



# Entrust Digital Card Issuance

Ensuring simple, seamless, secure mobile payments



**ENTRUST**

SECURING A WORLD IN MOTION

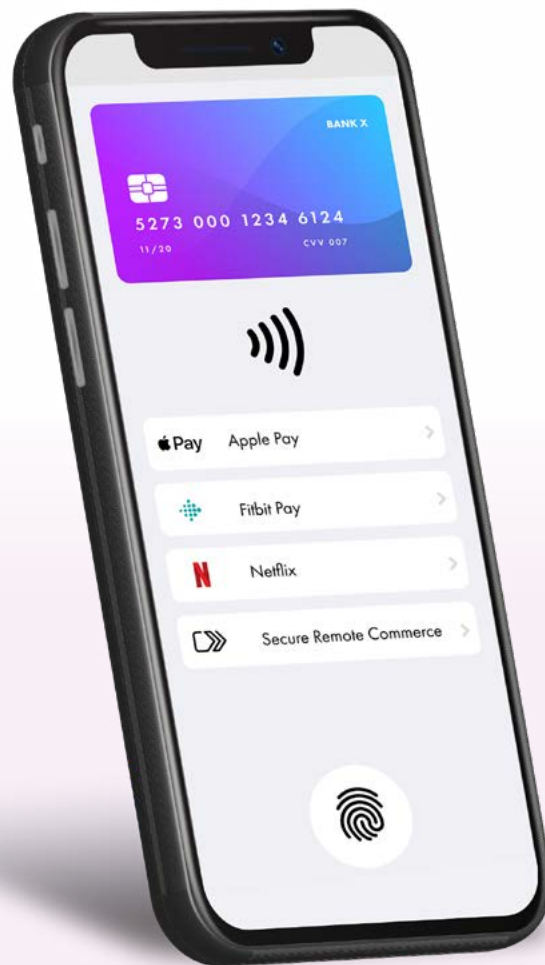
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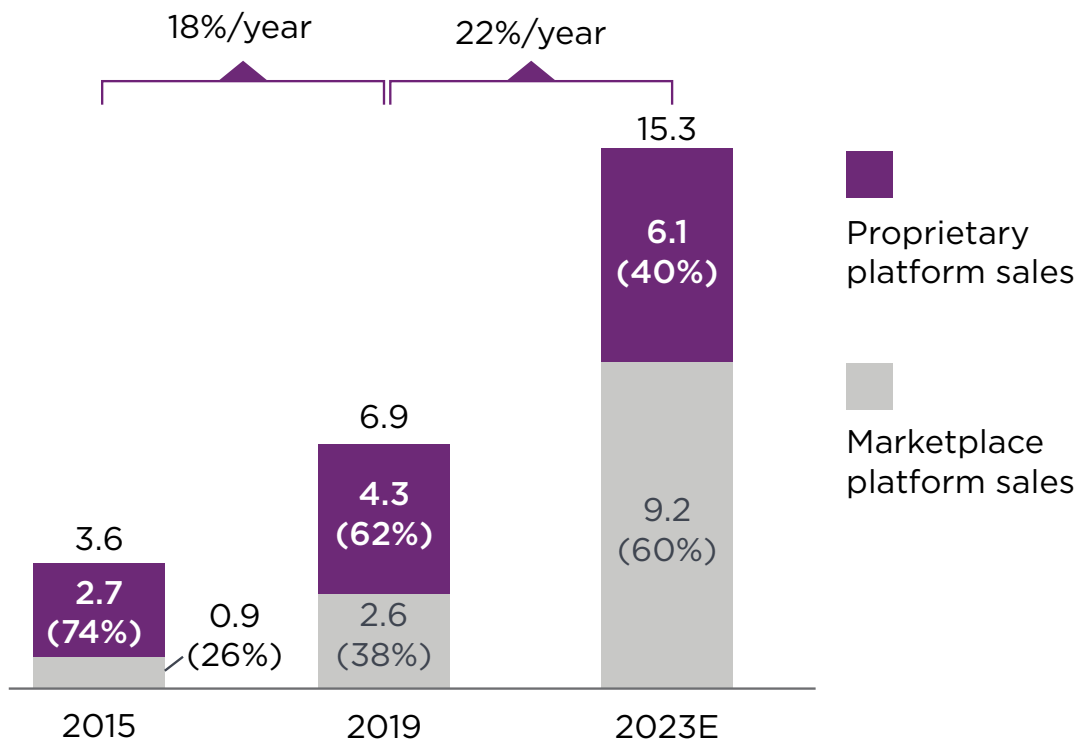
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# Mobile payment methods are increasing in popularity

