Modernizing Card Platforms

1. Modernizing Card Payments for Growth

Disruption and innovation in payments is ongoing and it is likely to go into overdrive. For card issuers there is an array of new challenges fed by rapid technology innovation, the entry of new players and a growing adoption of real-time payments and alternate payment mechanisms. Alongside this, cardholder expectations have become more demanding as the pandemic world cements a digital-first experience for consumers. Increasing competition from non-bank competitors – neo-banks and Big Tech players in the credit and the debit space – are already starting to erode the customer and revenue strongholds of incumbents. To keep pace with emerging trends, it is crucial that forward-looking issuers adapt their technology to better align with customer preferences, enable the rapid rollout of innovations at scale and achieve processing efficiencies. While existing card issuance systems have served issuers well for many years, the multiple demands and ongoing pressure on margins means issuers must transform and modernize their card payments infrastructure. And they need to do so, now.

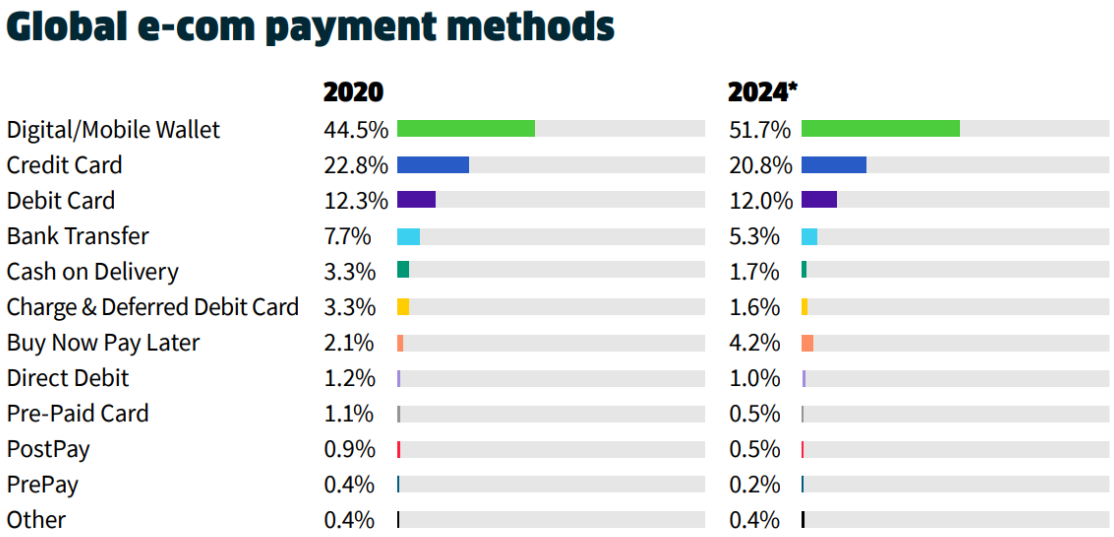
2. Drivers For Modernization

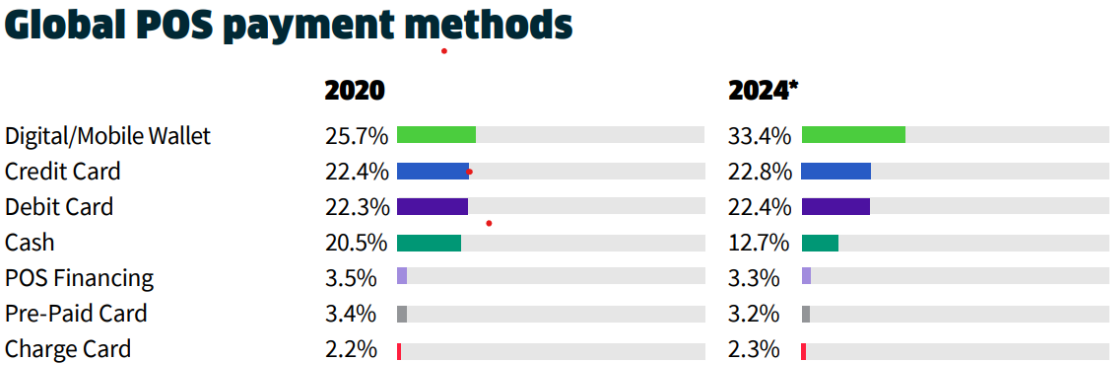
2.1. Growth in Real-Time and Alternate Payment Rails

