



State of global payments

Industry Analysis

Fall 2022

Take the pulse of your payments strategy

The payments market is evolving faster than ever.

We created the State of Global Payments Industry Analysis to help your company keep pace and thrive.

In the pages that follow, you'll find a deep dive into the critical market shifts impacting all players.

We track meaningful changes in payments and explore the key areas gaining traction, such as instant payments and buy now pay later, as well as the technologies like cloud migration and distributed ledgers that are making the transition possible.

Key market shifts highlighted in the report include:

- Retail and ecommerce sectors now generate nearly as much revenue from payments as banking and financial services do

- Asia Pacific, not North America, outspends Europe in payments-related IT expenditures
- Europe and Asia Pacific create far more transaction volume than North America does, with mobile wallets' popularity fueling APAC's surge in payments transactions

Spotting trends and best practices from around the world positions you and your company to learn from them and to advance your business. For example, the growth in digital transactions may be a signal to increase your ability to scale. The shift to real-time payments could be the indicator to upgrade fraud-detection capabilities.

We created this holistic view as a tool for companies to use in strategic planning for payments-related IT spending.

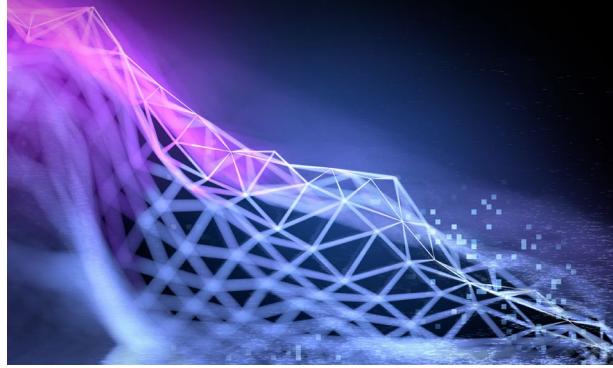
In a rapidly evolving industry like payments, the ability to pivot is critical, and doing so quickly matters more than ever.



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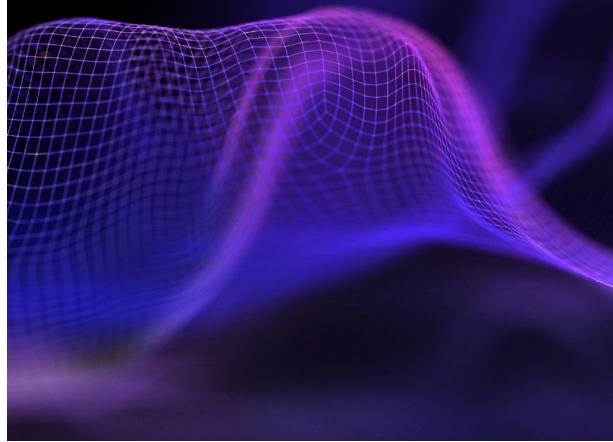
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Payments market overview



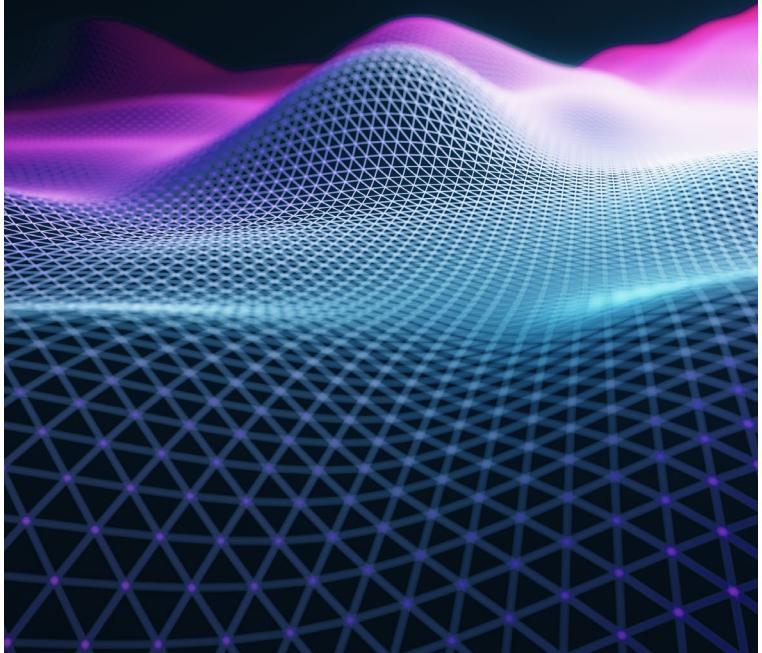
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Key payments areas gaining traction



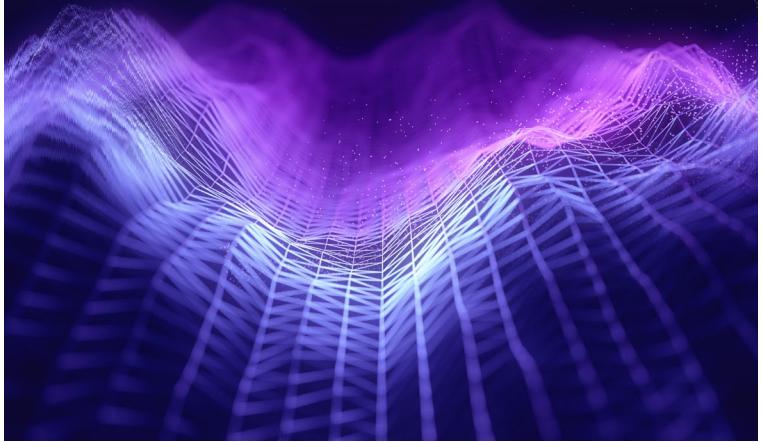
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Payments market overview



Analysis: why details matter in the payments industry



Market overview data of the payments industry indicates the sector's nuances. Understanding them is key to a payments strategy's success.

Take the industry's growth rate. Payments' growth is steady around the world. Yet the details signal important differences, with rising transaction volumes in Latin America and Asia Pacific outpacing the rest of the world and likely to continue to do so.

The two regions' healthy annual growth of more than 8% puts them ahead of the Middle East and Africa (6.9%), and North America and Europe (both at 5%-plus). But as emerging markets, Latin America and Asia Pacific are more reliant on mobile transactions. Payments transactions there are smaller in dollar amounts than the mature markets of the Americas and Europe but greater in volume and growing at a faster rate. The data shows similar characteristics for the Middle East and especially Africa, which although smaller in size shows accelerating growth.

Payments rises as a strategy across all industries

Equally important to geographic patterns is payments' expansion from its roots in banking and financial services (BFS) to its new role as a strategically important component across all sectors.

The data underscores just how pervasive payments has become. While BFS still occupies the largest market share in payments at 23.1%, retail/ecommerce and transportation follow closely at 20.1% and 17.8%. In the retail

sector, where market titans Walmart, Target, Home Depot and Lowe's represent 25% of retail transactions, it's no surprise that all four companies allocate significant chunks of their budgets to payments infrastructure and consider payments part of their competitive advantage.

What is surprising, however, is industry sectors' IT spend on payments, which reveals just how much money verticals are plowing into their payments infrastructure. The IT spend by retail and ecommerce is nearly as much as BFS and insurance, a fact that again underscores retail's often overlooked prominence in payments.

*See endnotes for sources of all data cited in this report.

**All values are in USD\$, unless otherwise specified.

The nuances of IT spend around the world

North America generated 30% of payments revenue in 2020 and accounted for 40% of IT spend, indicating higher spend in a region where the total payments market is smaller and the growth rate lower.

Asia Pacific, on the other hand, comprises 41% of revenue but 26% of IT spend and has a higher growth rate than North America.

Why are companies overinvesting in a low-growth market and underinvesting in a market primed for higher growth rates? The answer is that North America's legacy infrastructure is more costly to maintain and modernize, and more focused on large, on-premise infrastructure predicated on physical interactions and transactions. Asia Pacific's focus is on less costly, mobile-based infrastructures. The region's capabilities are built on leaner, cloud-native programming technologies. For traditional players in the Americas, migration to the cloud has been slowed by the need to first consolidate and then modernize systems.

As always, data tells a complex story. Check out the findings on the following pages to get a jump on building long-term strategic competitive advantage.



Payments industry - a geographic overview

Global payments revenue is expected to expand by a CAGR of 7.3% from 2020 to 2025. Growth is expected to continue at nearly the same pace for the remainder of the decade, and it is expected that the total revenue pool would reach \$2.9 trillion by 2030, with a CAGR of 6.4% from 2025 to 2030.

North America: According to Boston Consulting Group (BCG), payments revenue for 2020 stood at \$459 billion and is expected to reach \$609 billion by 2025. It is estimated to grow at a CAGR of 5.8% from 2020 to 2025.

LATAM: Payments revenue in Latin America for 2020 stood at \$127 billion and is anticipated to grow to \$190 billion by 2025 with a CAGR of 8.3%. The trajectory reflects steady improvements in the region's RTP infrastructure.

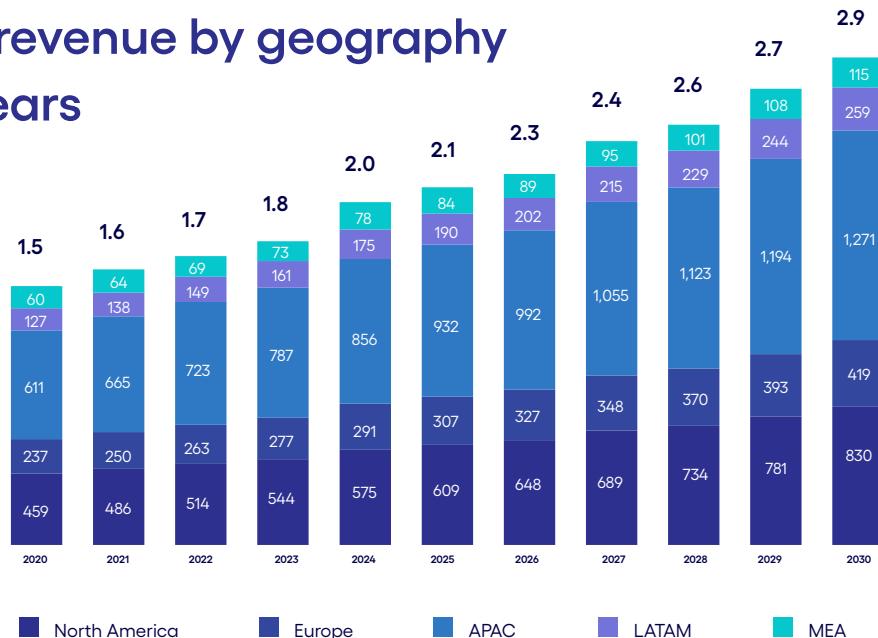
APAC: Payments revenue stood at \$611 billion in 2020 and is expected to grow to \$932 billion in 2025. The region is likely to continue to outpace others in revenue growth with a CAGR of 8.8% from 2020 to 2025.

Europe: Payments revenue in Europe for 2020 stood at \$237 billion and is expected to rise to \$307 billion by 2025, at a CAGR of 5.3% from 2020 to 2025; growth will be driven by increased adoption of cashless transactions and online shopping.

MEA: Payments revenue for 2021 stood at \$64 billion and is expected to rise to \$84 billion by 2025. From 2020 to 2025, the region's payments revenue will grow at a CAGR of 6.9%, largely due to the nearly 100% mobile penetration among the Middle East's young, digital-native population.

