

WORLD PAYMENTS REPORT 2019



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Preface

In this fifteenth edition of the World Payments Report (WPR), we explore the industry's progress toward a new ecosystem and offer navigational signposts for incumbents as they plan their journey. We scrutinize global non-cash transaction trends and examine the evolving regulatory landscape and its impact on the changing face of the payments industry.

Customer experience has become a priority for both regulators and industry players over the years, thanks to technological advances. The rise of alternative payment methods is catalyzing the growth of digital payments globally, reflecting the accelerated expansion of non-cash transaction volumes, with double-digit growth expected through 2022.

As the traditional value chain is disrupted, and the influence of leading-edge technology grows, banks globally are attempting to respond while meeting fast-changing customer preferences. Amid these challenges, firms tentatively tread the Open Banking path set by regulatory decree or market forces. However, Open Banking adoption levels remain low, with banks facing operational and cultural obstacles that hinder implementation and acceptance. Nevertheless, banks will ultimately need to accept Open Banking practices to ensure viability and success within the new payments ecosystem.

In WPR 2018, we examined the market dynamics, enabling infrastructure, governance models, and customer demographics required to steer Open Banking success. A year later, it appears the market is preparing for a future state that leapfrogs Open Banking and focuses on player partnerships, data sharing, and strengths-based new roles.

While Open Banking acceptance remains lukewarm, the industry is advancing to a collaborative mode, which means payments players will need to prioritize strategies for success within new parameters. Elements at the industry and firm levels are slowing the journey to the new payments ecosystem. However, banks that devise an ecosystem strategy based on their strengths and unique selling propositions are the ones most likely to remain competitive.

On behalf of Capgemini's subject matter experts across the globe, and the payments' industry leaders who contributed to the report, we hope you find WPR 2019 to be an insightful read. If we can be of further assistance in helping you to better understand the tremendous growth opportunities and new models on the payments horizon, please reach out to us. We would be delighted to help you navigate the challenges and seize the significant opportunities of today's dynamic payments environment.

Happy reading!



Anirban Bose

Financial Services Strategic Business Unit CEO
& Group Executive Board Member, Capgemini

Executive summary

The payments industry is at a juncture, facing dynamic innovation and continued disruption of its traditional value chain and service propositions. Payment service providers are assuming new roles and redefining strategies to fit profitably within the new value chain. The payments segment has evolved significantly since Capgemini formally began to analyze and record the dynamics of the payments and cards industry 15 years ago.

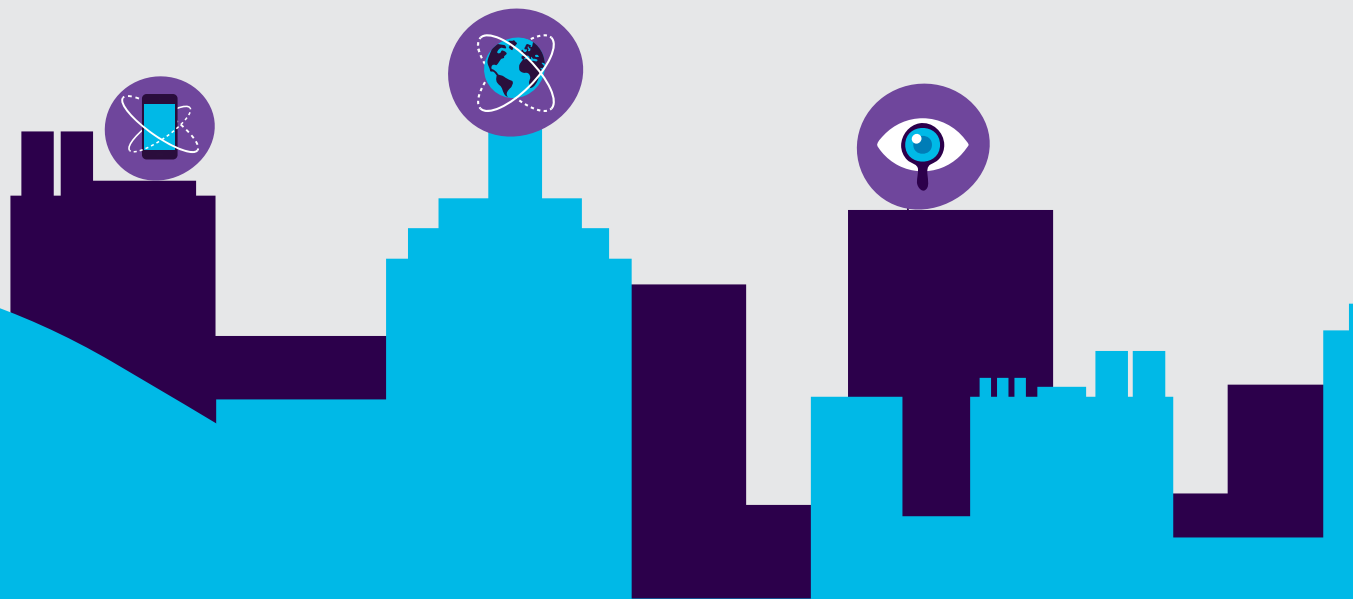
Global non-cash transaction volumes grew at 12% during 2016–17 to reach 539 billion – the highest in the past two decades:

- Emerging markets led the growth charge. Emerging Asia (32%) and CEMEA (19%) were highest in global non-cash transaction volumes.
- Mature markets, including mature APAC, Europe, and North America, maintained a growth rate of nearly 7%, which aligns with our predictions for these markets.

Drivers include growing adoption of mobile payments, uptake in contactless technology, and digital innovation from technology players and card giants. For further details on regional trends and analysis, see [page 30](#), where we have provided the complete analysis.

This year, it is apparent that the market's regulatory dynamics are focused on interoperability, standardization initiatives, and collaborative supervision. This regulatory focus assumed greater significance given the increasing fragmentation in the landscape that is a result of multiple players, solutions, and standards. The existence of differing standards, systems – as well as the divergent scope of regulators – could stifle competition and undermine customer safeguards. These issues could be detrimental for the new payments ecosystem, which is a future state defined by rebundling of capabilities and services through collaboration and partnerships, and the emergence of a marketplace that offers a variety of lifestyle services as well as financial services and products.

For further regulatory updates and details, see [page 36](#), and for a more in-depth analysis of individual KRII (key regulatory and industry initiatives), visit the online version of the report at www.worldpaymentsreport.com.



Against this fast-changing environment, we focused our analysis on business-model innovations. Incumbent firms need to revisit their existing business model and establish how to transform to win a leading position in the value chain and maintain relevance for all market segments. As open, real-time, and emerging technologies continue to shape the new payments landscape, banks need to embrace collaborative synergies and innovation to make the transition.

While more and more financial services players navigate the complex landscape through collaboration, banks have yet to wholeheartedly support Open Banking, a fundamental pillar of the new payments ecosystem. As the industry transitions to a partnership-based future state, incumbents must unleash the potential of Open Banking and leverage suitable business models to retain and grow market share. Moreover, monetizing quick-win solutions and revisiting infrastructure strategies will keep banks viable and focused on the future.

Regulators and the wider industry are collaborating on multiple fronts to smooth the transition to the new payments environment. Throughout this report, we offer our perspective on how to support and accelerate the journey.



Monetizing quick-win solutions while building a robust ecosystem strategy can help banks stay in the payments game



Key Findings

- **The convoluted payments landscape is growing even more complicated as new market participants, emerging technologies, and changing customer expectations spur disruption among industry stakeholders.** This includes banks and other payment services providers (PSPs), acquirers, card networks, processors, and infrastructure providers. The number and diversity of organizations gaining ground within the non-cash transaction market have grown significantly in recent years. They now include newcomers such as GAFA (Google, Amazon, Facebook, and Apple) and BigTechs, FinTechs, and innovative digital payments platforms.
- **Amid the complexities, dynamic consumer preferences are influencing banks' strategic and operational decisions across all segments.** In response to corporate client expectations, banks are launching in-house innovation initiatives or collaborating with FinTechs. However, a significant gap remains between corporate expectations and banks' understanding of their requirements.
- **New entrants are leveraging their digital acumen and agile work styles to evolve their business models profitably. This agility may impact incumbents that do not keep up.** Banks believe data-savvy BigTechs are a more significant threat than FinTechs; about 60% of WPR 2019 survey respondents said BigTechs that leverage banks' payments infrastructure are a growing threat.
- **Banks are responding to market transition through collaborative partnerships, while market developments and regulations are pushing Open Banking – although few firms have fully embraced it.**
- **The foundation of the new payments' ecosystem, Open Banking, is promoted by regulators as a way to nurture innovation and greater competition so that customers benefit.** However, banks continue to focus on its compliance implications, not the potential to spur innovation and monetization. Only **48% of banks** globally say they are considering open APIs beyond regulatory compliance and countries are taking different paths – ranging from prescriptive to elective – to Open Banking.
- **The power of Open Banking and ecosystem-based business models will help incumbents sustain market share. 90% of banks** surveyed said participation in ecosystem-based business models is the key to long-term success in the new payments' market. Most banks are either a participant in an ecosystem or an aggregating partner that shares APIs, but very few are building and orchestrating a greenfield ecosystem. Some firms prefer a hybrid approach by participating in an ecosystem while creating an ecosystem in parallel.
- **Monetizing quick-win solutions and re-visiting infrastructure strategies will be key. This approach can keep banks viable and allow them to maintain momentum on their journey as regulators and market participants step in to stabilize the transition.** To compete against technology players, banks have several options:
 - Consider opportunities emerging from innovation and convenience in service, plug-and-play merchant services, and overarching predictive models to secure transactions.
 - Continue to liaise with large payment users, corporates, government, and merchants to design and synchronize shareable, collaborative assets — including data, infrastructure, and product experience.
 - Communicate with regulators to enable a smooth market transformation, synchronizing both supply and demand sides and ensuring parity with newcomers.

The payments landscape is growing more complex as new market participants, emerging technologies, and changing customer expectations spur disruption

In WPR 2018, we identified a range of factors that were disrupting traditional banking roles. While these influences continue, the entry of BigTechs, new technologies, changing customer expectations, and challenges in regulatory compliance are creating a complex operational environment for banks (Figure 1).

BigTechs are making deep inroads into payments, and their ability to cross-subsidize their new offerings is a competitive challenge to incumbents.

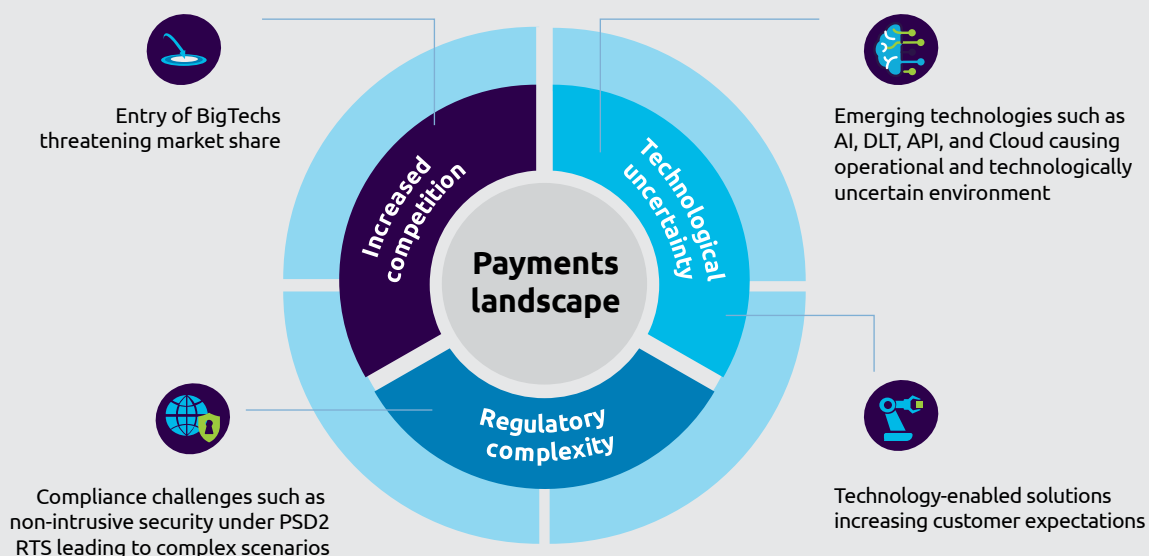
The scale of tech giants poses an imminent threat as they eye roles in the evolving financial services world, from being a component supplier or demand aggregator before eventually moving to platform provider. BigTechs are exploring market opportunities where they can leverage their technological prowess and are either capitalizing on existing infrastructure or

building their own. As global market capitalization giants, BigTechs can cross-subsidize their new offerings with the help of established portfolios.¹ As BigTechs seek to collaborate with established banks, incumbents must hedge against relegation to a minor infrastructure provider role.

Customer expectations, driven by technological changes, are challenging banks' baseline assumptions.

The wide variety of solutions in the market is stirring customer expectations, which creates a challenging scenario for banks. As customers adopt a digital-first payments behavior, banks' long-held consumer assumptions face challenges. Therefore, digital differentiators must be developed to improve customer stickiness.

Figure 1. Increasing complexity of payments landscape



Source: Capgemini Financial Services Analysis, 2019

¹ Capgemini Invent, "Open Banking/PSD2 market observatory report on BigTech analysis," July 16, 2019, <https://www.capgemini.com/2019/07/open-banking-market-observatory-capgemini-netherlands>.

Emerging technologies are creating challenges for established banks.

New technology has spurred sweeping systemic and operational changes that are difficult for banks to navigate. For instance, bank executives now face decisions about further technology investments within a volatile environment that offers little opportunity for steady-state analysis. Each technology presents a disruption opportunity and a unique challenge.

- **Distributed ledger technology (DLT)** – As several players disrupt the payments landscape in areas such as cross-border payments, the lack of interoperability with other DLT systems is a significant challenge and causing the market to fragment. Similarly problematic is the lack of integration with legacy systems – the reason some banks have put DLT experimentation on hold, whereas central banks and global entities such as SWIFT continue to test.
- **APIs** – Security and business vulnerabilities related to API implementation and sharing of customer data are slowing banks' acceptance of APIs beyond mandated compliance requirements. The lack of industry standards adds to the complexity. Standardization is the foremost challenge faced by firms and institutions currently, according to a recent report.²
- **Artificial intelligence** – Several banks and financial institutions are building AI/machine-learning tools to replace human-based processes. Multiple data processing (Spark, Hive) and AI/ML tools (Spark ML, PyTorch, TensorFlow) would be used to develop solutions, but these technologies lack maturity. These tools leverage rapidly-evolving open source applications that are often inadequately integrated across end-to-end data workflows, which compounds security and process vulnerabilities.
- **Bank-as-a-Service** – Off-the-shelf, cloud-based banking solutions are now available, which lowers the entry barrier and enables newcomers to take new innovative solutions to market at minimal investment cost. This ability both encourages innovation and pulls down market prices.

Last year, for example, France's third-largest bank, Société Générale, acquired Treezor, a FinTech that provides platform-based services in payments processing. The goal is to branch out to other players in their ecosystem with quicker go-to-market solutions.³

Regulatory complexity adds another layer to the already complex landscape.

Regulatory compliance challenges that banks face add a dimension to the existing complexity.

- **Regulatory push (PSD2/Open Banking mandates):** Regional regulators are pushing the Open Banking mandate. However, banks are reluctant, considering the complexities they already face and business risks involved with sharing client data.
- **Fragmented compliance activity:** Even within an 18-month compliance period, PSD2 SCA implementation progress has been scattershot. With PSPs and card schemes lobbying, the European Banking Authority (EBA) is offering limited mandate extensions.⁴ The most heavily impacted merchant and e-commerce segments also have requested to delay compliance activity by at least 18–36 months.⁵
- **Multiple systems and schemes:** Globally, there are several real-time payment schemes, so the lack of interoperability imposes operational and financial burdens on banks. Global accreditations do not guide Open Banking initiatives. Several countries have domestic card payments schemes that are causing fragmentation (e.g., RuPay, MEPS, ALTO, NAPAS, FPOS). In Europe, the remaining coexistence of local clearing and settlement mechanisms in countries – apart from pan-European TIPS and RT1 – is creating additional fragmentation.
- **Data protection regulations:** Several countries have emulated the European GDPR and either implemented a new law or amended existing laws to promote rigid data protection guidelines. However, stringent adoption of data protection rules might hamper the progress of Open Banking and stifle overall innovation.

² Smartbear, "The State of API report, 2019,"

https://smartbear.com/SmartBearBrand/media/pdf/SmartBear_State_of_API_2019.pdf," accessed July 2019.

³ WPR 2019 executive interview with Société Générale

⁴ Mobile Payments Today, "European regulator offers limited extension on PSD2 secure payment deadline," June 21, 2019, <https://www.mobilepaymentstoday.com/news/european-regulator-offers-limited-extension-on-psd2-secure-payment-deadline>.

⁵ CTMfile, "Requests to delay PSD2 have started," July 12, 2019, <https://ctmfile.com/story/requests-to-delay-psd2-have-started>.