Consumers want the ability to choose which payment option they use at the time of interaction, based on the consumer's own mix of factors. Payment choice is increasingly driven by the experience. A consumer might choose to pay a swim instructor via Alipay, Starbucks via the Starbucks prepaid card, and an online merchant via real-time account rails. While card instruments are still popular, real-time payments and new alternative payments mechanisms are gaining both traction and market share as they cater to the speed and the security needs of today's consumers.

As an example, India is a global case study in the widespread adoption of digital payments by consumers. Since the launch of real-time payments in 2016, India's real-time payment rails - Unified Payments Interface (UPI) - have recorded an exponential CAGR of 414% until FY19–20. A significant 40% of payments are person-to-merchant (P2M) transactions and have become the most preferred payment product for offline and online merchants. By 2025 total transactions are anticipated to grow seven times the current volume, outpacing the growth of card-based transactions.

Globally, alternate payment methods continue to grow in popularity, with the growth of digital wallets and buy now pay later (BNPL) services. The WorldPay Global Report states digital wallets are the payment method of choice, accounting for 44.5% of e-commerce transaction volume in 2020, up 6.5% from 2019. In China, the value of cardless payments is now greater than the rest of the world's debit and credit card payments combined. Alipay and WeChat Pay lead the way, with over 1 billion users each. In the U.S. – where mobile wallet adoption has traditionally lagged global averages – digital wallets grew to represent 29.8% of e-commerce transactions, up 23.7% over 2019 levels.





Source WorldPay

2.2. Open Banking Creates New Opportunities

Open Banking legislation, mandating banks to open their banking infrastructure to regulated TPPs via APIs, is being adopted worldwide and is reshaping the traditional bank-

customer relationship. Through the use of APIs, Open Banking wraps the best money-related apps, products, and services from third parties around a robust and well-branded core financial services product (such as a current account or payments) to build new customer-centric financial applications and services, catalyzing innovation in financial products. A report from PwC predicts that £7.2 billion of revenue opportunity will be created within two years by open banking, altering the competitive landscape.

For consumers, it creates a new generation of account-to-account payments that are instant, secure, mobile-first and can perform seamless authentication. In an open banking payment scenario, the API/app could download consumers' transaction data directly from their accounts to process payments, enabling cardless transactions.

For merchants, the adoption of open banking lowers transaction processing costs as it bypasses card networks and allows them to offer Uber-like digital experiences to consumers. Moreover, in markets where open banking payments infrastructure is more mature, such as the United Kingdom and Europe, open banking is already displacing cards at checkout. According to open banking provider True Layer, merchants can achieve more than a 30 percent share of checkout for open banking payments within a few months of launch.

In this rapidly evolving ecosystem, to avoid marginalization, forward-thinking issuers need to transform at speed from existing vertically integrated models to becoming orchestrators of 'services ecosystems' that bring seamless and engaging digital experiences to their customers. In an open banking world, exposing card-related APIs to TPPs requires issuers to develop new capabilities to build and support a growing services ecosystem.

2.3. Heightened Competition from Digital First Players

Consumers are increasingly agnostic about their financial and banking services provider, which is especially true for connected consumers accustomed to navigating the world using smart devices. Banks need to compete with the digital transaction expectations set by providers like Uber and Amazon that offer integrated, holistic experiences for which the payment "just happens." According to Pymnts.com, 65% of consumers between ages 31 and 42 — an essential banking demographic in terms of income and spending — would likely open banking accounts with Amazon, Apple, or Google if they were offered.

