



# Re-visiting the Enterprise Payment Hub for Digital Transformation

in collaboration with



**IBS**intelligence

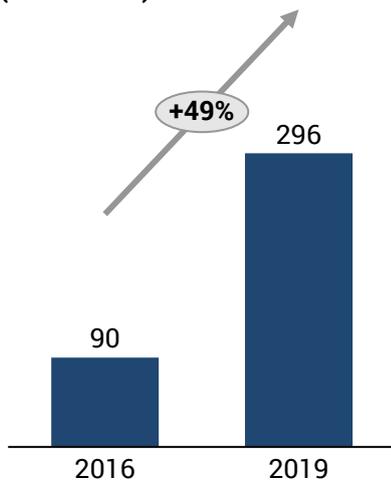
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# Introduction

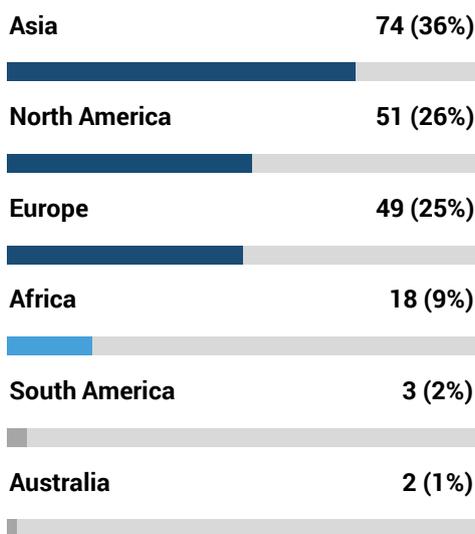
**Payments Sales Growth (2016-2019)**



Source: IBSI SalesVision

The payment landscape across the globe has witnessed dynamic growth and rapid innovations. While the spotlight has been mostly on retail payments, in the last few years, several developments have taken place in the middle office that has significantly reshaped the payment processes and changed the entire landscape. This covers developments such as the introduction of real-time gross settlement (RTGS) that decreased the credit risk from wholesale payments, the introduction of multicurrency functionality in the system, and opening access to non-banks to improve the interoperability of systems. In addition, payment market infrastructure providers have also been modernizing to build real-time payment infrastructure to reduce friction in domestic and global transactions.

Consequently, banks have also been significantly investing in payment technology systems to keep up with the evolution and maintain a competitive edge in the market. As per IBSI's SalesVision database, payments technology system sales grew at a CAGR of 49% between 2016-2019, with over 290 deals reported in 2019 alone. Furthermore, in 2019, Asia reported the highest number (37%) of deals, followed by North America (28%), Europe (25%) and Africa (9%), among others.



● Low    ● Medium    ● High

Source: IBSI SalesVision

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**“We are seeing an acceleration of real-time payment schemes across all markets. The key driver is the modern digital customer who is always connected, values convenience and expects a great experience. The combination of Swift gpi and domestic real-time payments is enabling HSBC to offer that experience across the world.**

**– Global head of payments products and cash management, Leading Banking in Asia**”

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One of the key payment technology solutions that banks have been investing in over the years has been the payment services hub. This has been one of the crucial developments in transcending wholesale payments seamlessly within different systems. Every bank has a myriad of payments to make across small-scale and large-scale transactions - the emergence of payment hubs was expected to optimize the process and bring in operational efficiency. A Payments hub solution should bring with it many benefits, the most common one being that banks can manage and control the movement of money through all their payment channels through a single platform. The interface and dashboards extended to every stakeholder within the bank according to their roles should have a considerable impact on operational efficiency.

Lately, key market developments such as the exponential growth of digital payments, the growing Open Banking ecosystem, push for real-time payment market infrastructure, and the migration to ISO 20022 standards; are all dependent on the efficiency of the underlying payment processing services. Banks have

been actively investing in modernizing their payment technology infrastructure to keep up with the market requirements driven by these developments as well as meet the resultant regulatory reporting requirements.