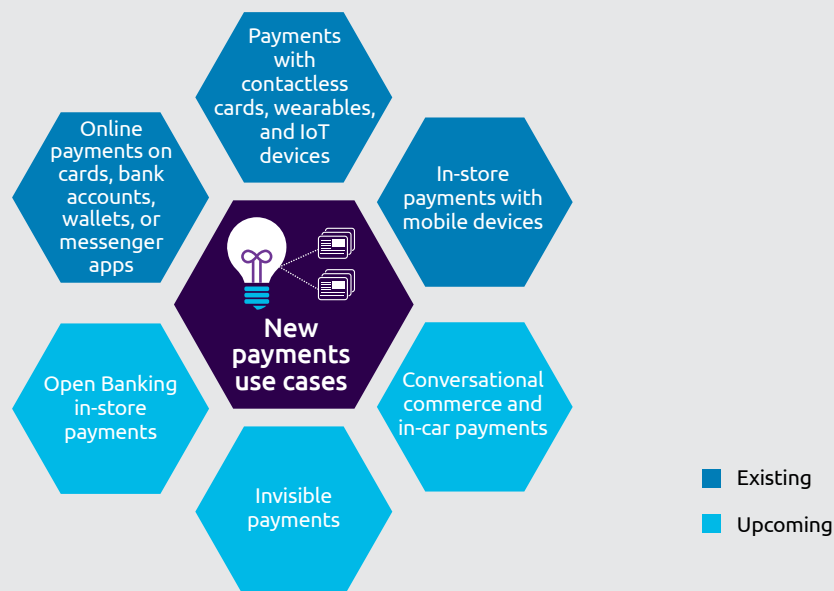
Amid the complexities, dynamic consumer preferences are influencing banks' strategic and operational decisions across all segments

The increasing popularity of mobile technologies and connected commerce is driving omnichannel customer experience and new retail payment use cases. While technology spurred existing use cases, new ideas may emerge as potential revenue streams (Figure 2). These use cases emerged in response to rising customer expectations, such as:

- **Omnichannel integrated experience:** Seamless experience across multiple payments instruments and channels.
- **Alternate payment methods:** Cellular IoT connections are expected to reach 3.5 billion by 2023, at 30% compound annual growth rate, which may spur the launch of even more payment methods.⁶
- **Automated payment experience:** Customers are looking to reduce multiple touchpoints and want data sharing from merchants via their mobile device, IoT device, or Card-on-File.⁷
- **Real-time connectivity:** On-the-go connectivity such as payments from wearables and connected car devices.
- **Rewards and loyalty:** Users are looking for value in payments in terms of rewards and loyalty.
- **Ubiquity and reach:** With so many ways to pay, users need a ubiquitous payment resource that offers broader reach.

Overall, new currencies, loyalty schemes, and penetration of wallets are driving integrated customer

Figure 2. New retail payment use cases



Source: Capgemini Financial Services Analysis, 2019.

⁶ IoT Business News, "Ericsson expects cellular IoT connections to reach 3.5 billion in 2023," June 14, 2018, <https://iotbusinessnews.com/2018/06/14/27877-ericsson-expects-cellular-iot-connections-to-reach-3-5-billion-in-2023>

⁷ Card-on-File (COF): A term used for a consumer's credit card credentials that are typically stored within a merchant database or some other secure server accessed by the merchant.

experience in the retail segment. Coalition loyalty schemes are fast catching up as corporates partner with retailers, lifestyle stores and hospitality players.

Moreover, payments visibility is a growing trend that allows the entire payment transaction lifecycle, to be tracked from initiation to reconciliation by providing real-time insights, a single-view of payments, and end-to-end payment costs and fees. Transaction transparency allows the customer to understand the user costs for payment processing and other third-party services.

Until recently, the impact of technological innovation was most profound within the retail segment, but lately, corporations are also realizing its potential. **The way corporates communicate with their banking partners is changing, and that is forcing banks to step up technologically.** There are a variety of areas in which corporate clients can benefit from innovation, and they expect their banking partners to assist them in their initiatives (Figure 3).

Real-time liquidity management: If real-time payments become the new B2B norm, corporates will have to consider real-time liquidity management. Faster payment processing and the introduction of new payment models are essential for treasurers to facilitate changing procurement and sales models. In turn, this will impact corporates' liquidity management approach. New methods – such as virtual accounts for reconciliation and just-in-time liquidity to avoid fragmentation – are potential options.

 *New payment methods and new speeds are being adopted first by service platforms in search of differentiation for selling services or goods. The differentiation allowed by new payment methods is important to attract the best suppliers as much as to facilitate payment from customers.*

—Bruno Mellado
Global head of payments and receivables, BNP Paribas

Transaction traceability and reach: The ability to trace a transaction is a significant corporate challenge and has spawned initiatives such as SWIFT gpi, which offers end-to-end tracking. Corporate adoption is increasing, as SWIFT has opened up gpi for corporates (g4c) for all and is step closer to its aim of achieving universal adoption of gpi for cross-border payments by 2020.⁸

API-led propositions such as transaction analytics: Identifying the right strategic partner is necessary as it can help corporates understand their pain points and address inefficiencies. For example, a popular airline recently began leveraging APIs and new schemes to streamline customers' payments experience when they book online or in-app. The new scheme helps the

Figure 3. Areas where corporate treasurers expect innovation from PSPs



Source: Capgemini Financial Services Analysis, 2019.

⁸ Global trade review, "Swift's gpi for corporates goes live", July 2019, <https://www.gtreview.com/news/global/swifts-gpi-for-corporates-goes-live/>

airline to increase authorization rates, enact more flexible fraud risk management, and gain data insights.

Managing disparate data and systems: Automation and seamless API-led integration among in-house systems, banking partners, and ERP/TMS solutions enables the management of data from independent sources. In addition to compliance-driven data sharing, sophisticated platforms are emerging that allow corporate networks to securely share transaction-level information.

End-to-end cash management: End-to-end cash management (cash forecasting, aggregation, supply chain financing, and other working capital requirements) is a crucial decision-making aid for treasurers, and access to real-time data analysis will bolster their capabilities.



API strategy and integration of FinTech platforms in middle- and back-office operations are the biggest value drivers in corporate payments.”

—Thara Trivedi

Head of commercial banking digital payments product group (USA), Bank of the West

A unified view of multiple bank relationships:

On average, each corporate has about 10 banking relationships, and a seamless experience is contingent up a singular view of all relationships. Corporates have started to test new multi-bank payments tracking on SWIFT gpi. Ten multinational corporates and 12 leading banks are using the functionality to streamline the process for corporate treasurers. The solution allows them to initiate and track gpi payments to and from multiple banks in a single format and integrate gpi flows in ERP and Treasury Management System.⁹

Increasingly, corporates are considering contextual payments based on customer interactions to optimize transactions. The need to create a unified payments experience has made contextual payments more significant, while organizations have been focusing on integrating their channels at the ERP level alone.

⁹ SWIFT press release, “SWIFT launched multi-bank gpi payment initiation and tracking service for corporates,” July 16, 2019, <https://www.swift.com/news-events/news/swift-launches-multi-bank-gpi-payment-initiation-and-tracking-service-for-corporates>.

New entrants are leveraging their digital acumen and agile work styles to profitably evolve their business models, which may impact incumbents that do not keep up, while specific sectors create opportunities for players

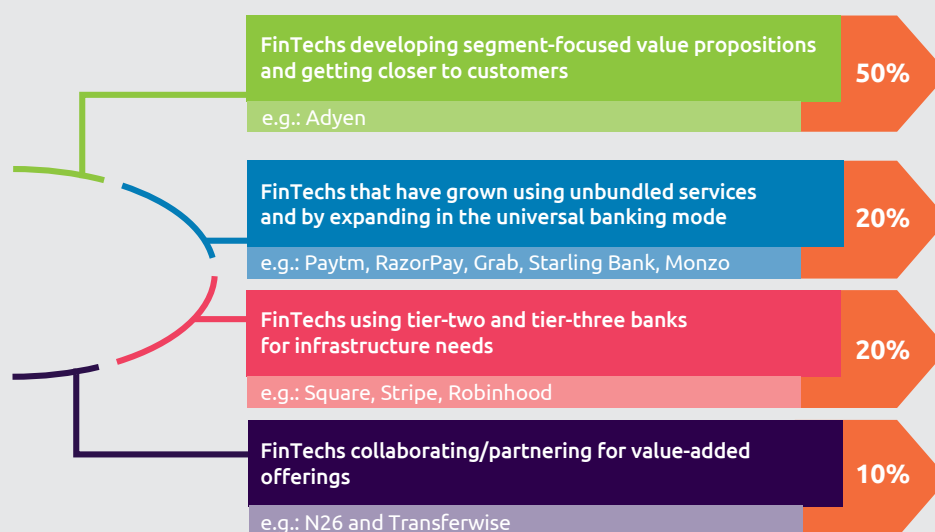
Over the years, FinTechs have been enabling banks to enhance their capabilities. However, they are also modifying their business models to emerge as direct competitors or allies, depending on the target and the context. Of the competitive business models being adopted by FinTechs, segment-focused value propositions are arising as the biggest threat, according to our executive interviews and survey responses (Figure 4).

Several BigTechs have started collaborating with PSPs to leverage the existing infrastructure and capitalize on their customer base. **As more and more BigTechs look to work with banks, firms need to ensure against relegation to a minor infrastructure provider role.** WPR 2019 survey respondents rated BigTechs that leverage banks' existing payments infrastructure as the leading threat (Figure 5).

These BigTech firms are leveraging collaboration and partnerships as strategies to expand into geographies such as Europe and the US. Examples of BigTech/bank collaboration include:

- Alipay is collaborating with Finland's ePassi and Pivo, Norway-based Vipps, Spain's MOMO, Portugal's Pagaqui, and Austria's Bluecode to adopt a unified QR code in a bid to bridge the region's fragmented mobile payment landscape. All the six digital wallets have five million users combined and around 190,000 merchants in their payment networks in Europe.¹⁰
- Launched in collaboration with Goldman Sachs and Mastercard, the Apple Pay card offers attractive features such as no fees, lower interest rates compared with standard credit cards, and better security.¹¹

Figure 4. Perception of threat from evolving FinTech business models

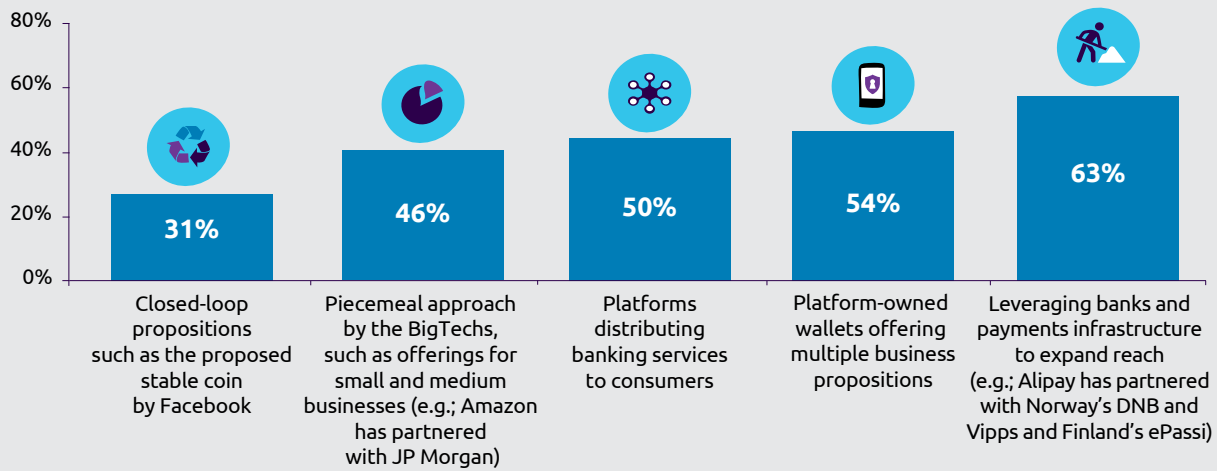


Source: Capgemini Financial Services Analysis, 2019; WPR 2019 online survey responses.

¹⁰ ePassi press release, "European mobile wallet collaboration," June 10, 2019, <https://www.epassi.fi/fi/ajankohtaista/epassi-and-european-mobile-wallet-collaboration>.

¹¹ Apple press release, "Introducing Apple Card, a new kind of credit card created by Apple", March 25, 2019, <https://www.apple.com/newsroom/2019/03/introducing-apple-card-a-new-kind-of-credit-card-created-by-apple/>

Figure 5. Seriousness of threat from BigTech business models



Source: Capgemini Financial Services Analysis, 2019; WPR 2019 online survey responses.

- Microsoft partnered with Yes Bank and Mobikwik in India to enable P2P payments over its Kaizala mobile chat-based platform.
- Amazon partnered with JP Morgan, Bank of America in the US, Bank of Baroda in India, and Western Union to offer a variety of services, such as checking accounts, SME lending support, and payment transfers. In India, Amazon Pay launched its Unified Payments Interface (UPI) enabled payments in 2018.
- Google Pay has extended its partnership with 15 more banks across Asia, Europe, and Australia.
- WeChat Pay partnered with BNP Paribas and Wirecard in Europe and is eyeing expansion into the United States as well.¹²

In contrast to these collaborative approaches, Facebook and a group of investors are expected to launch stablecoin Libra in the first half of 2020. So far, no bank has joined the consortium.

Pressure from BigTechs is the third-most critical factor driving banks' digital transformation initiatives, according to WPR 2019 survey research.

When compared with FinTechs, the potential of domination by BigTechs within an eventually unstable FS industry is higher. **Therefore, there is a case for regulators around the world to handle BigTech and FinTech competition differently.**

- FinTechs need banks for core services, infrastructure, and access to clients. Successful bank-sized FinTechs may eventually merge with banks, as happened with Fidor. They are part of the extended industry, which ensures fair competition.
- BigTechs, on the other hand, have customer bases that are tens of millions strong and the ability to cross-subsidize. In the absence of regulation to maintain open competition, these giants will adversely impact banks' profitability and margins.



FinTechs are rather an opportunity than a threat for banks, but BigTechs and card giants Visa/MasterCard are because they have huge investment budgets, fairly good trust from clients, and huge client bases."

—Nicolas Cailly

Global head of marketing – Payments and cash management, Société Générale



You need to consider that the BigTechs will always have scale on their side and this conflicts with the banking providers that follow the use of more open standards. The standards do lower barriers to entry for providers, but ultimately, it is market dynamics that will dictate."

—David Thomasson

Product director, Payments & commercial lending, Metro Bank

¹² Wirecard, "Wirecard extends collaboration with one of Paris' largest department stores Printemps by boosting WeChat Pay acceptance", May 16, 2019, <https://www.wirecard.com/company/press-releases/wirecard-extends-collaboration-with-one-of-paris-largest-department-stores-printemps-by-boosting-wechat-pay-acceptance>

B2B payments are an emerging opportunity.

New entrants are targeting the B2B segment, as business payments have better profit potential compared with consumer payments. The B2B is lucrative thanks to higher revenue per customer, scope to address existing inefficiencies with the help of innovation, and corporate treasurers' increased adoption of innovation.



“Viable B2B use cases will drive the profitability from Open Banking and instant payments, and we will be able to see the results in that direction, starting in 2020.”

—A large European bank

Market dynamics in key sectors where banks are slow movers are creating opportunities for card giants and new entrants.

Opportunities include contactless cards/mobiles and wallets solutions, services to e-merchants (on behalf of and integrated commerce redefining the sector), and digital identity (with calculated moves by different players).

Digital trends in cards are prompting personalized customer propositions and technical capabilities for better real-time responsiveness.

- **Open-loop redemption:** Open-loop redemption is a trend that is fast catching up with the development of third-party loyalty and coalition-loyalty programs. Firms are offering propositions by collaborating with different merchants and providing a comprehensive loyalty program.
- **Technology transformation:** EMV payments data tokenization can significantly enhance the security of card-on-file payments while increasing convenience and simplifying the user experience. Host card emulation (HCE) is also on the rise, whereby sensitive payments and transport cards are virtualized in a secure element (SE).
- **Digital credit at PoS:** Customers can buy goods from merchants before having to pay. For example, firms such as Klarna and Affirm offer such services, and banks are partnering to offer instant credit.

- **Digital cards:** More and more firms are offering innovative digital cards that allow users to store the details of all their cards on one EMV-compliant secure card that is usable anywhere, anytime.

The consolidation of players, innovative disruptions, regulatory policies, and the entry of BigTechs are reshaping the merchant servicing landscape.

- **Market consolidation:** Currently, players are consolidating capabilities to create an end-to-end payments platform – from issuance to acceptance. For example, in 2018 and 2019, deals were inked between FIS and WorldPay, Fiserv and First Data, and PayPal and iZettle. While FIS sought expansion into Europe, Fiserv wanted to boost its acquiring capabilities for merchants through their respective acquisitions. In a similar move in the US, ACI worldwide acquired Western Union's SpeedPay to augment its cross-currency payment opportunities.¹³ Card giant Visa has made multiple acquisitions (Rambus, Payworks, and Verifi) to fortify its merchant-acquiring business, including Earthport, while Mastercard was entering the ACH space with VocaLink, which further strengthened by the recent acquisition of instant payments business from Nets.¹⁴ In Europe, Worldline, Nets, and SIA also act as regional consolidators.
 - **Innovative disruptors** (on-behalf-of, integrated commerce): Visa and Mastercard are pioneers of on-behalf-of services through digital acquiring for merchants. Several players are contemplating a standard consolidated solution (one-stop PoS) that encapsulates the functionality of a majority of upcoming payment channels, rather than investing in newer acquiring channels one by one.
 - **Regulatory policies:** With downward pressure on interchange fees, issuers are hard-pressed to offset their loss of revenue. Therefore, they are identifying avenues, such as alternative payment methods, through secured acceptance APIs, which are chargeable and help reduce merchants' PCI compliance costs at the same time.
 - **The entry of BigTechs:** After AliPay's unsuccessful attempt to acquire US-based MoneyGram, the firm has been focusing on Europe. Recently, the firm partnered with Berlin-based solarisBank as a licensed acquiring partner to provide infrastructure network expansion of acceptance points in Europe.¹⁵
- Technology players and incumbents are simultaneously trying to leverage opportunities in the digital identity segment, which is a critical success factor in the new payments' ecosystem.

¹³ Businesswire, “ACI Worldwide to Acquire Western Union's Speedpay U.S. Domestic Bill Pay Business,” February, 28, 2019, <https://www.businesswire.com/news/home/20190228005365/en/ACI-Worldwide-Acquire-Western-Union%E2%80%99s-Speedpay-U.S>.

¹⁴ Globalfdi, “Visa acquires Payworks,” June 2019, <https://www.globalfdi.net/visa-acquires-payworks>.

¹⁵ Finextra, “SolarisBank becomes Alipay acquirer for European merchant network expansion,” March 21, 2019, <https://www.finextra.com/pressarticle/77749/solarisbank-becomes-alipay-acquirer-for-european-merchant-network-expansion>.