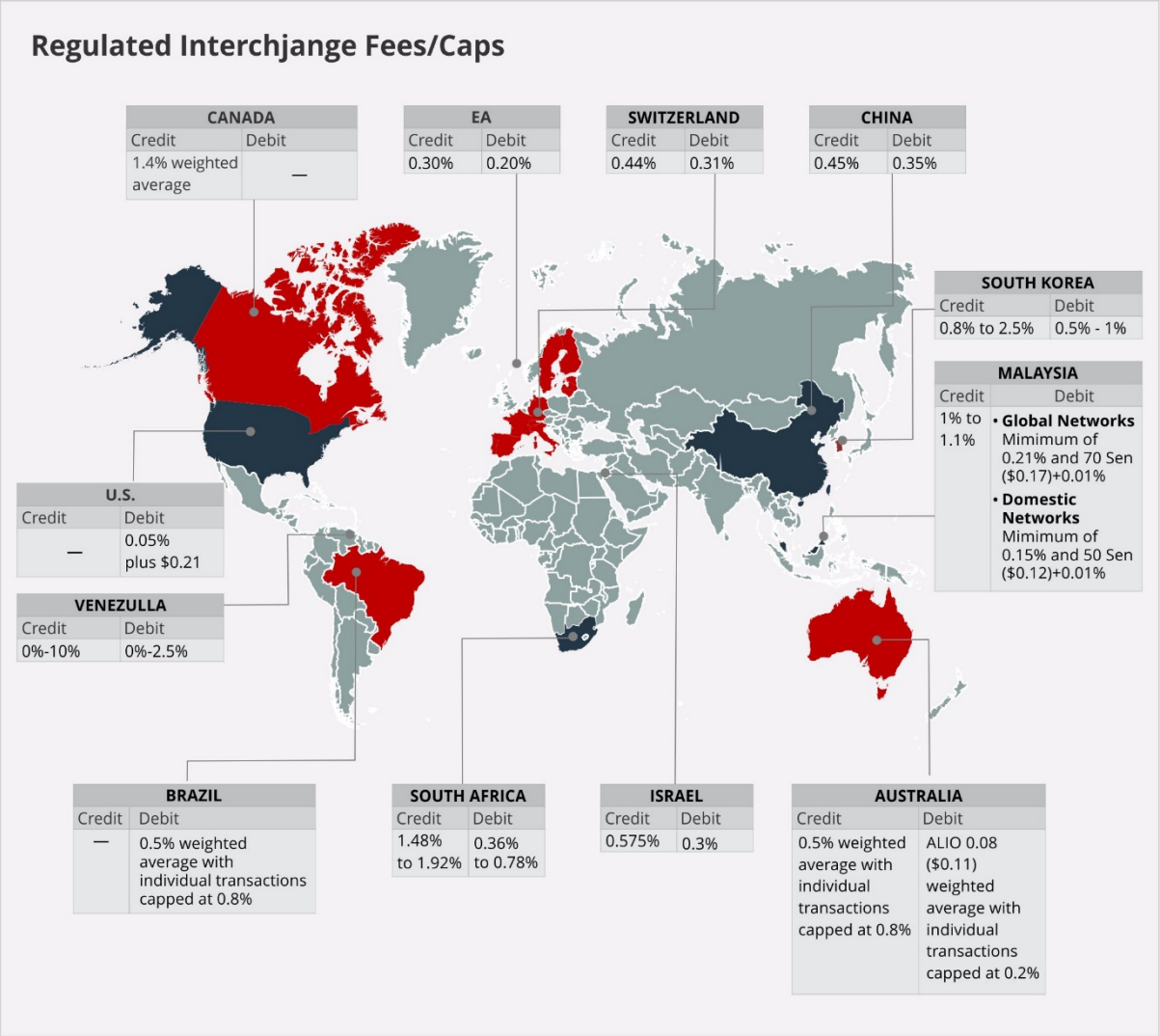
An expanding array of newer digital players are competing with established issuers to directly address today's consumers, who do everything – from ordering meals to scheduling doctor's appointments – on their mobile devices.. These competitors extend

a digital-first card experience on smartphones with immediate issuance, spend tracking, tailored offers, and card controls without compromising security and authentication protocols. This can potentially relegate card issuers to the role of providing the backend payment plumbing while the neo-banks own the interactions and loyalty in the customer relationship.