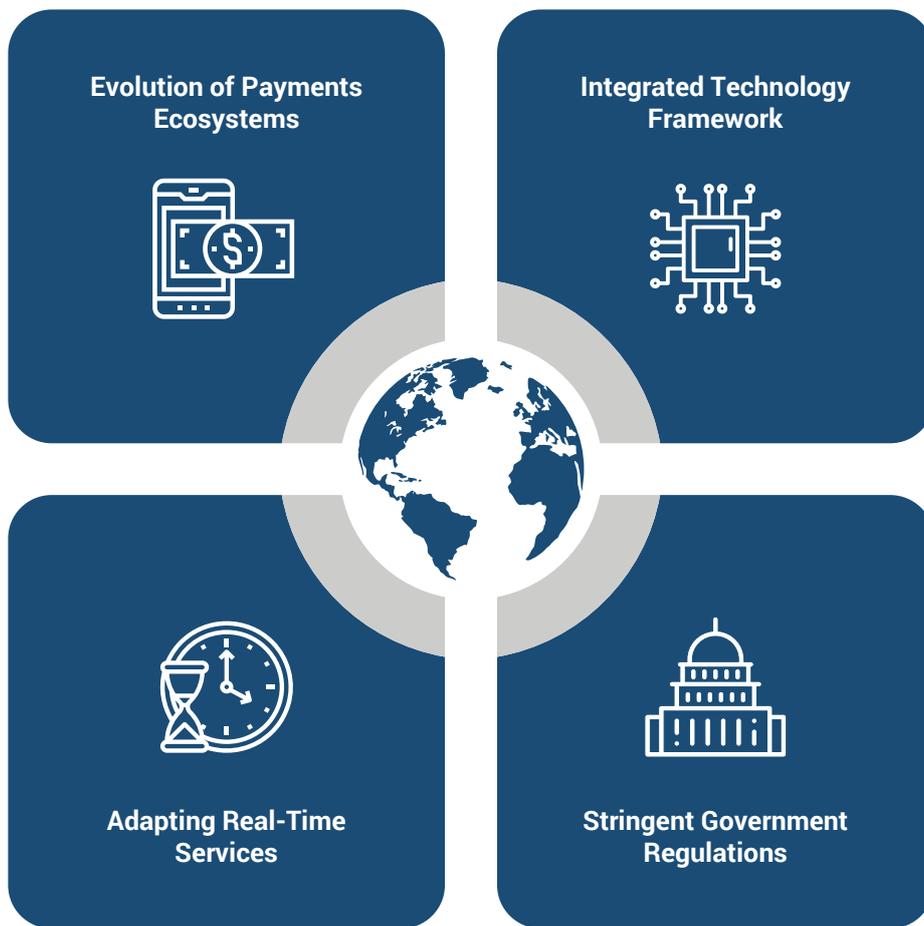
As banks are adopting real-time payments globally, new capabilities are emerging to operate in real-time, such as fraud protection innovation, corporate cash management solutions for real-time cross-border payment, and virtual accounts. With the New Payments Platform (NPP) already in place, Australia is planning for open access to account information, with open API-based transactional services expected in the coming years. Hong Kong has previously announced a phased release from account information to transactional capabilities, and banks have released API interfaces.

In this whitepaper, IBSI, in collaboration with ECS Fin, explores this growing importance of a payment services hub, the challenges in modernizing or designing a payment hub solution, as well as the best practices for banks to consider before embarking on the journey of payment modernization.

# Current market trends influencing payment hub

The Payment services Hub solution has evolved since its introduction in line with the market developments. The following points summarize the key trends in

payments that are driving the need for a modern payment services hub while also driving new features and functionalities:



Source: IBSI Research

## Evolution of Payments Ecosystem

The payments ecosystem has gradually evolved over the years. For instance, correspondent banks have always played a crucial role in being a hub between routing international payments as well as being responsible for due diligence. Now, the payments ecosystem is no longer confined to only correspondent banks; it has further evolved with various FinTechs that have mushroomed over time with innovations. Banks are embracing FinTechs

either directly or via participation in innovation consortia, incubators, or accelerators. Earlier linkages had to be created between the payment processing engine and the back-office systems as well as transaction monitoring, authorization, and various clearing systems. Banks were only dealing with these proprietary channels. Now with Open Banking and the growing APIs ecosystem, banks have additional payment channels and additional needs to be supported for the underlying payment services.