Global payments revenue by geography will double in 10 years

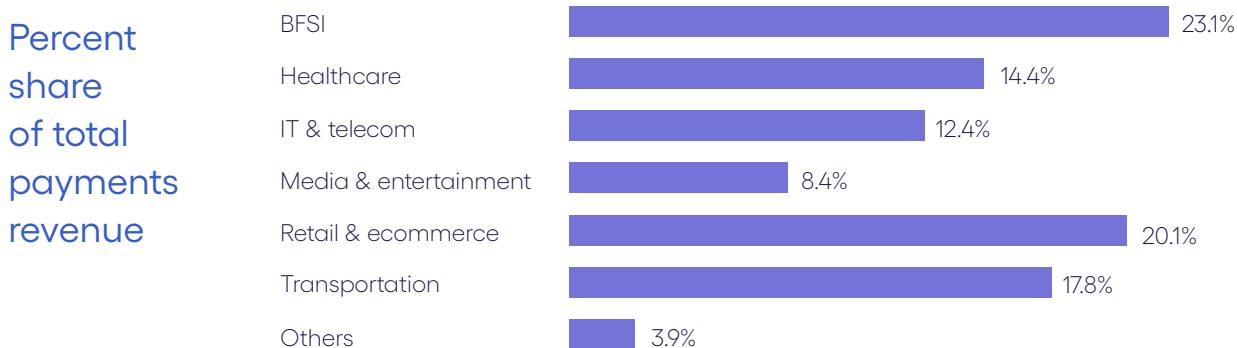
Geographic revenue in \$billion; total yearly revenue in \$trillion



Source: Cognizant analysis of BCG data

Payments industry - a vertical overview

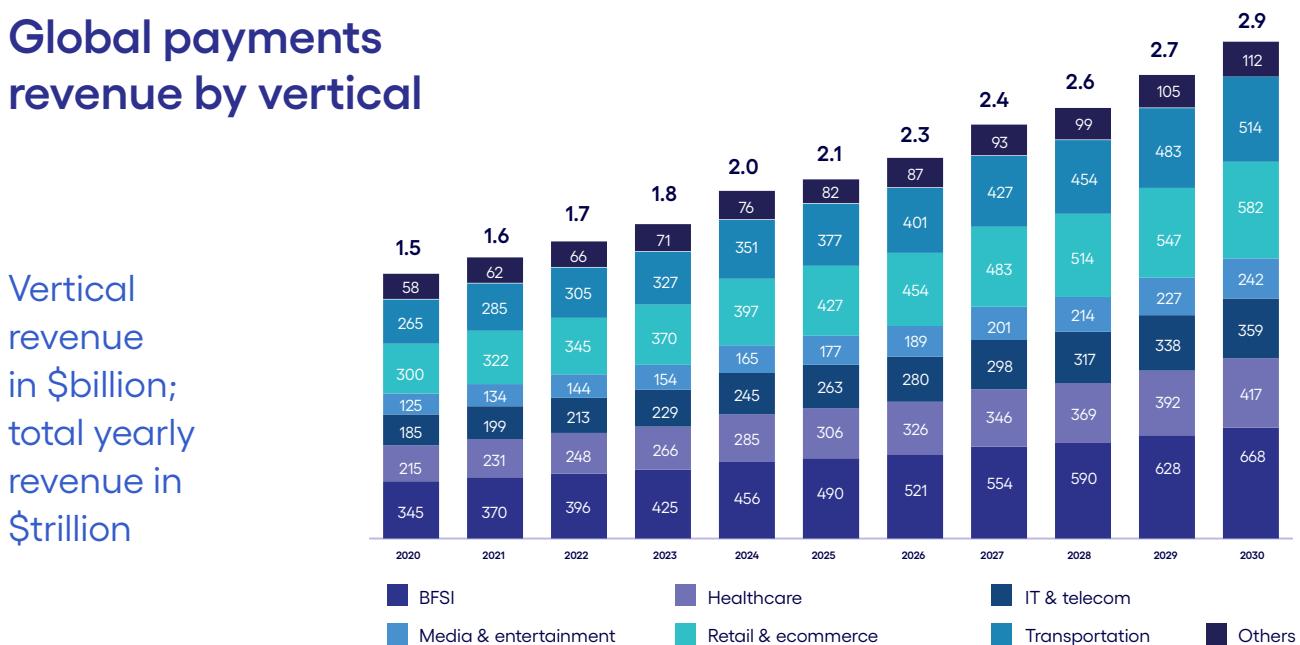
Of all industries, BFSI is the biggest contributor to global payments revenue.



- BFSI had estimated payments revenue of \$345 billion in 2020 and is expected to grow to \$490 billion by 2025; the industry accounts for 23.1% of the total payments revenue across all industries
- Retail and ecommerce payments revenue stood at \$300 billion in 2020 and is expected to grow to \$427 billion by 2025; the industry accounts for 20.1% of total payments revenue
- Transportation payments revenue stood at \$265 billion in 2020 and is expected to grow to \$377 billion by 2025; the industry accounts for 17.8% of total payments revenue
- Healthcare's payments revenue stood at \$215 billion in 2020 and is expected to grow to \$306 billion by 2025; the industry accounts for 14.4% of total payments revenue

Source: BCG and Grand View Research

Global payments revenue by vertical



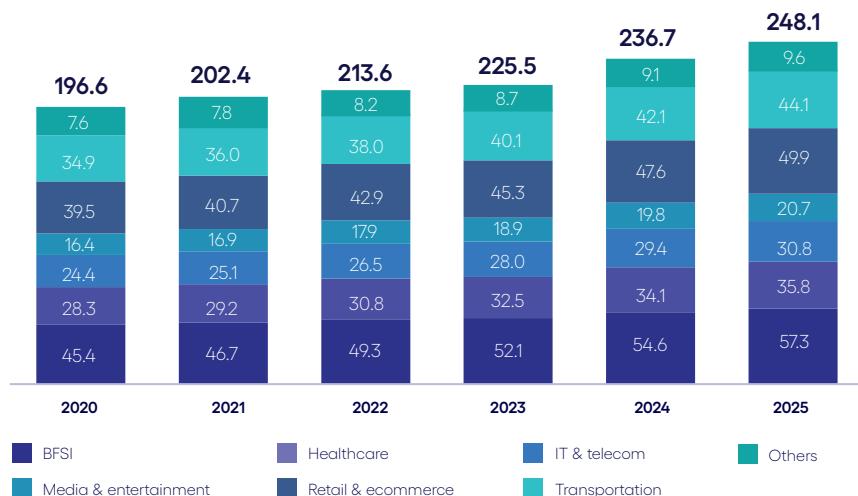
Source: Cognizant analysis of BCG and Grand View Research data

Payments addressable IT spend – a market analysis

- Global payments estimated IT spend stood at \$202.4 billion in 2021 and is expected to grow to \$248.1 billion by 2025, with a CAGR of 5.2%
- BFSI remained the biggest industry in terms of total payments IT spend at \$46.7 billion in 2021 and is expected to reach \$57.3 billion by 2025
- Payments IT spend in North America stands at \$85.0 billion in 2021, accounting for 42% of global payments IT spend, and is expected to reach \$104.2 billion by 2025

Payments IT spend by vertical

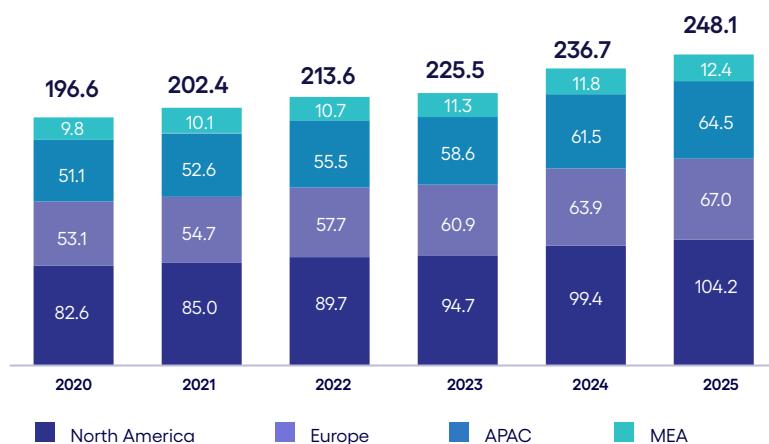
Industry spend in \$billion; yearly spend in \$billion



Source: Cognizant analysis of Omdia and Grand View Research data

Payments IT spend by geography

Geographic spend in \$billion; yearly spend in \$billion



Source: Cognizant analysis of Omdia data



Key payments areas gaining traction

Analysis: The market is robust, with uncertainty ahead

If the payments industry were a weather zone, we'd forecast sunshine with storm clouds ahead. Card-based transactions are hugely profitable for the payments sector, a rosy market that emerging payments channels threaten to upend and that payments providers need to evaluate carefully.

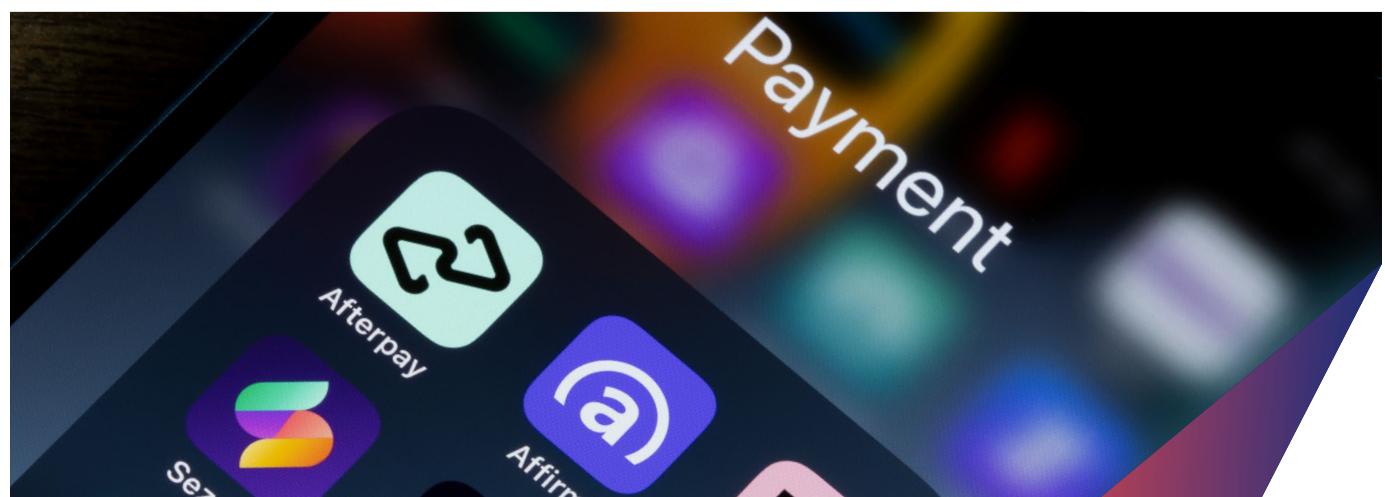
One look at Asia Pacific's dominance in card-based transactions—with purchases projected to reach \$341 billion in 2026, according to Nilson Report—underscores why the region has become an engine for global growth in payments.

In the US, Visa and Mastercard continue to lead the market for credit and debit cards, with debit transactions maintaining their appeal for budget-minded consumers. Yet credit cards hold their own, currently a high-growth, low-percentage product that trends show will gain further traction over time.

Looming over that robust global market, however, is the expected rise in non-card-based transactions such as Venmo and Zelle. In the US, the Federal Reserve's instant payment service FedNow is expected to jumpstart use of these pay-by-bank services when its real-time capabilities go live in the summer of 2023.

We expect the launch of FedNow to fuel a surge in non-card-based transactions, a move that's welcome by merchants because it eliminates interchange fees. For banks, the shift will have ramifications throughout their organizations. Many continue to struggle with how to monetize non-card-based payments and their attendant no-fee/low-fee model.

What's more, because many banks have put off the move to modernize their legacy IT environments, they're unequipped for the cloud-based infrastructure and interoperability that non-card-based transactions require.



New ways to pay

Although the breakout star in emerging payments channels is buy now pay later (BNPL), the services' ability to scale remains to be seen. The global market for BNPL is expected to grow a healthy 22.4% from 2021 to 2026, according to GlobalData, a London-based consulting firm, and it has proved attractive to demographics and markets often unable to access credit. Yet the data raises the question of whether the market has become saturated.

For one thing, BNPL's success has so far been confined to ecommerce, where it enables shoppers to pay for purchases in installments. Its utility could be limited in verticals in which there's no potential uptake for volume purchases, such as insurance and healthcare.

For another, the channel's prospective competitors include banks such as JPMorgan Chase that own merchant acquiring services and maintain an advantage over BNPL players in an interest rate-driven market in which they have access to substantially lower cost funds and gain a pricing edge.

The key question for banks is BNPL's impact on credit cards outstanding. Will it cannibalize accounts? The answer is part of the business case every financial institution has to take into account.

So far, cryptocurrency has had little impact on payments and remains a largely speculative investment vehicle. While there's no question that central bank digital currency (CBDC) will replace cash, banks can expect parallel currencies for a long time.

One trend we observe in the current economy is that post-pandemic spending on technology remains robust among financial institutions as they process the realization, heightened over the last two years, that they need to build in flexibility or risk being caught flat-footed during a rapid market change.

Digital wallets are a perfect example of the external motivators that can shape a market. Apple and Google tried for years to advance digital wallets, yet no amount of promotional spending could match the impact of the pandemic in driving adoption.

