addressing risk-related concerns. The application of DLT could also enable payments to be processed almost instantly

<sup>3</sup> <https://www.pwc.com/us/en/industries/financial-services/fintech/bitcoin-blockchain-cryptocurrency.html#:~:text=Bitcoin%20is%20the%20name%20of,verify%20the%20transfer%20of%20funds.>



# On the Horizon: *Digital Currencies*

Banks are continuing to leverage the emerging technologies outlined above—with new developments occurring at pace—and the possibilities for applying them to further enhance payments are extensive.

As we continue to look to the future, another development is increasingly coming to the fore that has the potential to revolutionize not only payments themselves but their entire business model: digital currencies (a topic explored in greater depth in our accompanying paper *Innovation in Payments: A Spotlight on Digital Currencies*).

Digital currencies are providing opportunities that could rewrite the way in which payments are processed today. That is because money that is token-based (be it digital or physical cash) can be held directly by participants of the

transaction, and thereby transferred directly and instantly from one party to another, irrespective of value, on a peer-to-peer (P2P) basis without the involvement of any centralized third-party intermediaries in the settlement process.

To achieve this, the industry is aiming to create financial market infrastructures (FMIs) centered on DLT. Several initiatives are underway, with central banks, financial institutions (FIs), fintechs and FMIs—the very institutions it was initially believed DLT could disrupt—all heavily involved in, and even leading, such projects.

Digital currencies could deliver benefits in three key areas: cross-currency FX swaps, securities settlement and, if the model proves successful, even cross-border payments. They can be divided into three different categories:

# 1

CRYPTOCURRENCIES

# 2

CENTRAL BANK DIGITAL  
CURRENCIES (CBDCs)

# 3

STABLECOINS

# Cryptocurrencies

- A cryptocurrency is a digital currency that uses encryption techniques to control the creation of monetary units and verify the transfer of funds; they have no intrinsic value and no physical form, and their supply is not determined by a central bank
- As of April 2020, there were approximately 5,392 cryptocurrencies being traded with a total market capitalization of US\$201 billion. Bitcoin and Ethereum are two of the most popular
- Though these currencies have gained traction among the public, most governments, central banks and financial institutions (FIs) remain cautious of their use; in January 2020, the Bank for International Settlement (BIS) reported that of 66 central banks surveyed, none indicated significant use of cryptocurrencies for either domestic or cross-border payments
- Since their inception, they have suffered from highly volatile prices, limited scalability, complicated user interfaces, and issues in governance and regulation —making it difficult to perceive these currencies as a stable payment mechanism for the future
- But the potential of DLT and how it could transform payments—and settlements in particular—is undeniable, with many central banks now looking to leverage the technology to create their own digital currency, known as a central bank digital currency (CBDC)

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**MOST GOVERNMENTS,  
CENTRAL BANKS AND  
FINANCIAL INSTITUTIONS  
REMAIN CAUTIOUS OF  
CRYPTOCURRENCIES' USE.**

# Central Bank Digital Currency (CBDC)

- A CBDC is essentially the digital form of a fiat currency, which is issued and regulated by the monetary authority of a country or region; CBDC is operated and settled in a P2P and decentralized manner
- Key benefits of CBDCs include:
  - improved security via DLT
  - improved visibility, with payments tracked and audited through the central ledger
  - more efficient payments, including interbank securities trading and settlement
  - cost savings, as central banks could save up to 90% of the costs involved in transporting, storing and replacing damaged physical currency
  - monetary control, allowing central banks to monitor, freeze or even blacklist accounts or wallets as needed
- Approximately 80% of 66 central banks surveyed by BIS are engaging in work pertaining to CBDCs, with 40% having progressed from conceptual research to experiments or proofs-of-concept, and another 10% having developed pilot projects
- China is the closest among major economies to introducing a CBDC; in August 2020, the People's Bank of China expanded a trial run of its prototype digital renminbi to urban areas containing some 400 million people
- The Boston branch of the Federal Reserve announced in the same month that it would collaborate with the Massachusetts Institute of Technology (MIT) on a task force looking into “the opportunities and limitations of possible technologies of digital forms of central bank money”
- Several projects are also exploring the benefits of CBDCs for domestic interbank payments, including the Bank of Thailand's Project Inthanon, Bank of Canada's Project Jasper, the European Central Bank (ECB) and the Bank of Japan's joint initiative Project Stella, and the Monetary Authority of Singapore's (MAS) Project Ubin
- Several fundamental questions must be answered before CBDCs can become mainstream:
  - How will they impact monetary policy?
  - How will they impact traditional banking business models?
  - How would digital money be regulated?
  - What happens if there is a digital “run” on the banks?
  - Who has access to the accounts? Who then assumes the risk?
  - Will the central bank take on operational burdens such as AML/KYC checks?