As open, real-time, and emerging technologies continue to shape the new payments landscape, banks are responding to the market transition through collaborative synergies and innovation

Industrywide initiatives.

Open-platform approach: New entrants with large client portfolios and the ability to impose their standards are forcing incumbents to transition from a pipeline-based approach to shared and open-platform-enabled services. From a technology standpoint, their business models are built on API-centric, open-source technologies, usually based in the cloud, that provide the flexibility to react to market changes with new, deeply personalized services – with continuous improvement and delivered in real time. Since business models are changing from being transaction-led to data-led, this approach will empower players for the future.

Instant payments: Globally, instant is moving into payments with schemes, infrastructures, solutions, and added-value services. Initiatives such as SWIFT gpi are addressing interoperability and real-time international payments based on ISO 20022 standards. As various regional instant payments schemes implement SWIFT gpi it may emerge as the new standard for international instant payments. With 46 countries already implementing IP systems and 12 in the planning stage, IP is set to be a default payments infrastructure component.¹⁶

- **Transformation due to ISO 20022 messages:** There is a global push for implementation of ISO 20022 format messages that can carry much more transaction data than regular payments data and gather intelligence with the help of emerging technologies. Standardization enables interoperability and reach, and therefore allows the fragmented payment industry to resist competition from closed systems such as Facebook or Apple.
- **Card schemes venturing into instant payment systems:** MasterCard and Visa also are embracing real-time payments through MasterCard Send and Visa Direct that are card-based, P2P solutions that can be integrated with IP systems. Card giants are also trying to explore potential opportunities arising from instant payments-based services, such as funds-in and funds-out networks, that allow collecting funds locally for payment acceptance or to

transfer funds without having a bank account. These are increasingly being leveraged for international remittances, bill payments, and e-commerce, where collected funds enable local check-out capabilities. Card schemes are targeting these propositions as an alternative to account-to-account transfers.

- **More real-time mobile P2P and P2C solutions:** Several instant payments-based P2P solutions (Vipps, MobilePay, Swish, BHIM, Paylib) are enabling real-time transfers and payments. Pan-European solutions, being business cased are actively considered.
- **Value-added services such as Request to Pay:** Enabled by instant payment systems, Request to Pay/Real-time Payment Debit may change the face of bill and in-shop payments, as they gain global popularity. Instant payments' full potential may be achieved ultimately via Open Banking approaches that connect IP rails where the payment is needed. **Instant payments could emerge as an innovation battleground as PSPs look to launch differentiated products and services on a platform-based business model in partnership with FinTechs.**

While seamless and instant responses were rated as leading benefits, the emergence of new payment methods and competitive advantages for banks were valued almost equally by payments executives surveyed as part of the WPR 2019 (Figure 6).

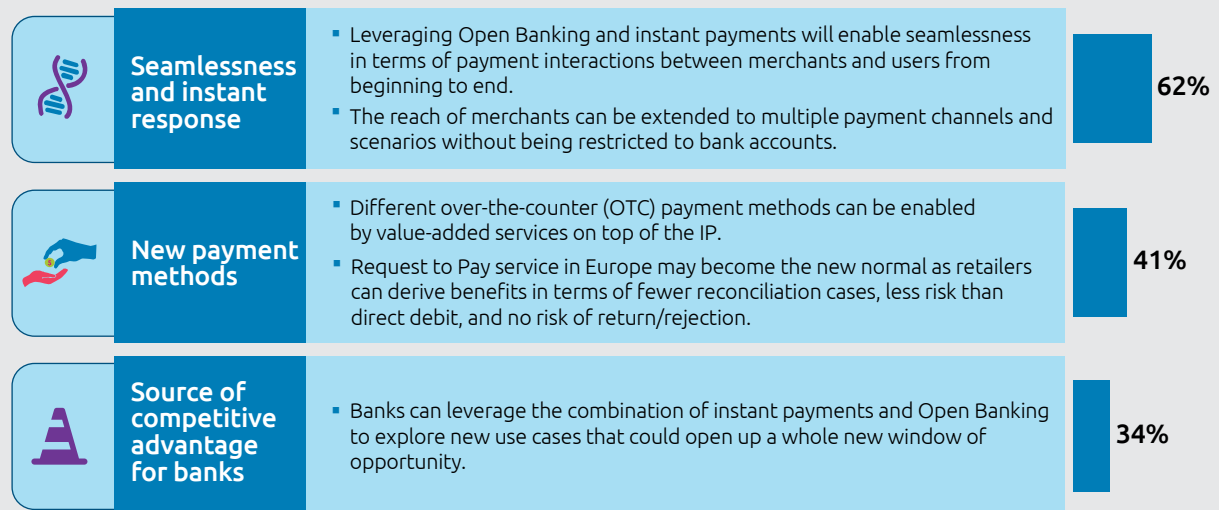


“Instant payments will create required infrastructure for innovation for banks and FinTechs. Open Banking will provide tools that will enable banks to customize their offerings to customers. Instant payments can work without Open Banking, not vice versa.”

—Ziad Al-Yousef
MD & CEO, Saudi Payments

¹⁶ InstaPay, InstaPay tracker, <https://www.instapay.today/tracker>, accessed June 23, 2019.

Figure 6. How payments executives perceive instant payments/Open Banking benefits



Source: Capgemini Financial Services Analysis, 2019; WPR 2019 online survey responses.

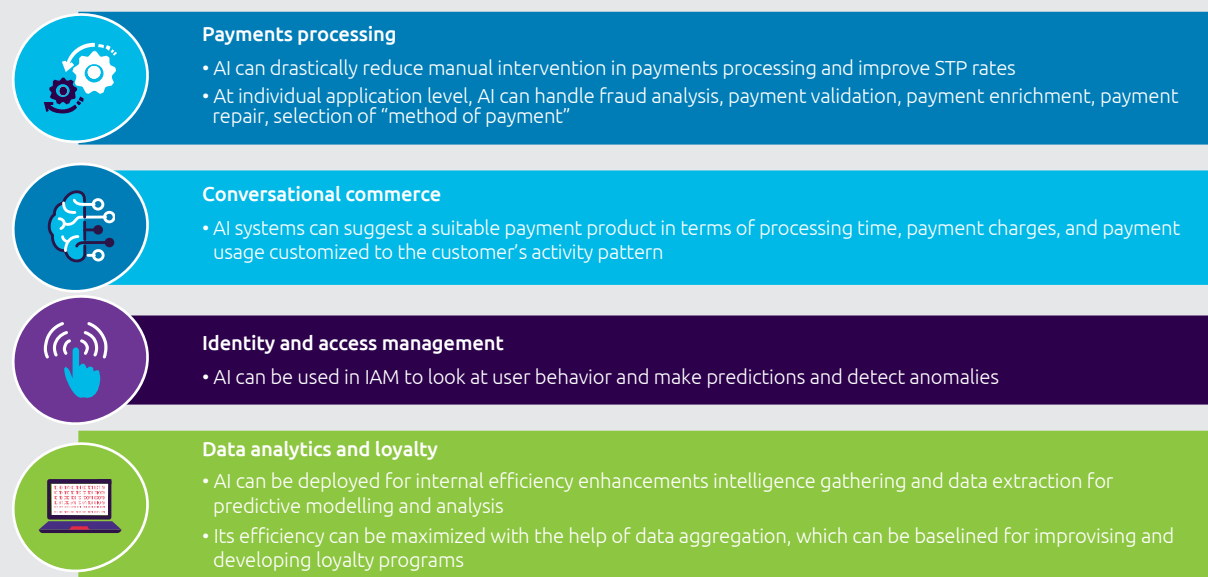
The combination also might give rise to new use cases across consumer services, corporate and merchant services, and regulatory compliance. However, retail use cases might not be lucrative enough to merit investment from banks and financial institutions. Therefore, the number of corporate overlay services are likely to increase in the near to medium term.

Emerging technologies: Although adoption of leading-edge technology can be daunting for some banks, it is an enabler for the new payments’ ecosystem. Artificial intelligence (AI) has proven its mettle in fraud use cases, and firms are exploring its utility in other areas (Figure 7).

Distributed ledger technology: With inherent capabilities to achieve transparency and decentralization, DLT has been applied to payments’ use cases, including clearing and settlement, supply chain financing, digital identity and know your client (KYC), and decentralized currencies. Firms are experimenting with DLT to explore effectiveness in the decentralization of unified payments processes. However, the utility is still limited to PoC stage.

Although the potential impact of DLT is evident, full-potential and mature use cases are not expected for three to five years.

Figure 7. Payments use cases of artificial intelligence



Source: Capgemini Financial Services Analysis, 2019.

DLT is also being considered for use in cross-border payments solutions, as an alternative to SWIFT. Several firms, including Ripple and Circle, are leveraging DLT in cross-border payments. SWIFT also is exploring the utility of DLT in the areas of Nostro Reconciliation and liquidity management.

Banks are exploring DLT viability in use cases such as reconciliations, e-voting, and inventory management. Some banks – including DBS, Deutsche Bank, HSBC, and Standard Chartered – are collaborating with SWIFT on a blockchain proof-of-concept for e-voting, which subsequently would be phased to prove a hybrid approach of combining messaging and DLT to foster interoperability and avoid market fragmentation.¹⁷ The Italian Banking Association (ABI) announced that the country's banks would be using DLT to run reconciliations as of March 2020.¹⁸

Multiple DLT-based solutions have spurred a fragmented, non-standardized landscape. Therefore, it is unlikely that the existing infrastructure will undergo a DLT-driven overhaul.

Private innovation and FinTech collaboration.

Banks are slowly realizing the power of partnerships with FinTech firms that may have initially been considered competitors. Banks now understand that digitally savvy FinTechs can be leveraged to improve services to digital customers. Collaborative partnerships are springing up among segments, including payment analytics, SME lending, payments processing, PoS solutions, and data handling. Banks are working with FinTech firms through partnership, integration, or acquisition. Some banks are taking a mix of these approaches.

In 2016, Dutch multinational bank ING began offering Yolt, a third-party-provider app that consumes APIs from CMA9 banks, according to the bank's head of Transaction Services, Mark Buitenhek.¹⁹ ING purchased a majority share last year of Dutch startup Cobase, the developer of a platform that multinationals can use to access accounts at various banks and financial institutions. Also in 2018, ING acquired a majority stake in Payvision, a fast-growing, leading international omnichannel payments service provider. Incumbent/FinTech collaboration is a win-win strategy for ING and its partners, in which the bank adds value to its portfolio and FinTechs scale up and expand their reach.

The modus operandi for leveraging FinTech expertise has been through plug-in services, value adds, white labeling, as-a-Service provision, or API banking. White labeling has been the most convenient for mid-sized banks, while firms that enjoy brand reputation opt for co-branded services. Finally, some large banks consider the risk and reward and decide to acquire the FinTech firm. If successful, they garner 100% of the reward, acknowledging that failure means they assume all risks.



We are mainly looking at FinTechs that create value in client-facing activities. Currently, we are also focusing on backend processing to solve friction in cross-border payments and automation of processes.”

—A large domestic bank (Europe)

Banks are participating in consortia initiatives that may emerge as the industry standard and encourage interoperability.

Multi-bank consortia models are making strides in the trade finance and KYC areas, which may be a step toward multi-player ecosystems.

- **we.trade** Innovation DAC, a joint-venture company owned by 12 European banks, has developed a digital trade platform to simplify the trade finance processes by digitalizing the management, tracking, and security of domestic and international trade transactions.²⁰
- **Marco Polo**, a network of more than 20 banks across the globe, facilitates trade and working-capital finance solutions including receivable finance, factoring, open APIs, and legacy system compatibility. The network is intended to allow banks to integrate easily with their corporate clients via their ERP systems.

¹⁷ Coin Telegraph, “SWIFT, HSBC, Deutsche bank to conduct Blockchain-based e-voting PoC,” March 6, 2019, <https://cointelegraph.com/news/swift-hsbc-deutsche-bank-to-conduct-blockchain-based-e-voting-poc>.

¹⁸ Finextra, “Italy’s banks to use DLT for reconciliations,” June 18, 2019, <https://www.finextra.com/newsarticle/33991/italys-banks-to-use-dlt-for-reconciliations>

¹⁹ The CMA9 are the nine largest banks in the UK, as determined by the Competition and Markets Authority (CMA) as part of the Open Banking initiative.

²⁰ We.trade, <https://we-trade.com/>, accessed July, 2019.

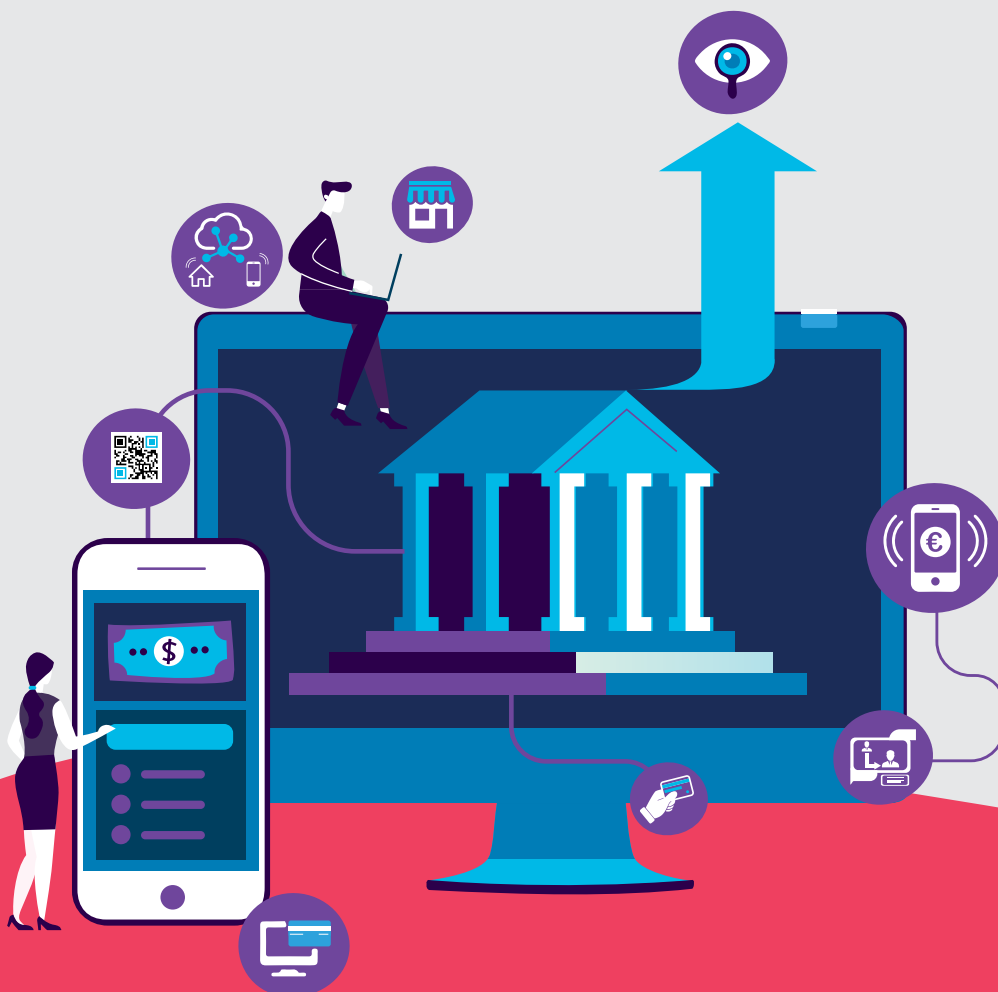
- **eTrade Connect** is an Asia-Pacific consortium managed by the Hong Kong Monetary Authority. Launched in September 2018, the consortium aims to build better trust among trade participants, improve efficiency, reduce risks, and facilitate trade counterparties to obtain financing by digitizing trade documents and automating trade finance processes.
- **Voltron** is a coalition of over 50 banks and corporates delivering a platform to create, exchange, approve, and issue L/Cs. The platform, accessible to customers of member banks, will enable banks to provide faster service levels, financing decisions, and lower rates to their customers. In addition to Voltron-created documents, trade documents produced on

external networks can be sent digitally, verified, and processed via the Voltron platform. Launched in October 2018, this globally reaching consortium completed its first transaction in April 2019.²¹

- **Six Nordic banks established a joint venture company, to develop a platform for handling know your customer (KYC) data.** The six banks include Danske Bank, DNB Bank, Nordea Bank, Scandinavia Enskilda Banken, Svenska Handelsbanken, and Swedbank, and will invest an equal share in the company. The joint venture company is autonomous and will initially offer KYC services to the market concerning large and medium-sized companies based in the Nordic region. However, its first commercial launch is due in 2020.²²

²¹ Token Post, "HSBC completes Letter of Credit transaction using Voltron blockchain platform," April 3, 2019, <https://tokenpost.com/HSBC-completes-Letter-of-Credit-transaction-using-Voltron-blockchain-platform-1580>.

²² Alvarez and Marshal, "KYC Data & The Nordic Model: Six Nordic Banks Gain EU Approval to Launch KYC Utility," July 17, 2019, <https://amonsocial.alvarezandmarsal.com/post/102fmx2/kyc-data-the-nordic-model-six-nordic-banks-gain-eu-approval-to-launch-kyc-util>.



