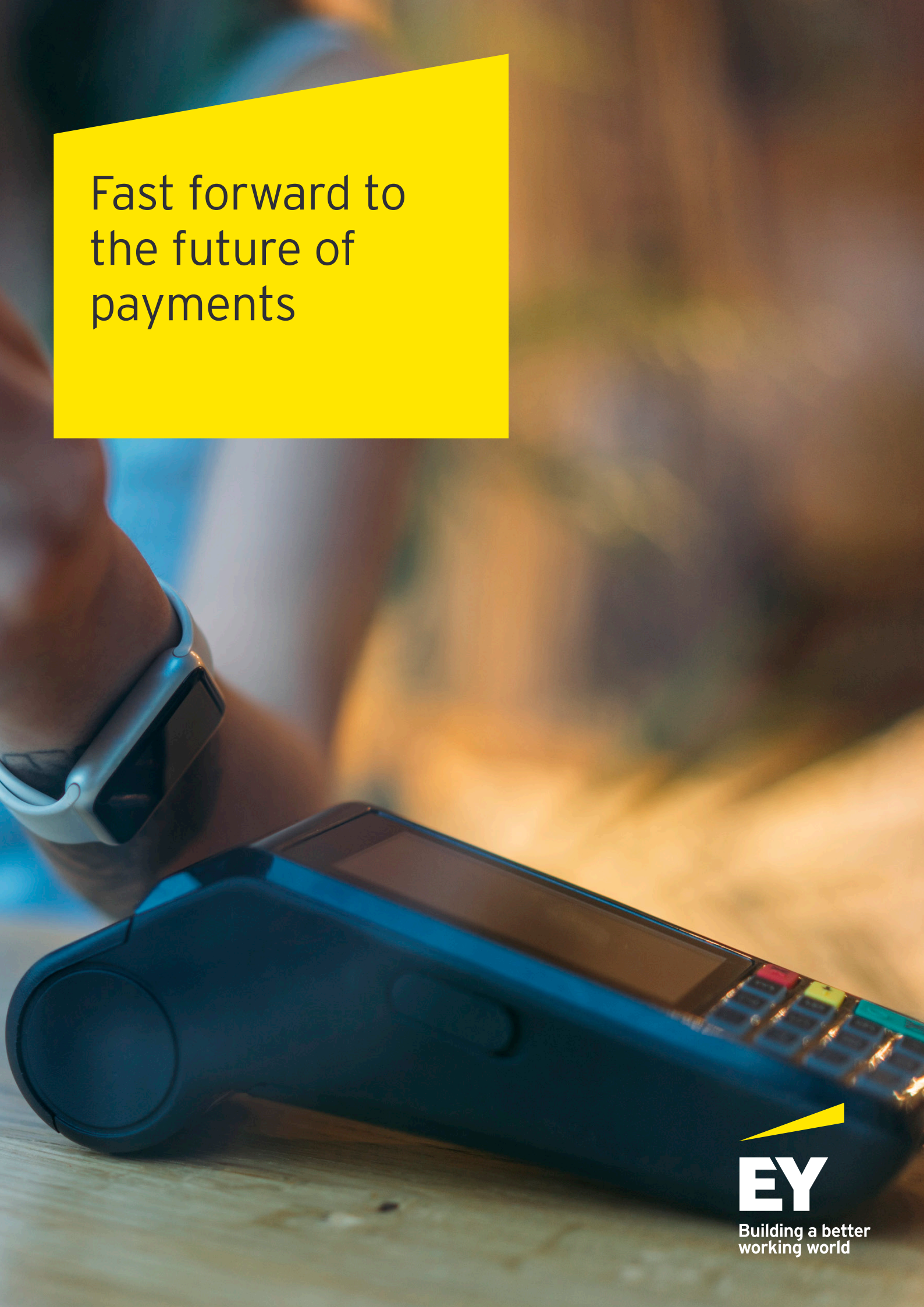
Fast forward to the future of payments



EY
Building a better working world

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Section 1:

Introduction: Fast forward to the future of payments

The payments landscape is experiencing a wave of innovation, driven by technological advancement and consumer desire for on-demand banking and payment solutions. As a result, non-traditional market players are challenging the long-held role of incumbents. Conspicuous among these are new, non-bank competitors; some of which are already well established in the market. Given that the payments market has been traditionally served by banks, these new, innovative non-bank payments providers are causing disruption and driving rapid changes to the payments landscape. This situation could easily accelerate to a tipping point if the incumbents do not act swiftly and decisively to position themselves competitively by offering attractive, value-added products and services to both individual and corporate customers.

Payments leaders must make decisions today to win in the future. Technology giants, FinTechs, merchants, and social media giants have all created their own digital payment offerings. Though it is unlikely that any one of these companies will entirely replace banks in the short term, they have undoubtedly put pressure on incumbents to innovate and transform their business models to meet consumer expectations of speed, flexibility, and convenience. In 2018, a leading market research firm stated that two-thirds of banks believe their payments infrastructure will need a significant upgrade in the next three years as back-office functions become an essential part of their digital strategy. [1]

FinTech payments adoption

Payments have reached "late majority" adoption

50% of consumers use FinTech money transfer and payments services, and 65% anticipate doing so in the future[2]

Venture capital funding activity

Significant increase in VC investments in 2018[3]

US$21.8b Disclosed value

260 Number of investment deals

Deals

184 deals in 2018 – up from 178 in 2017[4]

- Transactions worth US$46 billion in first six months in 2018 compared with a full-year figure of US$32.9 billion in 2017
- Surge driven by changing behavior of consumers preferring contactless payments

Technology

Significant advances in next-generation payments technology, (e.g., blockchain and voice payments)

Open banking

Banks and FinTechs in the UK and Europe are responding to PSD2-related opportunities with new services and **innovative solutions** while other nations build their strategy

Real-time payments

The global real-time payments market is projected to grow from US$ 6.8 billion in 2018 to US$ 25.9 billion by 2023, at a compound annual growth rate (CAGR) of 30.6% during the forecast period[5]

[1] "Report: Making the Business Case for Payment Transformation," Temenos https://www.temenos.com/en/market-insight/2018/report-making-the-business-case-for-payment-transformation/, 2018 .

[2] "World Payments Report 2018," Capgemini and BNP Paribas https://worldpaymentsreport.com/, June 2019.

[3] Payments Volume 22, EY https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/banking-and-capital-markets/bcm-pdf/ey-global-payments-newsletter-version-22.pdf, 2018.

[4] "Dealmaking in Global Payments Sector Hits New High,"Dealogic https://www.ft.com/content/93ed4628-812c-11e8-bc55-50daf11b720d, 2018.