Mobile payment methods are increasing in popularity, driven by the explosion of e-commerce since 2020. Global e-commerce revenue has been forecasted to be worth \$15.3 trillion by 2023. This growth is aided by the COVID-19 pandemic as consumers are staying home more often and making purchases at different e-commerce stores rather than regular brick-and-mortar retail stores.

Global digital-commerce market, platform sales breakdown, \$ trillion



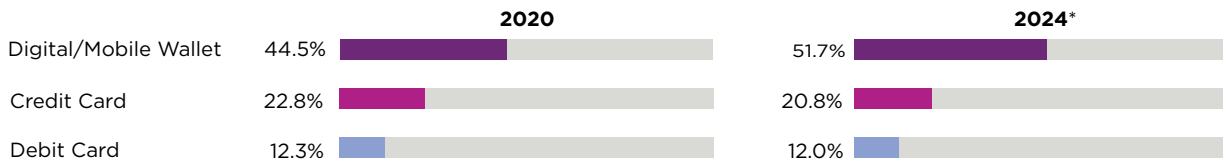
Source: McKinsey Global Payments Map, McKinsey Digital Commerce Benchmark

<sup>1</sup>The 2020 McKinsey Global Payments Report, McKinsey & Co.

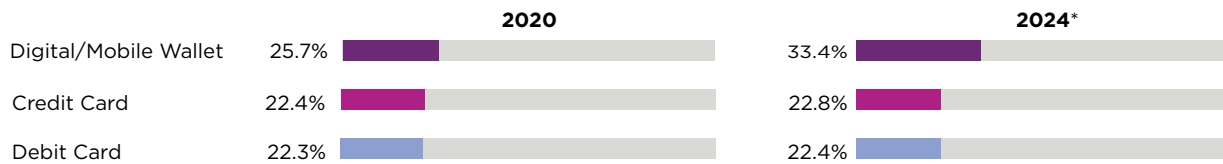
These kinds of e-commerce stores are not only restricted to more mainstream merchant segments, such as fashion and groceries, but other segments like healthcare, professional services, and education, which historically have not received a material portion of payments through B2C digital channels.<sup>2</sup>

Although the biggest contribution toward mobile payment growth originates from e-commerce, with a forecast of increased usage of mobile payment wallets at 51.7%<sup>3</sup> by 2024, consumer payment preferences vary considerably around the world, reflecting an infinite diversity of historical, technical, cultural, economic, and regulatory factors.

**GLOBAL E-COMMERCE PAYMENT METHODS**



**GLOBAL POS PAYMENT METHODS**



\*Forecasted

<sup>2</sup>"The 2020 McKinsey Global Payments Report, McKinsey & Co.

<sup>3</sup>"The 2021 Global Payments Report", WorldPay (from FIS)

With mobile payment set to continue its growth, there is a need for the rest of the payment players to contribute and facilitate transactions that are simple, seamless, and secure for consumers, regardless of the channel.