While market developments and regulators push Open Banking, banks grapple with adoption

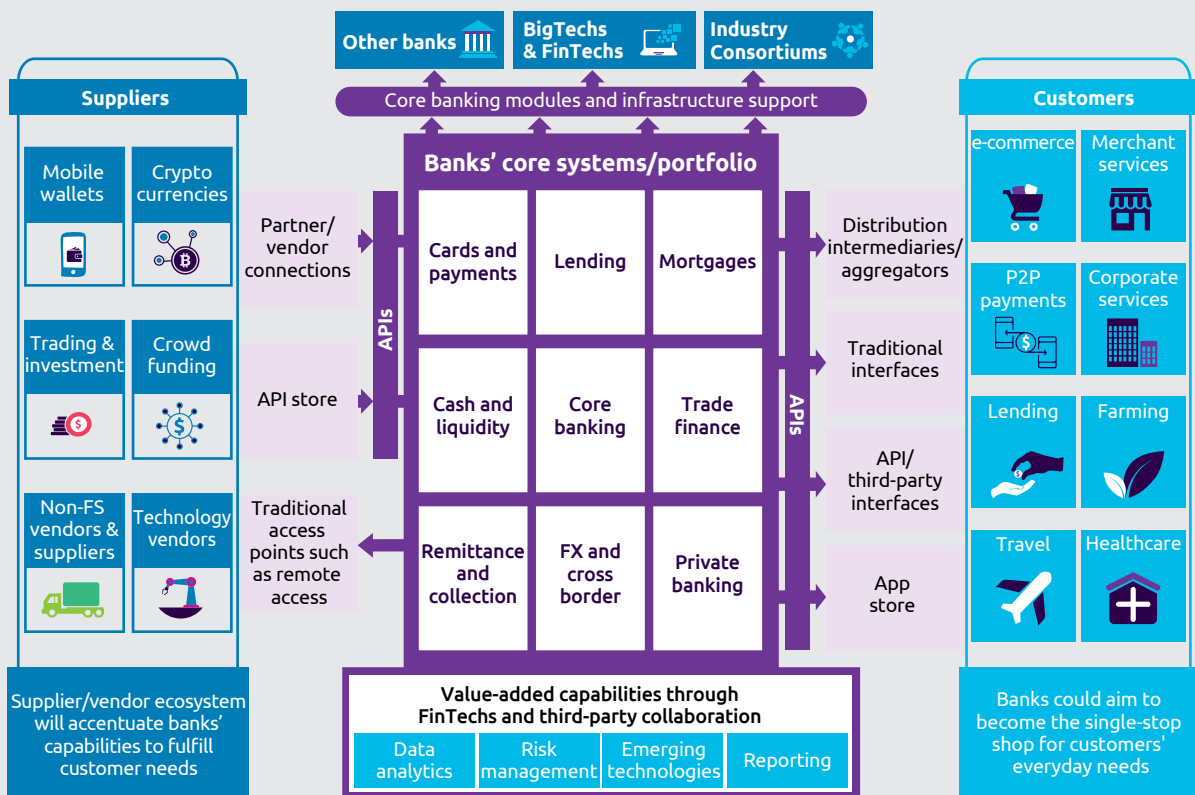
Open Banking is expected to drive some potential in retail and corporate services. In retail services, benefits include improving customer experience, creating new revenue streams, and building sustainable service models for underserved markets. However, the potential to develop and provide similar services for corporate banking is even more significant. APIs allow seamless connectivity between corporate ERPs and bank systems, facilitate straight-through data processing, and significantly improve turnaround times. The two most important factors underpinning Open Banking success are seamless data access and sharing and removing barriers to competition. These factors will enable regular dialogues and interactions among industry players to help provide better financial services.

Open APIs require banks to open up their systems and data. In an ideal scenario, with frictionless adoption of Open Banking initiatives, banks can emerge as a one-stop-shop for all customer requirements – even beyond everyday banking and financial needs (Figure 8).

Few banks launched API initiatives in capacities such as developer portals, API platforms, and single-use APIs for both retail and corporate customers. Currently, banks that are active in API offerings can be categorized under three archetypes according to the operational model chosen by them to provide services namely, supplier, aggregator, and orchestrator.

In a supplier model, banks act as a service provider to the third party, which controls the user interface.

Figure 8. Bank in an open ecosystem context



Source: Capgemini Financial Services Analysis, 2019.

Banks limit themselves to a service provider and assume a backend role.

Few leading banks have created an API store, allowing clients to plug into their data. As an aggregator, banks expand their scope and portfolio by leveraging third-party services and use white labeling to distribute them. Lloyds Banking Group is developing an account aggregation service for its retail banking customers and working with iwoca to bring business owners the ability to provide up to five years of transaction history instantly.²³

In the orchestrator model, banks become facilitators of a marketplace for various FS and non-FS propositions and enable beyond-traditional banking with an extended service portfolio and client base. For example, DBS, BBVA, Citibank, and Deutsche Bank have launched API marketplaces for corporates, PSPs, and developers to connect and create solutions.²⁴

Even though Open Banking is a fundamental and holistic approach that will help banks progress towards the new payments ecosystem, as an initiative, it ranks third in terms of budget allocation for digital transformation initiatives according to our online survey (Figure 9).²⁵ Most banks still treat Open Banking as a compliance tool to regulatory mandate and limit

their efforts to mandated APIs, which is delaying the progress.

Multiple factors are delaying Open Banking progress. They include slower adoption of instant payments outside the retail segment, including corporates and merchants, the reluctance of banks, and regulatory issues.

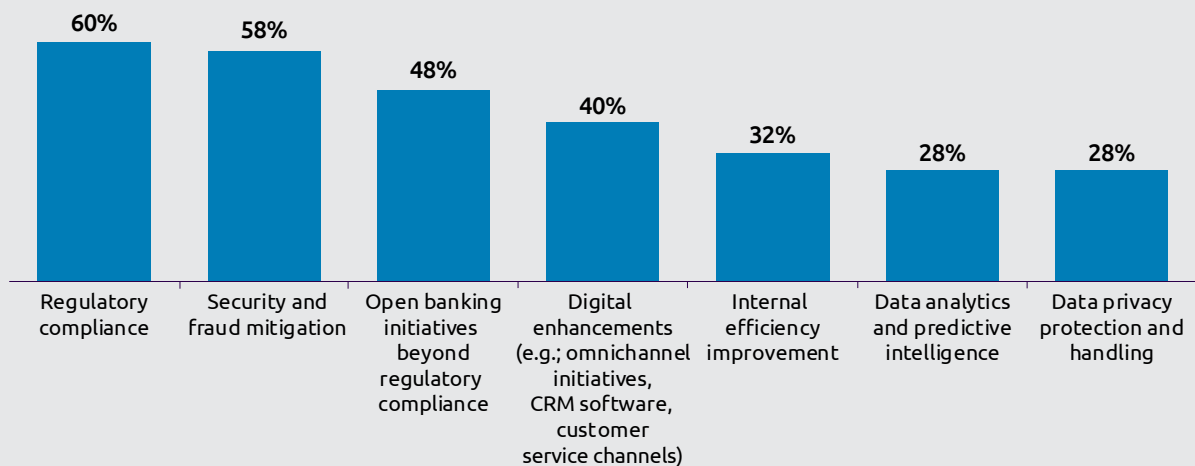


Open Banking should be aimed at ensuring an equal opportunity market with no discrimination among either the players involved or instruments. Larger global digital players are likely to start capitalizing on the PSD2 opportunities, so European banks need to make a substantial leap to remain competitive.”

—Etienne Goosse

Director general, European Payments Council (EPC)

Figure 9. Banks’ investments in digital transformation initiatives



Source: Capgemini Financial Services Analysis, 2019; WPR 2019 online survey responses.

²³ Bankingtech, “Open banking – build it and they will come?” March 5, 2019, <https://www.bankingtech.com/2019/03/open-banking-build-it-and-they-will-come>.

²⁴ Individual websites of DBS, BBVA, Citibank, and Deutsche bank, accessed in July, 2019

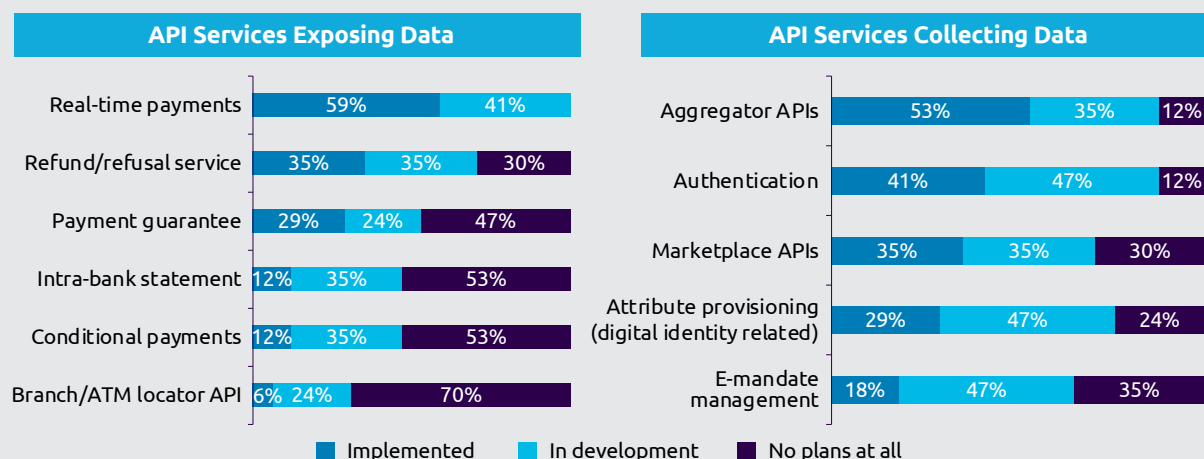
²⁵ Compiled from WPR 2019 online survey responses, 90 responses received through July 26, 2019; specific question asked: “Which of the following areas attract higher investment as part of your digital transformation initiatives?”

API progress has been lackluster because banks worry about losing customer base by sharing their client data.

Banks' API adoption rate is steady only when it comes to sharing non-critical and basic data. Our survey

data suggests that the percentage of banks offering APIs that both expose and consume data is anemic. More than half of survey respondents said they had implemented instant payments-based APIs, but for APIs that expose data, the number is far less robust. On the other hand, while 53% are offering aggregator APIs, only 35% are active in marketplace APIs (Figure 10).

Figure 10. Banks' readiness in exposing and consuming API services



Source: Capgemini Financial Services Analysis, 2019; WPR 2019 online survey responses.

According to our data, only 35% of WPR 2019 respondents said they use marketplace APIs, which is an unsettling statistic. Bank executives said they are not comfortable with one-sided data sharing – mandated from banks to third parties, but not vice-versa.

In time for the first of two deadlines (March 14, 2019) in Europe, nearly 100% of banks were ready with a developer portal with PSD2 testing functionality.

A closer look at these testing facilities shows that all banks offer precise delivery in domestic and SEPA payments but appear to struggle with more complex payment types such as batch, future-dated, recurring, cross-border, and instant payments. Capgemini's continuous tracking of production-ready PSD2 APIs confirms the same picture: the number of banks planning to go live with production data leading up to the second PSD2 deadline (September 14, 2019) is ever increasing.²⁶

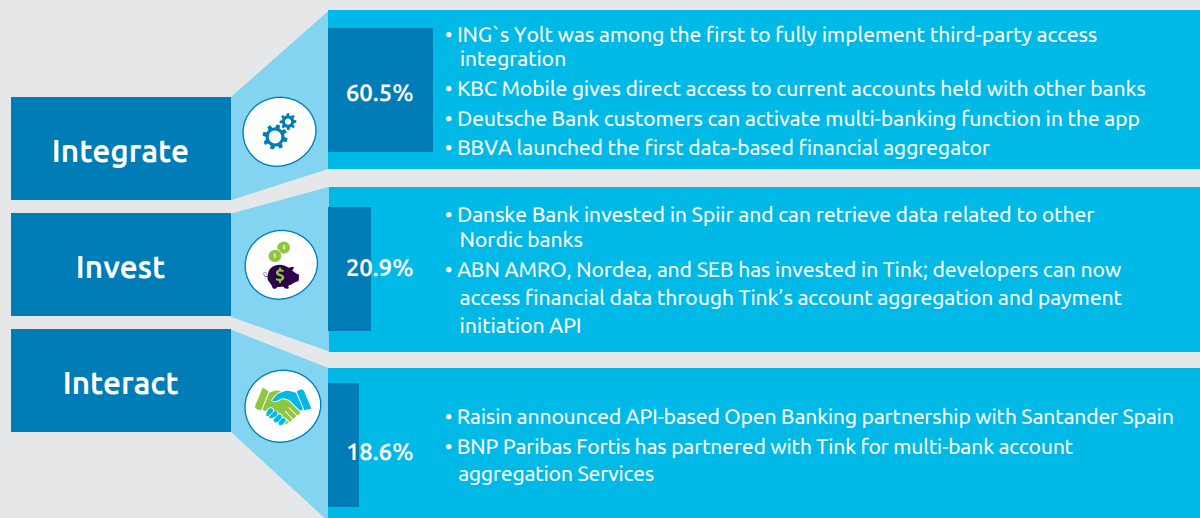
“Banks are very careful now with data sharing/usage of data due to regulations. Balance between what is allowed versus what adds value to the customer is highly critical.”

—Tino Kam
Head of Transaction banking services, Nordea

Based on our (April 2019) analysis of material publicly available from 60 large European banks (including ING, Deutsche Bank, and BBVA), we found that two-thirds are engaged in initiatives requiring the consumption of third-party data (multi-banking solutions). Sixty percent have integrated multi-banking solutions into their proprietary online and mobile banking solutions. Twenty-one percent of banks (including Nordea and Danske) have invested in ventures that benefit from consuming PSD2 APIs from FinTechs, including Tink and Spiir (Figure 11). The remaining 18% of banks entered into strategic partnerships with third-party providers, such as Raisin, that engage in PSD2 API consumption.²⁷

²⁶ Capgemini Invent Open banking/PSD2 observatory data, analysis of PSD2/open-banking APIs of 60 EU banks from 16 EU countries (122 banks for non-PSD2 APIs) and desk research from select databases, firm websites, and news items.
²⁷ Capgemini Invent Open banking/PSD2 observatory data, analysis of PSD2/open-banking APIs of 60 EU banks from 16 EU countries (122 banks for non-PSD2 APIs) and desk research from select databases, firm websites, and news items.

Figure 11. Various bank approaches in PSD2 API consumption



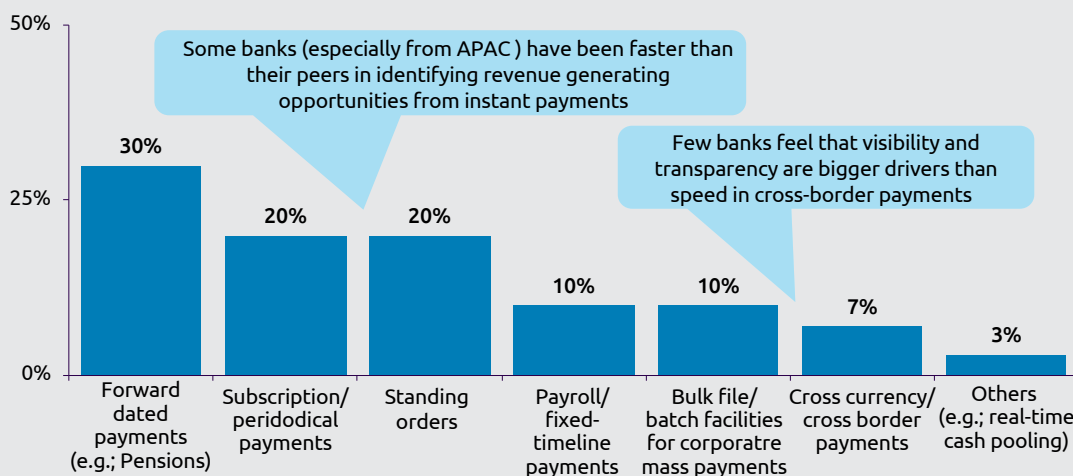
Source: Capgemini Financial Services Analysis, 2019.

Instant payments have yet to find a home within corporate and merchant services.

Adoption of instant payments-based services for corporate and merchant segments has been somewhat weak, according to our survey data. While more than 60% of the retail segment has embraced instant payments, followed by 20% in the corporate and

institutional segment – only 10% of the merchants' segment has accepted IP.²⁸ Merchant adoption may happen when there is no further decrease in the drop-off ratio leveraging other options, in the drop-off ratio, and the end-to-end competitive cost of new instruments is established vis-a-vis existing instruments. For example, in India, it took nearly two years for widespread merchant adoption of Bharat Interface for Money (BHIM), a UPI-based, instant-payment app. However, merchant adoption trends vary by geography.

Figure 12. Adoption of instant payment services



Source: Capgemini Financial Services Analysis, 2019; WPR 2019 online survey responses.

²⁸ WPR 2019 online survey responses, 90 responses received through July 26, 2019.

Asia-Pacific banks leverage instant payments more than their EU and US counterparts. Globally, corporate adoption remains low, and IP schemes' threshold volume can be attained only when corporates tally large transaction volumes.



Instant payments will take up, but it will take time finding the right use cases, enabling full reachability and align with corporate treasurers that will have to ensure proper liquidity 24/7, which they are not providing today.”

—Dominique Beauchamps
DGA, Natixis Payment Solutions

The regulatory conundrum is a significant hindrance, with both the lack of mandate and fragmented compliance activity posing operational challenges.

In the US, the likelihood of regulatory mandates – such as those focused on Open Banking in Europe – appears unlikely in the near to short term. However, for the time being, US regulators are more likely to set guardrails around data sharing. The Consumer Financial Protection Bureau’s 2017 data-sharing principles encourage sharing, without mandating it.²⁹ Although there is no regulatory mandate, banks should actively liaise with NACHA regarding its interoperability initiative, Afinis, to open data to third parties.

In Europe, confusion about PSD2 Regulatory Technical Standards (RTS) requirements that become

enforceable from September 2019, is adding another level of complexity for banks and PSPs. Strong authentication, real-time risk assessment, and a leveling of the playing field are the critical elements of PSD2 RTS implementation. However, there are gaps in both PSD2 and RTS documentation for factors such as authentication code and PISPs having their own SCA procedures in place, which could be a challenge during implementation. When asked to rate the criticality of challenges faced in complying with SCA requirements, WPR 2019 survey respondents said the choice of optimal authentication tools, handling fraud in real time, and maintaining a positive customer experience were their top three compliance challenges (Figure 13).