To further market share, many service providers are foraying into physical card issuance and are encroaching on traditional banking relationships. For example, Apple co-branded cards powered by Goldman Sachs reported 3.1 million sign-ups within the first 12 months. Samsung Pay has partnered with Curve in the U.K. to issue co-branded cards. In India, Paytm is targeting to issue over 1 million physical debit cards, having already issued 4.5 million virtual cards. The digital shift requires banks to boost efforts to be the customers' card of choice, whether in physical or — as is increasingly the case — digital form.

2.4. Regulatory Interventions and Interchange Caps

In addition to heightened competition, globally interchange caps by regulators have placed pressure on issuer margins. In Europe, for instance, regulators instituted new rules in 2018 calling for inter-regional interchange fees to be in line with existing caps for domestic purchases. Likewise, Brazilian regulators recently set a debit interchange cap. To pre-empt regulation, networks in Canada announced voluntarily cuts on average interchange rates. These rate caps and reductions necessitate players to streamline their operations and find novel ways beyond card rewards to drive customer engagement.



Source: Global Review of Interchange Fee Regulation

Fueled by the emergence of cloud computing, digital technologies and agile methods, the pace of technology innovation is accelerating dramatically. Collectively the pace of these developments is testing the maturity of existing technology and business models and creates significant growth pressures for established card issuers.

Rather than make incremental improvements, issuers need to actively drive disruption by reengineering their payments infrastructure to be more agile and respondent to the opportunities today and in the future. Unfortunately, due to their inability to quickly adjust their applications to new evolutions (both technological as social), banks are starting to lag behind pure-play digital providers.

The modular, platform-based I.T. setup of new entrants allows them to move faster and more flexibly and at a grander scale than their competitors. In addition, without the

burden of legacy systems, many new market entrants can quickly iterate and get products to market faster in anticipation of customer needs. In contrast, financial institutions continue to wrestle with earlier generation platforms that are inflexible and have inherent limitations, including:

- Designed to meet the needs of issuers in a pre-digital era, the platforms are not enabled to adapt quickly to the demands for digital-first card programs;
- Limited extensibility and customization capability impede time to market for new products and services. On average, depending on the complexity, new functionality may take between three and nine months to develop and deploy;
- Multiple platforms to manage different card functions – prepaid, credit, debit – traps value in silos. Further issuers could have bolted on new functionality in response to customer needs resulting in a classic spaghetti architecture;
- Significant risk as outdated technology hinders their ability to protect against the growing sophistication of cyber threats;
- Outdated payments infrastructure results in inflated cost structures. According to an Accenture survey, 95% of top global banks in a 2019 study said hardware was a significant payments infrastructure cost, with 55 percent citing internal resources and 41 percent citing development and testing.

Against this context, the ability of issuers to effectively compete is dependent on offering new products and services. This, in turn, is determined by the flexibility and the extensibility of the underlying card platform. There is significant value to be unlocked by banks that take a strategic approach to modernize their entire payments architecture

3. Modernizing Card Platforms

Forward-leaning issuers are modernizing their payments infrastructure to upgrade legacy systems and develop new technical capabilities. Financial institutions will need to start from the inside-out and redesign their core issuance systems around three tenets: digital-first; open ecosystems; and being data-driven. It is a crucial part of becoming more responsive to customers and market opportunities and more agile, given the rapidly changing nature of the technology and the marketplace.

3.1. Digital-First Product Design

Instant is now an established norm in payments. In India, customers can open a UPI account in less than 5 minutes and are no longer ready to wait for days to receive their cards. Therefore, card issuers need to invest in digitalizing key processes to cater to customer demand, such as instant digital issuance.

Tokenization: A study by LexisNexis Risk Solutions shows that for every dollar of fraud, financial services companies incur $2.92 in costs, up from $2.67 in 2017, representing a 9.3% Y-o-Y increase. Triggered by the demands of today's modern consumers, payments are becoming increasingly invisible, embedded, and autonomous. In view of the inherent nature of invisible payments, issuers need to balance trade-offs between convenience and security. Card data saved on file to facilitate payments executed in the background, without any customer intervention, pose an increased risk of fraud. Technologies such as tokenization and risk-based authentication systems to safeguard customers and minimize risk. Tokenization helps combat fraud by removing confidential consumer card data from the payment network, replacing it with unique tokens which are limited in how they can be used. Tokenization also helps to avoid friction in the payment process by enabling financial institutions to update expired or compromised payment credentials without any manual updates being made by the customer if their card is lost, stolen, or expired.