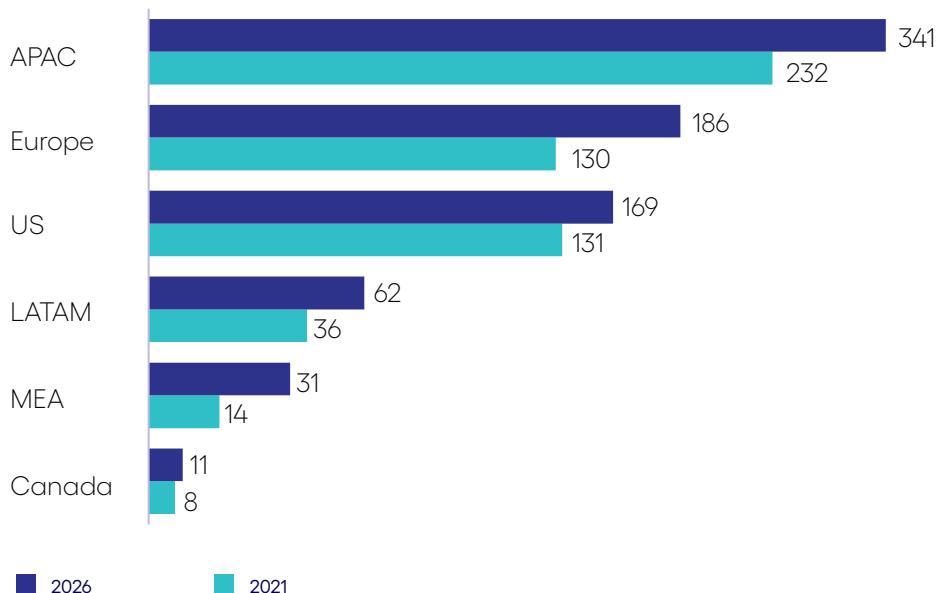
The key takeaway for the payments sector is that consumers change their behavior when they see a compelling reason to do so, and especially when they see an obvious advantage for them.

To ensure your organization is prepared for drivers of change, check out the data on the following pages.

Snapshot of global card-based transactions

Transactions on cards carrying Visa, Mastercard, UnionPay, American Express, Discover/Diners Club and JCB brands are projected to reach \$800.41 billion in 2026, an increase of 45% over 2021.

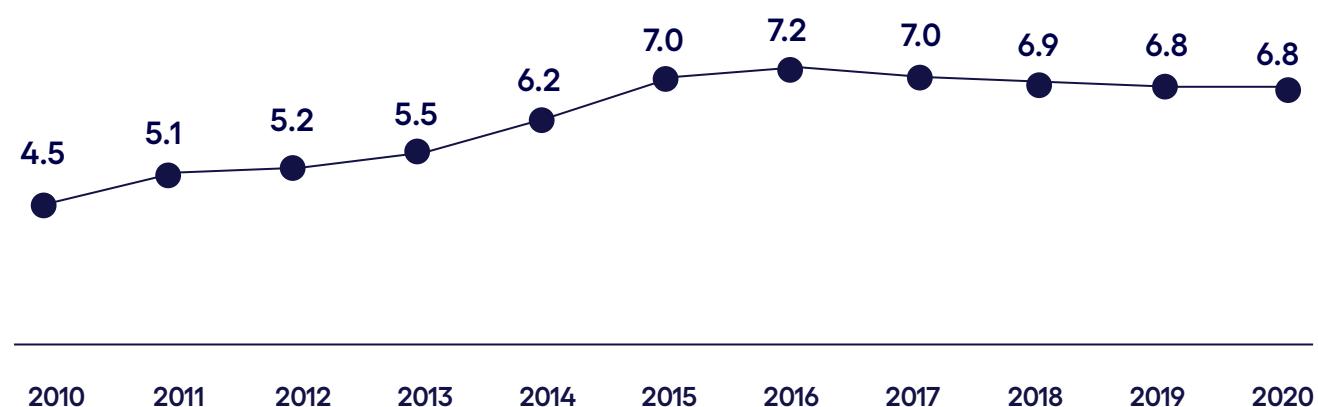
Purchase transactions projected worldwide in \$ billions



Issuers, merchants and acquirers of merchant and ATM transactions collectively lost \$28.58 billion to card fraud in 2020, equal to 6.8¢ per \$100 in purchase volume.

Card fraud worldwide

Cents per \$100 in volume

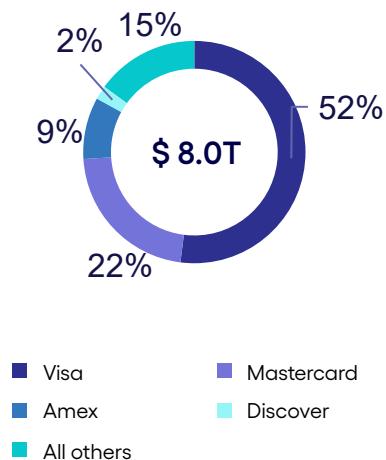


Source: Nilson Report

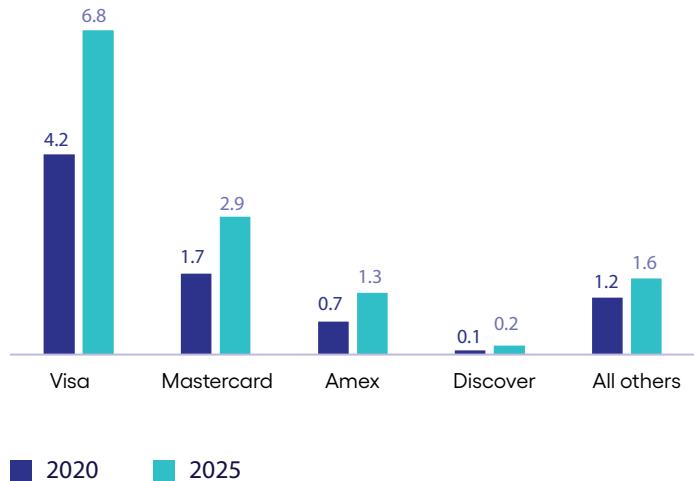
US payments cards projected

Consumer and commercial credit, debit and prepaid general purpose and private label cards are projected to generate \$12.9 trillion in purchase volume for goods and services in 2025, an increase of 61.3% from 2020.

Market share in 2020

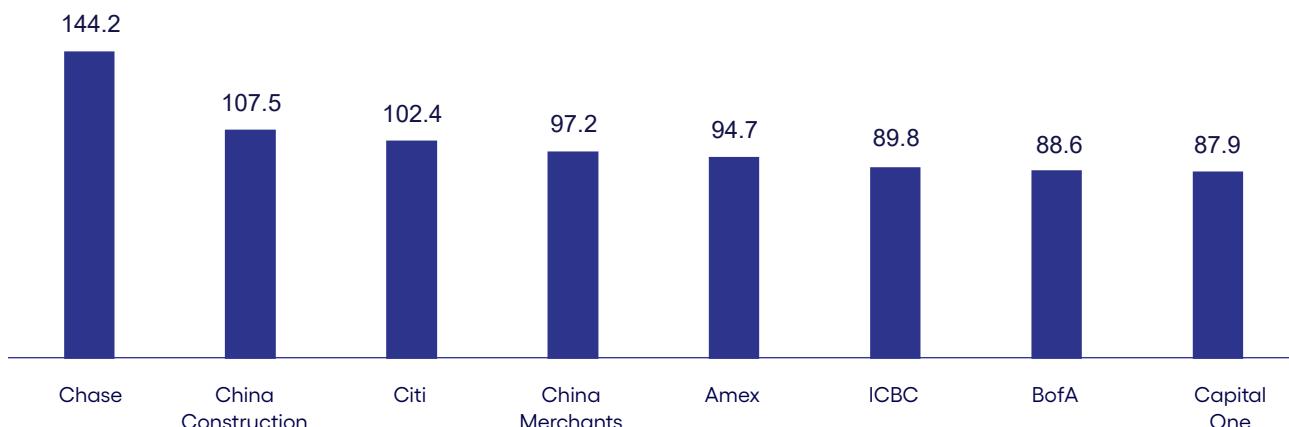


Purchase volume, in \$ trillions



The eight issuers listed owned \$812.28 billion in outstanding credit card receivables as of December 31, 2020. This represented 37.1% of outstanding receivables generated by the top 150.

Largest credit card portfolios worldwide in \$ billions

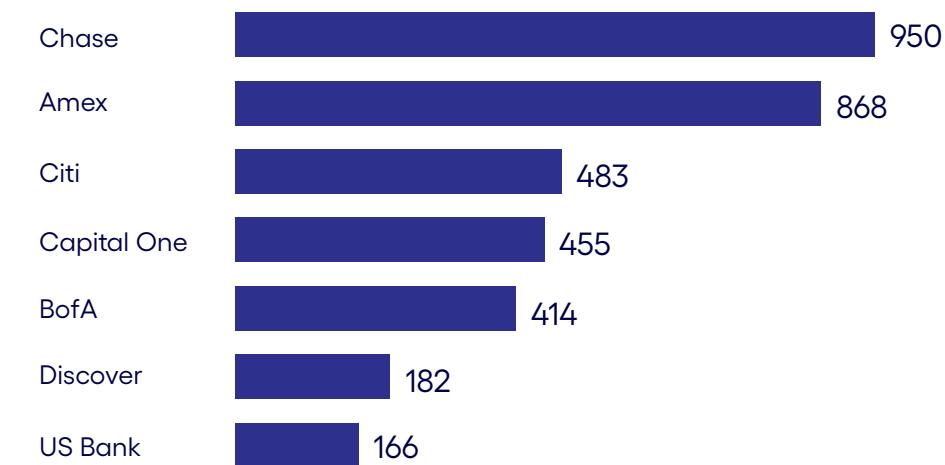


Source: Nilson Report

Snapshot of North American card-based transactions

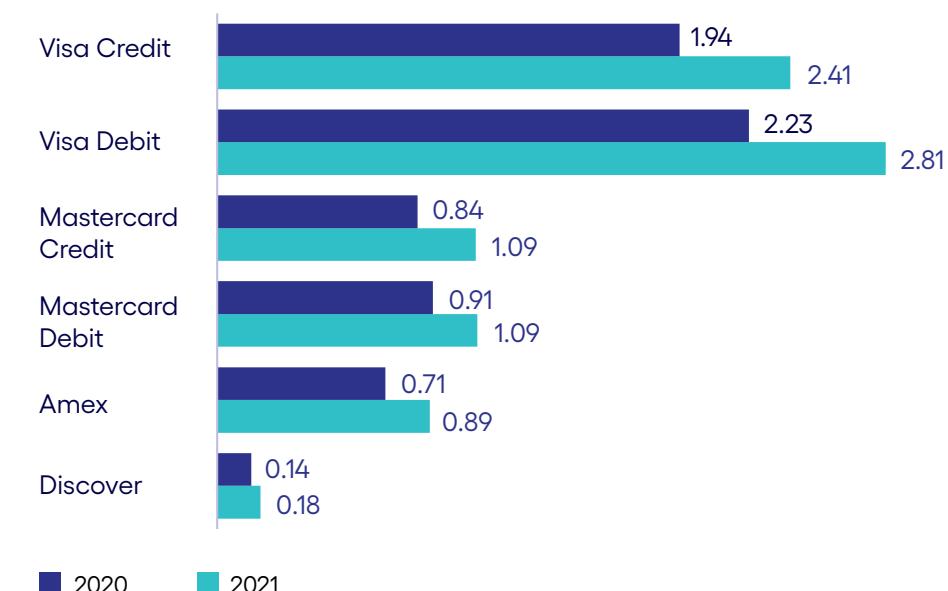
The seven largest issuers generated \$3.5 trillion in purchase volume in 2021, an increase of 25.6%. They accounted for 77.1% of the industry's \$4.6 trillion total.

Top US issuers of general purpose credit cards, by purchase volume in \$ billions



Visa, Mastercard, American Express and Discover consumer, business and commercial cards issued in the US generated \$8.5 trillion in purchase volume in 2021. This was an increase of 25.1% over 2020.

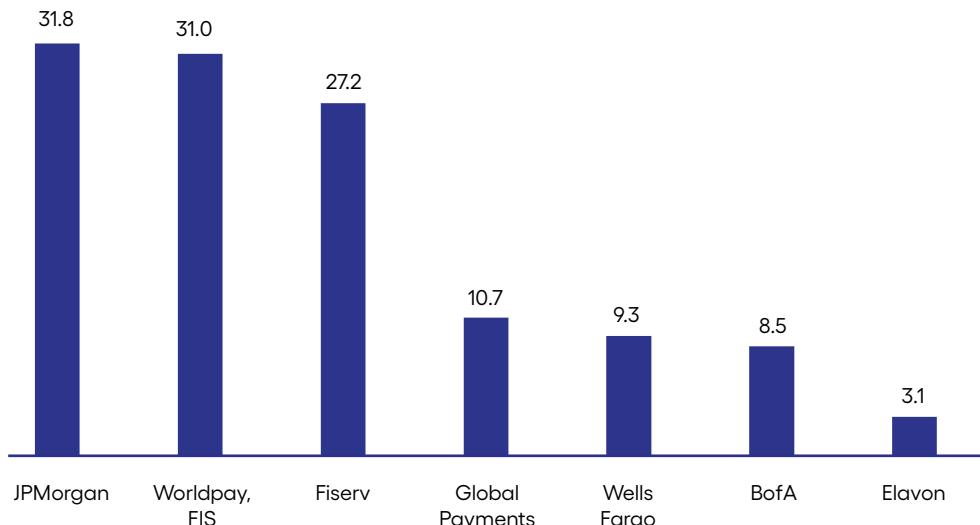
Top US general-purpose brands, by purchase volume in \$ trillions



Source: Nilson Report

The seven largest acquirers ranked by total purchase transactions were led by JPMorgan Payments, Worldpay from FIS and Fiserv. Fiserv includes figures from its revenue sharing alliances with Citi, Santander and SunTrust.