Two challenges arise from PSD2: First, regulators published and explained the RTS quite close to the original implementation date, thus leaving very little time for development, testing, and deployment. Second, from the point of view of both merchants and consumers, PSD2 compliance will degrade customer experience without adding security value or perception. La Banque Postale has already started educating its retail clients to forthcoming changes as some who are not that familiar with digital technology will need special support during the transition phase.”

—Regis Folbaum
Payments leader, La Banque Postale

Figure 13. Criticality of challenges faced in complying with SCA requirements



Source: Capgemini Financial Services Analysis, 2019; WPR 2019 online survey responses.

²⁹ Consumer Financial Protection Bureau, “CFPB Outlines Principles for Consumer-Authorized Financial Data Sharing and Aggregation,” October 18, 2017, <https://www.consumerfinance.gov/about-us/newsroom/cfpb-outlines-principles-consumer-authorized-financial-data-sharing-and-aggregation>.

As the industry transitions to a future state beyond Open Banking, incumbents must leverage ecosystem-based business models to sustain market share

While Open Banking has not been universally embraced, the industry is leapfrogging to a future state defined by a rebundling of capabilities and services through the formation of ecosystems and partnerships, and the emergence of a marketplace that offers a variety of lifestyle services as well as financial services and products. To prepare for this future state, participation in an interactive ecosystem-based business model should be a top bank priority. WPR 2019 survey respondents have their eyes strategically focused on the future, with 90% saying they feel that banks should be part of an ecosystem (Figure 14).



Bank assets are safe, secure, and controlled for customer safety. This should be the basis for banks to build an ecosystem.”

—**Mark Buitenhek**
Head of Transaction services, ING

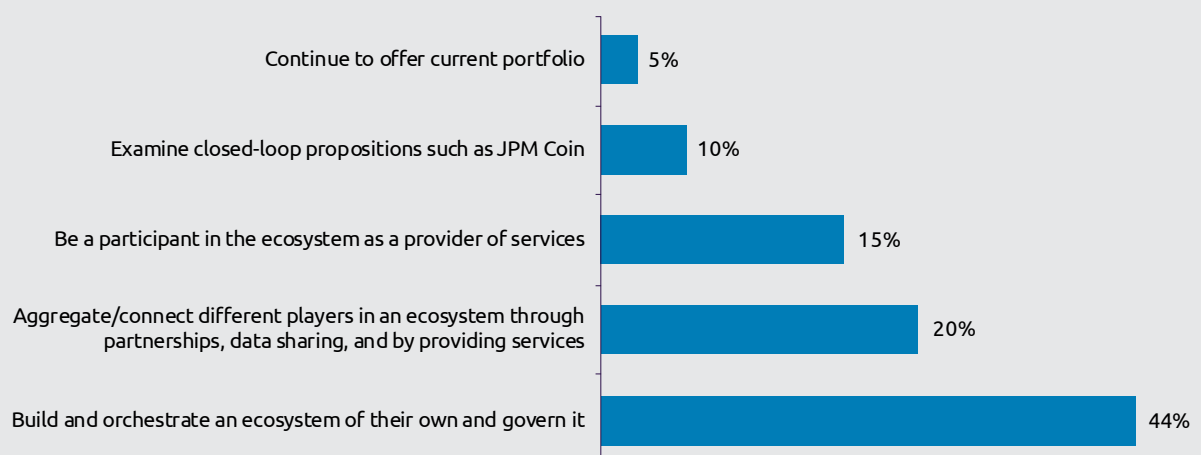


Collaboration is the key for ecosystem or digital commerce platform models. Clients drive the ecosystem construct, the needs of which are fulfilled by banks or FinTechs, or a partnership between them. Banks can play the role of a connector.”

—**Shirish Wadivkar**
MD & global head, Correspondent banking products, Standard Chartered Bank, Singapore

According to our primary research, most banks are thinking about building a marketplace/platform and taking a controlling stake in other platforms, while participation in ecosystems owned by other parties does not appear to be a likely strategy. In parallel, some banks are considering a modular producer role in which they incrementally create value in multiple ecosystems and monetize that value.

Figure 14. Most banks see value in ecosystem participation



Source: Capgemini Financial Services Analysis, 2019; WPR 2019 online survey responses.

As banks begin their Open Banking journeys, they traverse through stages 1 and 2, with stage 3 a distant future. (Figure 15).

Connected networks and cross-industry data sharing are critical facets to building an ecosystem, and Open Banking can help in the fusion of banking and non-banking data in a connected payments world.

Industry and firm-level impediments and wide-ranging Open Banking maturity across geographies also hinder bank progress. At the industry level, fragmentation due to multiple systems, the lack of standards, and dynamic innovation scenarios are causing headaches. Several countries across the globe are implementing national-level IP systems. As a result, the lack of interoperability and a multitude of standards are creating a complex landscape for banks. Additionally, at the infrastructure level, clearing and settlement mechanisms differ across geographies. In line with our analysis, even the responses resonated with this

finding. Regulatory fragmentation, cybersecurity concerns, and the threat of losing customer control were rated as the top three fear-factors hindering banks' journey.

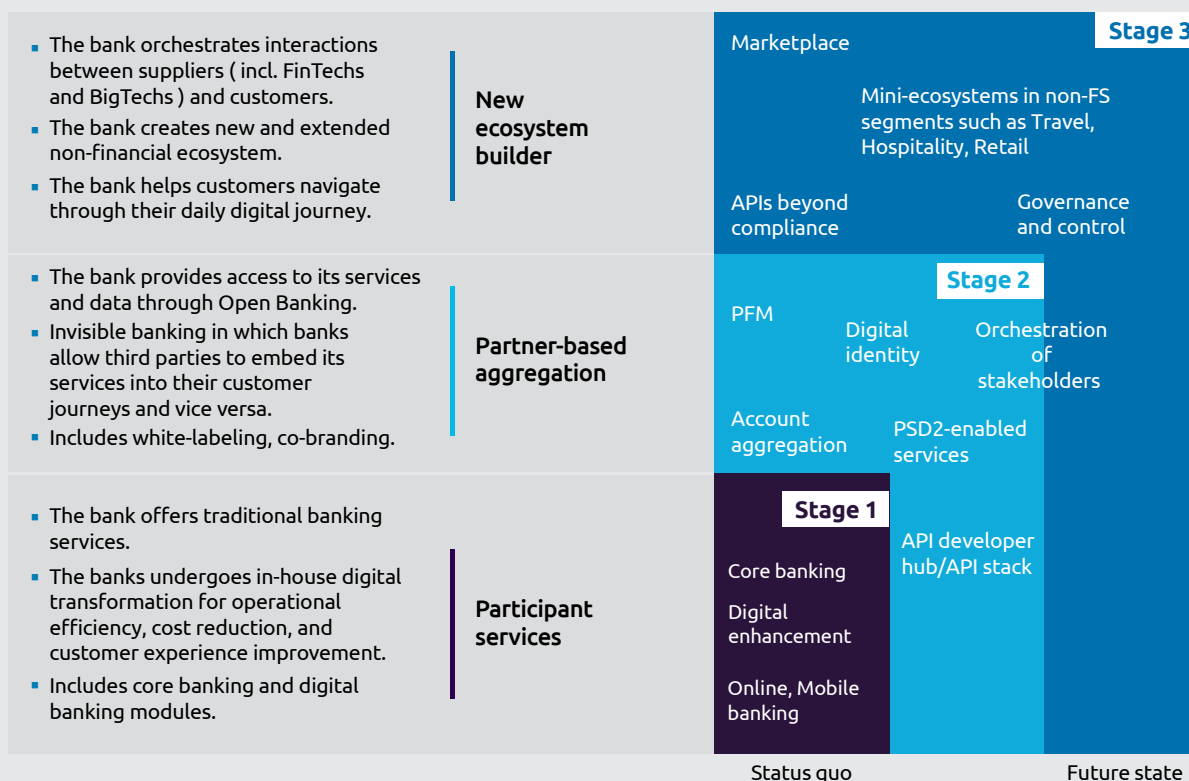
At the firm level, banks posit that ecosystem strategy might not be relevant for them, as they prefer to be just utility providers in the back end. Several banks fall under one of these categories:

- Close to their customers and offer targeted, but less-than-innovative, products and services
- Lack scale and scope
- Closed, legacy infrastructure not yet mature in partnerships

Payments Open Banking assessment: PSPs need support to implement change

Among the countries mapped in 2018 as part of Capgemini's inaugural Payments Open Banking Assessment, some have made year-on-year progress while others failed to advance.³⁰ Paths to Open Banking

Figure 15. Stages in ecosystem journey of banks



Source: Capgemini Financial Services Analysis, 2019.

³⁰ The WPR payments open banking assessment is based on multiple criteria broadly classified into four categories. For generating the output chart, we have plotted all the countries with cumulative scores of market dynamics and enabling infrastructure on the X axis (open banking potential) and demographics and governance on the Y axis (open banking readiness).

adoption range from prescriptive to elective, and countries performing well on market dynamics and enabling infrastructure are expected to advance faster (Figure 16). Countries with greater Open Banking potential than actual readiness are progressing well, which counters calls for blanket regulation to drive Open Banking.

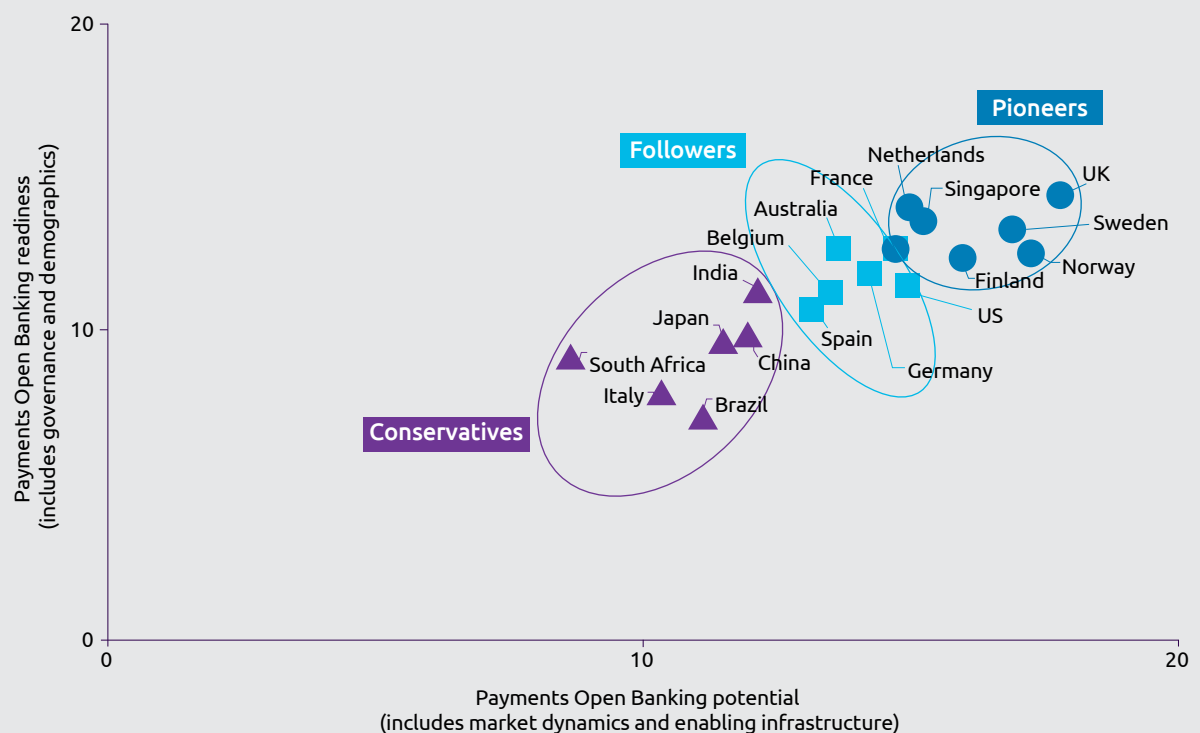
Asia-Pacific is a case study of an elective model where market forces can shape the industry. In this region, new players have paved the way beyond Open Banking, and users have embraced data sharing, which is a critical success factor. Another essential factor to consider is consumer trust in Open Banking. APAC users are more prepared to share their details with third parties than those in other regions. Japan has followed PSD2 and has mandated Open Banking. Australia and its Big-4 banks have closely aligned with the UK and have agreed to share customer data related to credit cards, debit cards, and deposits for open payments. India also has witnessed traction, as the Central Bank of India has released a draft for a

regulatory sandbox as banks are sharing their APIs due to the high growth of the FinTech segment.

The United States Treasury has not yet provided rules or draft adoption related to Open banking. This makes the United States fall behind many of their European counterparts and other countries where Open Banking is witnessing some traction. In the Latin American market, Brazil has shown some progress, as the country's central bank has signed off on implementation of Open Banking.

Open Banking got its start in Europe, yet implementation in the region is fragmented, despite overarching regulation. Reason could be due to varied maturity in data sharing across financial institutions within the respective markets, which is a critical factor under market dynamics category. We have classified our assessment criteria broadly under industry governance, market dynamics, demographics, and enabling infrastructure.³¹

Figure 16. Payments Open Banking assessment of select countries



Source: Capgemini Financial Services Analysis, 2019.

³¹ European Payments Council, "Launch of the SEPA Instant Credit Transfer scheme", November, 2017, https://www.europeanpaymentscouncil.eu/sites/default/files/kb/file/2017-11/EPC232-17_SCT%20Inst%20press%20kit_November%202017_FINAL.pdf

As regulators and market participants step in to harmonize the Open Banking transition, monetizing quick-win solutions and reassessing infrastructure strategies will keep banks viable and heading forward.

Banks still struggle with legacy issues and need to address payments processing capabilities to defend against BigTechs. Challenges include the duplication of functions, which creates inefficiencies, increases costs, and slows scalability and agility. Banks could look at FinTech collaboration to efficiently streamline their processes.

In merchant servicing, banks could explore new propositions around shared infrastructure, PoS solutions, SME offerings, and value-added services.

- **New PoS solutions:** Omnichannel, smart-device-based solutions are replacing traditional PoS terminals. Incumbent banks have an opportunity to upsell.
- **Merchant services strategies:** Few banks are capturing digital opportunities that provide differentiated value to merchants. Because banks already process individual transactions and are the banking partner of some merchants, why not also provide transactional services and fraud management, in partnership with specialized FinTechs?
- **Buckle up SMB merchants:** Banks can untap the potential of small-to-medium businesses by onboarding them. Distribution capabilities via branch networks give SMBs a competitive edge. SMBs should be considered a profitable segment.
- **Value-added services:** A value-added example is San Francisco-based mobile payment company Square, which offers merchants qualification-based working capital loans as well as payroll services that help businesses manage employees and salaries. Banks could consider similar cross-sell and upsell opportunities.

Re-visiting infrastructure requirements will help banks become infrastructure-ready for the future.

From an infrastructure perspective, banks should explore API-based microservice architecture, a hybrid infrastructure set-up, or a complete overhaul strategy. By deploying API-based microservices, banks can break down monolithic applications into loosely coupled services that are easier to integrate. For banks that want to leverage their existing legacy infrastructure, a hybrid approach that integrates legacy and modernized infrastructure makes sense. Because innovative codes and modules cannot be scripted on top of legacy infrastructure, interactive APIs could be used to communicate. For example, a global bank is using an API strategy to expand its digital and mobile offerings without replacing its legacy systems. It created a mobile app that directly connects to customer bank accounts through an API, enabling real-time transaction categorization to give users greater control of their spending.³²

When APIs cannot work around existing legacy infrastructure, a rip and replace strategy is suggested, particularly to accommodate technology needs such as the cloud. Moreover, a robust data strategy is essential, because multiple integration patterns and data endpoints exist within an open ecosystem, and synchronizing integration patterns among cloud, API, EDI, and point-to-point is critical for data extraction and handling.

Integrating instant payments into core offerings can help banks with messaging standardization, enhanced collection instruments, and omnichannel access. Integration becomes even more significant when you consider that instant payments infrastructure is an

³² Global Banking & Finance Review, "How banks can modernise their legacy systems with APIs," Danny Healy, October 25, 2018, <https://www.globalbankingandfinance.com/how-banks-can-modernise-legacy-systems-with-apis>.

Open Banking pillar that enables capabilities far beyond account balance inquiry and account aggregation. While benefits from the combination of instant payments and Open Banking are promising, banks might face operational challenges. From an infrastructure perspective, an increased load on existing systems to cater to multiple customer, merchant, and TPP requests may make it difficult to adhere to instant payments' service-level agreements (SLA).

Moreover, Open Banking and instant payments may be interpreted differently among stakeholders. For example, Open Banking might be more pertinent to cards or the channels function, while IP might be considered more relevant for transfer and remittances. Silos can impede the overall objective of combined efforts.

Banks should view instant payments and Open Banking as complementary strategic and technological developments to alleviate operational and infrastructure challenges.

The right strategy, combined with internal efficiency enhancements, will help banks to remain focused on the future. Banks should prioritize their strategy on customer trust, delivery excellence, and extended supplier and customer relationships. As banks move forward to operationalize their strategies, factors relating to governance, architecture, data exchange, and revenue realization will require scrutiny.

Regulators and market participants are stepping in to stabilize the transition, such as the API exchange programs from BIAN in Europe or ASEAN Financial Innovation Network in Asia.