Companies continue to use legacy systems. In some cases, there are core banking systems which are not meant to be payment processors but are used as one. This causes certain hindrances in the process. There are also payment processors that are not geared up to withstand the velocity as well as the volume of today's payments. The transition to a dedicated payments hub is a complex procedure. However, banks need to have a future ready system.

– Domain Lead for Payment Design Services, Leading bank in Europe

### Adapting to Real-Time Services

The market infrastructure is fast transitioning to real-time. The capability to integrate data from several sources on a real-time basis is one of the most emerging trends. The front office application can only offer what the middle office can support.

In 2019, 54 countries went live with real-time payment systems (including 20 eurozone countries on Europe's SCT Inst-based scheme), which is an increase of ~30% from 2018, laying the foundation for new open API-enabled services and ISO 20022 standardization. Canada, Columbia, Peru, and New Zealand are expected to go live with their Real-time payments (RTP) initiatives (that are currently under development) in the coming two years. Vietnam has

already announced its intention to develop a real-time payments service. Each country has developed its real-time payment system to meet local demand.

As markets move to real-time payment infrastructure, the volume of transactions is expected to grow exponentially. A bank's payment system needs to be able to handle this spurt in volume as well as develop the capability to monitor and remain available throughout the clock.

**According to estimates released by ACI Worldwide, RTP transactions are expected to exceed 300 billion by 2023, growing at a CAGR of ~40% globally.**

#### North and Latin America

- Canada pushed its RTP initiatives to 2020
- Recently launched RTP services in the US had a transaction value of around \$3 billion daily in 2019, \$4.6 billion daily in 2020, and \$6.4 billion by 2021
- Strong growth in Brazil with ~50% increase in volume and ~75% growth in value transmitted in 2019

#### Africa

- Most of Africa has solved the RTP issue through mobile-based services rather than changes in financial infrastructure
- Ghana witnessed its transaction volumes triple and value increase six-fold
- Nigeria too experience strong growth with volumes doubling in 2019
- South Africa witnessed steady growth with ~20% increase in number of transactions



#### Asia

- India leading the way with a ten-fold increase in value and eight-fold increase in transaction volumes on IMPS in 2019
- Singapore's FAST service grew strongly with ~50% increase in both volume and values transacted
- China grew volumes by ~20% and value by almost ~50% driven by monitoring and regulation of third-party payments providers

#### Europe

- Growth in RTP schemes driven by the eurozone SCT Inst, with 20 countries signed as of 2019
- Sweden witnessed strong growth with volume doubling and value tripling
- The UK witnessed ~20% increase in both value and volume as of 2019
- Poland and Turkey both saw volumes increase by ~50% in their local markets

Source: IBSI Research

### **Integrated Technology Framework**

It is crucial for having an integrated platform that offers and builds services around B2B transfers, P2P transfers, and fund transfers over the internet and mobile while manoeuvring through the myriad of both the internal and external systems. Banks are focussed on developing a holistic perspective across all payment types - including both domestic and international with insightful analytics. To provide such an integrated view requires a superior integrated technology framework. The ability of the bank to seamlessly transact across all payment types, formats, clearinghouses, and instruments across any channel is crucial for a robust integrated platform.

### **Migration to SWIFT GPI and ISO 20022**

The legislative pressure on the payments market has increased considerably in recent years. It becomes imperative for a bank to oblige and promptly implement various regulations efficiently. These regulations areas are mostly aimed at harmonizing

payments, increasing customer security, fraud mitigation and promoting innovation. Many of the recent global initiatives are focused on improving the payment market infrastructure. For example, the new standards for international payments such as SWIFT GPI and new messaging standards such as ISO 20022 are expected to transform bank-to-bank domestic as well as cross border payments.