Fraud detection strategies that bring together cross-product and cross-channel data, and apply intelligent machine learning models, can help in proactive detection of fraud signals. Risk-based authentication enables banks to verify legitimate customers by analyzing their transactional and behavioral profile leveraging a range of variables such as transaction amount device, merchant, location and, shipping address.

Additionally, as a counter-fraud measure, issuers need to invest in risk-based authentication. AI enabled mechanisms detect anomalies, if any based on behavioral analytics, analysis of usage pattern and velocity related checks and immediately flag potentially fraudulent transactions.

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- **Instant Issuance:** Customers can apply online and access card information almost immediately to begin making purchases online, in-app and at the point-of-sale through digital wallet offerings. Additionally, issuers can offer an optional physical- card with a personalized design to the cardholder.
- **Dynamic CVV:** Offers quick access to card information, including the 16-digit PAN, CVC2, expiration date and customer service information via the digital environment, eliminating the need for it to be displayed on the physical card and enabling the cardholder to access it securely with ease.
- **Gives Cardholders Control:** Allow customers to determine where, when and how their cards are being used by setting limits on spends basis country, merchant, location, channel, and transaction type.
- **Account Management:** Enables cardholders to manage their payment credentials digitally, including access to transaction history and balance information, alerts, and access to card benefits.

For instance, customers in India gain the ability to make online and in-app purchases – and at the point of sale, through digital wallets – almost immediately after issuer approval.

3.2. Added Value Capabilities

With increasing commoditization and pressure on revenues, issuers need to focus on added value service to drive engagement and revenue.

Virtual Cards: Modernized Issuance systems must offer a state of art digital and instant Issuance Solution that can help banks issue virtual and physical instant cards to customers on the go. Virtual cards can be issued instantly by issuers on the cardholder's desktop or mobile app. The cards lend themselves to a range of retail and use cases and can be created for recurring or one-time use and are compatible with digital wallets, such as Apple Pay, Google Pay, and Samsung Pay. Virtual payment cards are issued with a unique number that links to an existing checking account. The card can be managed through enhanced security settings. This includes an immediate card on and off option, spend definition for specific merchants, merchant categories, geo-location, time-of-day schedules and spending amounts.

Biometric Contactless Cards: The pandemic-driven rise of contactless payments has contributed to increased activity in the biometric card space. With contactless payments set to grow further, the use of biometric cards will follow along the same trajectory. In fact, UBS analysts project that biometric payment cards could capture a 15% share of the global card market within the next five years. For issuers, biometric cards offer a first-mover advantage, helping them to differentiate card programs and improve card fee revenues. For instance, French bank BNP Paribas offers its Visa Premier cardholders the chance to upgrade to a contactless fingerprint option - for a €24 annual fee. For merchants, biometric cards are designed to be compatible with existing payment terminals that accept contactless - or chip-based payments - worldwide. As all the information processing takes place within the card, there are no additional support requirements for merchants or acquirers during transaction processing.

Push to Card: Customers can credit payments directly to a card account, enabling issuers to send money directly to a card. Examples include push transactions used by several payment facilitators and merchant acquirers to speed up settlement by sending sales proceeds directly to a merchant's card account.

Buy Now Pay Later: Many point-of-sale purchases can now be conveniently financed via buy-now-pay-later providers, such as Klarna or Afterpay, allowing consumers to make needed purchases when they may not have adequate cash at hand. Card issuers are countering the impact by offering creative financing options. For instance, India's largest consumer financing company is working to offer instant loans at checkout. Another example is Plan It by American Express. Cardholders can choose to pay off large purchases over a three to 24-month period at a rate typically much lower than the typical annual percentage rate on consumer loans.

3.3. API-led Open Services Marketplace

The emergence of FinTechs, PayTech and Big Techs and enactment of Open Banking legislation foregrounds the need for banks to embrace platforms and open services ecosystems to build competitive advantage. To quote BBVA: "a company without an API is like a computer without the internet." Rather than build by themselves, open API-driven architecture enables banks and processors to curate relevant value-added products from across the market and deliver greater value to customers around core card propositions. As an example, banks can provide customers 360-degree holistic personal finance

management insights to manage their budgets, or a travel saving plan in conjunction with partners, in-app card payments through a travel aggregator website or expose instant digital issuance APIs to merchant owned wallets.