Market outlook and regulatory landscape foreshadow payments opportunity and growth



Key Findings

- **Global non-cash transaction volumes grew at 12% during 2016–17 to reach 539 billion – the highest in the past two decades.** Emerging Asia (32%) and CEMEA (19%) were responsible for the record growth in global non-cash transaction volumes. Mature markets, including mature APAC, Europe, and North America, maintained a growth rate of nearly 7% in 2017, which aligns with our World Payments Report (WPR) 2018 prediction for these markets.
- **Emerging markets will soon dictate and shape the global payments landscape in terms of innovation, transaction capacity handling, and industry trends.** According to our estimates, Emerging Asia and CEMEA are expected to witness strong YoY growth rates of nearly 30% and 21% respectively from 2017–2022F. The mature markets are expected to continue on a modest and steady growth path given the saturation in the markets and streamlined processes for transaction handling and clearing. Emerging Asia is on track to surpass North America in terms of volume of non-cash transactions by 2020.
- **Although cash payments' share of total payment volumes is declining in most countries, cash in circulation (CIC) remained stable or increased slightly over the past five years.** Over 30% of the countries analyzed in WPR 2019 recorded higher CIC growth when compared to that of non-cash transactions volume.
- **Payments interoperability and synchronization emerged as a regulatory mantra amid incongruent standards, systems, and scope of regulators in an effort to streamline the growth of non-cash transactions volumes.** Globally, regulators launched several initiatives to ensure uniformity in standards and systems necessary to sustain the emerging new payments ecosystem.
- **In parallel, regulators remain focused on ensuring security, especially in the wake of proliferation of new technologies and the rise of new entrants on multiple fronts.** AML/CTF, data privacy and protection, cybersecurity, cryptocurrency, and FinTech regulations were regulatory priorities in 2018–2019. Europe's May 2018 implementation of the General Data Protection Regulation (GDPR) has affected banks globally with several countries, either developing a new data privacy regulation or updating existing national laws. In the aftermath of PSD2 and Open Banking measures, cybersecurity merits special attention this year, as numerous key regulatory and industry initiatives (KRIs) focus on the challenge.
- **Increased collaboration between regulators and industry stakeholders is helping to ensure parity necessary for supply/demand balance.**

Global growth of non-cash transaction volume spurs opportunity for industry players

Non-cash transaction volumes grew at 12% during 2016–17 to reach 539 billion globally. With 35% contribution in 2017, developing markets are close to contributing half of all non-cash transactions if they maintain their current rate.

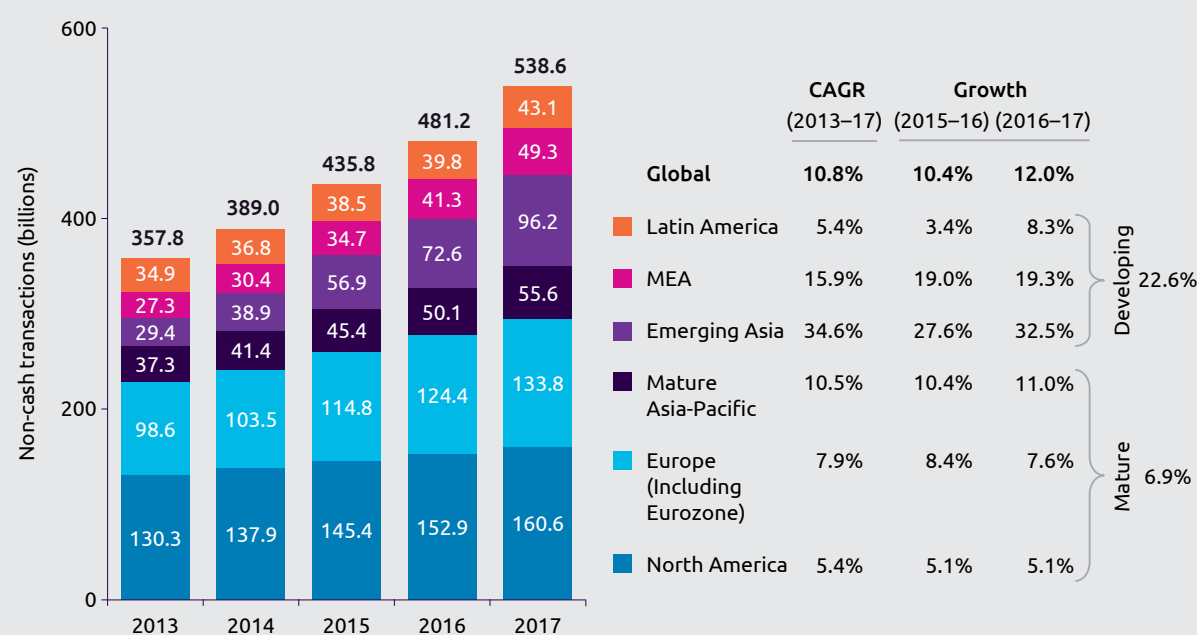
Emerging Asia (32%) made a significant contribution to record growth in global non-cash transaction volumes. Widespread adoption of digital wallets, the

increased success of e-commerce platforms, and innovation in mobile payments are driving the phenomenal growth in the Emerging Asia region.³³

Central Europe, Middle East, and Africa (CEMEA) grew steadily at a little over 19%, with markets such as Russia, Turkey, and Nigeria flourishing. Non-cash transaction volumes are on the rise due to payments infrastructure modernization and alternate payment methods (Figure 17).

Latin America grew at a rate of 8% during 2016–17 as political stability in the region began to return and markets revived. Brazilian regulators have eased

Figure 17. Worldwide non-cash transactions (in billions), by region, 2013–2017



Note: MEA(Middle East, Africa) now includes Turkey, South Africa, Saudi Arabia, Africa and Middle East, Russia, Other CE countries and Other MEA countries. Other CE countries includes Bulgaria, and Croatia. Other MEA countries includes Algeria, Kenya, Nigeria, Egypt, Israel, UAE, and Morocco; Latin America now includes Argentina, Colombia, Venezuela, Chile, Peru, Uruguay, Costa Rica, Bolivia, and Paraguay in Other Latin American countries; Emerging Asia includes China, India ,Hongkong and other Asian countries including Malaysia, Thailand, Indonesia, Philippines, Taiwan, Pakistan, Sri Lanka, and Bangladesh ; Mature APAC (Asia-Pacific) includes Japan, Australia, South Korea, and Singapore; NA (North America) includes the US and Canada; Chart numbers and quoted percentages may not add up due to rounding; Some numbers may differ from data published in WPR 2018 due to previous years’ data changed at the source, re-categorization of some geographies, and addition of new countries.

Source: Capgemini Financial Services Analysis, 2019; ECB Statistical Data Warehouse, 2017 figures released October 2018; Bank for International Settlements Red Book, 2017 figures released December 2018; Countries’ Central Bank Annual Reports, 2018.

³³ Emerging Asia includes China, Hong Kong, India, and other Asian markets and CEMEA includes Russia, Saudi Arabia, South Africa, Turkey, Ukraine, and other Central European and Middle Eastern markets.

procedures to open accounts, leading to more account penetration and higher e-wallet use. Atop a growing base of young and internet-savvy customers, e-commerce growth is defining the Latin America payments landscape with credit-card penetration, digital wallets, and other value-added offerings.

The growth rate of mature markets – including mature Asia-Pacific, Europe, and North America – continued at 7% in 2017, aligning with our WPR 2018 prediction for these markets.³⁴ A dormant millennial customer base and higher penetration of digital payment instruments may account for the sluggish growth.

Among the top-10 markets for non-cash transactions, the US continued to dominate the list, followed by the Eurozone. Russia, India, and China also recorded stellar percentage growth in 2016–17, supported by various market-led and government initiatives.

The predominant use of apps such as AliPay and WeChat Pay helped China retain its third-place

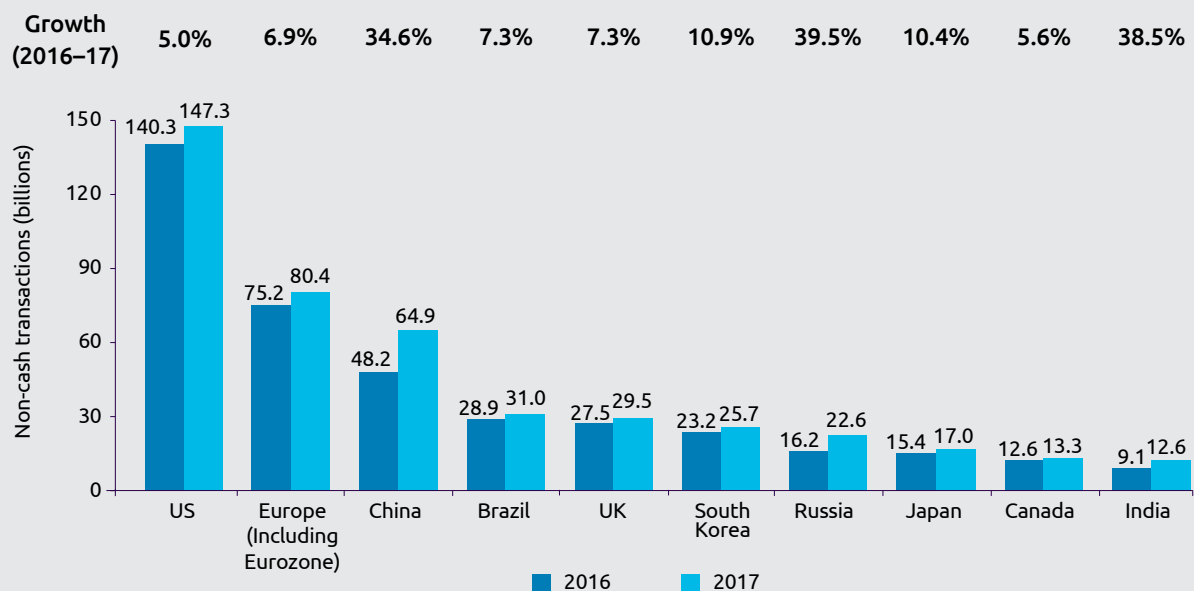
position. Russia has been rallying since 2015 with initiatives including the Central Bank of Russia's implementation of a nationwide card system. More than 56 million Mir cards (Mir means world or peace in Russian) have been issued and, currently, make up more than 20% of Russia's bank-card market.³⁵ Infrastructure development, new products that encourage the transition to non-cash payments, and the public's improving financial literacy are also spurring non-cash transactions in Russia.

India joined the top-10 group, surpassing Australia in terms of non-cash transactions cumulative volume, primarily driven by growth in credit-transfer volumes and NPCI's efforts in promoting instant payments and open APIs (Figure 18).

Norway was number-one in per-inhabitant non-cash transactions, followed by South Korea and Australia.

Norway is incorporated for the first time into our list of countries and takes the leadership position from Sweden thanks to the availability and early adoption of non-cash payment systems. As in Sweden, most

Figure 18. Number of non-cash transactions in the top 10 markets (in billions), 2016–2017



Note: Some numbers may differ from data published in WPR 2018 due to previous years' data changed at the source and re-categorization of some geographies.

Source: Capgemini Financial Services Analysis, 2019; ECB Statistical Data Warehouse, 2017 figures released October 2018; Bank for International Settlements Red Book, 2017 figures released December 2018; Countries' Central Bank Annual Reports, 2018.

³⁴ Mature Asia-Pacific includes Australia, Japan, Singapore, and South Korea.

³⁵ Reuters, "Mir card payment system looks beyond Russia," Tatiana Voronova and Gabrielle Tetrault-Farber, April 19, 2019, <https://www.reuters.com/article/us-russia-cards/mir-card-payment-system-looks-beyond-russia-idUSKCN1RV0KZ>.

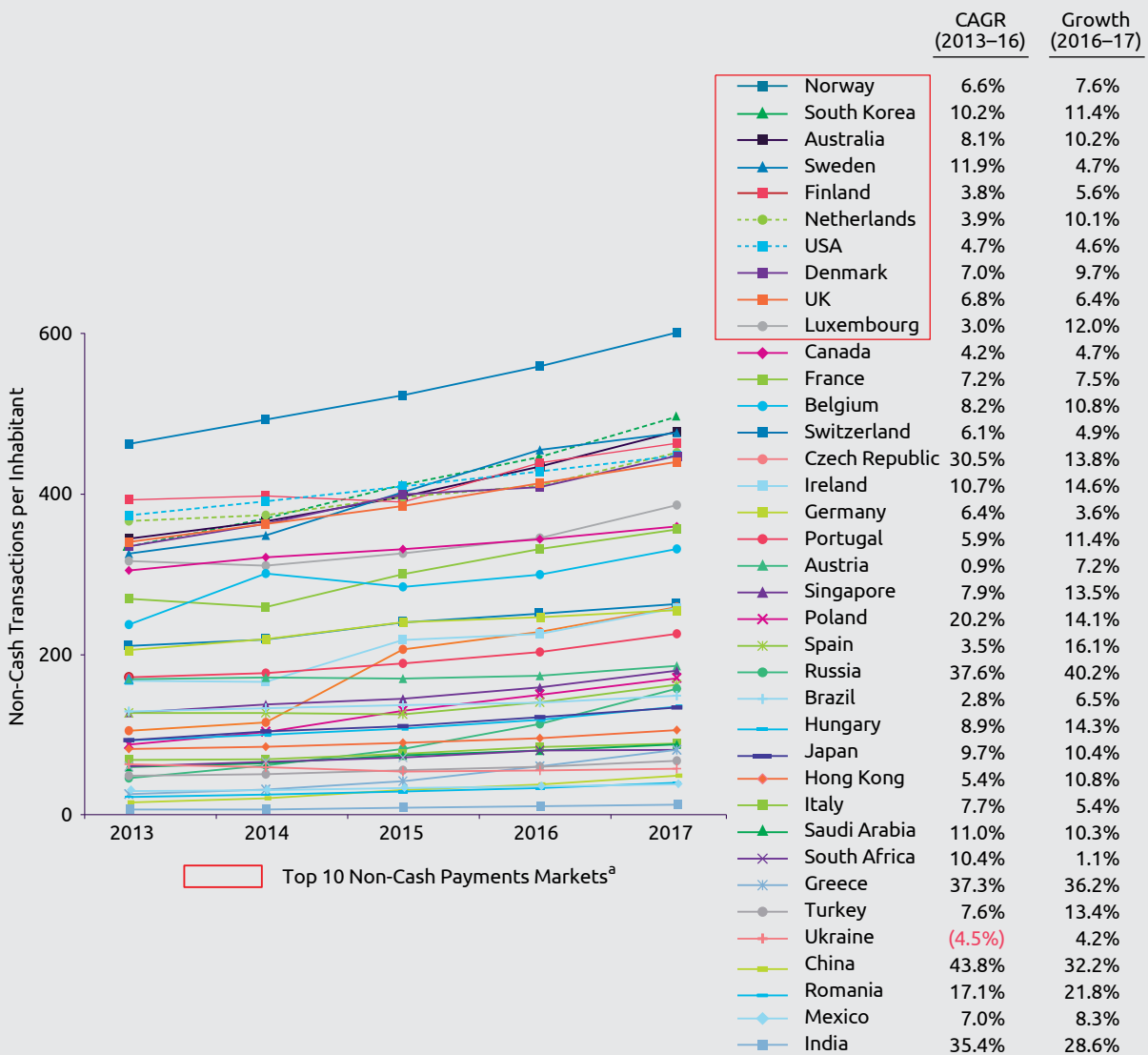
Norwegians use cards or an app that enables them to make payments to a telephone number instead of a bank account number.

Mobile payments penetration – both offline and online – helped South Korea reach the second spot in per-habitant, non-cash transactions. Samsung Pay dominates the offline payments segment, while Naver and Kakao Pay rule online payments. Australia moved

to the third position as tap-and-go payments proliferate (Figure 19). This year, as the country's industrywide New Payments Platform (NPP) expands to reach more banks, building societies, and credit unions, adoption is expected to rise.

Within an atmosphere that has not prioritized payments innovation or infrastructure upgrades for mobile payments, the US lost its leadership position.

Figure 19. Number of non-cash transactions per inhabitant, 2013–2017



a: The Eurozone has not been highlighted as a leading key market as most of its individual members have been displayed on the chart.

Note: Chart numbers and quoted percentages may not add up due to rounding; Some numbers may differ from data published in WPR 2018 due to previous years' data changed at the source level.

Source: Capgemini Financial Services Analysis, 2019; ECB Statistical Data Warehouse, 2017 figures released October 2018; Bank for International Settlements Red Book, 2017 figures released December 2018; Countries' Central Bank Annual Reports, 2018.

Why such slow adoption? Reasons include lack of customer and merchant education about the benefits of mobile payments, as well as merchant reluctance to adopt new technology because it requires upgrades or replacements. The US also lagged behind in the adoption of EMV (smart chip) upgrades. Overall, US regulatory inertia to promote instant payments and to support Open Banking has hindered payments innovation.

Cards continued to dominate in 2017, garnering the lion's share of the global payments instrument mix – and up two percentage points from 2016 in overall non-cash transactions market share.

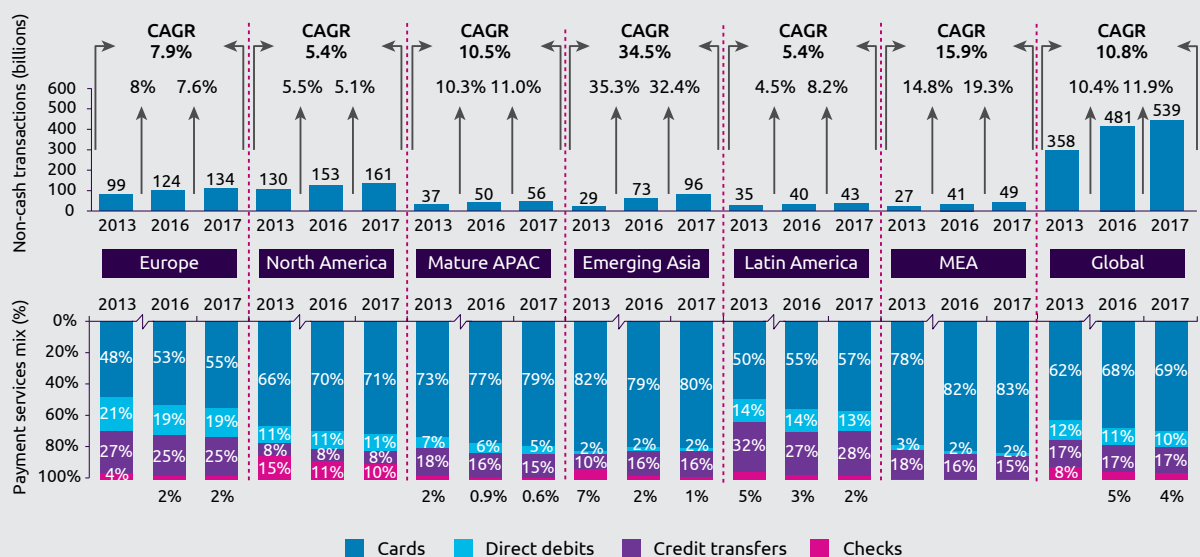
Debit card transactions volume grew 17%, most noticeably in emerging markets (Figure 20). Emerging Asia recorded 34% growth, Latin America 14%, and the Middle East and Africa (MEA) region, 23%.