SWIFT GPI is a delayed but much-required step in the right direction. For any large or mid-sized bank which is into corresponded banking, SWIFT GPI is critical to improving process efficiency

Moreover, the migration from legacy messaging standard to the ISO MX standard is expected to prove to be beneficial for everyone across the payments value chain. There are many opportunities attached to the migration of ISO 20022, ranging from richer payment data capture, increased straight-through-processing, improved interoperability, enhanced compliance possibilities, and ultimately reduction of processing cost through operational efficiencies.



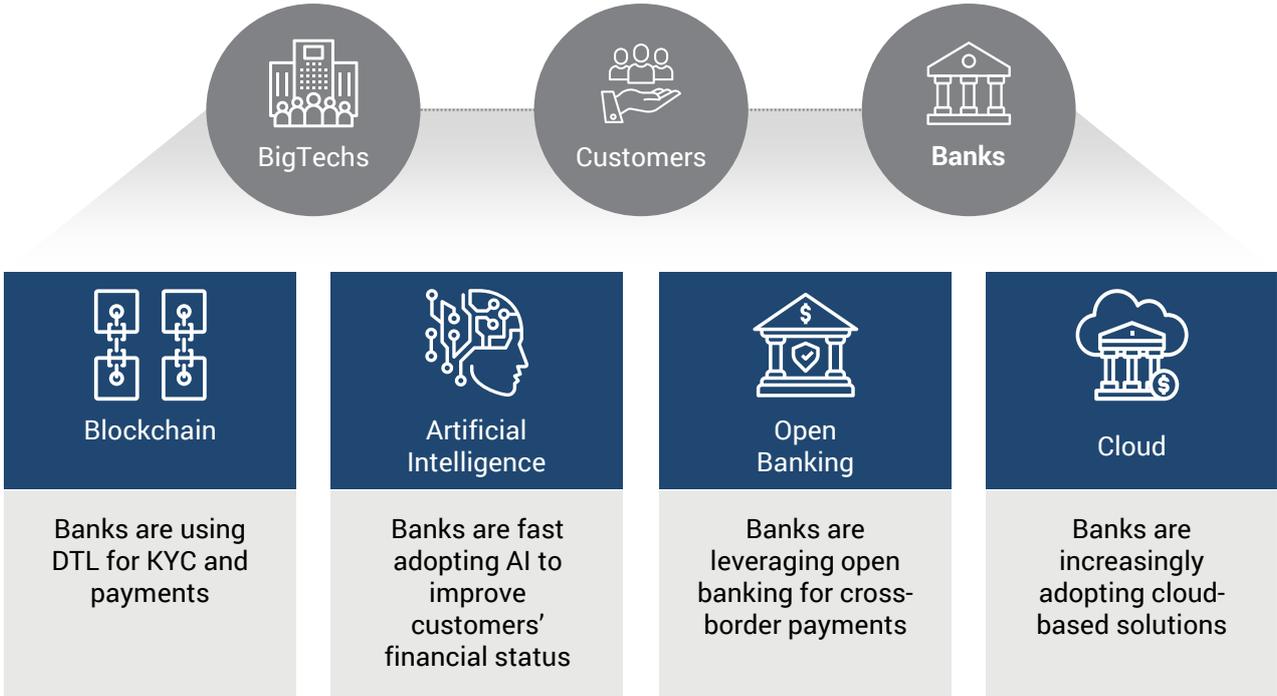
# Technology innovations in payments processing



As part of digitalization, banks must keep up with changing customer requirements and allow room for technological advancements to curb competition from non-bank counterparts. The payments landscape has witnessed a technology-led transformation.

Several new technologies such as blockchain, analytics, artificial intelligence, and open application programming interfaces have been transforming the payments industry.