Within an overall ecosystem strategy, issuers also need to consider the services they enable via APIs. The number and type of APIs offered are significant for bringing customer-centric products to the market and providing partners with a choice to develop innovative propositions. While issuance and account management APIs form core focus areas, to succeed digital issuers must extend a complete suite of API identity, fraud and security offerings and data insights to differentiate their services.

The shift from a vertically integrated to an open ecosystem model requires issuers to develop new capabilities. Successful cross-industry examples of ecosystem-led models demonstrate that a range of technical and organizational capabilities are required for success. To attract and retain partners, issuers need to offer simplified onboarding processes, provide user-friendly business tooling and dashboards, share customer insights, introduce new revenue models, example API metering, build transparent pricing and billing options, and manage customer privacy and data.

Key APIs	
 Issuance APIs	• Customer Sign-up • Digital Card Issuance • Instant Card Issuance • Physical Card Request • Wallet Issuance • Purse Issuance
 Card Funding	• Card Reload (Prepaid) • FX Rates • Overdraft Eligibility • Customer Profile for Instant
 Identity and Authentication	• eKYC • Customer Authentication • Pre-Authorised Loans
 Account APIs	• Profile Update • Balance Management • Set PIN • Forgot PIN • Change • PIN • Activation/Deactivation Card • Switch on/Switch Off Card • Card Details Update • Block Card • Unblock Card • Hotlist Card • Reissuance Card • Upgrade Card • Close Card
 Security APIs	• Negative List Scan • Card Token • Authentication Fraud • Transaction Alerts • Transaction Risk Scoring • Card Spend Limits • Activate/Deactivate Card • Activate /Deactivate Purse • Lost Card • Stolen List
 Card Insights	• Merchant Insight • Transaction Insight • Channel Insights • Customer Segment • Risk Insights
Source: FSS	

3.4. Data-Driven Offerings

Cards are the most ubiquitous payments instrument, with every transaction generates data. As a result, card issuance is becoming highly commoditized with significant pricing pressure around the transaction itself. Forward-leaning issuers are consequently capitalizing on their data assets to drive innovation, business agility and critical business decision-making. Data-driven insights using A.I. and ML have a variety of applications. This enables issuers to build deeper personalized relationships with customers and drive higher transaction volumes by embedding products and optimized offers along the path to purchase. For instance, the ability to advise the customer on the use of the right cards at the point of purchase, offer pre-authorized loans at checkout, deliver next best offers or next product to buy recommendations can all help to assure top-of-wallet recall for issuers.

These capabilities are built on data sets sourced from multiple structured and unstructured sources of data. By combining a banks card data with location, channel usage, social data with advanced A.I. and ML-based tools, issuers can proactively understand customer engagement drivers and bring relevant and personalized products to the market. With a more complete data set, issuers can build a more detailed and comprehensive picture of cardholders as well as operations, helping to translate these into a competitive advantage that is not easily replicable.

Design Privacy

While consumers are willing to exchange personal data for offers, data privacy will become a more vital factor in the decade of the 2020s. Consumers will control more of their data in the future, and issuers need to have strong consent and a data governance framework in compliance with local and international regulations.

3.5. Composable Payments Architecture

For many issuers, their current application architecture is composed of proprietary, monolithic systems, which is reaching its limits in the present digital-first world of payments. Given the scope and the scale of new opportunities, issuers need to evolve towards a modular, cloud-native technology model that is adaptable to business change. The underlying platform needs to support:

Packaged Business Capabilities

A composable architecture constructed with packaged business capabilities makes it easier for issuers to design and deploy new experiences. Packaged business capabilities

are modular components that represent a well-defined business capability. For instance, cardholder KYC or customer consent or customer risk score would meet the definition of packaged business functions that can be used as building blocks for application product suites and custom-assembled application experiences. PBCs need not reinvent the wheels of highly specialized functions and can benefit from a vendor's own innovation and investment at scale. Since PBCs expose well-defined APIs, the platform supports a broad range of partners to develop new commercial services.