Credit cards volume grew only 11% globally in 2017, mainly outside Europe and North America. More and more millennials appear to be avoiding credit, while current levels of interest rates and capital adequacy ratios are challenging the industry.

Credit transfer transaction volumes grew 10% driven by emerging Asia, primarily due to initiatives that encourage interoperability between banks and domestic e-wallets in countries including Malaysia, India, and Thailand. There is no evidence though that instant payment schemes spurred this growth.

Direct debits are a more mature product but grew 4% in 2017 as compared with 1% in 2016. Global direct debits will continue to grow slowly given their use in recurring, utility, and B2B, but face challenges from instant payments and Request to Pay (RTP) schemes enabling individual approvals. Expect more robust growth in Australia, India, Russia, and Spain, where direct debit continues to be popular.

Figure 20. Comparison of non-cash transactions (in billions) and change in payments' mix (%), by region, 2013, 2016–2017



Note: Singapore credit card transaction volume data for all years before 2013 is not available and Japan, Turkey, Ukraine, and Hong Kong data for direct debits for all years data is not available; France credit card data is not available for years before 2014; Ukraine and South Africa credit card data is not available for all years; Ukraine, Hong Kong credit transfer and checks data is not available for all years; South Africa direct debit and credit transfer data is available from 2009 on; Numbers for Austria, Finland, and Germany have been restated for 2010–2013 as per refinements to our methodology; Some numbers may differ from data published in WPR 2018 due to previous years' data changed at the source and re-categorization of some geographies.

Source: Capgemini Financial Services Analysis, 2019; ECB Statistical Data Warehouse, 2017 figures released October 2018; Bank for International Settlements Red Book, 2017 figures released December 2018; Countries' Central Bank Annual Reports, 2018.

What's next for global non-cash markets?

Emerging Asia is expected to continue its high growth trajectory with an estimated CAGR of 30% from 2017–2022F, according to our projections. Adoption of QR code-based payments has accelerated the cashless revolution in Asian markets.

The incredible success enjoyed by mobile wallets in recent years – based on Alibaba and Tencent platforms – will continue. However, legacy players are reacting, and contactless cards are gaining traction in emerging Asia, where acceptance networks are in place.

For example, China UnionPay (CUP), is expanding its mobile payment services three years after its 2016 launch of QuickPass, a mobile tap-and-go service.³⁶ UnionPay also teamed with Swatch Group in 2017 to create Swatch Pay, a contactless payment watch that links with credit cards issued by 11 partner banks.³⁷

South Korea's Financial Services Commission (FSC) plans to launch an Open Banking system in December that grants FinTech firms access to the payment networks of commercial banks.

Although digital payment is a relatively recent trend in India, it is booming thanks to a favorable regulatory environment, infrastructure upgrades, and deepening smartphone penetration.

Shifting user payment preferences, e-commerce growth, and governmental push are expected to drive 21% non-cash transaction growth in the Middle East and Africa region from 2017–22F. The payment behavior of MEA users is shifting as consumers seek

convenience and reach versus physical modes of payments.

Latin America is poised for growth in spite of a recovering economy. The region's FinTech sector is driving change via new financial inclusion initiatives and mobile payment platforms – such as Tigo in Guatemala and BIM in Peru – that are becoming popular alternatives to cash payments.

Digital payments in mature markets are also rising due to the growing appetite for speed and convenience backed by regulatory push.

At a 7% compound annual growth rate (CAGR), Europe is expected to grow stronger than the US between 2017–2022F thanks to various initiatives that encourage competition and innovation while reacting and protecting the industry from the entry of GAFA and BigTechs.

Within mature markets, mature APAC is bound to grow the most. It will see a 10% CAGR from 2017–2022F as a result of government initiatives, such as those in Singapore and Australia, as well as the growth of mobile payments in Japan. Moreover, Australia is predicted to be entirely cashless by 2022, according to a study by Westpac.³⁸

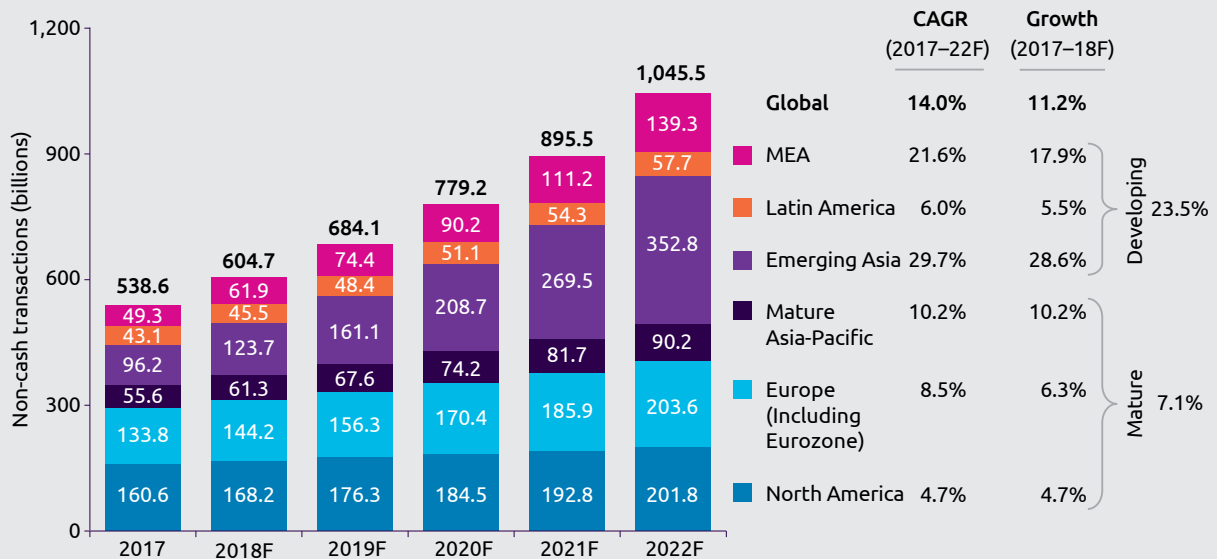
Contrary to the rest of the world, non-cash transaction growth in North America is expected to stagnate at around 5% over the next five years because of delays in modernizing legacy infrastructure, a lack of regulatory encouragement, and continued use of costly checks (Figure 21).

³⁶ Shine China, "UnionPay hopes for better mobile payments," Traci Li, July 16, 2019, <https://www.shine.cn/biz/finance/1907168511/>.

³⁷ China Morning Post, "Swatch updates mobile-payment watches for China, linking with UnionPay to keep sales ticking," Daniel Ren, July 20, 2017, <https://www.scmp.com/business/companies/article/2103296/swatch-updates-mobile-payment-watches-china-linking-unionpay-keep>.

³⁸ Australian FinTech, "2015 Westpac Cash Free Report: Australia to be a cashless society by 2022," <https://australianfintech.com.au/australia-to-be-a-cashless-society-by-2022>, accessed July 2019.

Figure 21. Number of worldwide non-cash transactions (in billions), by region, 2017–2022F



Note: MEA(Middle East, Africa) now includes Turkey, South Africa, Saudi Arabia, Africa and Middle East, Russia, Other CE countries and Other MEA countries. Other CE countries includes Bulgaria, and Croatia. Other MEA countries includes Algeria, Kenya, Nigeria, Egypt, Israel, UAE, and Morocco; Latin America now includes Argentina, Colombia, Venezuela, Chile, Peru, Uruguay, Costa Rica, Bolivia, and Paraguay in Other Latin American countries; Emerging Asia includes China, India, Hongkong and other Asian countries including Malaysia, Thailand, Indonesia, Philippines, Taiwan, Pakistan, Sri Lanka, and Bangladesh ; Mature APAC (Asia-Pacific) includes Japan, Australia, South Korea, and Singapore; NA (North America) includes the US and Canada; Chart numbers and quoted percentages may not add up due to rounding; Some numbers may differ from data published in WPR 2018 due to previous years' data changed at the source, re-categorization of some geographies, and addition of new countries.

Source: Capgemini Financial Services Analysis, 2019; ECB Statistical Data Warehouse, 2017 figures released October 2018; Bank for International Settlements Red Book, 2017 figures released December 2018; Countries' Central Bank Annual Reports, 2018.

Cash is still resilient to growing array of digital alternatives

In most countries, cash payments' share of total payments volume is declining. However, cash in circulation (CIC) remains stable or up slightly over the past five years.

Cash has been resilient to the growing array of alternatives, even though transactional use is diminishing. Globally, CIC has increased from 4% to 7% annually over the last five years, despite lawmakers' support of non-cash transactions.

Cash in circulation has been consistently growing across countries (Figure 22). A study by the Federal Reserve Bank of San Francisco concluded that the growth of cash circulation had outpaced economic growth over the last decade in 40 of 42 major economies in Europe, Asia, North America, and Latin America.³⁹ The growing trend became especially noticeable in advanced economies at the start of the 2008 global financial crisis and is likely driven by store-of-value motives rather than payment needs. The store-of-value parameter has ticked up due to better cash-handling infrastructure in places such as

³⁹ CNN Business, "Cash is still king in the digital era," Patrick Gillespie, November 20, 2017, <https://money.cnn.com/2017/11/20/news/economy/cash-circulation-payment/index.html>.

ATMs. Moreover, the lower interest rates regime also encourages holding cash.

In Europe, cash represents 79% of all POS transactions in volume and 54% in value.⁴⁰ Singapore, considered to be a mature market in terms of digital payments infrastructure, has high CIC as six of 10 transactions are carried out by cash.⁴¹

At the retail/individual level, cash seems to be still indispensable for minor transactions (involving food supplies and groceries), personal security as a back-up, and small charitable donations.

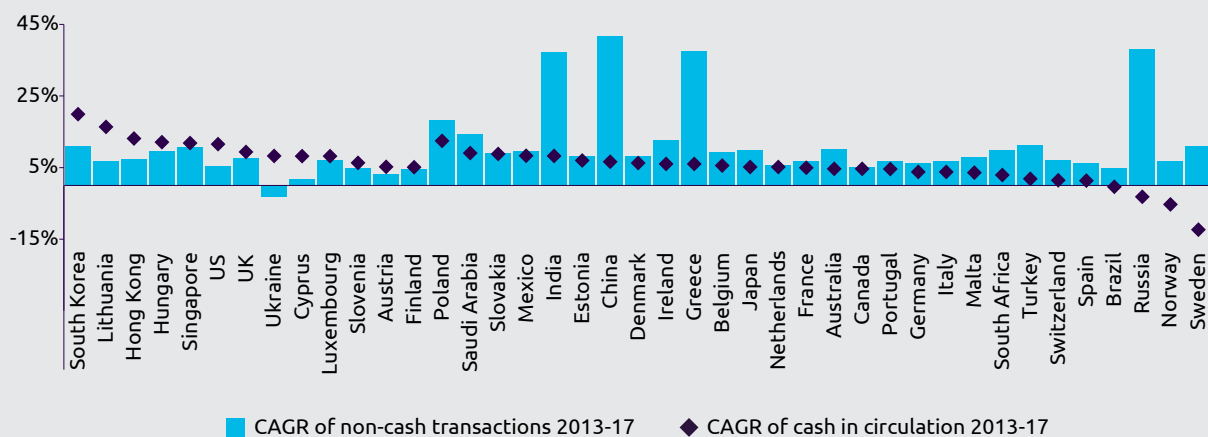
Cash is still the ultimate recourse for payment transactions, as illustrated by the fact that CIC is up significantly in several countries undergoing distress, such as Mozambique, Myanmar, and Ukraine.

Interestingly, countries with the highest non-cash transactions volume also continue to be highly dependent on cash.

The unique set of needs that cash can fulfill makes a cashless world challenging to envision, although CIC continues to be affected by digital instruments. In the US,

Finland, South Korea, Singapore, and the UK (with record-high non-cash transactions per inhabitant), CIC has grown steadily. Even though these countries record high volumes of non-cash transactions, their economies support medium to high cash usage. Over 30% of the countries analyzed in WPR 2019 recorded higher CIC growth when compared to that of non-cash transactions volume. On the contrary, in certain countries, growth of digital payments contributed to decline in cash volumes. In Australia, digital payments soared 10% from 2016 to 2017, which led to a more than 5% decline in cash-usage during the same period. Singapore logged higher credit transfers as the government encouraged the use of PayNow, a common platform for conveniently making and receiving cashless payments across banks. In Sweden, which is predicted to become the first cashless economy, non-cash transactions grew by 11% between 2013–2017 when the cash in circulation decreased by 12.4% over the same period. In Russia, Poland, Lithuania, and Ireland, digital payments growth directly correlated to a growing cashless economy. Sweden is an exception to this trend as cash in circulation decreased by more than 12% from 2013–2017, while its non-cash transactions grew by 11% over the same period. However, cash is not totally out of the picture, as CIC grew by nearly 4% during 2016–2017.

Figure 22. Growth of cash in circulation vs non-cash transactions, by country, 2013-2017



Source: Capgemini Financial Services Analysis, 2019

⁴⁰ European Central Bank, "Trends and developments in the use of euro cash over the past ten years," Laure Lalouette and Henk Esselink, June 2018, https://www.ecb.europa.eu/pub/economic-bulletin/articles/2018/html/ecb.ebart201806_03.en.html#toc4.

⁴¹ The Straits Times, "Cash is not king in a Smart Nation," Lorna Tan, September 3, 2017, <https://www.straitstimes.com/business/cash-is-not-king-in-a-smart-nation>.

Key regulatory and industry initiatives (KRIs) aim to build a resilient payments ecosystem to serve society

Interoperability and standardization have become a regulatory mantra amid disparate payments' standards, systems, and scope of regulators. Globally, a broad range of watchdogs have taken or are planning initiatives to ensure uniformity – critical moves to sustain success as the new payments' ecosystem coalesces.

Most recent standardization initiatives:

- The Reserve Bank of India (RBI), enacted operational interoperability guidelines in October 2018 on prepaid payment instruments (PPIs). The move enables mobile wallet users to transfer funds from one wallet to another and, eventually, from their wallets to bank accounts through India's unified payments interface (UPI) platform. Allowing PPIs to issue cards for withdrawals is expected to level the playing field among mobile wallet operators and payments banks.
- The European Commission is considering a regulatory push to encourage adoption of the new TIPS instant payments service and make it an enabler for banks to build overlay services that can compete directly with card schemes and tech giant-built digital wallets. Launched in 2018, TIPS (Target Instant Payments Settlement), is available to banks for them to provide both consumers and businesses across the 19 eurozone states, real-time payments via smartphones, PCs, and in-store payment points.⁴²
- The World Economic Forum launched a shared platform for good digital identity in September 2018 to bring together existing and new digital identity solutions that are inclusive, trustworthy, safe, and sustainable.

Asia-Pacific Economic Cooperation (APEC) has developed several data protection initiatives.⁴³ APEC's Cross-Border Privacy Rules (CBPR) system is a government-backed data privacy certification that companies can join to demonstrate compliance with internationally recognized data privacy protections. The CBPR system implements the Privacy Framework endorsed by APEC leaders in 2005 and updated in 2015. In addition to numerous standardization plans, an effort by global organizations (such as NACHA) is underway to converge systems such as RTGS (real-time gross settlement), T2, and SWIFT to ISO 20022 to harmonize global messaging (Figure 23).⁴⁴ Convergence would accelerate the industry's move to global standards and would help payment service providers (PSPs) compete with global-by-design BigTechs and FinTechs.

P27, a real-time payments system used by Nordic countries, exemplifies successful standardization and interoperability. P27 aims to create the world's first integrated region for domestic payments in multiple currencies, that is SEK, DKK, EUR, and NOK, through an open-access infrastructure providing payment services to customers across the Nordics. Importantly, P27 is based on international standards, including the SEPA rulebooks.