**Incorporating new technologies will benefit banks in terms of reduced costs, open new revenue streams and improve customer experience**



Source: IBSI Research

Some of the technology innovations, along with their use cases, are captured below:

### Blockchain Technology

Blockchain technology facilitates a secure, fast, and low-cost international payment processing services with the use of encrypted distributed ledgers that offer real-time verification of transactions without the need to intermediaries such as clearing houses and correspondent banks. Leading global banks and Central banks are exploring digital currencies based on blockchain technology and are involved in active pilot programs around the world. For instance, the People's Bank of China has embarked on its own "digital yuan" project, and Sweden's central bank, Sveriges Riksbank, has announced a pilot for a digital version of its currency for retail use, also known as e-krona. Moreover, the Federal Reserve of the United States, the European Central Bank, the Bank of Japan, and the Bank of England are all exploring digital currency with the aim to launch in the next five years. In 2019, JP Morgan developed 'JPM Coin,' a digital token that would be used to settle transactions between clients of its wholesale payments business. There are over \$6 trillion of wholesale payments carried out by the bank. The use of JPM Coin is expected to make these transactions cost-efficient and faster.

### Artificial Intelligence

Artificial Intelligence (AI) is highly leveraged to improve the speed and efficiency of the payment process. There are many uses of AI-powered applications in wholesale payments ranging from optimization to cash flow forecasting. In forecasting, it allows the central market to interact with participant systems and then propose effective timing for payments to maximize synchronization. There is also a high demand for AI solutions in the back-office areas because of the increased market penetration of real-time payments. Moreover, AI also assists in preventing and detecting fraud by flagging up unusual transactions. From a business user perspective, as the ISO 20022 adoption increases, AI would play a very critical role in the fraud reporting and monitoring as well as developing customer insights based on the collection of enriched payment transaction data captured by ISO 20022 compliant systems.



**Institution Name:** ANZ and Wells Fargo

**Country:** Australia, USA

**Use Case:** Wells Fargo and Australia's ANZ have built a shared distributed ledger platform prototype for correspondent banking payment reconciliation and settlement. The two banks have delivered a platform that improves the speed of cross-border transactions and improves efficiency.



**Supplier/s OR Consultant:** DataRobot (USA)

**Institution Name:** Avant LLS (USA)

**Country:** USA, UK

**Use Case:** DataRobot's platform, powered by Amazon Web Services (AWS), allows business analysts to perform data science work via its interface empowering the company to make a larger number of predictions – from the likelihood of receiving payments to analysing response to potential frauds.

## Open Banking

Open Banking enables provisions of new solutions using APIs. These new solutions can be thus integrated quickly into ecosystems. Open banking allows secured and direct access to confidential information as well as services without having to go through traditional integration which is meant for business to business communication only, and not have to depend on infrastructure and technology overheads to request services from a service provider. Understanding and leveraging the innovative potential of open banking will enable legacy financial institutions to build on their existing customer relationships.

## Cloud

The use of cloud technology in payments offers a myriad of convenient payment methods to all the stakeholders in the ecosystem. One of the most significant benefits of the cloud is scalability and flexibility that banks get in managing intermittent surges in payment processing volumes. It also provides enhanced data security and reduced costs. Moreover, cloud-based payment solutions also enhance the customer experience with multi-channel access as well as easy to use interfaces. However, these benefits are achieved if the implementation is carried out in the right way. Companies are using cloud to undergo remodeling of their products and services as well as to evolve their payment offerings. Various B2B companies also have the option to integrate financing into their payment systems. Furthermore, cloud solutions in payments offer financial institutions the ability to aggregate their large volume of data all in a single place and make it available for advanced analytics to derive timely insights that result in better customer experience.



**Supplier/s OR Consultant:** Flywire Payments Corporation (USA)

**Institution Name:** Bank of America

**Country:** USA

**Use Case:** Bank of America teamed up with Flywire to enhance its cross-border payments capabilities for their corporate customers. This service makes international billing, payment and receipts more efficient and easier to use.



**Supplier/s OR Consultant:** Equinix (Data Centre); AWS (Cloud provider); Pivotal Cloud Foundry (Developer platform)

**Institution Name:** DBS Country: Singapore

**Use Case:** DBS partnered with Equinix, to transform one of its traditional data centres in Singapore into a cloud-optimized centre. This will make the new centre 75% cheaper to run. It has multiple cloud-based mobile applications including a mobile payment solution.