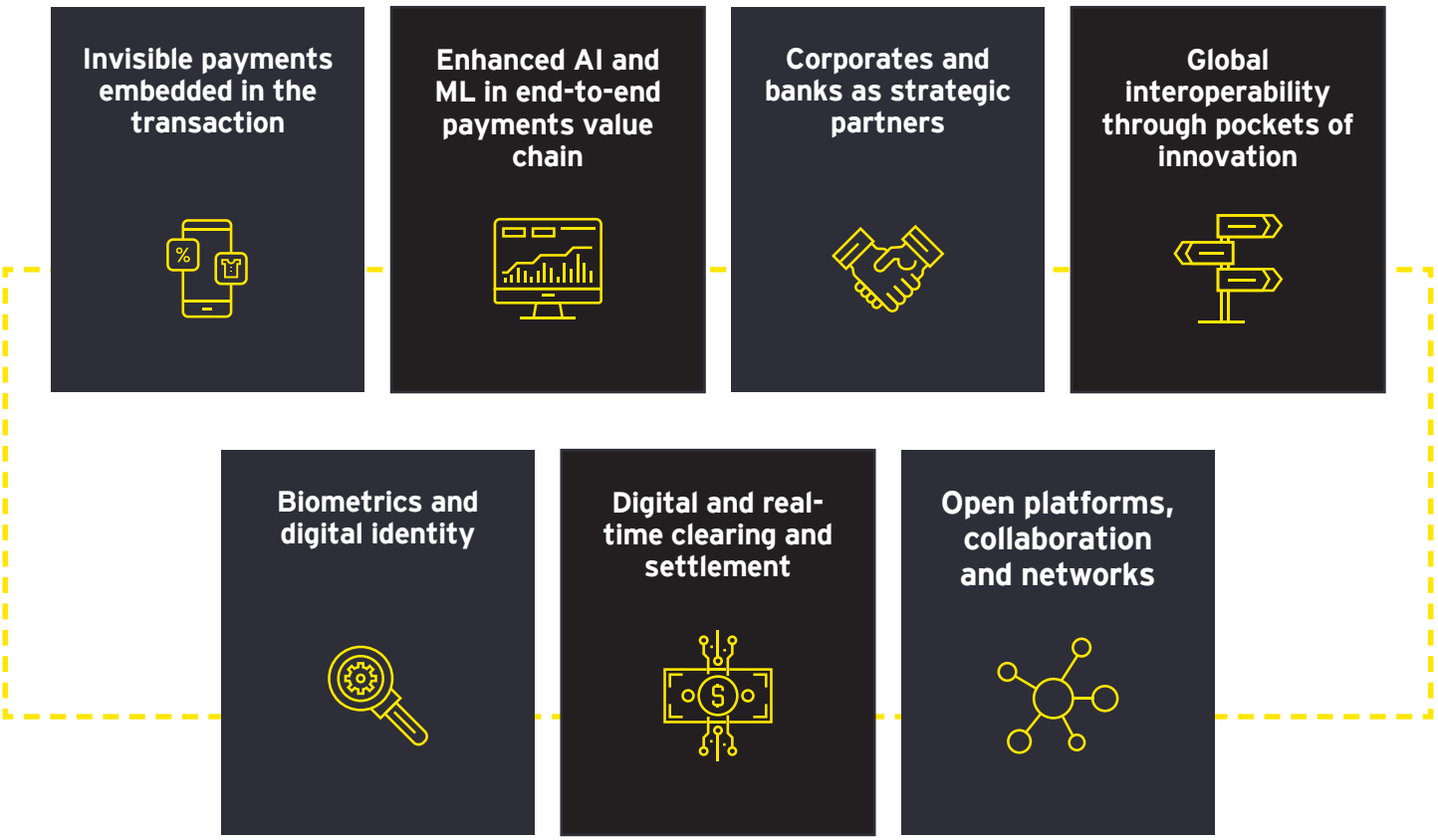
[5] "Real-time Payments Market," Markets and Markets https://www.marketsandmarkets.com/Market-Reports/real-time-payments-market-103502782.html, 2018.

How can traditional and non-traditional players in the payments industry grasp the present opportunities?
Driven by changes in digital technology, consumer demand, and competitive forces, the way people make payments is evolving faster than any area of financial services. Understanding the trends in payments is important for payment service providers to offer products and services that meet the complete financial needs of consumers.

From card issuers and acquirers, processors and networks, payments service providers are working to embrace new technologies while keeping pace with rising customer demands. The result is a dramatic change in the number of payment options and in how payments products and services are being built, deployed and utilized. The lines of distinction between banks and payments networks will continue to blur as networks begin thinking about entering the landscape beyond card-based payments (e.g., push payments). Networks are no longer operating strictly in the background of the payments cycle; they are coming to the forefront of the relationship with customers and their bank. For example, Visa's Network Hub Push Provisioning provides access to push capabilities. For customers, this would mean no longer having to go wallet by wallet, merchant by merchant, or device by device to register and update digital credentials; instead this can all be centrally managed through the issuer's mobile app. The importance of a true omnichannel payments infrastructure has been increasing along with customer digital usage and the demand for seamless, consistent interaction, and improved security across payment channels.

Customer experience will be at the heart of the future of the payments evolution. Institutions will have to leverage new technologies and digital innovation to make the customer payment experience more convenient. Demographic shifts, technology advancements and new expectations for user experience are among the trends impacting the payments market and its stakeholders. Winners in the market will be identified by their capabilities to provide a unified customer experience across multiple channels and geographies and to go "beyond payment solutions."

This paper illustrates our point of view on what the future of payments will look like and what strategies the winners can implement to differentiate themselves in this fast-changing landscape.



Section 2:

The ever-vanishing payment: Focus shifts to commerce and customers

As customers become increasingly frustrated by payment solutions that require enrollment, entry of payment data, or additional effort of any kind, the end-to-end commerce experience will become more important than any individual product or service solution alone. Customers will want all information seamlessly and instantly available when they complete a transaction further blurring the lines between shopping, purchase and paying.

While digital wallets have been around for a while, the adoption rate has varied a great deal. With the expansion of digital wallet offerings—including event ticketing, transit passes and loyalty cards—consumers will be incentivized to rely on and to store their payment information within digital wallets and applications, pushing the physical payment card/vehicle further into the background. Next generation digital payments vehicles will not only be embedded within smart devices—they will also have to offer increased securitization, such as tokenization and strong authentication. The payment card will no longer stand alone; it will exist with a digital twin.

At some level this is nothing new. More than 50% of consumers now shop contextually, making purchases during everyday activities and in their natural environment.[6] For years, online purchases have been made using a card on file at a merchant. However, within many new mobile applications, such as those offered by ride-share services and taxi companies, payment takes place completely in the background. In a world with increasingly more connected devices (the internet of things), payment capabilities continue to be streamlined. For example, car companies are partnering with payment networks and merchants to create connected cars. These connected cars are expected to communicate with other connected devices and point-of-sale (POS) systems using biometric voice technology to facilitate payments for goods such as fuel, toll roads, vehicle maintenance, and parking; effectively making the car the payment device. The full payment ecosystem will is becoming even more complicated, even while spending seem simpler to consumers.