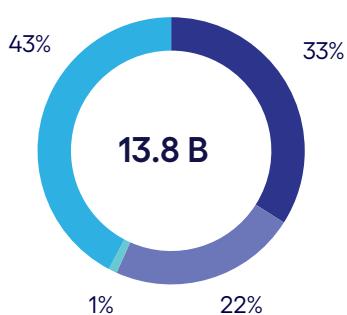
Top US merchant acquirers by transaction volume in 2021, in billions



The general-purpose brand cards issued in Canada generated 13.8 billion transactions in 2021 for purchases of goods and services, up by 11.2% from 2020.

Canada card networks and issuers, purchase transactions

Market share in 2021



Purchase transactions, in billions



- █ Visa
- █ Mastercard
- █ Amex
- █ Interac

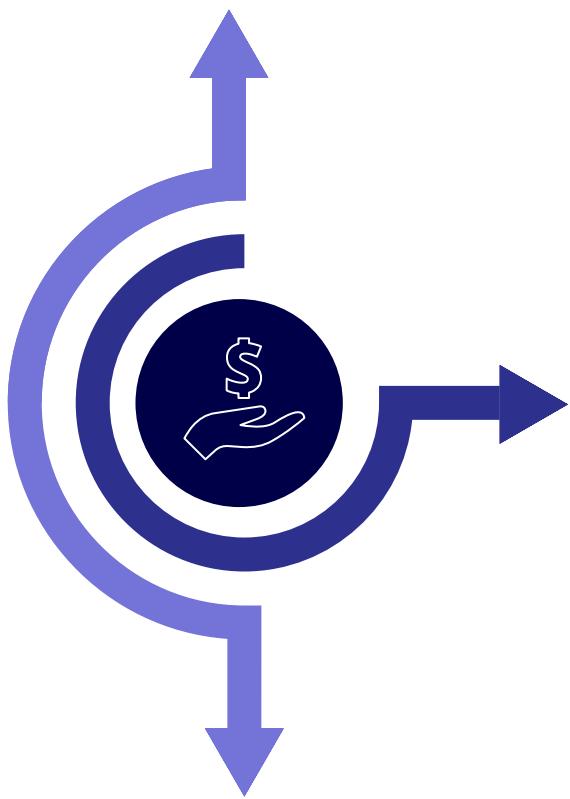
█ 2021 █ 2020

Source: Nilson Report

Emerging payments channels

Buy now pay later (BNPL)

- BNPL brings the concept into the digital age by allowing any retailer to offer installment payments for any product, no matter how small the purchase, both online and in-store
- While some BNPL solutions are available in-store, they are native to ecommerce checkout, making them more widely available when shopping online
- As a low-commitment, user-friendly and budget-focused alternative to credit cards, BNPLs are particularly favored by tech-savvy Millennials and Generation Z



IoT payments

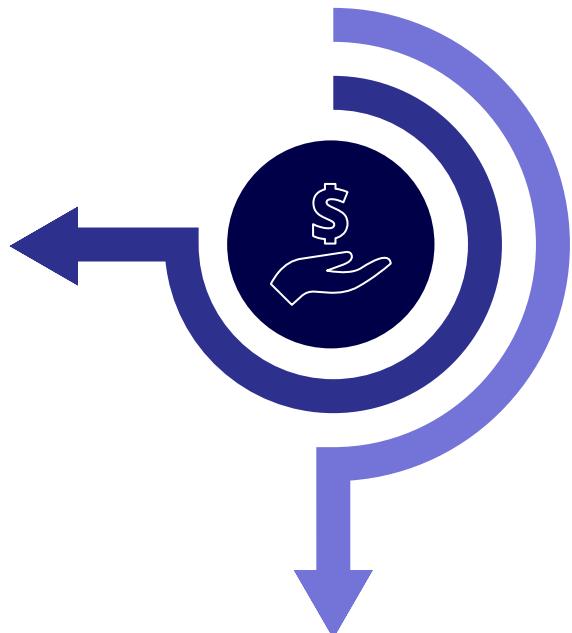
- According to McKinsey, there were 10 billion IoT devices available globally in 2018, and by 2025, that number is expected to grow to 64 billion
- Personal IoT devices such as wearables or in-vehicle units are enabling increased personalization and security, including use of smartphones for ATM withdrawals
- IoT fintech startups are using smart gadgets to provide wireless self-checkout services on numerous domains. Currently, Amazon is applying such a concept throughout its self-checkout stores

Real-time payments

- RTP's market growth is attributable to the proliferation of smartphones and the adoption of cloud-based solutions for faster payments
- Increasing customer demand for quicker settlements and growing investments by FIs and governments in RTP solutions are expected to accelerate RTP market growth
- Mastercard launched PayPort+, a next-gen RTP gateway service, to enable payment service providers and FIs with flexible access to the UK's RTP infrastructure

Cryptocurrency and payments

- Cryptocurrency is becoming increasingly mainstream as consumers look for a hedge against inflation and other disadvantages embedded in the current financial system
- Visa stated that customers made \$2.5 billion in payments with its crypto-linked cards in its fiscal first quarter of 2022
- Visa also started a crypto consulting service and invested in crypto platforms as part of a push for digital currency adoption



Digital and mobile wallets

- Total number of digital wallet users will exceed 5.2 billion globally in 2026, up from 3.4 billion in 2022, representing growth of more than 53%
- Paying with QR codes is gaining momentum. The global QR codes payment market was valued at \$8.1 billion in 2020 and is projected to reach \$35.1 billion by 2030, growing at a CAGR of 16.1% from 2021 to 2030. As a driver, QR code payments are cheaper to set up than manual PoS equipment and can easily integrate with new financial instruments and tools
- NFC still plays a major role in serving as an enabler to virtual wallets. The global NFC payment devices market size was valued at \$16.4 billion in 2020 and is projected to reach \$67.7 billion by 2028, growing at a CAGR of 19.5% from 2020 to 2028
- Over the past few years, a wave of new players in Android application development services has dominated the push to digitize remittances
- The global digital remittance revenue was valued at \$15.3 billion in 2021 and is estimated to grow to \$36.5 billion by 2028, at a CAGR of 14.6% between 2022 and 2028



Buy now pay later (BNPL)

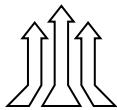


The global BNPL market size is expected to reach \$576 billion by 2026, a CAGR of 22.4% from 2021 to 2026.

- BNPL is a \$100 billion global industry, and BNPL ecommerce transactions are estimated to be ~\$700 billion by 2026, an increase of 4.2%
- At 23%, Sweden has the largest BNPL ecommerce market share. Swedish

fintech Klarna is a big reason for the nation's heavy use of BNPL services, with almost 150 million active users

- In the US, PayPal Credit has 34.6 million users, putting it far ahead of competitors



Growing usage across consumer groups

While Millennials and Gen Z comprise the majority of BNPL users, the segment's popularity spans all age groups.

BNPL is used evenly across all income levels. When it comes to credit, BNPL tends to be more attractive to those with "fair" or "poor" credit scores.

39.4% of US consumers use BNPL services to avoid paying credit-card interest, while 24.7% use it to borrow money without a credit check.



Evolving BNPL business models

Following are the three most common B2C BNPL business models:

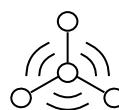
- Merchant-integrated BNPL solutions integrate seamlessly into retailers' sites throughout the shopping journey and drive high consumer awareness
- Credit-card add-ons come with established brands and existing cardholder bases
- Virtual cards include initiatives such as Aplazo's May 2022 launch of Latin America's first virtual card, in partnership with Mastercard



Factors shaping the future of BNPL market

Australia, Sweden, UK and the US have taken steps toward regulating BNPL, and even banks, including Barclays and Capital One, have moved to take action.

Credit bureaus are rolling out BNPL capabilities to enhance underwriting decisions and promote financial inclusion.



Choose the route to market wisely

One option is to offer capital, credit expertise and licensing to BNPL firms.

Another is to add a BNPL offering to existing credit cards.

36% of US adults have a preferred BNPL provider.

In November 2020, Chase moved into BNPL, giving its credit card customers the option to pay off purchases over time for a fixed monthly fee.

BNPL trends

BNPL expected to expand across industries

- BNPL companies are differentiating themselves by entering new markets and industries such as travel, insurance, healthcare and B2B trading
- Klarna partnered with Expedia Group to allow their customers to “travel now, pay later” and recently acquired Inspirock, an online trip planner which uses AI to recommend trips based on a person’s interests

Banks will enter the BNPL market

- Banks are seeing a share of their credit card and consumer loan revenue cannibalized by BNPL lenders. Being a regulated industry, banks are experienced in regulatory compliance and credit underwriting and have the data and customer base to compete in this space
- Banks such as Barclays, Monzo, Revolut and Santander have already made inroads into the BNPL market. Santander launched its BNPL product Zinia in Germany in 2020 and is now rolling it out to other markets

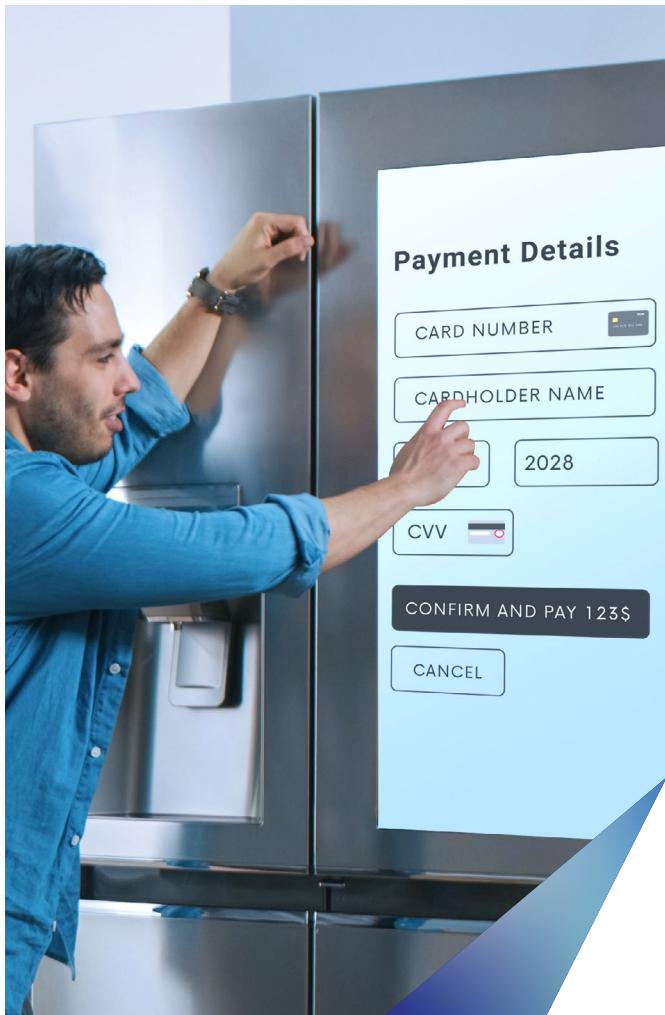
Super apps to be the differentiator

- As BNPL players scale and increase engagement, we expect to see super apps offering a combination of shopping, financing, payments and banking products
- Klarna, Affirm and PayPal have already joined the fray and launched their own super apps
- Klarna’s super app transforms the BNPL giant into an end-to-end shopping hub, enabling shoppers to use its installment service at any online retailer, whether the retailer is partnered with Klarna or not. PayPal’s super app offers an all-in-one financial and shopping solution

Open banking will transform credit risk and affordability check

- Most BNPL providers only complete a very basic credit assessment, usually through a combination of soft credit checks and previous repayment history. This is expected to change with impending regulatory oversight
- In Europe, Revolut’s Pay Later is the first BNPL product to use an approved credit limit with a consideration for affordability

IoT payments



IoT payments market size is projected to reach \$325.4 billion by 2027 from an estimated \$155.53 billion in 2021, growing at a CAGR of 66% globally.

The Internet of Payments will enable connected devices around the world—everything from mobile phones to home appliances—to process payments. Universal access to payments processing capabilities through this technology platform will create the potential for huge new revenue streams derived from granular insights into customer behavior that can aid in KYC, KYD and KYT decisioning. Both FSIs and non-FSIs are playing key roles in enabling the Internet of Payments infrastructure, such as in the provisioning of tokenization technologies to secure transactions.