# Challenges faced by banks in modernization of payments

Banks have been facing an unprecedented level of challenges in the payment space. Some of the banks are still using core banking systems for payment processing instead of a dedicated payment service. Such approaches call for redundant services since processing rules and market practices engaged can be utilized only

by payments that pass through that specific CBS system and not available at the enterprise level. Besides, it is tough to change the legacy system to the new-age system completely. The system must have a future-ready solution. Over the past decade, payments modernization programs have at large failed to keep their promise.



Some of the key challenges banks face around payment modernization are highlighted below.

## Fragmented Processing

Banks have engaged multiple systems that are process-centric and department centric. This has called for fragmented processing of data that calls for integration services, data transformation services and unwarranted travel of data between systems. In a fragmented environment, digital transformation can become challenging. For instance, banks can delegate payment routing decisions to its customers if the options available along with cost and time can be disclosed at the time of making the request. An integrated payment processing service may not face such challenges.

## Interoperability Challenges

Banks are still struggling with the ability to transact or meet the standard messaging requirements. Banks using legacy systems and old payment standards (MT standard) face limitations and are not fast enough to handle each transaction end-to-end at an individual level. Banks are transitioning from regular payments to real-time payments. However, they are facing challenges in the migration process. In some cases, information that needs to be truncated by banks is not capable of handling data-rich formats. This results in inefficiency and loss of transaction data. Banks also face investment challenges with developing parsers for complex MT fields, delayed and rigid standards.

Hence, banks are moving towards the XML version. XML-based message definitions (MX messages) are replacing the MT message types. The ISO 20022 standards support formats that are more flexible than existing country- and bank-specific message formats and, thus, provide significant benefits in the field of process handling. Moreover, ISO 20022 standards are introducing a common standard RTP which is driving international best practices for real-world interoperability for cross border real-time payments.

### Complex regulatory compliance

Many of the markets across the globe have introduced stringent regulations related to payment transactions, mostly related to money laundering, fraud, and data security. Central banks have been stringent around compliance with high penalties

imposed on those that do not comply. For instance, in 2018, Britain's largest banks spend approximately £660 million a year on AML compliance alone. Around 12 of the world's top 50 banks in 2019 were fined for non-compliance with AML, KYC, and sanctions violations.

Banks are struggling with reporting and compliance with these regulations, especially those with operations in multiple jurisdictions across the globe. Developing an integrated, consistent view of transaction data is essential for banks to track compliance across these regions.

In addition, regulations over data management is a rising concern for banks, especially with the Open banking driven data-sharing requirements with third-party fintech firms and other payment service providers.

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**A large bank can end up having to manage over 60 different compliance requirements for the various jurisdictions that it operates in, and this can be challenging. Around 70% of the resources in a bank are used to just manage and meet regulatory compliance.**

**– Head of Global SWIFT Management, Credit Agricole**

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### Cost and time conundrum

Banks are revamping their payments infrastructure and actively investing in upgrading their legacy systems. A payment technology modernization exercise at a bank is typically a multi-year and multi-million-dollar project. With constrained margins arising from lower interest rates and limited budgets to spend on technology, this is becoming a big challenge. This is evidenced in the number of core banking transformation deals in Europe, which reduced by nearly 50% over 2017 and 2019 as recorded by IBS Intelligence. While banks realize the importance of end-to-end modernization, the big bang approach is challenging to achieve for many due to the legacy system infrastructure sitting at the back

end of such banks. In this context, the investment in large scale payment transformation is challenging for banks to undertake, especially if it was not already planned in previous years. Small and mid-sized banks also struggle with skill sets required to manage the transformation.

Additionally, such modernization initiatives are often tied to meet compliance or market requirements. A notable example is the ISO 20022 messaging standards for SWIFT, which will be enabled from December 2022 with the deadline for the complete switch over the new standards by November 2025. Payment modernization efforts will need to also consider these timelines for their implementation.