Traditional banks, mobile OEM (original equipment manufacturer) providers, third-party fintech service providers, and e-commerce merchants all have a part to play in building this experience. Here are some of the examples where partnerships have been established to provide a better consumer experience:

1. Banks are already partnering with payment schemes like Visa® and Mastercard® and mobile OEM providers like Apple,<sup>4</sup> Google, and Samsung to provide consumers an easy way to transact online or in retail stores over POS using NFC
2. Banks are looking to partner and/or purchase solutions from third-party fintech service providers to create a better payment experience. An example is the partnership between Standard Chartered Bank, CurrencyFair, and Assembly Payments<sup>5</sup>
3. Banks are establishing co-branded payment card products with retail merchants, which are becoming one of the preferred ways consumers can reap the benefits from the card. An example of this is the Wayfair<sup>6</sup> credit card issued by Citibank
4. Banks provide payment gateway services to e-commerce merchants like DBS PayLah!<sup>7</sup> supporting multiple vendors in Singapore

The new scheme's tokenization systems are leading the way for innovations such as the digital card. It is now a market standard for card issuers to onboard schemes' tokenization systems. It enables the digitization of their card portfolio for wallets and e-commerce merchants and brings more security to card payments (replacing card numbers by non-sensitive tokens).

As technology advances, merchants will continue being innovative and we will see advanced payment methods introduced over time, like payment via smart home devices (e.g., TVs and refrigerators), payments in smart cities (e.g., smart metering), and mass transit applications. All of these evolutions and changes in payment should not deviate from the initial intent of simple, seamless, and secure transaction methods.

In this white paper, we will discuss how the Entrust Digital Card Solution can help issuers deploy a holistic card issuance solution that will address most if not all of your cardholder needs whenever they transact.

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<sup>4</sup><https://support.apple.com/en-sg/HT206638>

<sup>5</sup><https://www.sc.com/en/media/press-release/weve-turbocharged-digital-payments-proposition-with-investment-and-the-merger-of-currencyfair-with-assembly-payments/>

<sup>6</sup><https://www.wayfair.com/wayfaircard>

<sup>7</sup><https://www.dbs.com/NewsPrinter.page?newsId=k0u628h4&locale=en>

# Issuers, take note of these five common considerations

With an increase in mobile payment usage, issuers need to think about how to enhance their card issuance program to meet cardholder demands.

Here are some important things for issuers to consider:

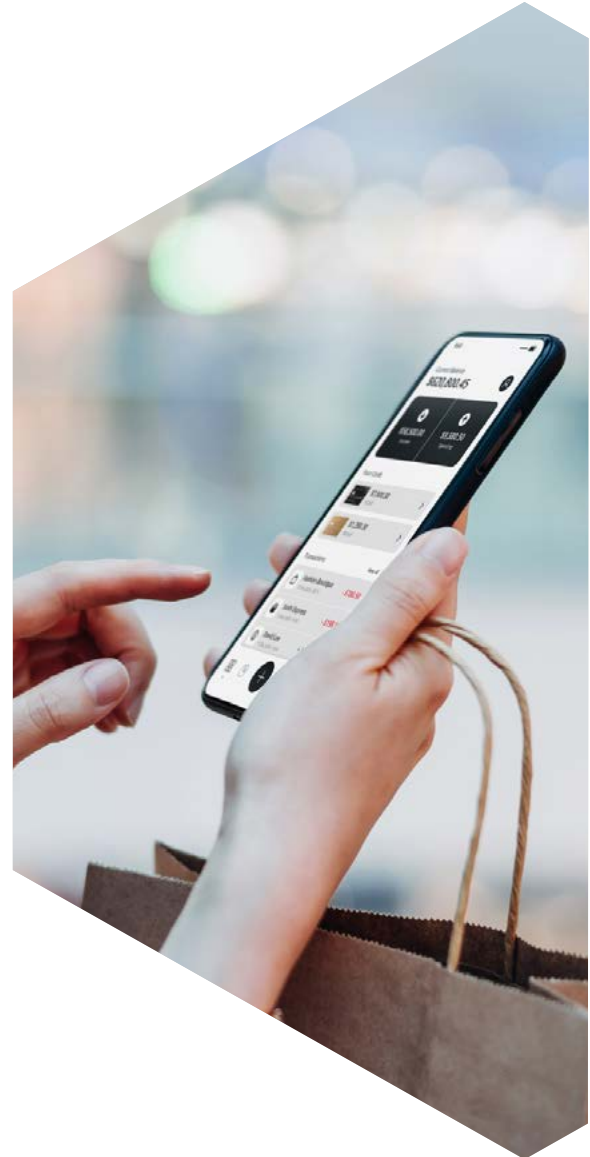
## 1. Compliance and Regulations

Issuers today will need to fulfill and comply with different guidelines and policies, depending on the countries they operate in. Some common guidelines and policies may come from local governments, central banks, and the payment industry for example – PCI, Visa, and Mastercard. These guidelines and policies are required as a way to protect cardholder data, both in persistent storage and during transactions. These guidelines and policies limit issuers when deciding the solution of choice. Additionally, these guidelines and policies aid and guide issuers to decide on the solution that best protects their cardholders.

## 2. Tokenization Capabilities

Payment tokenization is the process of replacing a traditional primary account number (PAN) with a unique, encrypted payment token that is restricted in how it can be used with a specific device, merchant, transaction type, or channel.<sup>8</sup> This token would then be used for subsequent transactions, replacing the need for the actual PAN number to be used and stored outside of the issuer's secure environment, thus limiting the risk associated with compromised, unauthorized, or fraudulent use of PANs. To issue digital cards, issuers need to consider the tokenization capabilities locally within the country. This may start from their own card management systems (CMSs) to the different payment schemes. These include international schemes like Visa and Mastercard and local domestic schemes like RuPay in India.

Today, schemes like Visa and Mastercard offer tokenization services like in Visa Token Service (VTS)<sup>9</sup> and Mastercard Digital Enablement Services (MDES),<sup>10</sup> but they may not be available in the country of choice.



### 3. Token Requestor Support

Token requestors are entities that initiate the process of tokenization.<sup>11</sup> These entities could be an issuer's own payment application or from an OEM provider like Apple Pay and Google Pay. Token requestors can also be e-commerce merchants that have initiated the process on behalf of the cardholder to receive a digital card from the issuer via the tokenization process.

Depending on the issuer's intent to engage, service, and satisfy their cardholders, issuers must define which types of token requestor to support for their card programs.

### 4. Plastic Cards

While digital cards are the main topic in this white paper, issuers today still need to consider how to position their offerings when it comes to current plastic payment cards, which they have been issuing over the years. There is an uptick in the number of transactions made using mobile payment wallets today, with mobile wallets gaining much of cash's share loss at the point of sale and the usage of a physical payment card beginning to flatten in growth.<sup>12</sup> Cardholders still desire to have the flexibility to pay with different payment tools as long as they can complete the transactions with ease and security, and that the transactions would benefit them through the collection of loyalty points and cash back, among other benefits.

Issuers should consider supporting different demographics of cardholders, in order to keep cardholders from moving to the competition.

### 5. Benefits to the Issuers

Providing digital cards to cardholders results in many benefits to the issuer, such as share of wallet gains, higher card activation rates, increased purchase volumes, and overall incremental lift.

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<sup>8</sup><https://www.emvco.com/emv-payment-tokenisation-press-kit/>

<sup>9</sup><https://www.visa.com.sg/partner-with-us/payment-technology/visa-token-service.html>

<sup>10</sup><https://developer.mastercard.com/product/mdes>

<sup>11</sup><https://developer.visa.com/capabilities/token-service-provisioning>