The increasing growth in digital transactions, connected devices and the use of AI is resulting in an IoT payment revolution and the ability for connected devices to make payments autonomously.

IDC forecasts that by 2030, 73% of global consumer payments will be processed by non-FSIs on the Internet of Payments (mobile, smart and connected devices). If they are unable to configure new payments models and revenues from data and partnerships, FSIs will surrender much of this payments revenue to more innovative and agile players.



IoT opens up alternative payments models

The payments landscape is shifting toward a new world where a variety of models that support payments will co-exist, mixing domestic payments schemes international card schemes, digital wallets, and distributed cryptocurrency networks.

There are three models predominantly in use currently: Card scheme payment model, bank credit transfer model and digital currency payments.

The level of adoption of each model will depend on payments characteristics that are essential for the IoT environment, such as scalability, security, responsiveness, cost efficiency and ease of use.

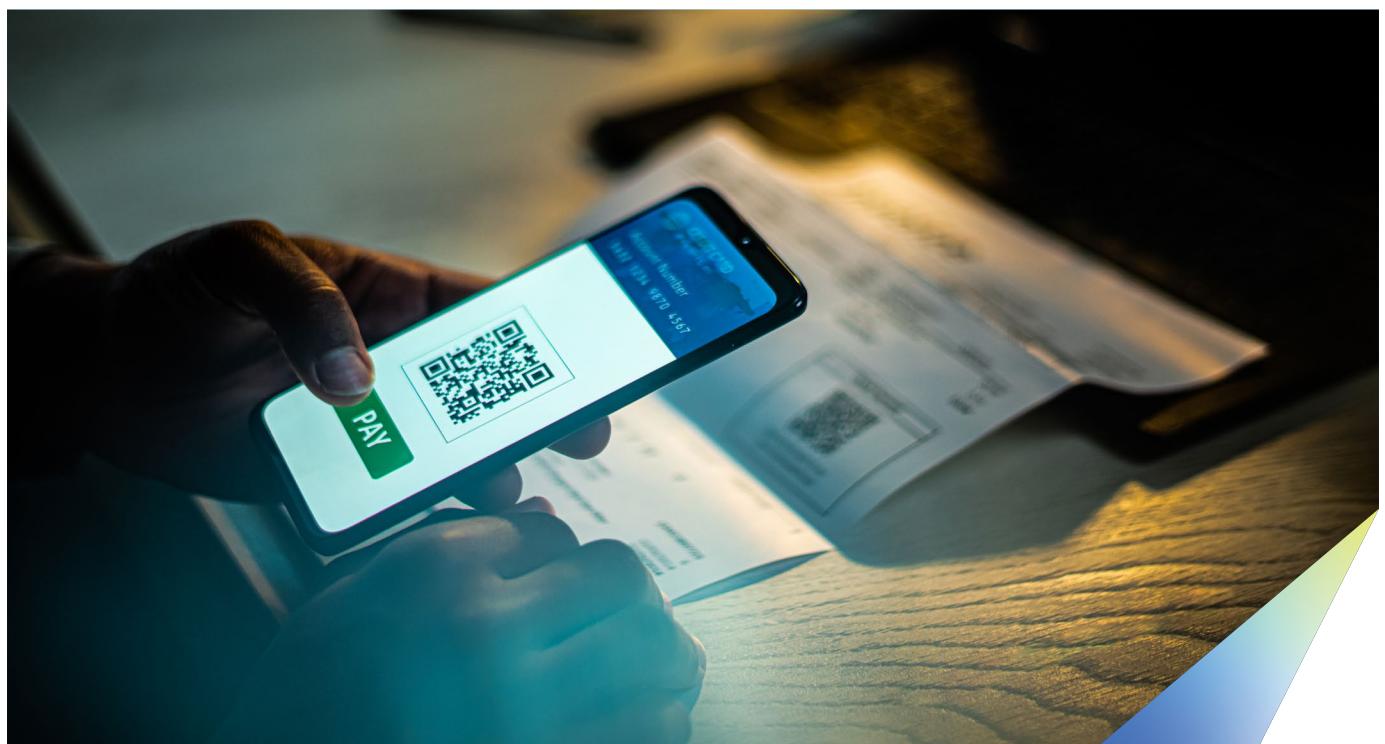


Phygital banking

Phygital banking experiences are the result of banks blending their digital offerings with their physical ones using beacons: IoT transmitters that connect to Bluetooth-enabled devices like smartphones and tablets.

The beacons, which have already seen deep penetration into the retail industry, then connect to customers' devices to push notifications, manage queues, handle the meet-and-greet process and create personalized ATM experiences.

In November 2020, DBS rolled out a branch transformation project that provides personalized branch banking services, and shifts its banking to digital platforms.





Frictionless and invisible payments

Consumers and merchants are expecting payment experiences to be increasingly frictionless, or even invisible. An example of this is an in-app purchase authorized by facial recognition.

Driving this expectation on the consumer side are members of Gen Z, who expect a smooth digital customer experience, as well as frictionless, invisible payments.

For instance, in 2022, Bank of New Zealand unveiled BNZ Pay, a mobile app for retailers that transforms an Android device into a contactless payment terminal.

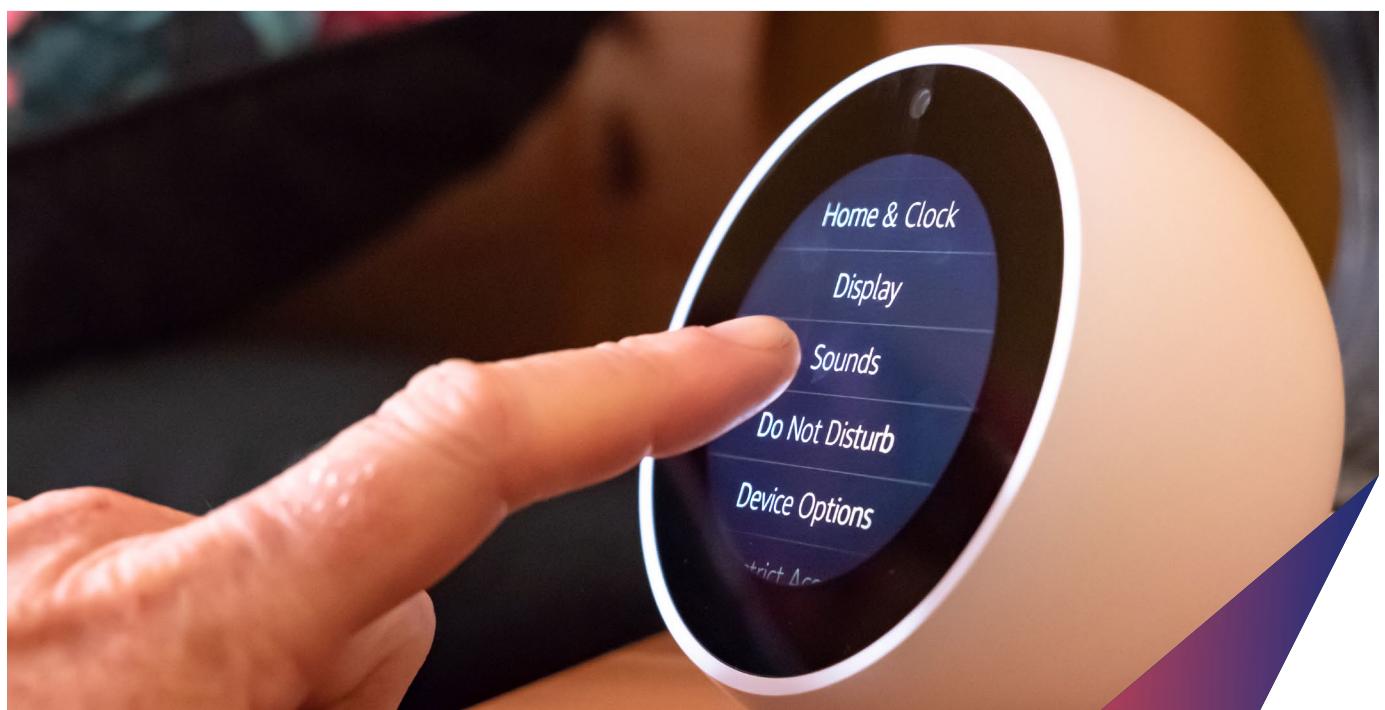


AI-driven virtual assistants and IoT causing disruption

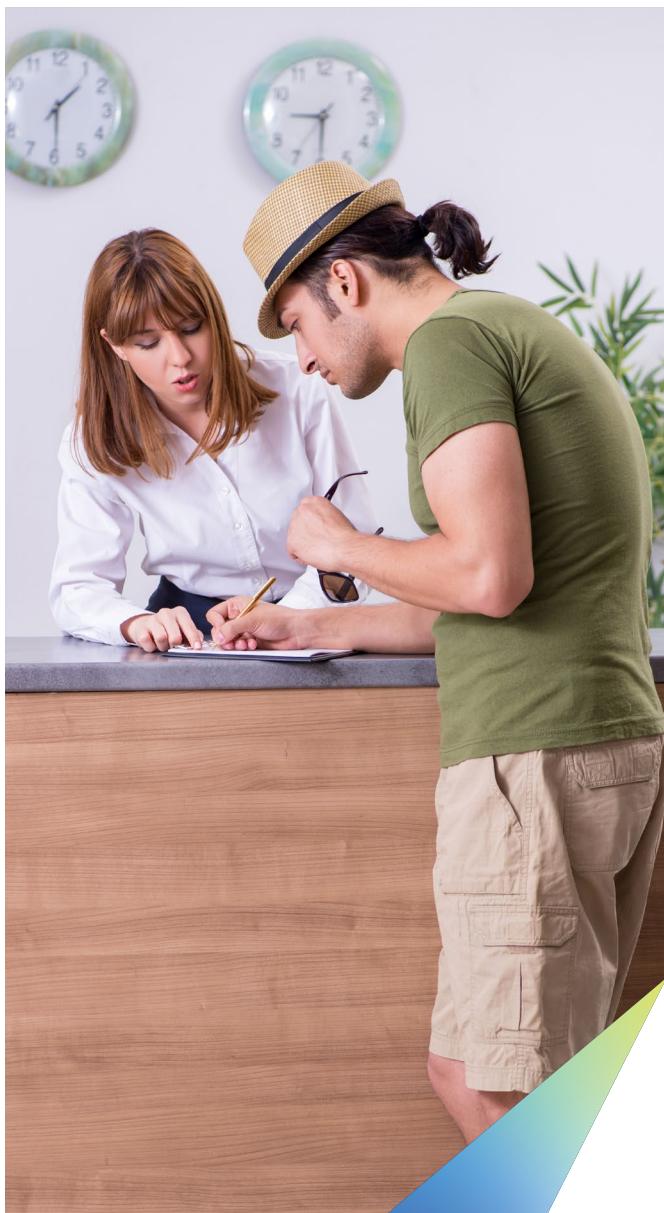
The integration of virtual voice assistants like Alexa, Google Assistant and Siri into billions of consumer electronic devices has led to the emergence of a new form of AI-powered payments using voice command.

Voice-activated payments are projected to see rapid growth. In addition, consumers are increasingly interested in paying via a connected car or a smart fridge, indicating that IoT payments would soon become more commonplace.

Japanese credit card JCB collaborated with Singapore's Keychain to develop a secure infrastructure for processing credit-based micropayments between IoT devices.



Real-time payments



Global real-time transactions totaled 118.3 billion in 2021. By 2026, the number is expected to grow to 427.7 billion with a CAGR of 29%.

Real-time schemes are forecast to process 25% of all payments in most major economies by 2026.

Regionally, 45% of the 118 billion transactions took place in India, the Middle East, Africa and South Asia, while China accounted for most of Asia Pacific's 34.6% share.

The fastest growing regions were South and Central America, which are in the early stages of electronic payment adoption and have a predicted CAGR of over 50% from 2021 until 2026; this is followed by the Middle East, Africa and South Asia at 33%.

Growth forecasts are expected to be slower in the mature markets where cards have been established for decades and are now the underlying mechanism for contactless or mobile wallet transactions.

As a result, Europe's CAGR for 2021-26 is 23%, North America's is 30%, and Asia Pacific's is 15%.

In August 2022, the US Federal Reserve pushed up the launch date of FedNow, its RTP service, to mid 2023.

Request to pay (R2P) ready to break through

As it is a relatively lower-cost method compared with other payments collection solutions, request to pay (R2P) has become an entry-level requirement for new real-time schemes around the world.

With many markets now in possession of the infrastructure and know-how required to make for a seamless R2P UX, 2022 is expected to be a big year for R2P. The go-live of R2P in the UK in 2021 shows that even mature markets are continuing to add value to their real-time payments ecosystem.

In January 2022, consulting company BearingPoint partnered with Swiss financial market infrastructure operator SIX to develop a fully integrated invoice-to-payment service.