Technology advances will enable payment service providers to deliver a true omni-channel portfolio of integrated, digitally-enabled products and services where networks and terminals, online payments, merchant acquirers, and dynamic currency conversion (DCC) work seamlessly together. For example, theme parks now provide all-in-one wristband devices enabling park guests to unlock their hotel rooms, pay for food and

Unmanned stores

Unmanned stores and cashless cafes will be on the rise, hiding the payment behind the commerce.

It's about the commerce!

Online ordering/in-store pickup, mobile, loyalty, rewards, location tracking and ease of use will become important while the payment tool operates in the background.

Embedded payments

Bar codes, checkouts, and authentication will increasingly be embedded in the payments, reducing the last-mile payment friction.

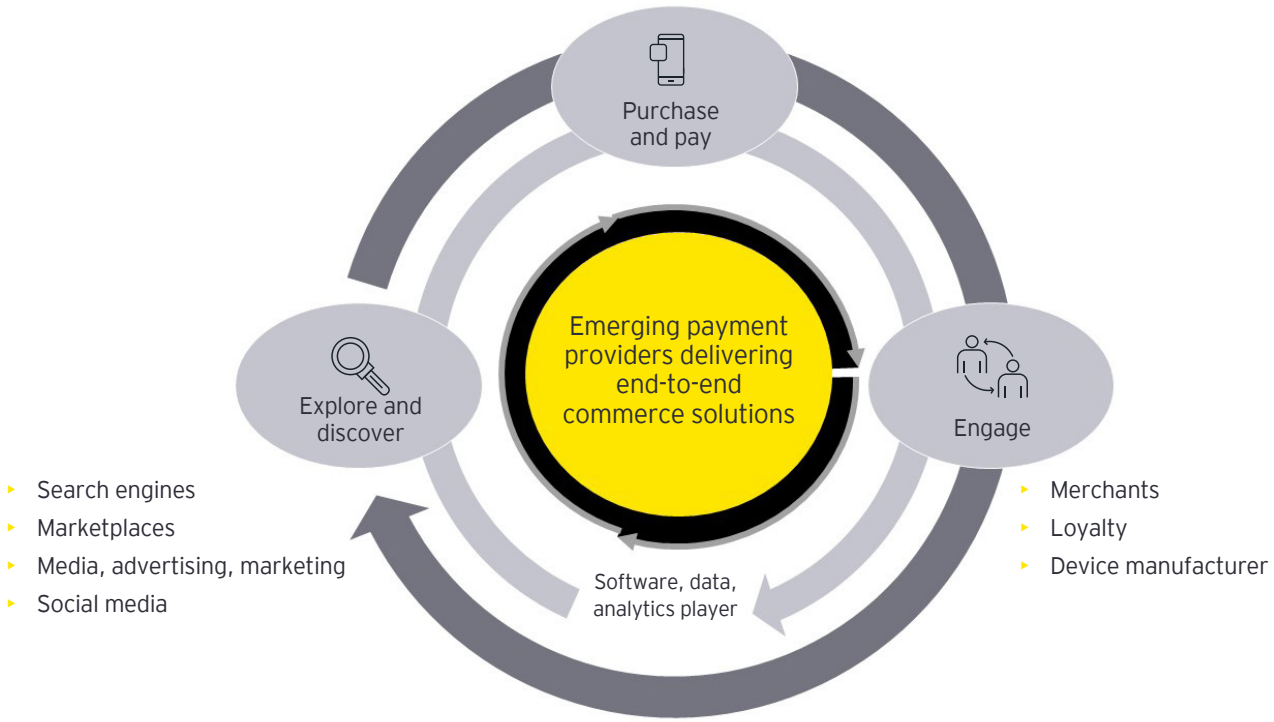
[6] "Digital Consumer Report,"Pymt.com, a Samsung Pay collaboration https://www.pymnts.com/samsung-digital-consumer-report/, 2019.

merchandise, access rides, and use personalized rewards based on customer preferences. More and more merchants are looking toward implementing similar strategies to provide an enhanced and consistent customer experience.

Embedded payments will also introduce new considerations for merchants. World Wide Web Consortium (W3C) is developing embedded payment credentials within a browser so that all payment options will be held within a web browser application programming interface (API). Since all payment options will be available to the customer to select, within the confines of network policies and regulations, merchants also need to retain some level of control to determine which payment types they will accept, as well as the order in which the payments options are displayed to the customer (example, whether to prioritize the merchant's own payment type over others). For example, Walmart.com may not want to allow Amazon Pay to be surfaced in a wallet as the top choice of payment option over their own store-branded payment type, or Walmart.com may not have a relationship with Amazon Pay and should be given the control to reject that payment type.

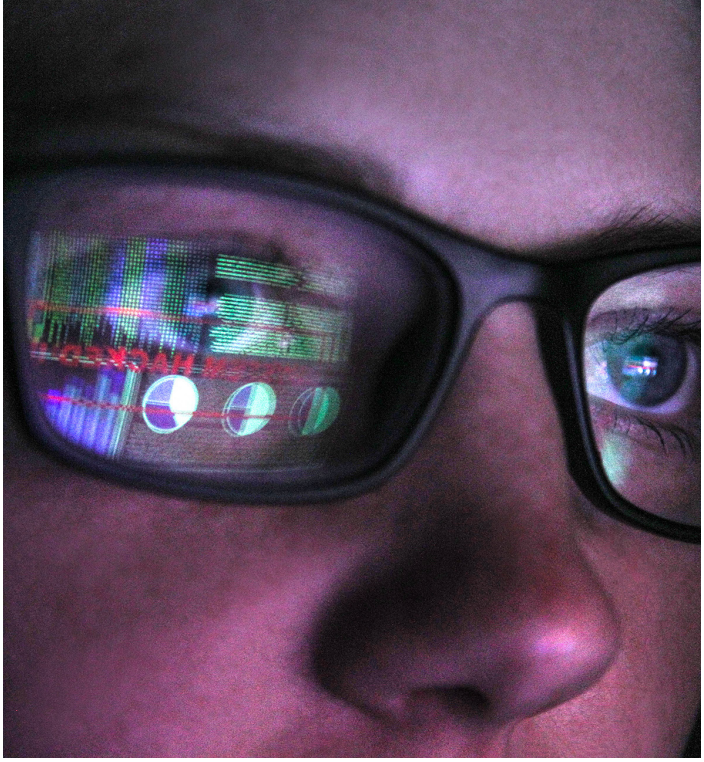
Blurred lines, digital wallets, payments in the background and the ecosystem of involved parties will give rise to more omni-channel models (such as Starbucks), which combine a mobile app, a loyalty program, gamification, and a frictionless payment method. Fast-food restaurants such as Panera, McDonald's and Taco Bell have all introduced mobile apps and kiosks to remove friction from the ordering process, to improve order accuracy and to offer targeted rewards for users with an active account. The fused loyalty and payment capabilities will enhance the customer experience. Payments players are focusing more on the customer experience, ease of doing commerce and removing friction by "embedding" the payment in the transaction, similar to Amazon Go's "Just Walk Out" shopping, where customers can skip the checkout line.