# Stablecoins: *The Missing Link?*

- Stablecoins sit somewhere between cryptocurrencies and CBDCs and are seen by many as a stepping stone between the two
- While stablecoins share many of the features of cryptocurrencies, they seek to avoid the high levels of volatility associated with these digital currencies by linking the value of the coin to a pool of assets, thereby stabilizing the coin
- This core feature makes stablecoins more attractive as a means of payment and as a store of value than their cryptocurrency counterparts
- Much like cryptocurrencies, the term “stablecoin” has no established international classification, and a number of different projects come under this broad umbrella; stablecoins can, therefore, differ markedly according to their underlying features
- In October 2019, the G7 Working Group on Stablecoins published a report that defined the three most common design models, including those that are:
  - Issued with a specified face value, with the provider pledging to redeem coins at par in the same currency that was used to purchase the coins
  - Not issued with a specified face value but instead constitute a share of a portfolio of underlying assets.
  - Backed by a claim against the issuer; the coin’s value is rooted in the public’s trust in the issuing institution
- Stablecoin issuance is growing in popularity among fintechs, FIs and corporates
- They could potentially facilitate the settlement of tokenized assets for wholesale capital markets
- However, for stablecoins as with CBDCs, a lot of regulation and governance remains outstanding:
  - One key issue that needs to be resolved for payments to move to DLT platforms is how participants will manage counterparty anti-money laundering (AML) risk
  - Additionally, when anyone on a system can send anyone else on the system money instantly, this raises questions regarding financial risk management

# *Conclusion:* The Vision for Tomorrow

Global payments are undergoing a transformation like never before. Achievements throughout the past seven years have been astonishing, and there is clearly more to come. We believe that in the next five to 10 years consumers, businesses and institutions will be able to: send and receive domestic and cross-border payments instantly, 24/7/365, and with full transparency into costs; monitor and manage liquidity positions in real time across providers, geographies and currencies; and will have seamlessly integrated each of these capabilities into their core business activities.

While the destination for faster, better and more transparent payments seems fixed, the exact route taken by the industry to reach this point is yet to be determined. But with a host of cutting-edge technologies and initiatives providing the means to enhance payments, it is a combination of these tools that will allow us to get there. Going forward the industry will see coexistence and interaction between more “traditional” rails—including SWIFT’s innovative transaction manager—and the more established emerging technologies and the new landscape of digital currencies, with each channel remaining relevant and delivering specific benefits and value. Achieving interoperability among rails old and new will be crucial.

Banks will need to provide a holistic suite of solutions across these channels in order to cater to the full breadth and varying needs of clients across the globe, both now and in the future. This means continually investing in and leading the advancement of payments, both by enhancing traditional rails, as well as leveraging new industry initiatives and emerging technologies, including SWIFT gpi, AI, real-time capabilities and digital currencies. Through a continuum of services, bringing all these elements together, banks can fully support clients on their digital journeys, connecting to client needs and powering individuals and institutions to succeed in the global economy.

*With digital currencies at a more nascent stage than some of the technologies and initiatives touched on in this paper, readers can find out more about how they could shape the future of payments and settlement in our accompanying white paper **Innovation in Payments: A Spotlight on Digital Currencies**.*

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