# Bank expectations from a modern payment services hub

Some of the critical considerations for banks implementing payment modernization are the cost of implementation, time to market, vendor's expertise with end-to-end payment processes, and their ability to support the organization. In terms of features, banks expect a future-ready that can handle current and upcoming regulatory as well as market changes.

Some of the critical base expectations include a cloud-ready architecture supporting Open Banking APIs, ability to support real-time payments based in ISO 20022, and capability to manage transaction volumes 24\*7 through the year. Some of the differentiating features highlighted by banks for a modern payment hub are as below:



Source: IBSI Research

## Cloud-ready with Open Banking Support

While banks are still skeptical about moving mission-critical systems such as core payment processing engines to the cloud, all of them realize the inevitability of moving to the cloud in the future. Therefore banks expect new payment hub solutions to be cloud-ready and cloud-agnostic. The architecture of the solution is also expected to be modular and open, preferably aligned to BIAN principles, with API connectivity that would allow integration with other third-party systems.

## Omnichannel Platform

A payment hub enables banks to consolidate all payments processes in a single standardized and coordinated operation. Moreover, it also allows the supervision of liquidity and showcases the net value of all accounts. Most importantly, it provides the utmost level of visibility to the bank,

as all the processes and data are streamlined in a single platform, which is viewed in a dashboard format. Furthermore, if the bank evaluates several transactions over a period to predict the frequency of future transactions, payments hub provides this visibility leveraging technologies such as data analytics.

## Ability to switch between payment systems

Banks abide by a standard SMS format ranging from XML sheets to MT format for payment messaging. Banks must send accurate messages in the given format and intercept the received format. Payment hub provides operational efficiencies and can seamlessly convert these formats, thereby being able to switch between different systems successfully. The differentiator is the payment hub's capability to capture and convert payment messages without data truncation. This is especially important for banks during its transition to new ISO 20022 formats while

parallelly running the previous payment messaging standards as well.

### Support for digital currencies

Modern payment hub needs to be flexible enough to adapt to future market requirements, one of which is the use of digital currencies. Multiple initiatives are running around digital currencies explored by central banks and global banks, as well as distributed ledger technology-based cross-border schemes such as Ripple. Even SWIFT has allowed blockchain solutions to make use of its Global Payments Innovation (GPI) platform for near real-time payments. With these developments in play, it is important for a payments hub to have support for digital currencies.