If traditional payment service providers do not focus on perfecting an omni-channel strategy that includes a unified, single platform on par with the innovation from FinTechs, they will find it challenging to maintain and promote their brand as payments move further in the background of the consumer experience. Payment networks are working to address this in a few different ways. Visa introduced the Visa Everywhere initiative, which is a global innovation program that tasks startups with solving the payment challenges of tomorrow, and the company is changing its marketing to state that it plans to be everywhere its card members perform commerce. Additionally, there is a strong push toward partnerships between payment networks and other companies to become embedded in the internet of things (IoT). For example, MasterCard is partnering with IBM and GM to create in-car payments systems using vehicle consoles and voice-enabled assistants to provide frictionless payments.



Section 3:

AI and ML: Going beyond operations and fraud to drive loyalty, rewards and revenue



Data analytics, artificial intelligence (AI), and machine learning (ML) are increasingly leveraged for use cases such as fraud and operations improvement. As technology matures, it will be used to provide more granular insights into everything from location-based and preference-based marketing, to advanced point-of-sale credit decisions, to targeted rewards and loyalty. The technology will also help corporates make the right payment choice based on their needs. AI and ML will spread to all areas of the payments value chain, providing better decision-making, increased efficiency, security and innovation. Looking further ahead, AI has the potential to enable payments to undergo a dramatic transformation with the promise of enormous operational efficiencies and lower operational costs. By the end of 2019 alone, 40% of digital transformation initiatives as well as 100% of IoT initiatives will be AI-supported.

- **Business decision-making and marketing:** Emerging technologies help you identify the best customers to pursue or the best products to offer to your target market. Coupled with data analytics, AL and ML will help companies identify prospects, convert prospects to buyers, cross-sell and up-sell, retain profitable customers, and reduce customer attrition. Additionally, with increased end-to-end digitization, more information is needed to provide context to the customer (e.g., Disputes are caused by customers not recognizing charges or the merchant details). Enhanced mapping of merchant details, including purchase line item detail, is one way to improve the formatted quality of content displayed to customers to help them recognize and understand their transactional history.

Efficiency and innovation

AI and ML will spread to all areas of the payments value chain, providing better decision-making, efficiency, security, and innovation.

Data unification

Capturing every insight from the customer from all sources and channels will help establish trust and deeper relationships.

Emotional attributes

Natural language processing (NLP) and ML will be deployed in ways that consider emotional attributes along with behavior patterns.

Rewards reimagined

Preset loyalty schemes will give way to more dynamic and customer-tailored rewards programs powered by ML and analytics.

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[7] "Idc Reveals Worldwide Digital Transformation Predictions," IDC https://www.idc.com/getdoc.jsp?containerId=prUS43188017, 2017.

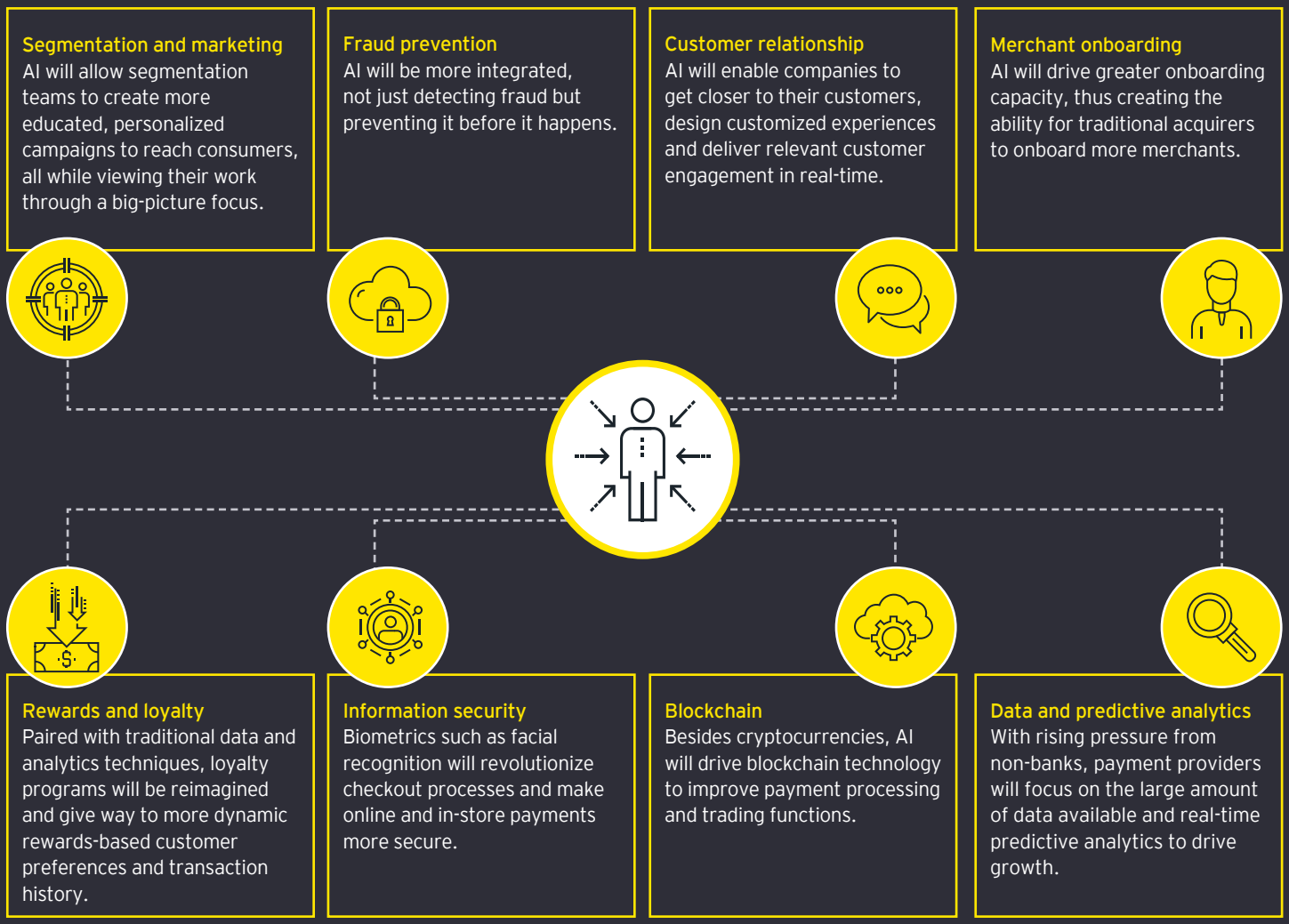
[8] "Alexa, Say What?! Voice-enabled Speaker Usage To Grow Nearly 130% This Year," Emarketer https://www.emarketer.com/Article/Alexa-Say-What-Voice-Enabled-Speaker-Usage-Grow-Nearly-130-This-Year/1015812?mc_cid=da020f88d1&mc_eid=31cb543a39, 2017.