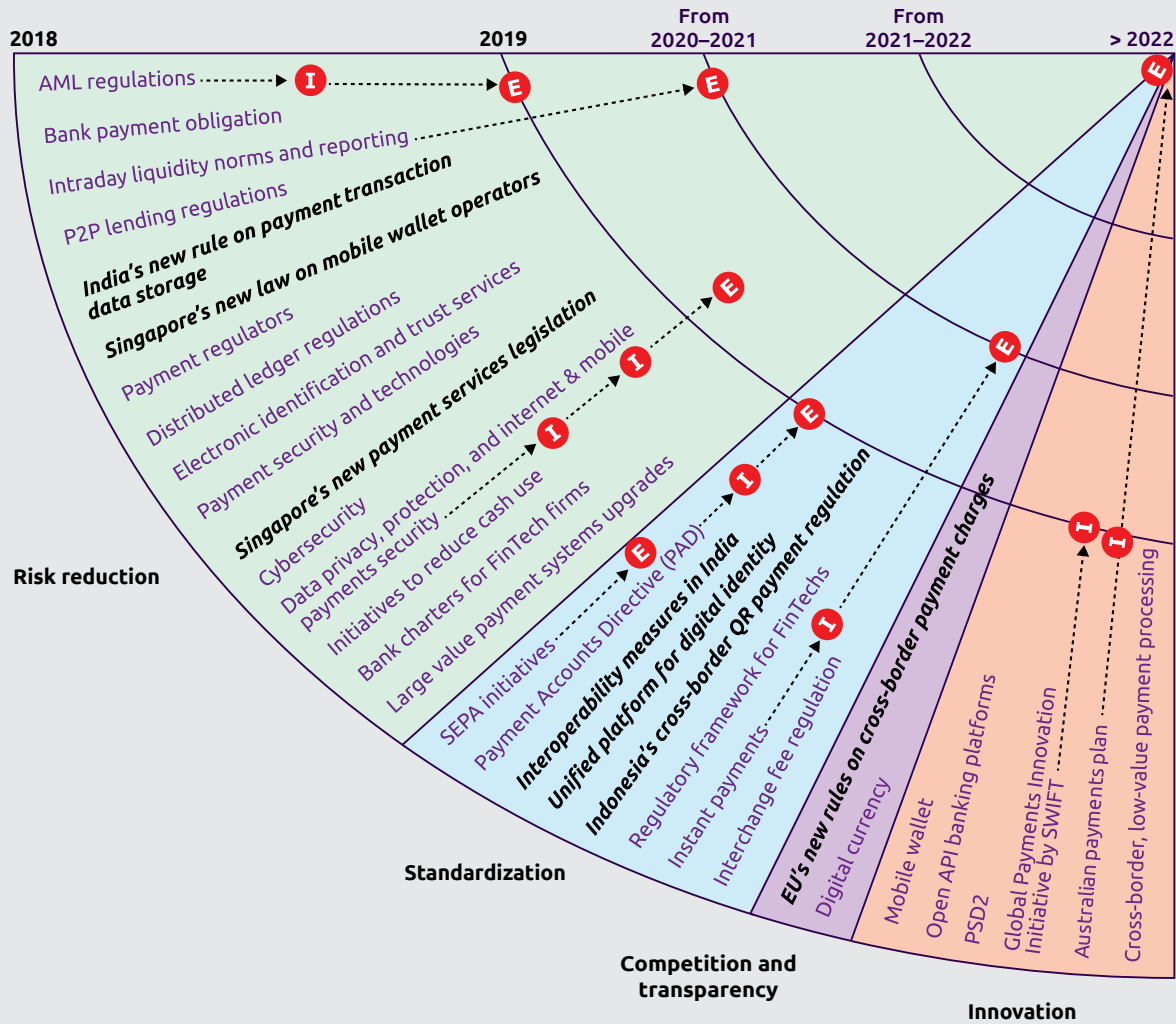
While pushing for innovation through Open Banking and real-time payments, regulators are working to mitigate risks. In addition to standardization, risk mitigation appeared as the priority for the industry in 2018-19.

⁴² Finextra, "EC considers regulatory push for TIPS instant payments," February 26, 2019, <https://www.finextra.com/newsarticle/33440/ec-considers-regulatory-push-for-tips-instant-payments>.

⁴³ APEC is an inter-governmental forum of 21 global economies that promotes free trade throughout the Asia-Pacific region. Members include Australia, Japan, Malaysia, Peoples' Republic of China, Russia, Taipei, and the US.

⁴⁴ First published in 2004, ISO 20022 was developed by the International Organization for Standardization (ISO) and is the global messaging standard for financial business transactions, including payments. Today, many multinational companies are utilizing this standard as part of their accounts payable functions. Use of the standard enables greater automation and straight-through processing and can help reduce payments processing errors. Nacha: February 4, 2019, <https://www.nacha.org/content/iso-20022>.

Figure 23. Key regulatory and industry initiatives (KRIs) clustered by regulators' primary objectives, 2019



- I** Intermediate point/milestone
- E** End of the initiative/regulation
- > Elapsed time
- i* KRIs introduced in WPR 2019

Note: Timelines have been provided for regulations where they are specified, no timelines are specified for industry-trend KRIs; SEPA – single euro payments area; Payments security and technology includes contactless, near-field communication (NFC), tokenization, biometric authentication, and mobile point of sale (mPOS); In this year's report, KRIs on data privacy and protection, internet payments security, and mobile payments security have been merged into a single KRI.

Source: Capgemini Financial Services Analysis, 2019; World Payments Report, 2018, 2017, 2016, 2015, and 2014.

With the proliferation of disruptive technologies and the rise of new entrants on multiple fronts, regulators now expect banks and payments institutions to act as gatekeepers in the fight against fraud, money laundering/terrorism financing, and cybercrime.

Anti-money laundering/counter-terrorism

financing: In the US, The Office of the Comptroller of the Currency, the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the National Credit Union Administration, and the Financial Crimes Enforcement Network collectively announced a risk-focused approach for planning and performing BSA/AML examinations. While no new requirements were established, the council explained certain nuances related to the approach.

Switzerland and Japan have initiated steps to change their anti-money-laundering laws. Although the Swiss measures are not expected to come into force until the start of 2021 at the earliest, new AML measures were adopted in June to ensure that lawyers, notaries, and other advisers are required to comply with due diligence obligations. In 2020 Switzerland faces a review with the Financial Action Task Force (FATF), an international standard-setting body that promotes steps to combat money laundering and terrorist financing.

Similarly, as Japan faces an FATF assessment this fall, it is urging its financial institutions to implement more rigorous Customer Due Diligence (CDD) and KYC efforts. Earlier, the FATF singled out Japan as not supporting enough measures to fight money laundering.⁴⁵

The rest of the world is also aligning with major countries: Argentina, Mexico, and New Zealand have beefed up existing anti-money laundering laws (AML) to shore up protection. Argentina first implemented AML and counter-terrorist financing legislation in 2000, but in 2017 and 2018 issued new mandatory minimum guidelines for risk management.⁴⁶

As a hedge against illicit activity around “virtual assets,” such as cryptocurrency, Mexico amended its AML in March 2018. New Zealand approved the second phase of its 2017 Anti-Money Laundering and Countering Financing of Terrorism (AML/CFT) Amendment Act, and from January 2018 through August 2019, real estate agents, businesses trading in high-value goods, and sports and race betting industries are being required to comply with phased implementation of more stringent regulations.⁴⁷

Cybersecurity: Cybersecurity merits special mention this year, as this KRII has been the subject of much attention in the aftermath of PSD2 implementation in January 2018 and various transparency measures. There is a significant focus on cybersecurity within the Asia-Pacific region with several countries launching initiatives.

In the US, five new requirements – including audit trails, application security, data disposal requirements, monitoring authorized users’ activity, and encryption of non-public information – were added to New York State’s cybersecurity guidelines in April 2019. Based on this regulation, federal banking regulators proposed new cybersecurity standards for the nation’s largest banks to ensure they were adequately addressing risk management, business continuity, and incident response.⁴⁸

Australia has passed sweeping cyber laws requiring tech giants to help government agencies get around encrypted communications used by suspected criminals and terrorists. It began exploring a bilateral cybercrime relationship with the Philippines in 2018. While China expanded its earlier cybersecurity regulation, India earmarked 10% of its annual IT budget to cybersecurity efforts. New Zealand revised its cybersecurity guidelines and launched the Cyber Security Foundry (CSF) in April 2018 at the University of Auckland. Thailand and Malaysia are planning to launch their cybersecurity agency and cybersecurity plan, respectively.

⁴⁵ The Japan Times, “Japan Post Bank to cap international transfers to counter money laundering,” June 19, 2019, <https://www.japantimes.co.jp/news/2019/06/19/business/corporate-business/japan-post-bank-cap-international-transfers-counter-money-laundering-2>.

⁴⁶ Association for Financial Professionals, “CASH AND TREASURY MANAGEMENT COUNTRY REPORT: Argentina,” January 30, 2019, <https://www.afponline.org/docs/default-source/default-document-library/pdf/19-01-30-afp-updated-country-report-argentina.pdf?sfvrsn=0>.

⁴⁷ Justice.govt.nz, “Tackling money laundering and terrorist financing,” <https://www.justice.govt.nz/justice-sector-policy/key-initiatives/aml-cft/info-for-businesses/sports-racing-betting>, accessed July 2019.

⁴⁸ Appknox, “A glance at the United States cybersecurity laws,” <https://www.appknox.com/blog/united-states-cyber-security-laws>.

In Europe, the EU Cybersecurity Act 27 came into force June 27, 2019, to revamp and strengthen the EU Agency for cybersecurity (ENISA) and to establish an EU-wide cybersecurity certification framework for digital products, services, and processes. ENISA will develop specific certification schemes and will inform the public about the certification schemes and issue certificates.⁴⁹

Russia's central bank introduced new requirements last year for cybersecurity in domestic Russian banks, including mandatory procedures such as information security audits, penetration tests, certification requirements for software used to stem real-time cyberattacks.⁵⁰

In the Middle East, Saudi Arabia's NCA has issued guidelines to help organizations improve information security practices based on ISO 27001 guidelines. In Africa, the Central Bank of Nigeria (CBN) announced a new set of cybersecurity rules to help guide PSPs.

Data privacy and protection: In the aftermath of the May 2018 implementation of the General Data Protection Regulation (GDPR) in the European Union and European Economic Area, several countries announced initiatives to develop new data privacy regulations from scratch or to update existing national laws.

India submitted a draft of its Personal Data Protection Bill, 2018, which awaits cabinet approval. In preparation for implementation, the Reserve Bank of India passed a data localization bill in April stating that all financial data related to Indian citizens should reside on India-based servers. Australia, the Philippines, New Zealand, and Singapore also have introduced mandatory data breach notification laws. India's October 2018 Payments Transaction Data Storage directive is a high-impact initiative that is affecting card giants Mastercard, Visa, and American Express and is part of a broader push by India to ask companies to store more of their data locally.

Argentina and Mexico are striving to align local data protection laws with the GDPR, while Turkey and South Africa are developing and introducing data protection and privacy laws.

The EU's Strong Customer Authentication (SCA) regulation is due to go into force on September 14, 2019, and requires two independent authentication elements. Due to complexity for some stakeholders, especially in implementing stronger solutions for retail consumers and exemption approvals processes between merchants and banks, implementation may be delayed slightly.

Collaboration between regulators and industry stakeholders has ramped up to ensure regulation parity, prevent risk, and foster prompt and safe industry innovation.

Regulators across the world are working on frameworks to enable greater collaboration and to support FinTechs in their region. In North America, the Federal Reserve Bank of New York set up a FinTech advisory group in April 2019 that offers views and perspectives on emerging FinTech issues, and the application and market impact of new technologies.⁵¹

The Reserve Bank of India is working on a regulatory sandbox for financial technology and setting up data science labs to keep pace with innovation in the digital lending space. Japan overhauled its Financial Services Agency (FSA), to better deal with FinTech-related fields, including cryptocurrencies. More than 60 companies from 12 countries have established a FinTech cooperation committee (FCC) to spur FinTech adoption in the region.⁵² Cambodia has created a FinTech Association to foster FinTech collaboration. Within the MENA region, Saudi Arabia's banking regulator has started designing a sandbox regulatory environment, in line with its economic transformation. Various global markets are emulating Europe's PSD2.

Regulator and industry players are collaborating around digital ledger technology (DLT) and digital currencies. In Asia-Pacific, Thailand now has four approved cryptocurrencies that can be used legally to invest in initial coin offerings (ICOs). The Government of India has received a report from the committee constituted for drafting cryptocurrency regulations. In Japan, a consortium of banks plans to launch a digital currency J Coin in time for the 2020 Tokyo Olympics.

⁴⁹ ENISA press release, "The European Union Agency for Cybersecurity - A new chapter for ENISA," June 27, 2019, <https://www.enisa.europa.eu/news/enisa-news/the-european-union-agency-for-cybersecurity-a-new-chapter-for-enisa>.

⁵⁰ SC Media, "New cyber-security requirements introduced for Russian banks," Eugene Gerden, July 12, 2018, <https://www.scmagazineuk.com/new-cyber-security-requirements-introduced-russian-banks/article/1487539>.

⁵¹ The Federal Reserve Bank of New York, "FinTech Advisory Group Charter," April 1, 2019, <https://www.newyorkfed.org/medialibrary/media/aboutthefed/pdf/FinTech-Charter.pdf>.

⁵² PYMNTS, "Financial firms form FinTech cooperation committee in Asia," January 25, 2019, <https://www.pymnts.com/news/international/2019/fintech-cooperation-committee-singapore-asia>.

In Europe, 22 countries signed a declaration to establish a European Blockchain Partnership. The European Commission launched the EU Blockchain Observatory and Forum in February 2018, investing approximately US\$90 million in blockchain projects that support the use of blockchain in technical and societal areas, with about \$330 million more to be allocated to blockchain implementation by 2020. The European Banking Authority (EBA) and the

European Securities Market Association have taken a cue from blockchain hub Malta and are recommending a unified set of cryptocurrency regulations.

The US Treasury's financial crime unit is now cracking down on cryptocurrency platforms that do not have robust internal mechanisms to prevent money laundering.⁵³

⁵³ Ciphertrace, "Cryptocurrency Anti-Money Laundering Report, 2018 Q4", January, 2019, https://ciphertrace.com/wp-content/uploads/2019/01/crypto_aml_report_2018q4.pdf



Methodology

Payments Open Banking Assessment

In WPR 2019, we have continued the Payments Open Banking Assessment to illustrate the state of Open Banking from a payments perspective in select markets. We chose 18 countries from across various regions for assessment. The purpose of the Payments Open Banking Assessment is to help readers understand how countries are responding to Open Banking and how prepared they are to meet industry transformation/performance standards within their particular market. Assessment criteria are broadly classified into four categories: industry governance, market dynamics, demographics, and enabling infrastructure. We gathered information through secondary research, and a subjective score was attached to these categories for each country. To generate the output chart, we plotted all countries with cumulative scores of market dynamics and enabling infrastructure on the X-axis (Open Banking potential), and demographics and governance on the Y-axis (Open Banking readiness).

WPR 2019 Executive Survey

Our primary research for WPR 2019 included an online survey (sample size 90) that was distributed to industry participants across banks, non-bank FSIs, and corporates in June 2019. Additionally executive interviews were also conducted. Findings from the survey and interviews have been incorporated into our analysis throughout the report.

For our methodology on non-cash payments and non-cash transactions estimates, please visit www.worldpaymentsreport.com



Glossary

AI Artificial intelligence	EPC European Payments Council	P2P Peer-to-peer
APAC Asia-Pacific	ePR Electronic privacy regulation	PBoC People's Bank of China
API Application programming interface	EU European Union	PSD2 Revised Payment Services Directive
AMLD5/SAMLD Fifth Money Laundering Directive, Fifth Anti-Money Laundering Directive	E-Wallet E-wallets are payment apps housed on smartphones and wearables that enable users to initiate a payment via cards or a credit transfer within the app	PSP Payment services provider
B2B Business-to-business	FATF Financial Action Task Force	RTS Regulatory Technical Standards under PSD2
B2C Business-to-consumer	FCA Financial Conduct Authority	SCA Strong customer authentication
BigTechs Large global technology firms such as Google, Amazon, Facebook, Apple, Alibaba, and Tencent	GDPR General Data Protection Regulation	SCT Inst SEPA credit transfer (Instant)
CAGR Compound annual growth rate	IFR Interchange Fee Regulation	SEPA Single Euro Payments Area
C2B Consumer-to-business	IoT Internet of things	SWIFT gpi Society for World Interbank Financial Telecommunication global payments initiative
CEMEA Central Europe, Middle-East, Africa	IoP IoT-enabled payments	TIPS TARGET Instant Payment Settlement
CFPB Consumer Financial Protection Bureau	ISO International Organization for Standardization	UPI Unified Payments Interface
CHIPS Clearing House Interbank Payment System	KRII Key Regulatory and Industry Initiative	
CSM Clearing and settlement mechanism	KYC Know your customer	
DLT Distributed ledger technology	mPOS Mobile point of sale	
EBA Euro Banking Authority	NACHA National Automated Clearing House Association	
ECB European Central Bank	NPCI National Payments Corporation of India	
eIDAS Electronic Identification and Trusted Service		

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Acknowledgements

We would like to extend special thanks to all of the financial institutions and individuals who participated in our Executive Interviews.

The following firms that agreed to be publicly named:

Bank of the West, US; BNP Paribas, Nordics, Europe; Crédit Agricole CIB, France; European Payments Council; ING, the Netherlands; La Banque Postale, France; MUFG Bank Ltd, Japan; Metro Bank, UK; Natixis Payment Solutions, France; Nordea, Nordics, Europe; Orange, France; P27, Nordic payments platform; Rabobank, the Netherlands; Santander Bank, US; Saudi Payments, Saudi Arabia; Société Générale, France; Standard Chartered Bank, Singapore; STET, France; Tieto, Finland; Wells Fargo, US; and WEX, US.

We would also like to acknowledge, although not individually, the 90 respondents in our online survey conducted in June 2019.

We would also like to thank the following teams and individuals for helping to compile this report:

Christophe Vergne, William F. Sullivan, Elias, Ghanem, Jerome Buvat, Chirag Thakral, Kalpesh Kothari, and Srividya Manchiraju for overall leadership; and Tamara McKinney Berry and Karthik R for researching, compiling, and writing the findings, as well as providing in-depth market analysis.

Capgemini's Global Payments Network for providing insights, industry expertise, and overall guidance: Jeroen Holscher, Debgiri Sanyal, Thierry Morin, Ross Tulloch, Andreas Kuschel, Stefan Huch, Marcos Alonso Garcia, Johan Bergstrom, Gerold Tjon Sack Kie, Marwan Farah, Venugopal Psv, Mark Ashton, Marco de Jong, Lakshmanan Sundaram, Rushikesh Tole, Ravi Vikram, Sriram Kannan, Subhabrata Sanyal, Saskia Stekelenburg, Rajesh Hegde, Richard van den Engel, Jens Korb, Rishabh Shah, Anantharaman Ck, Ame Stuart, Alan Gregory, Benjamin Gosset, Jean-François Biragnet, Hugo Bitton, Edouard Morio De L'isle, Elias Ghanem, Matthijs Delen, Joost van Putten, Alexander Eerdmans, John Conlon, Sriram Kannan, Andre Parduhn, Nobuyuki Nagahama, and Etsuko Honda.

The FS Global Marketing and Shared Services team for producing, launching and marketing the report: Ken Kundis, Marion Lecorbeiller, Mary-Ellen Harn, Aparna Tantri, Kalidas Chitambar, Suresh Chedarada, Jagadeeshwar Gajula, Sourav Mookherjee, Martine Maître, Sai Bobba, Suresh Papishetty, and Dinesh Dhandapani Dhesigan.

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