### Provides business intelligence

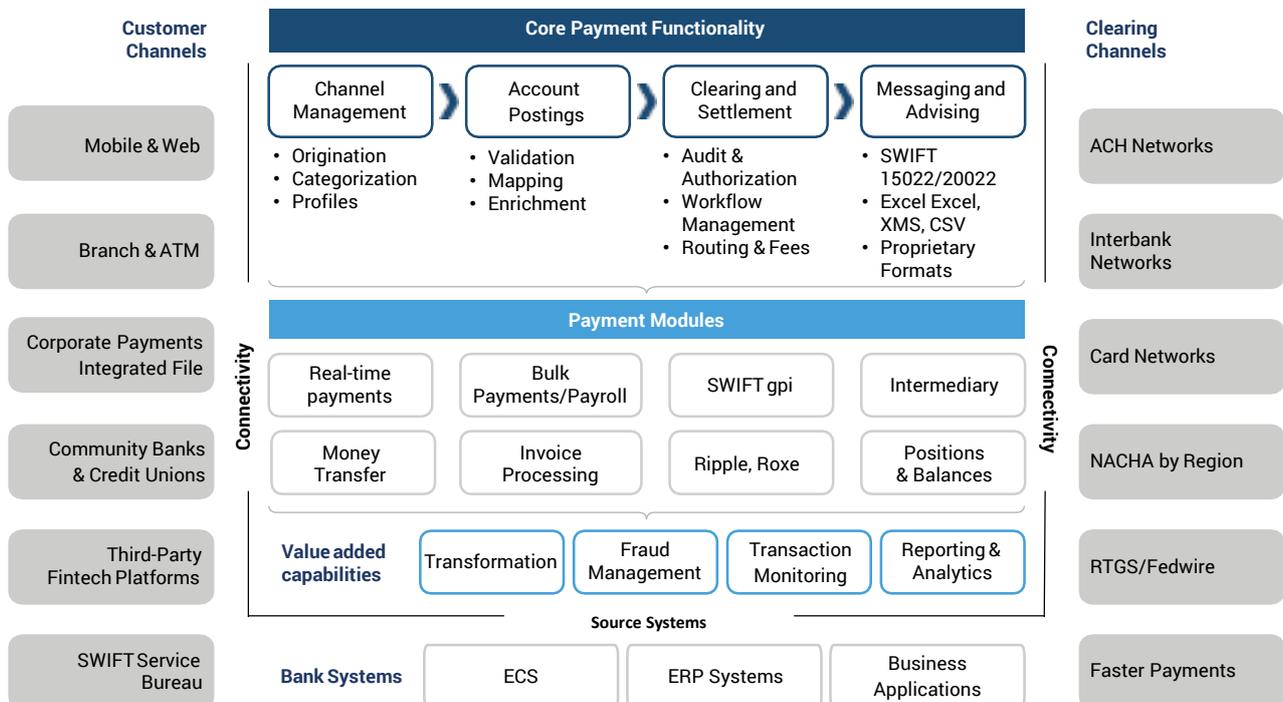
Payments hub can interact with other systems of the bank. With all aspects of the value chain in the payments, the hub is streamlined and consolidated in one place, and it is simpler for a fraud management system to carry out its operations. The operations are carried out swiftly to identify frauds or errors

without any hassle of connecting to different siloed systems.

### Payment-as-a-service (PaaS)

Within constrained operating margins due to lower interest rates, banks have limited budgets for large scale technology transformation initiatives. And due to the inherent scalability and operational efficiencies, banks are increasingly considering outsourcing their core payments platform technology. Major payment suppliers have started offering payment service hub on cloud in the form of a Payment-as-a-Service (PaaS) platform that can securely connect with the bank's back-office services through secure, performant and managed APIs. The PaaS platform provides a seamless, single payment service that manages process, product and transaction complexity and executes all payment types such as domestic and cross-border payments through a single interface. PaaS solution providers also offer value-added services such as AML & Sanctions Screening, reconciliation services, transaction status monitoring, and exceptions management, as well as fraud management.

### Key features of a Modern Payment Hub



# Way forward



With the growth of real-time payments and the increasing interoperability between cross-border schemes and domestic payment schemes, payment systems would need to be available a lot more than they are today, possibly reaching a stage where they are available 24\*7 365 days for all type of payments schemes. That creates a huge ask on the payment infrastructure and not just on its availability but the ability to process volumes, interfacing with money markets and various other banks, and the cascading impact on the rest of the banking infrastructure. These trends are anticipated to have a deep impact on how payment infrastructures of various banks will be in the next 5-6 years.

The essential ingredients to modernizing a payment infrastructure are having a clear long-term strategy, selecting the right solution, and working with the right technology partner. All these are vital ingredients in a bank to successfully navigate through the challenges and complexities of a payment technology infrastructure modernization.

As it is said that strategy is not a 'one size fits all'; banks need to understand their current state of technology infrastructure, their business priorities, resource capacity, and capability, and accordingly develop the right strategy. Banks also need to consider the various payment market infrastructure transitions such as the ISO 20022 migration as well as regulatory deadlines to estimate the time, cost, and effort required for a payment transformation.

This could also mean that banks need not embark on an expensive overhaul of their entire payment infrastructure in one go and instead opt for a phased approach using translators to address short-term requirements. However, as a long-term strategy, the importance of end-to-end modernization of a bank's payment infrastructure is critical to stay relevant in the payments industry. This will not only help banks compete with new-age fintech and big tech platforms, but also significantly improve the bank's operational efficiency.

  **ECS** Fin