- **Customer experience:**
  Devices with voice recognition systems increased in usage by 128.9% since 2017. Reducing friction and improving interaction between customers and channels are becoming critical. Improvements in natural language processing technology and ML make voice payments and conversation commerce more feasible. With increased security and privacy, voice payments will most likely follow the same trajectory as mobile in becoming more broadly used to shop, pay and manage accounts as customers trust the technology more and it becomes normalized in the payments landscape.

- **Rewards and loyalty:**
  Pre-defined loyalty programs will be reimagined and give way to more dynamic, personalized and portable rewards based on customer preferences and transaction history to drive spend at specific merchants or for specific products. This will require deeper partnerships and data sharing between payment providers and merchants as customers will expect to be able to both pay and redeem rewards or use coupons at the same time at the POS, increasing the potential reward and loyalty-driven revenue.

- **Process analytics:**
  Data and analytics will drive a reduction in business costs and considerable business efficiencies in disputes and chargeback processing, settlement and customer onboarding. Banks will increasingly use AI and ML to improve treasury services by offering intelligent receivables and reconciliation, making it easier to apply incoming payments to outstanding invoices, and by providing better cash forecasting services.

- **Information security:**
  With the proliferation of data available in real-time and the push for faster payments, authentication, fraud detection and protection, cybersecurity will heavily leverage AI and ML capabilities. FinTech companies will make it cost-effective for larger network-based enterprises to use advanced analytics to monitor and to detect information security risks, going beyond simple rules-based capabilities. Implementing enhanced security measures to protect the customers will speak directly to the increased demand for data protection, which will have positive impact on customer confidence. This has the potential to increase revenue as customers may show preference to payment channels where they know their personal information is secure and well protected.



Section 4:

Differentiating factors: Corporates want a banking partner that provides distinctive value-added services

As corporate treasurers expand their role within the enterprise, they will look at banks as their strategic partner and not just as a payment processor. This will result in payment service providers revisiting their business models to become an advisor and to provide value-added services in addition to fee-based transactions. To be better equipped to support their corporate treasury clients' changing needs, banks are undergoing digital transformations, leveraging new digital tools and enablers to improve and accelerate results. According to the Gartner 2018 CIO Agenda Industry Insights report, 26% of a banking CIOs already consider digital transformation as their top priority, with 25.7% of the bank's IT spend expected to be directed toward digital transformation. This number is expected to grow by 40% by 2020.[9]

Corporates will look at the banking partners to provide:

- **Access to accurate, real-time information** to allow them to make data-driven decisions with confidence. Market leaders will increasingly use APIs and participate in industry initiatives, like SWIFT GPI, that will help them provide more transparent and real-time information to help their clients track payments, forecast cash dynamically, complete their reporting and make better decisions.

[9] "Is Digital a Priority For Your Industry?," Gartner https://www.gartner.com/smarterwithgartner/is-digital-a-priority-for-your-industry/, 2018.

- **Streamlined services** that provide better control and increased visibility over their cash outflows, cash inflows, and overall liquidity positions. Bank partners will need to offer industry-leading solutions, such as intelligent receivables, online-only accounts and rule-based liquidity management.

- **Streamlined onboarding** processes to ensure that onboarding with their respective financial institutions is completed within weeks, not months. Technology, similar to the NextGen Document Solution, will be broadly adopted to streamline the onboarding process by reducing redundant information requests to clients. Document management systems will be coupled with tools, such as intelligent optical character recognition (iOCR), that leverage AI to categorize unstructured data and extract essential data elements from documents received. This use of AI can accelerate data entry and document processing to support the onboarding process with the added benefit of improved data quality.

- **Integration with a client's core systems** using APIs or other technologies that ease payment initiation, reporting and analytics. With APIs, banks will increasingly connect with their corporate clients' enterprise resource planning (ERP) and treasury management systems (TMS) to facilitate real-time payments, document management, and cash forecasting. Large treasury service providers will also seek out partnerships with the leading ERP providers to improve connectivity.

Advisory model

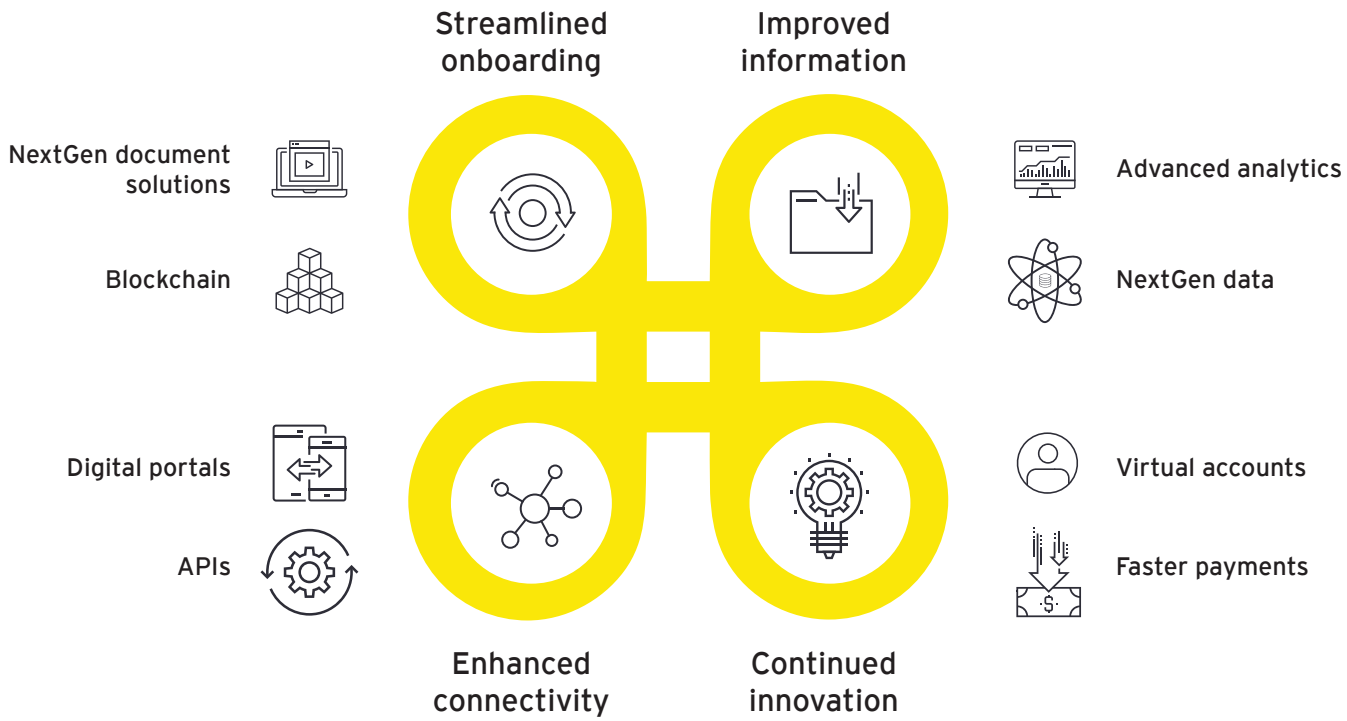
Payments providers will use data and information from multiple sources (internal and external) and advise clients on how to make better financial decisions.