Re-platform for Cloud

In the longer term, banks will likely need to move to a platform-oriented architecture and automated infrastructure underpinned by the use of the public cloud. Cloud technology enables banks to run a more cost-efficient operating model while providing the agility and modernity that legacy on-premises models lack. Future-ready issuers will need to have a cloud infrastructure to support internal and external data processing, leveraging advanced analytics, artificial intelligence (A.I.), and machine learning. The use of cloud technology will maximize efficiency as issuers balance costs and the need for faster innovation and scale.

4. Selecting the Right Technology Partner

Card modernization is part of the financial institution or credit union's larger digital transformation journey. Issuers would need an experienced partner to modernize their card infrastructure. The critical criterion for selecting the vendor includes:

- Strong payments expertise, including technologies from a wide array of third-party vendors;
- Structured innovation process that combines design thinking, agile, DevOps, and use of modern platforms and technologies;
- Strong industry, design, architecture, and digital transformation expertise;
- Flexible and scalable contracts that enable quick pivots and growth.
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4.1. Faster Innovation

- Launch digital-first card programs and deliver superior frictionless onboarding experience to cardholders;
- Ability to launch and fail-fast enabling issuers to cut losses and bring truly relevant products quickly to market;

- Introduce complementary products such as travel-linked insurance and free taxi rides;
- Tap into new revenue streams such as earned wage card products and IOT-based autonomous payments.

4.2. Optimized Costs

- Payments-as-a-service model offers significant run-the-bank savings compared to older, mainframe-based, on-premises systems with significant maintenance costs.
- Lower cost benefits through new programs by building once and reusing modules across payment channels.
- Provide access to a range of technologies and ecosystems of services, making it far easier to access new capabilities (such as analytics, A.I., or machine learning) or new services to enhance systems and develop the business model.
- Counter fraud and improve the efficacy of financial crime prevention mechanisms -- Enhanced security protect customer and company data from threats and meet compliance requirements.

5. FSS Unified Issuance Platform

FSS Unified Issuance Platform is a modern cloud-capable, API-first card issuance platform that enables issuers to issue virtual and physical prepaid debit and credit cards. The functionality spans the complete gamut of issuing capabilities to help issuers efficiently manage their card portfolios and design customer-centric products. FSS Unified Issuance Platform supports parameterization of critical business functions to reduce complexity and provide complete flexibility to users to swiftly respond to evolving business trends. Further, the configuration flexibility built into the business logic layer allows us to rapidly adapt systems to variations in business practices, regulatory requirements, and operating environments across regions. This helps reduce costs of interfacing to country-specific processing gateways, payment schemes, credit scoring and personalization bureau.

6. In Conclusion

We believe that cards will continue to form the bedrock of customer relationships, providing issuers an opportunity for ongoing customer engagement and constant innovation. Several trends are setting a path for the continued growth of card payments. This includes a growing number of connected and digitally active consumers, booming e-commerce markets, and regulators modernizing infrastructure rails while encouraging competition. The impact of COVID-19 has further accelerated several ongoing trends. Notably, there has been a considerable rise in contactless payments and the use of virtual cards and we believe this trend will continue.

In the coming decade card offerings that can be personalized and seamlessly embedded along the customer's purchase journey, alliances with ecosystem partners to offer differentiated products such as ability to avail instant credit at checkout, AI and ML based behavioral analytics to enhance cardholder protection would be critical. We believe that banks need to rethink their card issuance architecture to stay competitive,

7. References

- The Global Payments Report; 2021; Worldpay.
- Global Review of Interchange Fee Regulation; 2020; CMSPI Insights.
- The Indian Payments Handbook 2020-2025; 2020; PWC.
- Banking Transformed 2021; Jim Marous
- Payments Landscape in Canada: Opportunities and Risks to 2022; Global Data
- Mastercard Partners with Atlantis to Expand Digital First Program in India https://www.mastercard.com/news/ap/en-in/newsroom/press-releases/en-in/2020/october/mastercard-partners-with-atlantis-to-expand-digital-first-program-in-india/