The cross-border super APM opportunity

The next frontier of untapped volume focuses on modernizations around ISO 20022 and the European Payments Initiative (EPI), potentially opening the door to regional “super” alternative payment models (APMs) that dominate cross-border use cases.

Growing adoption, proliferating real-time schemes and messaging standardization enable companies to create end-to-end offerings that add value to the payments ecosystem’s many players, helping banks, acquirers and merchants to drive and monetize digital payments.

In March 2022, Volante Technologies and KPMG partnered to offer financial institutions comprehensive ISO 20022 and RTP readiness diagnostics.



Cloud processing turning challenges into opportunities

RTP margins are lower, and their processing also puts pressure on banks' legacy payment infrastructures. Combined with the broader trend of declining topline growth necessitating cost-base reductions, cloud has become an important part of the business model.

Migrating payments processing and infrastructure to the cloud, along with all its attendant management and resourcing

costs, is becoming extremely attractive. It is also advantageous that the likes of Microsoft, Amazon and Google are among the world's best equipped organizations to secure sensitive data.

In May 2022, global automated paytech company COMO selected the SAP Pioneer Cloud for its banking application, providing COMO customers with immediate access to core banking functionality and RTP transactions—and reducing corporates' costs by up to 60%.

Top five countries-RTP transaction volumes in 2021

Country	Transaction volume (billion)
India	48.6
China	18.5
Thailand	9.7
Brazil	8.7
South Korea	7.4

Top five fastest growing

Country	CAGR (IP vol, 2021-26)
Brazil	56.8%
Oman	41.0%
India	33.5%
Philippines	31.7%
Malaysia	26.9%

Source: ACI Worldwide

Cryptocurrencies



The aggregate market value of cryptocurrencies exceeded \$2 trillion in 2021.

Extreme price volatility, strong price correlation to bitcoin and slow transaction confirmation times have impeded their utility as a practical means of value exchange.

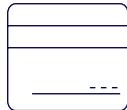
Stablecoins are aiming to address the shortcomings of cryptocurrencies by pegging their value to a unit of underlying asset, often issued on faster blockchains and backing the coins wholly or partially with state-issued tender (such as the dollar, pound or euro), highly liquid reserves (like government treasuries) or commodities such as precious metals.

Collectively, \$3 trillion in stablecoins were transacted in the first half of 2021.

With the rise in circulation of stablecoins, central banks have increased efforts to explore their own stable digital currencies.

Gartner predicts 20% of large enterprises will use digital currencies by 2024.

Where crypto is gaining momentum in 2022



Cards

The card networks are also making strides in crypto. Visa, for instance, has 60 cryptocurrency partners set up to issue Visa cards and generated \$3.5 billion in volume through those partners in 2021.

In 2022, it is anticipated that there will be not only more cryptocurrency cards but also more issuers experimenting with cryptocurrency rewards. This includes earning cryptocurrency “cash back” for purchases and exchanging rewards points for various cryptocurrencies.



Financial apps

Cryptocurrency trading is becoming a must-have feature in financial apps.

Block sold \$1.82 billion in bitcoin to Cash App users in Q3 2021, turning a \$42 million gross profit in the process, with more payment apps to follow suit. It is anticipated that at least one major financial institution or brokerage may launch the capability in 2022.



Merchant acceptance

Payments providers are helping to streamline acceptance. Initiatives such as ACI Worldwide’s partnership with RocketFuel Blockchain could help to drive the trend further.



Stablecoins and central bank digital currencies

2021 saw monetary authorities from the European Central Bank and the National Bank of Kazakhstan to the People’s Bank of China deepen their exploration of and progress toward central bank digital currencies (CBDC).

Nigeria went live with its CBDC, the eNaira, in October 2021. In the private sector, PayPal is exploring the launch of its own stablecoin.

In September 2021, a US think tank launched a “technical sandbox” to explore development of a US CBDC.

Digital and mobile wallets



The total value of digital wallet transactions globally is expected to exceed \$12 trillion in 2026, up from \$7.5 trillion in 2022, with a CAGR of 12.94%.

QR code payments are forecast to be the most popular type of digital wallet transaction in 2026, reaching 380 billion transactions, or 40% of all transactions by volume.

The presence of “superapps” is expected to drive digital wallet use in developing countries that are currently considered cash heavy. Three Asia Pacific countries — the Philippines, Thailand and Vietnam — are primed for rapid growth, with digital wallet adoption in each country approaching 75% of the population by 2026.

Current trends driving digital and mobile wallet growth



Crypto wallets

According to Statista, there were 70 million cryptocurrency digital wallet users as of 2021.

According to Visa, SMBs across major markets such as the US, UAE and Singapore say they're comfortable with

digital currencies and are exploring crypto for payments.

In February 2022, digital payments platform Wirex launched its services in the US, providing secure access to crypto and fiat currencies.



Biometric authentication

Biometric authentication is now integral to mobile payments. It allows fast verification of customers using physical characteristics such as facial and iris recognition, fingerprint scanning and voice analysis.

In 2021, 2.5 million debit and credit cards with biometric capabilities were issued. Meanwhile, 80% of smartphones use biometrics to facilitate payments.

Barclays strengthened its anti-fraud security with a biometric finger vein scanner in 2021.

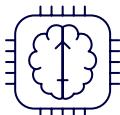


Foreign remittance

To facilitate international remittance, mobile money operators have begun partnering with money transfer operators. Wallet-to-wallet cross-border remittance has tremendous potential to make transfers easier, safer and faster for consumers.

Mobile phones' rampant penetration is expected to be a boon to the adoption of digital wallet solutions for remittance.

In July 2021, EasyEuro launched its digital wallet, OuiTrust, to serve European SMEs, traders and freelancers.



AI & ML to the rescue

Fraudulent transactions are detected and prevented by algorithms using large volumes of digital transaction data.

In digital payments and ecommerce, fraud detection prevents hacking of customers' accounts. Supervised and unsupervised algorithms are

used to monitor and analyze large transactions, look for suspicious activities in user accounts, and send alerts to individuals.

In February 2021, Tecnotree, a global provider of business support systems, launched Spark, an “intelligent wallet”.



Key payments technology trends

Payments infrastructure modernization

Cutting-edge platforms for cross border payments

The global economy continues to be resilient despite geopolitical turmoil and a prolonged health crisis. A strong global GDP and associated trade growth will continue to accelerate the demand for cross-border payments, estimated to reach \$156 trillion by the end of 2022.

Juniper Research forecasts B2B cross-border payments to be \$35 trillion in 2022. As of 2021, 83% of global businesses of all sizes found it easy to send or receive cross-border payments, the direct result of new technologies that streamline processes and enable faster, easier transactions.

JPMorgan Chase, DBS and Temasek partnered to form Partior, which is designed to serve next-generation global payments and currencies and to transform cross-border payments infrastructure.

Southeast Asia to lead all other regions in growth

According to S&P Global, Southeast Asia is home to emerging financial technologies.

Local non-bank e-wallets are not only providing intense competition for regional tech companies but have also expanded

to facilitate bill payments and prepaid top-ups for leading multichannel and broadband providers.

Most non-bank e-wallets only require a mobile number and proof of identification to sign up, making them accessible to a majority of the population.

SMEs expected to grow at a faster rate

SMEs are expected to adopt application modernization services to significantly enhance agility and reduce TCO. The widespread adoption is expected to boost further development of application modernization for the segment.

Visa launched Visa Acceptance Cloud (VAC) to revolutionize the way businesses accept payments from their customers. By moving payment processing software to the cloud, the VAC platform is a boon for acquirers, payment service providers, POS manufacturers and IoT players.

Cloud migration

The cloud migration services market size was valued at \$88.46 billion in 2019 and is projected to reach \$515.83 billion by 2027, growing at a CAGR of 24.8% from 2020 to 2027.

Driving the momentum

- Cloud deployment is helping improve interoperability. For instance, it offers banks the ability to access data and transfer information from a variety of IT systems and head offices to third-party vendors
- Cloud services are also helping institutions adopt ISO 20022, which is the emerging global standard for sending payments instructions between local, regional and international financial organizations
- In January 2021, Mastercard partnered with NMI and Global Payments to launch its first cloud POS acceptance technology



Agility and performance

- Cloud infrastructure is allowing financial institutions to rapidly develop new online services securely by allowing for testing and usability before releasing it to customers
- Cloud is also enabling increased personalization for customers and allowing collaboration with partners via a cloud-based open banking infrastructure to seamlessly integrate more services and, in turn, boost competitiveness
- In May 2021, PayPal partnered with Google Cloud, which will provide the payments giant with infrastructure and analytics capabilities to process transactional data at massive scale

Regulations and resiliency

- Spanning from commercial institutions focused on local government banking guidelines to dealing with privacy and security regulations, compliant cloud platforms are helping companies navigate through this seamlessly
- Protecting and maintaining cybersecurity defenses has become a large undertaking for many companies. Cloud services are alleviating some of the burden by keeping up to date with all the latest security patches and updates

Facilitating real-time payments

- **Enhancing speed:** Exemplified by the adoption of cloud technology by the global payments network SWIFT, the network is quickly becoming more popular as a replacement for correspondence banking models, partnering with BNY Mellon and Microsoft to enable payments for 11,000 FIs
- **Bolstering security:** Studies have shown that on-premise systems are much more likely to be hacked than off-premise systems. Cloud infrastructure providers have built-in security controls, including sophisticated monitoring and surveillance

Payments as a service

The global payments as a service (PaaS) market size is expected to reach \$25.7 billion by 2027.

Drivers of PaaS

- **Faster connections, faster payments:** Advances in 5G technology services and Wi-Fi speeds are enabling the payments process to become virtually instantaneous, triggering implications for blockchains' ability to link high-speed networks and create a fast flow of global transactions
- **New arrivals, new opportunities:** The advent of payments services like PayPal at the turn of the millennium saw the online payments industry soar in popularity. We're likely to see another influx of non-traditional payments players in the next 10 years, spurred by the rise in cryptocurrencies and the rapid growth of fintech companies
- **Regulations: A challenge for the payments world:** The rise of digital finance results in less differentiation among currencies. State-controlled and other digital currencies will present a huge challenge for financial regulators in the next few years
- **Data becomes a currency of its own:** While financial transactions are payments platforms' main goal, the trade in data is set to become more sophisticated and valuable for the insights it provides into consumer behavior

How companies are leveraging PaaS to build a better payments ecosystem

Cost optimization

Goldman Sachs and AmEx debuted a cloud-based payments service for large corporate clients. The platform's multiple payments options provide a B2B payments process that's easier and more streamlined, eliminating redundancies and reducing bank fees incurred by multi-file initiation.

Improving processing efficiency

Lloyds partnered with Form3 to develop a cloud-native PaaS platform it hopes will significantly improve the group's payments processes by making them more efficient.

Better reliability and scalability

In collaboration with Visa Direct, Astra brought instant account funding to US neo-banks, marketplaces and exchanges. The Astra Platform is integrated via APIs and allows builders to add payment functionality to applications without the need for handling additional compliance, capital commitments or operational costs.

Accelerating revenue realization

JPMorgan launched Digital Bill Payment in partnership with Paymentus, a provider of cloud-based bill payment technology and solutions. The service's single platform for customer engagement, bill presentment and payments is expected to help clients digitize the receivables journey through innovations like request to pay (RTP).

Cybersecurity

The global payments security market size was valued at \$17.64 billion in 2020 and is projected to reach \$60.56 billion by 2030, growing at a CAGR of 13.2%.

Safeguarding customer data through card tokenization

The shift from magnetic strips to chip cards was done to prevent duplication of card information onto another, in a physical store. Similarly, tokenization's end game is to prevent duplication of cards, digitally. Untraceable payment tokens are generated per card, per merchant.

Because tokenization requires less computational power than encryption, tokenized information is processed faster and with fewer computer resources. As a result of its cost effectiveness, tokenization is becoming an increasingly mainstream payments security measure.

In May 2022, Visa and Google announced plans to add virtual cards to the autofill feature on Android devices and the Chrome browser.

Multifactor authentication

MFA has three types of authentication factors: password, device in use and biometric identification. With biometric capabilities readily available in smartphones, consumers increasingly have been using this mode of authentication in their everyday transactions. Entering a password to make payments is now being replaced by touch or iris-linked authentications. MFA is expected to tighten security around transactions, removing the risk of stolen PINs and, eventually, preventing fraud.

Enabling contactless payments with wearable devices

Contactless payments made through tap-and-pay, dynamically generated PINs and wearable devices have not only made payments quick and easy but also added an additional layer of security.

Wearable devices are linked to cardholder bank accounts and make use of card tokenization features to complete payments. Dynamic PINs can be generated for every transaction through mobile banking apps.

Contactless payments are not just enabling faster checkouts and seamless payment experiences but also preventing various cyber attacks like keylogging, phishing and other internet-based fraud.