Deep insights and connectivity

Corporates will look for deep insights, enhanced reporting and analytics to be delivered to their core systems via enhanced integration and APIs.

Partner not processor

Moving away from transaction-based pricing, payment providers will provide value-added services to differentiate in the market.



Section 5:

Open platforms: Making friends of traditional foes

The path toward open banking will vary across geographies and markets, but the goals will be shared. The EY Open Banking Opportunity Study, which measures the potential for open banking to succeed across 10 different markets, finds that consumer sentiment toward open banking could be a major factor affecting its progress. [10] Key themes included control (consumers taking charge of their data) and innovation (creation of new types of services). Open banking will change how consumers engage with their banks and payment services providers, introduce new channels, and promote innovation and competition in financial products.

Open banking (or permissioned banking) presents a seismic shift for both the emerging and incumbent payment service providers. Sharing of data between organizations will enable better customer experiences in different areas of the payments chain, from know your customer (KYC) to fraud, rewards, and marketing. To this end, several big US banks have partnered with FinTechs and industry groups to form the Financial Data Exchange (FDX), which aims to develop a common interoperable standard for consumer data sharing. Financial institutions will need to agree on a framework to securely share data with third parties or FinTechs looking to develop personalized products.

Global banks will utilize a multitude of approaches to engage with FinTech and data providers. They hope to cut their long-term costs while protecting their market share by introducing innovative banking products for their customers. We are seeing partnerships happen among traditional competitors. For example, Bank of America has partnered with PayPal to allow customers to easily link their credit and debit cards to their PayPal account. This partnership allows Bank of

[10] *EY Open Banking Opportunity Index: where open banking is set to thrive,* EY https://www.ey.com/en_gl/banking-capital-markets/ey-open-banking-opportunity-index-where-open-banking-is-set-to-thrive, 2018.

[11] "press releases," Zelle https://www.zellepay.com/press-release, 2018.

America to earn fees from card transactions and expands PayPal's network and transactional volume. Success of similar partnerships will be mixed unless banks are clear about the scope and mandate for innovation through careful management of people, process and technology. By ensuring alignment with the FinTech or data provider on critical success factors, banks can increase the likelihood of successful partnerships.

Financial institutions will seek increased participation in networks, allowing them to take the leap toward digital innovation, which is not possible by building products in silos. In 2018, Zelle processed US$119 billion in payments on 433 million transactions, compared with US$75 billion on 247 million transactions in 2017.[11] After multiple failed person-to-person (P2P) efforts by banks, the success of Zelle illustrates the power of the network.

Varying paths to open banking

Countries will inevitably move to open banking, either driven by mandates or voluntarily in pursuit of standardization and innovation.

Open banking adoption by country

Open banking adoption for each country will be driven by the regulatory environment, consumer adoption, consumer sentiment, and innovation.

Business, operations and tech

Open banking will need a customer-centric business strategy, new business and operating models, rapid innovation cycles, flexible technology integration, enhanced security, and an updated privacy and liability regime.

Banks coming together

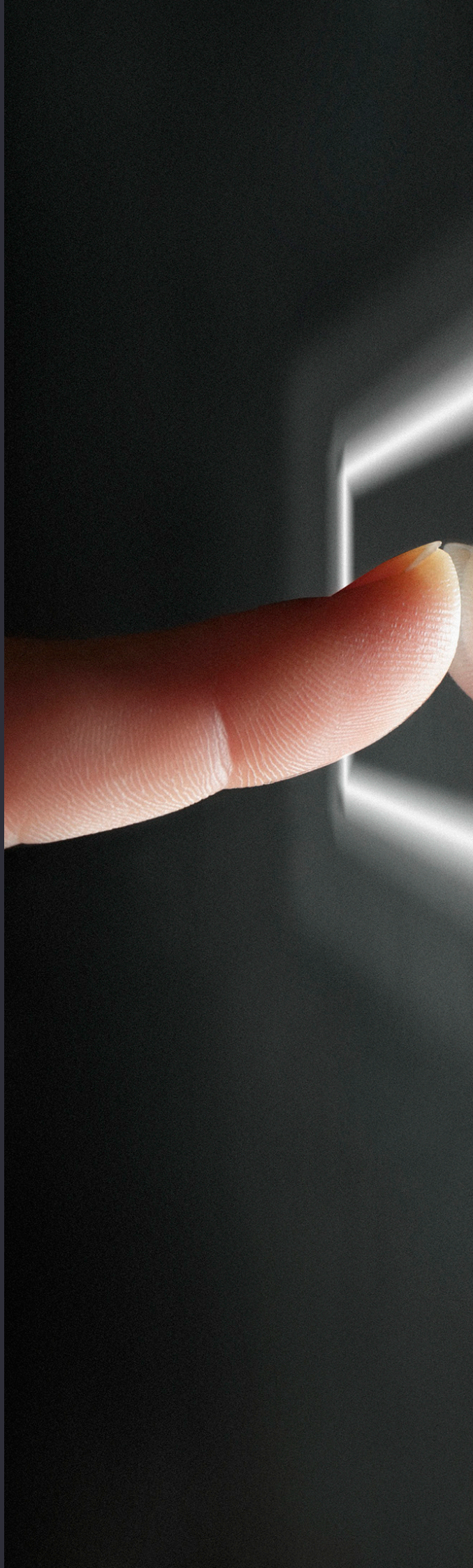
Banks will come together to build and participate in ecosystems as they realize the power of networks such as Zelle.

Section 6:

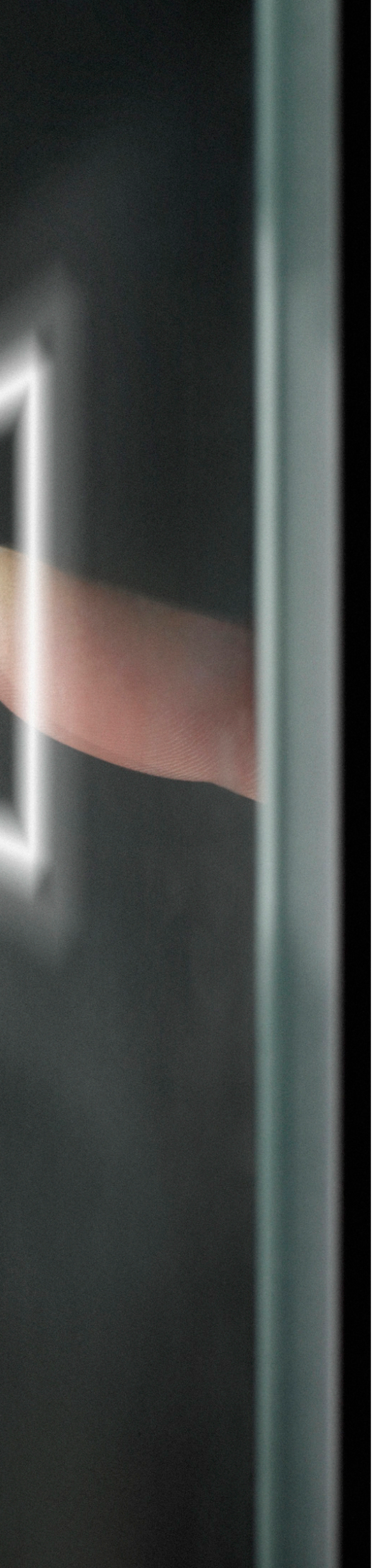
Security: An ever-present concern, but innovation eases some of the pain

Payments will continue to involve money, and where money goes, fraudsters will follow. With more digital channels available to customers, virtual interactions are increasing, making identity verification more difficult. As the risk of payment fraud and cybersecurity threats increase, financial institutions must do more and invest more to protect their customers against this danger. In fact, the EY Global Information Security Survey shows that, as payment ecosystem participants work to optimize their programs, cybersecurity is rising in importance on board agendas. The survey reveals that only 6% of financial services companies say their information security function currently meets their organization's needs, but 65% plan to make the required improvements. [12]

In today's digital era, many have a long way to go to fine-tune their capabilities. Initiatives like EMV and tokenization have helped reduce fraud. However, cyber threats and card-not-present fraud continue to pose security concerns. As open banking takes off and IoT-based interfaces, such as Siri and Alexa, are used to pay, there is an increasing need to enhance security along with the customer experience. Digital identification will be able to address concerns with contactless payments, such as voice payments, with regards to authentication, security and privacy. Additionally, where multiple standards exist, standardization and interoperability will be key to providing enhanced security and stronger authentication in digital and web payments.



[12] *Global Information Security Survey 2018-19*, EY https://www.ey.com/Publication/vwLUAssets/ey-global-information-security-survey-2018-19/$FILE/ey-global-information-security-survey-2018-19.pdf, 2018.



As payments move to a more digital ecosystem, payment ecosystem participants will:

- Look to **adopt biometrics** such as facial and voice recognition to strengthen payment authentication
- **Leverage distributed infrastructur**e for payment processing as well as for KYC and identity management
- Invest in **digital identity solutions**, either independently or as part of a network

A cross-industry, cross-sector, verified and enriched digital ID can potentially build a "trust network" where customers participate and control their own personal data with simplified access to digital products and services.

A shared approach to enrich digital identification will provide collective risk management, thereby reducing the ability of bad actors to access public and financial services and lowering the likelihood of fraud and cybersecurity breaches for customers. The benefits of a digital ID solution will span revenue generation, cost savings, regulatory compliance and customer perception:

- **Create new revenue streams** – there will be an opportunity to generate revenue from usage across the industry and other third parties, as well as potentially creating a capital asset with market value.
- **Cut operational costs** – the solution should reduce operational costs from existing processes. This savings alone could make the service cost-neutral for each investing member while enabling further financial benefits.
- **Reduce regulatory spend** – relying parties, such as banks, can reduce regulatory-driven spend by mutualizing the costs of compliance with common regulations.
- **Increase customer value** – for relying parties, such as government departments, banks, and insurers, being able to provide the customer with an enhanced digital experience will reduce churn and increase cross- and up-sell opportunities. An enriched digital ID will also enable customers to take more control of their data and reduce their risk of fraud.

Authentication is the payment

Biometrics, facial and voice recognition, distributed infrastructure for identity, and access management will ease some of the payment security issues.

Digital identity

Enriching core digital identity will provide customers with simplified access to products through easier authentication and onboarding.

Trust networks

A trust network of institutions may create shared and trusted adaptable digital identity where customers can digitally authenticate themselves with various services providers.

Section 7:

Real-time data and payments: The "new normal" for consumer and commercial payments

As customers begin to expect their payments to mimic their digital usage – everything now and on-demand – real-time data and payments are increasingly being adopted around the globe as more countries and regions invest in the real-time infrastructure. Globally, there are currently 40 active real-time payment (RTP) schemes, up from 25 in 2017. In addition, 5 payments programs are under development, with another 16 expected to be live within the next 12 – 18 months.[13] In our opinion, this "new normal" of RTPs will be driven by:

- Mandates and regulatory direction
- Banks' investments in modern infrastructure
- Customer expectations and experience
- Digital investments and innovation
- New use cases that will increase both the volume and value of payments

Forces for RTP adoption

Customer demand mandates, along with availability of a modern, digital infrastructure, will support the drive toward real-time payments (RTPs).

A bigger pie

RTP adoption will present opportunities for new use cases, tools, and offerings, but at the expense of current payments, like checks and cash.

Gig economy

Customer experience and expectations of the gig economy workers will be one of the drivers of real-time payments in the retail segment.

RTP at point of sale?

While RTP at POS will be a game changer, it will face challenges on rapid adoption by payment providers and merchants where software and hardware changes are required.

[13] "Flavors of Fast," FIS https://www.fisglobal.com/flavors-of-fast, 2018.

Business to consumer (B2C)	Business to business (B2B)	Consumer to business (C2B)	Domestic person to person (P2P)	Cross-border P2P
▸ Legal settlements ▸ Insurance claims ▸ Contingent employee wages ▸ Digital wallet cash-outs ▸ Cash-on-demand displacement	▸ Just-in-time supplier payments ▸ Loan disbursements	▸ Bill pay ▸ Hospital co-pay ▸ Pay at point of sale (POS)	▸ Repayment to friends/family ▸ Rent payments ▸ Gifting	▸ Remittance to family/friends

While all the above factors will contribute to an acceleration of the real-time payments, if banks do not fill the void, then other white labeled solutions by FinTechs will capture and cater to use cases such as consumer P2P payments, on-demand wages for the gig economy, revitalized bill payment experiences and push payments. Payment service providers will look to offer faster payments to corporates as they will look for predictability, transparency, and cost efficiency – all supported by RTPs.

In the US, real-time payments infrastructure is being implemented and driven by both public and private sector players, (i.e., the Federal Reserve and The Clearing House), with the goal of making faster payments available to any consumer and business in the next three to five years. To smoothly adjust to a new payments environment, these players are focusing not only on developing the necessary infrastructure, but also on establishing rules and frameworks to operationalize RTP in the US payments industry.

Real-time payments at POS will be another game changer for commerce. However, this may not see mass adoption in the near term as this requires deep integration and partnerships with providers and merchants. The development of RTP capabilities at the POS will help reduce costs, allowing providers and merchants to improve their working capital and potentially lower prices to consumers who are paying in real-time.

Section 8:

Global interoperability: Pockets of innovation will take hold

Historically, payment systems have been built on disparate technologies, which created inherently siloed systems because of varied technology stacks and standards that made these systems non-interoperable. As the industry grew alongside these disparate systems, it came to rely on closed networks and siloed systems. Moving data between these systems has always been a challenge because of integration issues and incompatible payment formats. With the rapid growth in the payment industry over the past 20 to 25 years, these inherent challenges were overlooked as a trade-off for other customer benefits. Thus, as the industry evolves, this approach is generating substantial friction, which is stalling the industry growth.