In July 2022, ING began piloting a P2P payments app that uses ultra-wideband (UWB) technology to let users transfer money by simply pointing one handset at another.

As of December 31, 2020, the EU is requiring that consumer electronic payments over €50 (\$60) require MFA. This requirement is defined as part of the Payment Services Directive (PSD2) that took effect in January 2018.

A key component of this regulation is called Strong Customer Authentication (SCA), which requires EU consumers to provide additional authentication when making online purchases.

Distributed ledger technology (DLT)

Central bank digital currencies (CBDCs)

Central banks around the world are contemplating creating their own digital currencies to counter the decreasing use of cash and the rise of private cryptocurrencies.

When released, CBDCs are expected to further digitize the world's economies, making it easier and more efficient to monitor digital transactions and analyze economic data.

People's Bank of China is exploring blockchain at the issuance layer of its digital yuan pilots. It is also working on a project with the Bank of Thailand and the Hong Kong Monetary Authority to simulate the use of this CBDC for cross-border payments.

Payments in the metaverse

JPMorgan became the first bank to enter the metaverse, opening a lounge in Decentraland. The Onyx lounge allows institutions and businesses the opportunity to enter the metaverse. The bank expects \$54 billion will be spent yearly on virtual goods.

Meta has rolled out payments tools for creators of virtual mini-worlds and communities in its Horizon Worlds metaverse platform.

Visa, Mastercard and Amex are all making moves in the metaverse. Mastercard's patent and trademark filings have also revealed that they are planning to move into metaverse commerce, although they have not yet shared plans publicly.

Supply chain transparency

DLT is expected to help track assets and shipments, allowing for more transparency throughout the procurement process, from purchase orders and logistics to invoicing and payments.

Stablecoins

The most prominent and successful stablecoins are tokens backed by financial assets, either fiat currencies or investment instruments of another sort. The company that offers the coin holds the asset.

For instance, Circle introduced a stablecoin called the US Dollar Coin (USDC). For every dollar's worth of USDC that Circle issues, the company holds a traditional dollar. This gives the offering stability, compared with more volatile cryptocurrencies that lack fiat currency backing.

Nonfungible tokens (NFTs)

NFTs opened opportunities for artists and collectors, expanding the global audience of potential buyers. They have democratized access to investment in artwork, a trend that may continue as NFT marketplaces proliferate.

NFTs are also being created by coding a smart contract directly, rather than employing a service to handle the coding on the creator's behalf.

As standards emerge for this type of exchange, NFT use is on the rise; it is estimated that there were sales of more than \$2 billion worth of NFTs in Q1 2021.

In January 2022, Mastercard partnered with Coinbase to enable customers to buy NFTs with their debit and credit cards.

Artificial intelligence and machine learning



70% of all financial services firms are using machine learning to predict cash flow events, fine-tune credit scores and detect fraud.

54% of financial services organizations with 5,000+ employees have adopted AI.

It is forecast that the AI market will hit \$360.36 billion by 2028.

Expediting the payment process

Advanced ML techniques are helping extract and standardize data items such as payment amount, beneficiary and account details to allow for a more seamless, automated wire-payments process.

For instance, BNYM's clients receive payments to review and authenticate through BNYM's Digital Authentication tool. After final review and approval by BNYM, the platform generates a SWIFT instruction to affect the money movement.

Reduce false declines for debit and credit

Cards are mostly declined when a transaction payment amount crosses the limit or when a transaction is flagged as fraud.

AI-based algorithms are being used to correctly identify transaction anomalies rather than a rule-based, algorithmic technique that tends to reject a non-fraudulent transaction.

Visa's Smarter Stand-in Processing (Smarter STIP) is an AI tech to help banks manage authorizations during service disruptions. The technology allows FIs to make transaction decisions when user cards are declined due to scheduled maintenance or unexpected outages.

Predicting customer credit card behavior

Developing a credit card scoring model is necessary due to the rise in the number of consumers using credit cards. The insights derived from this model help banks understand consumer payment preferences and spending habits.

Cardlytics, an AI vendor, has developed card-linked marketing software that helps companies analyze consumers' purchasing behavior and then matches individuals with deals that fit their patterns.

In July 2020, Wells Fargo partnered with Cardlytics for Wells Fargo Deals, which provides the bank with insights into more than \$3 trillion in annual consumer spend.

AI bots on social media messenger

Financial companies and banks have gradually started deploying AI-based bots on Facebook Messenger to handle payments and offer personalized customer services.

American Express has a dedicated chatbot on Messenger for sending transaction notifications and benefits reminders to users. Every time the user makes a purchase, the dedicated chatbot sends a notification regarding the transaction.

Another version of the American Express chatbot enables users to add a card while linking an American Express account to the user's Facebook account. The card's credentials are then stored with the user's Facebook account to facilitate them to transact on the social network.



APIs and open banking

Embedded payments

To improve customer experience and reduce friction in digital payments, merchants (along with ecommerce platform intermediaries) are investing more into integrations with payments gateways.

In October 2021, PayPal launched the Zettle Terminal in the UK, an all-in-one POS solution that offers increased mobility in-store for small businesses. Zettle Terminal provides a range of flexible payments options and interoperability across ecommerce, accounting and banking partners.

APIs and cross-border payments

Open banking is making waves in cross-border payments, with many companies responding to APIs' clear benefits. Services that have emerged include API-driven live FX pricing and API-based currency hedging automation.

HSBC collaborated with financial software firm Finastra to offer FX services to mid-tier banks via an API-driven solution.

Growing need for real-time service experiences and information

A key driver for adopting open APIs is the growing need for real-time service experiences and information, including payments infrastructures.

Among banks, BBVA has effectively published its entire banking platform on the Internet for other organizations to innovate around. The move reflects the wider pivot in the software industry from products to platforms.

Disintermediating the banks

Open banking allows aggregators such as payroll providers to make payments directly to employees rather than through the bank automated credit system, disintermediating the banks in the processing of direct debits and standing orders.

In June 2022, international payroll and workforce management platform KeyPay partnered with Comma, an integrated bank payments solution, to provide the world's first open banking payroll system. It offers a full end-to-end payroll and workforce management solution.

Leveraging APIs to power innovation in payments

By establishing a secure way for applications to communicate with each other, APIs offer a new gateway for innovation. Leading banks are joining forces with fintech API players to provide customers with a more inclusive digital payments and banking experience.

In February 2022, Bank of America launched Pay by Bank, an online payment solution, in partnership with UK paytech startup Banked.

Big tech

Following P2P digital wallets' success, Big Techs are shifting focus on expansion and diversifying into profitable segments such as merchants, SMBs and B2B.

With deep pockets and strong ecosystems, Big Techs are paving their way into SME businesses and are positioning themselves to tap the B2B segment.

Google Wallet's global expansion

In July 2022, Google Wallet began appearing on smartphones as the tech giant reboots its mobile payments system. The Wallet lets users manage payments cards, gift cards and rewards cards, as well as event tickets.

It is being rolled out in 39 countries, and in most it will replace the Google Pay app, although both will be available in the US and Singapore.

Apple's move to make phones contactless payment terminals

Apple's acquisition of Canadian-based startup Mobeewave will allow merchants to use iPhones as payment terminals. Mobeewave technology provides a means to accept card payments without a separate card reader.

Additionally, if Apple displaces banks as the primary customer interface for payments, the company may be able to charge banks a fee for being the default payment option if third-party wallets gain dominance.

Amazon developing PoS solution

Amazon's Project Santos is working on a PoS solution that will allow third-party retailers to process transactions online and in-store. It will also offer data analytics around inventory and other business functions, enabling SMB clients to unify channel management. Other features include Amazon One for contactless recognition and payment, and a customizable loyalty program that utilizes Prime benefits.



The background features a large, semi-transparent white triangle at the bottom left. Overlaid on it is a smaller, semi-transparent teal triangle pointing upwards and to the right. In the center-right area, there is a 3D wireframe cube with vertices and edges highlighted in blue and purple, set against a dark purple gradient background.

Other notable events

M&A transactions

As of April 2022, payments M&A deals worth \$7.65 billion globally had been announced, an increase of 34.9% year on year.

BNPL was the biggest trend in payments, and companies that provide these service capabilities were rapidly being acquired.

The megadeal of 2022 thus far was Visa's acquisition of Tink, an open banking platform, for \$2.0 billion.

BNPL dominates M&A landscape

- BNPL deals represented 50% of all payments deals in 2021, a boom year for M&A in payments. The trend is continuing in 2022 as well
- BNPL players are adding more capabilities to bulk up their offerings and boost growth
- Australia's biggest BNPL player, Zip, acquired US-based Sezzle in a \$355-million deal to accelerate expansion and compete against the acquisition of Afterpay by Block (formerly Square)
- Apple's acquisition of Credit Kudos represents a move to embrace BNPL and open banking — and perhaps put a tailwind under its Apple Pay

Using selective deals to scale up

- US technology firms expanded into payments in 2022. Bolt, a payments-focused fintech, acquired Wyre, a crypto payments infrastructure provider, for \$150 million
- FIS enhanced its embedded payments strategy with the acquisition of Atlanta-based Payrix, which specializes in embedded payments solutions for SaaS-based platforms

Prominent acquisitions year-to-date (YTD) in 2022

Buyer	Target	Target Country	Domain	Announcement Date	Deal Value (\$ billion)
Visa	Tink	Europe	Open banking	Mar. 2022	2.00
Bolt	Wyre	US	Crypto payments	Apr. 2022	1.50
Fiserv	Finxact	US	Cloud solution provider	Feb. 2022	0.65
Zip Co Ltd	Sezzle Inc	US	BNPL	Feb. 2022	0.35
Amount	Linear Financial Tech	US	Loan and account origination platform (BNPL)	Feb. 2022	0.18
Apple Pay	Credit Kudos	UK	BNPL	Mar. 2022	0.15
Pace Enterprises	Rely	Singapore	BNPL	Mar. 2022	NA
FIS	Payrix	US	Embedded payments	Feb. 2022	NA
JPMorgan	Viva Wallet	Europe	Cloud-based payments fintech	Jan. 2022	NA
Razorpay	Zealiant	India	Payment processing	Mar. 2022	NA

Source: Cognizant compiled the above chart from sources noted in the endnotes for this page

Cards and payments - highlights of YTD 2022

Issuers

JPMORGAN CHASE & Co.

bought a 49% stake in European cloud-based payment network Viva Wallet. The company operates a cloud-based payments platform that offers many services to merchants, including tap to device technology, merchant cash advance, bill pay, expense management, virtual debit card issuance, cash disbursement, gift cards and loyalty.



signed car dealership JCT600 as its first retailer to use Lloyds' new PayFrom Bank account-to-account payment product, displacing physical cards at the online checkout. PayFrom Bank combines Mastercard's Payment Gateway capabilities and its Open Banking Connect platform to deliver a merchant A2A payment page that covers around 95% of UK bank accounts with open banking APIs.



launched BNPL services in Singapore, Indonesia and Hong Kong in partnership with Mastercard and Pine Labs. The partnership with Mastercard and Pine Labs scales the program internationally, and in later phases, it is expected to be made available for cross-border transfers.

Acquirers/Processors

fiserv.

partnered with The Clearing House to enable its clients to access The Clearing House RTP network and support a broad range of consumer and commercial payment services via the NOW Gateway. The gateway acts as an adaptable access point for financial institutions that want to support real-time payments.



enhanced its embedded payments strategy with the acquisition of Atlanta-based Payrix. This helps FIS expand its ecommerce offerings to companies of all sizes and in any industry, by embedding payments capabilities within SaaS platforms.



expanded its partnership with the UK Post Office to offer retail cross-border money transfers. Customers can send money to family and friends in other countries using Western Union's UK Post Office digital services at one of 4,000 post office locations in the UK.

Networks

VISA

launched Visa Acceptance Cloud (VAC) which lets acquirers, payments service providers, POS manufacturers and IoT players move payments processing software from being embedded in each hardware device to being universally accessible in the cloud.



expanded its consulting services with new practices dedicated to open banking, open data, crypto and digital currencies and ESG. The new practices are in areas in which Mastercard has been heavily investing as it moves beyond its core payments business and embraces the wider fintech scene.

AMERICAN EXPRESS

partnered with Billtrust, a B2B accounts receivable automation and integrated payments company, to enable suppliers to streamline acceptance of American Express virtual cards.

Cards and payments - highlights of YTD 2022

Fintechs

Klarna.

partnered with Blackhawk Network to extend the ability for consumers to use Klarna's interest-free alternative payment solutions at a variety of physical retail locations. This new partnership will enable the integration into Blackhawk's vast US network, including categories ranging from grocery to electronics and beauty by tapping into Blackhawk's payments technology integration with major retail partners.

Flocash

is Africa's fastest growing fintech and has partnered with Visa to promote digital capabilities for African SMEs through digital payments, supplier solutions and access to financial services. The first step in this partnership is the launch of Flostore, powered by a Visa digital wallet and the Flocash payment platform which can help small businesses accept digital payments, manage supplies and access financial services across Africa.