As new payment systems are rapidly gaining market share, integration with the legacy, monolithic payments systems have been challenging. Countries will continue to modernize the underlying infrastructure and payment rails, either driven by mandates like open banking, RTP and SEPA Instant Credit Transfer (SCT Instant), or by banks coming together to form networks such as Zelle. In developing countries, technology giants and emerging payment providers such as Alipay, Paytm and WeChat Pay continue to flourish in their respective region. Other P2P and tech providers such as TransferWise, Facebook Payments and Amazon Pay will gain share in other regions or segments.

As legacy payments systems are trying to modernize and integrate with new payments systems, regulators across many countries and regions are announcing a new wave of risk reduction and standardization initiatives to rationalize the multiple solutions and offerings emerging from FinTechs and large tech firms. In some areas of the world, regulators from neighboring countries are collaborating to create regional payment standards.

Drivers for interoperability

Executing payments on legacy, monolithic systems using disparate technologies and formats is creating substantial transaction friction.

Stages of interoperability

Interoperability could be achieved in multiple stages: payments format interoperability, settlement network interoperability, multiple system/payment type interoperability.

Interoperability adoption

There is a lot of traction toward achieving interoperability. However, given all the challenges, the industry has a long way to go to achieve a global interoperable solution.

For the payment industry to maintain the growth trajectory, we anticipate a paradigm shift toward standardization in the payments industry, enabling interoperability across payment mechanisms, clearing and settlement systems, and liquidity providers. This shift toward enhanced security and interoperability will take place at multiple levels:

1. Payment schema

Without payment format standardization, it will be impossible to achieve interoperability. The payment industry is gradually making a shift toward adopting a standardized payment format (ISO 20022), given its ability to treat payment terms equally and to provide flexibility for future modifications. Some of the key industry bodies such as The Cleaning House, NACHA and the European Payments Council are leading the charge for a push toward ISO 20022. Banks and corporates across the globe are also joining the ISO 20022 schema and agreeing to adhere to its rules.

For payment providers and processors, embracing a global messaging standard may help achieve future global interoperability, but a common global clearer or a non-card network is unlikely. This is why we will continue to see regional innovation around the globe as financial institutions participate in different networks and different P2P schemes.

2. Settlement network interoperability for cross-border payments

Interoperability is the biggest hurdle in cross-border payments because of the friction caused by the number of disparate payment systems, clearing and settlement systems, and intermediaries involved in a single cross-border transaction. With global trade integration and ease of doing business across territories, e-commerce business is growing exponentially. To cash in on the growth, all the big players in the payment industry (such as Mastercard, Visa, PayPal, SWIFT, JPMC and Citi) and FinTech players (such as Ripple, Earthport, R3 and Xoom TransferWise) are making large investments toward cross-border interoperability.

Customers are signaling their preference to stay on one platform and still can make payments to beneficiaries across multiple platforms. We feel that, eventually, the customer experience in being able to seamlessly make payments across various payment options will drive the growth. At the same time, FinTechs (such as TransferWise) that provide solutions to address friction in global payments will continue to thrive. These pockets of innovation addressing global commerce and small-business needs will have a direct impact on domestic P2P solutions by pushing the need for interoperability forward.

3. Interoperability of multiple systems

Interoperability has accelerated innovation in many industries and contributed to transformation in areas like the internet, email, cloud-based services and IoT. However, the payments industry is lagging in growth and innovation by holding onto closed models that don't allow dissimilar systems to easily work together. An example of this friction in the payments system can be seen where global low-value disbursements from bank accounts and the increased adoption of digital wallets intersect. It is difficult, if not impossible, to send a payment from a bank in the US to an Alipay wallet or Paytm account.

As the payments industry moves from a closed system to an open system, people expect payments to work seamlessly in real time, even if they rely on different companies, systems, or merchants. Interoperability of multiple systems will allow merchants to accept payments from consumers and to participate in multiple payment schemes. For example, a merchant today may accept payments by way of Apple Pay, Alipay, Amex, Visa, Mastercard and others, and interoperability between these systems will enhance standardization and provide a consistent experience for the merchant.

Section 9:

Winners circle: How the leaders will stand out in an ever-changing market

The trends covered in this paper represent not only exciting drivers for growth in electronic payments but also challenges for incumbent financial services players. To take advantage of these market-transforming trends requires a strong end-to-end understanding of how consumer behavior impacts the full value chain of payments, not just the payment transaction itself.

For leading banks and non-banks that understand key customer pain points and experience "delighters," there are opportunities to partner with a broader ecosystem of players to provide integrated, and high-value-added, offerings and solutions.

Winners in the market will be organizations that:

Integrate with a relentless focus on customer experience

- Make payments increasingly frictionless and invisible. Winners will seamlessly integrate the shopping experience search, payment, shipping, and loyalty capabilities into one low-friction environment by providing the customer with clear choices that put them in control of delivery timing, payment options, and reward benefits.
- Create easy-to-integrate and interoperable capabilities to facilitate payments in an environment with even more connected devices (the Internet of Things).
- Enable integration of multiple payment channels to create a frictionless, omni-channel experience. Industry leaders will engage and provide a consistent customer experience across all channels including mobile, web, call centers and branches.
- Provide intuitive and smart digital tools to manage payments, bills and personal finance. Payment services providers will not only facilitate transactions but also provide payment advisory and expense management services beyond the sale/payment to downstream processes such as dispute resolution.

Harness the power of real-time data and differentiate with ML

- Leverage ML to combine transaction data and customer data from other sources to learn customer interests, hobbies, financial positions and behaviors to gain actionable insights creating new products, targeting new customers, cross-selling and improving the customer experience.
- Partner with retailers to leverage payment data and create personalized shopping experiences.
- Strengthen authentication, fraud detection and prevention using ML and data analysis tools. Winners will go beyond rules-based capabilities and into predictive information security practices.
- Extract insights from data to create rewards and loyalty programs that reflect lifestyle needs and preferences.

Strategically build and partner to participate in open platforms

- Collaborate with other players in the ecosystem to create the next generation of payment rails, bank networks and alternative form of payments.
- Create partnerships with third parties to facilitate open banking and sharing of customer account information via APIs to improve customer experience.
- Consider payments-platform-as-a-service for greater network reach and stronger foundation in an open banking environment. Market winners will bring together best-in-class services from various service providers in a single ecosystem.
- Use APIs to create seamless system integration. Winners will more efficiently leverage ML technology by integrating with back-end infrastructure for greater agility.

Strengthen core infrastructure and security

- Invest in modern core payments platforms and cloud-based infrastructure to increase resiliency, security, scalability and market agility.
- Build infrastructure for real-time payments, including modifications to existing offerings, operating models, processes and systems.
- Adopt next-level authentication and authorization measures. Winners will strengthen security through tokenization, multi-factor authentication, behavioral biometrics, computer vision technology and password-less authentication techniques.
- Continue to push boundaries to innovate and manage payment credentials.

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EYG no. 003845-19Gbl
1905-3159428
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