Revolut

will tap into Stripe's international reach to ramp up its expansion into new international markets, including Brazil and Mexico. Stripe will back the fintech for payments processing in the UK and Europe. Leveraging Stripe's infrastructure in global markets, Revolut aims to provide frictionless payments that will meet local preferences.

Neobanks

monneo

One platform. Multiple banks.

is leading the way for BaaS as it launches a new API. Its BaaS partners and clients will be able to take advantage of the full spectrum of payments and transaction services, as well as benefit from its entire digital banking infrastructure set out within Monneo's international banking network.

RazorpayX

has been onboarded as the technology partner of payments on WhatsApp to enable a smooth cashback experience via the unified payments interface (UPI) for its users across India. Users using UPI to make payments on WhatsApp receive cash back and as part of the partnership, RazorpayX helps ensure minimal chances of failures and pending transactions.

Kroo

has selected ClearBank to provide access to all UK payments schemes as well as accounts for its operational funds. This approach eases one of the burdens of banking license applications by confirming to regulators that Kroo has a reliable banking partner for both payments and the safeguarding of client funds.

Ecommerce payments

Deutsche Bank

developed its own buy now pay later solution for ecommerce and digital marketplaces. The solution focuses on invoice and installment purchases and is done in collaboration with Vienna-based fintech Credi2. The solution can be flexibly integrated into the payments process. Pilot projects are scheduled to start this year.

mollie

is one of the fastest growing payments service providers in Europe, and Xentral has announced a partnership. In the process, Xentral will integrate Mollie's payment services into its ERP platform. The partnership between the two ecommerce leaders creates a solution for SMEs that makes both the payments and order management process easier.

Paytrail

a Finnish online payments company, has partnered with Mastercard to facilitate more than one million open banking payments each month alongside Aiia, an open banking company owned by Mastercard. Paytrail reportedly allows for more payments options and helps enable a "more hassle-free" online checkout experience.

New regulatory requirements

ISO 20022

Banks and financial institutions globally are entering a new era as they prepare to transition their payments systems from using SWIFT messages to the highly structured and data-rich ISO 20022 financial messaging standard.

By 2025 it will be the universal standard for high- or large-value payments systems of all reserve currencies and is expected to support 80% of transaction volumes—and 87% of transaction value globally.

In Europe, SWIFT and the European Central Bank have announced ISO 20022 go-live dates of November 2022 for the standard.

Several low value and instant payment schemes have already migrated to ISO 20022.

	Nov. 2022 All financial institutions processing SWIFT MT category 1, 2 & 9 must process ISO 20022 by Nov. 2022		Nov. 2022 All Euro payments going through TARGET2 will only be in ISO 20022 format from Nov. 2022
 	June 2022 CHAPS on like-for-like basis in June 2022 and for fully enhanced messages by early 2023		2024 Planned enhanced ISO 20022 messages through a “big bang” rather than a phased approach but currently redefining strategy

PSD2

PSD2 is a European regulation for electronic payments services. It seeks to make payments more secure in Europe, boost innovation and help banking services adapt to new technologies. PSD2 is evidence of the increasing importance APIs are acquiring in different financial sectors.

PSD2 regulates and harmonizes two types of services that were already in existence when the first PSD was adopted in 2007, but which have grown more popular in recent years: account information services (AIS) and payment initiation services (PIS).

AIS includes the collection and storage of information from a customer's different bank accounts in a single place, allowing customers to have a global view of their financial situation and easily analyze their expenses and financial needs.

PIS providers facilitate the use of online banking to make payments online. These services help initiate a payment from the consumer's account to the merchant's account by creating an interface to bridge both accounts, filling in the information needed for the bank transfer (amount of the transaction, account number, message) and informing the store of the transaction. PSD2 also allows clients to make payments to a third party from a bank's app using any of the client's accounts (whether they belong to this entity or not).

Source: ir.com

Europe

Switzerland: Swiss National Bank successfully tests wholesale CBDC settlement

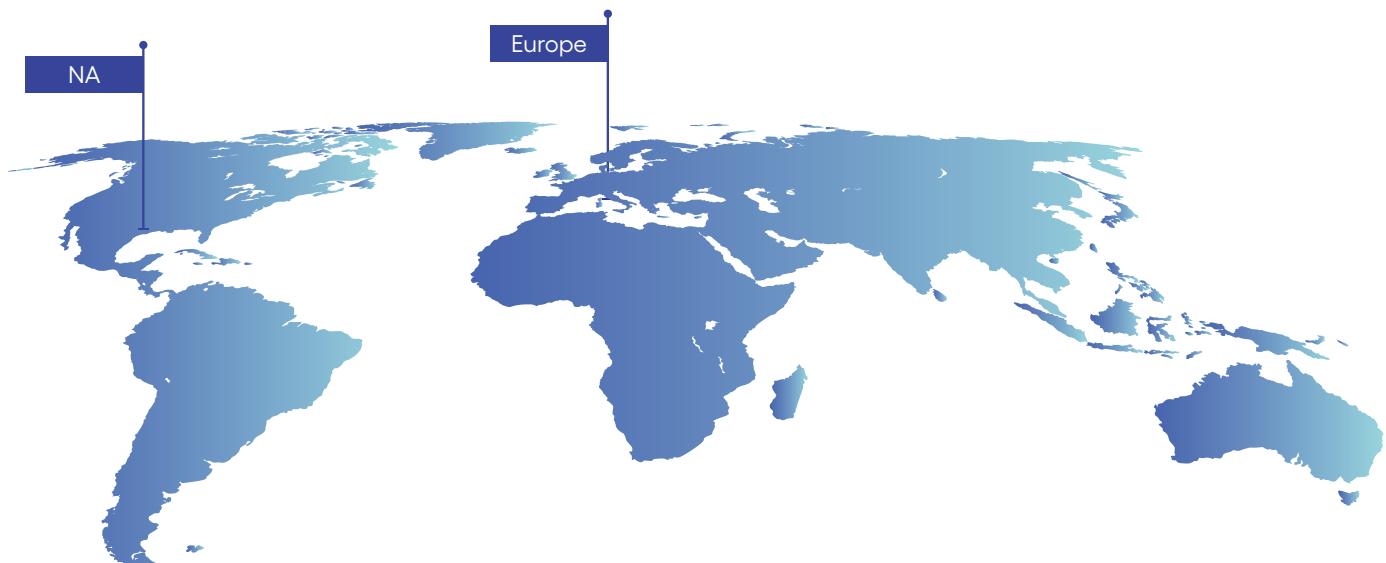
In January 2022, the Swiss National Bank partnered with the Bank for International Settlements (BIS), SIX Digital Exchange and five commercial banks to successfully test the integration of wholesale CBDC settlement with commercial banks.

The test was carried out during Q4 2021 and explored the settlement of interbank, monetary policy and cross-border transactions on the test systems of SIX Digital Exchange, the Swiss real-time gross-settlement system and core banking systems.

European Union: EBA launches AML and CFT central database

In January 2022, the European Banking Authority (EBA) launched its central database for anti-money laundering and counter-terrorist financing (EuReCA). EuReCA will contain information on material weaknesses in individual financial institutions in the EU that authorities have identified.

Examples of such weaknesses include the absence of transaction monitoring at the group level and the absence of policies and procedures for high-risk customers.



North America

US: Federal Reserve releases discussion paper on CBDC

In January 2022, the Federal Reserve released a discussion paper examining the pros and cons of a US central bank digital currency (CBDC). The Federal Reserve had previously been reluctant to consider a US CBDC due to concerns that the costs would outweigh the benefits.

The paper notes that while CBDCs can provide certain benefits (support faster, cheaper payments and expand consumer access to the financial system), there are also downsides. CBDC could affect the structure of the financial sector, the cost and availability of credit and the efficacy of monetary policy. It also poses anti-money laundering and privacy issues.

LATAM

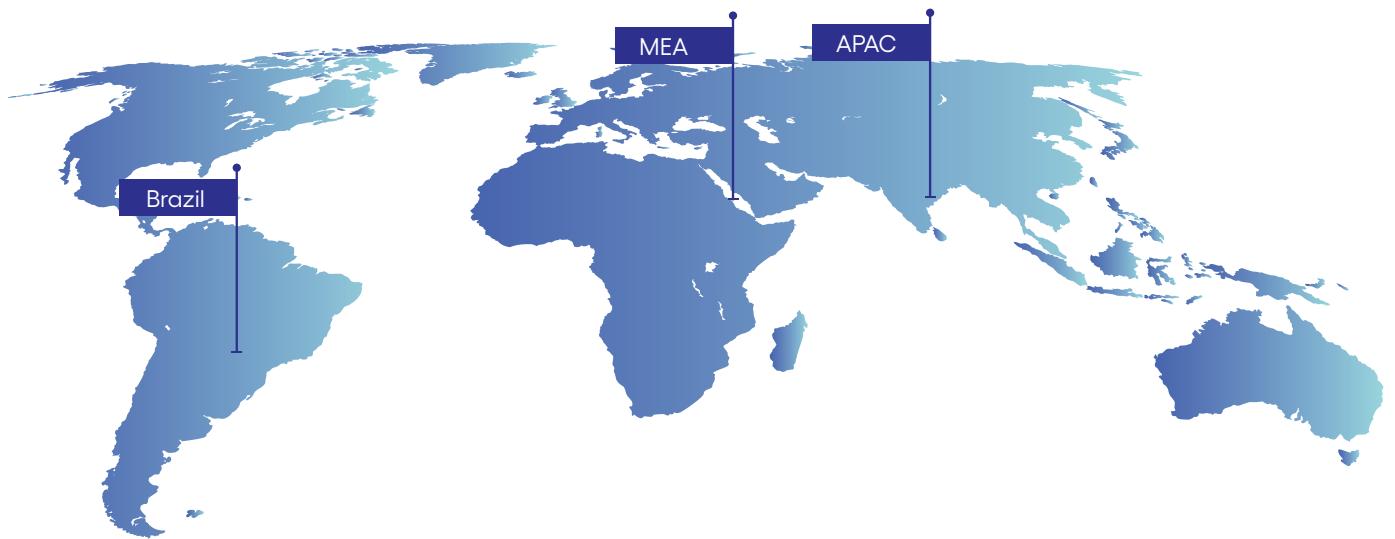
Brazil: Open banking moves into its fourth stage

The fourth phase aims to provide for the exchange of information about foreign exchange, investments, pension plans and insurance services. Additional phases are expected in the first half of 2022.

MEA

Africa: Pan-African Payment and Settlement System launched

In January 2022, the Pan-African Payment and Settlement System (PAPSS) was launched. PAPSS was developed by the African Export-Import Bank (Afreximbank) and is expected to boost trade by facilitating intra-African payments, clearing and settlement.



APAC

India: RBI creates a fintech department

In January 2022, the Reserve Bank of India (RBI) established a new department to focus on facilitating innovation in the fintech sector.

It is expected that the new department will identify challenges and opportunities for the fintech sector and research effective policy interventions for RBI to implement.

Payments events and conferences - Sep. 30 - Nov. 30, 2022

Event	Location	Event Start Date
Crypto Fest 2022	Cape Town, South Africa	September 30, 2022
Payment Leaders' Summit UK	London, UK	October 4-5, 2022
Paris Fintech Forum 2022 - The 7th Paris Fintech Night	Paris, France	October 19, 2022
Money 20/20 USA	Las Vegas, US	October 23-26, 2022
MRC Singapore 2022	Singapore, Singapore	October 30 - November 1, 2022
12th NextGen Payments and RegTech Forum	Limassol, Cyprus	November 2-3, 2022
Future of Payments Forum 2022	Cape Town, South Africa	November 14, 2022
#TRX22 - The Transactions 2022	Offenbach, Germany	November 17, 2022
Financial Crime 360	London, UK	November 22, 2022
Buy Now Pay Later Summit Asia Pacific	Online	November 23, 2022
MoneyLIVE Autumn Festival 2022	Madrid, Spain	November 29-30, 2022

Upcoming payments events and conferences - 2023

Event	Location	Event Start Date
Blockchain Economy London Summit	London, UK	February 27-28, 2023
STHLM Fintech Week	Stockholm, Sweden	February 13-17, 2023
Money Live	London, UK	March 8-9, 2023
Finovate Europe	London, UK	March 14-15, 2023
Fintech Meetup	Las Vegas, US	March 19-22, 2023
Pay 360	London, UK	March 21-22, 2023
Finovate Spring	San Francisco, US	May 22-24, 2023
Seamless Middle East 2023	Dubai, UAE	May 23-24, 2023
Identity Week Europe	Amsterdam, Netherlands	June 13-14, 2023
Fintech Week London 2023	London, UK	June 19-23, 2023
Collision - Toronto	Toronto, Canada	June 26-29, 2023

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