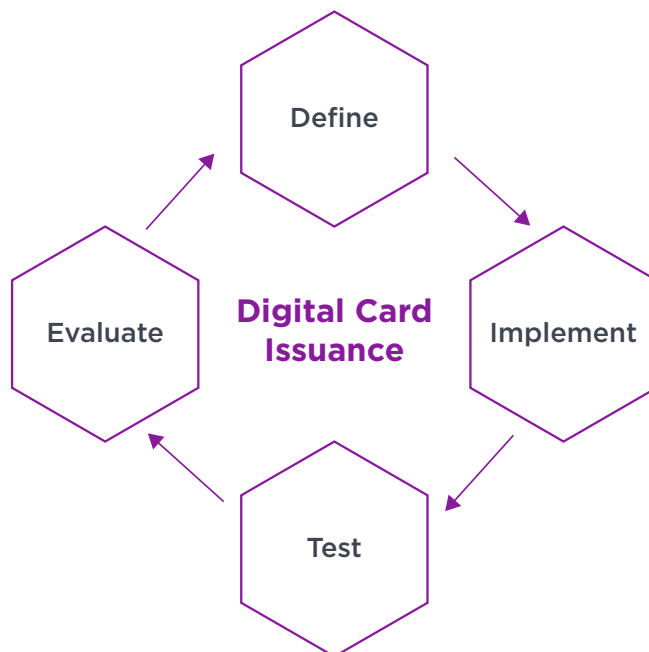
<sup>12</sup>"The 2021 Global Payments Report," WorldPay (from FIS)



# Planning for digital card issuance

Before issuers embark on a digital card issuance solution, it's important to identify several factors. Issuers need to identify the relevant stakeholders and resources for the projects. As they look to go live with the new offering, issuers would need to consider ways to strengthen or enhance their offerings over time.

Entrust recommends the following steps to ensure a successful launch, as well as continued support and improvements to the offering:





## 1. Define - Definition of the requirements

Selection of the card program to digitalize. This can be based on a combination of several different criteria such as:

- **Cardholder demographics:** Assuming the issuer looks to offer digital cards to the millennial group of cardholders, then the card program targeted to this group will be selected first.
- **Success of card program:** Depending on the strategy of the issuer, the issuer can opt to select the best-performing card product to be digitized as this will ensure the biggest take-up by digital cardholders. They can also opt to select the less performing card products, to leverage possible higher usage of digital cards to generate more revenue via transaction fees.
- **Technical limitations:** Most of the technical considerations would be around token requestor support, the scheme support, and current system in place at the issuer's premises like the CMS. Do these fulfill the needs for digital card issuance? If not, what other solutions can be offered in view that these may be lacking?

Other requirements related to implementation of digital card issuance would include:

- **Deployment needs:** What are the requirements needed to deploy and manage the solution? Would this be on-premises (within issuer premises) or outsourced within the same country, same region, or outside of the region? Do you have the relevant teams to manage related operations?
- **Compliance needs:** What are the requirements that need to be fulfilled for central banks, local government regulations, or schemes guidelines? Is there a need for subsequent compliance audits post implementations?
- **Features of the solutions:** Other than just issuing a token to the token requestor, what are other differentiating features? For example, self-service token management, secure card displays, PIN changes, and reporting.

## 2. Implement - Deployment and integration of the solution

After defining requirements for this solution, a project needs to be created and a possible kickoff may be required between the different stakeholders for the projects. Important stakeholders may include:

- **Project Manager:** Oversees and manages the success of the project. Regular status updates may be needed to ensure that risks are foreseen and properly taken care of.
- **Deployment teams:** Internal IT resources responsible for managing your infrastructure and application platforms.
- **Integration teams:** Internal or external teams that link all the different subsystems together to achieve the actual digital card issuance into the token requestor defined. External teams could be a combination of the CMS providers, banking application development teams, and third-party system integrators assigned to complete the integration tasks.
- **User Experience (UX) and mobile development teams:** UX team helps define the different workflows the end-user will experience. The mobile development teams develop the workflows as a brand-new mobile application or as part of an existing e-banking mobile application.
- **Security and compliance team:** Ensures the implementation will comply with regulations and guidelines as required. An external audit may be required.

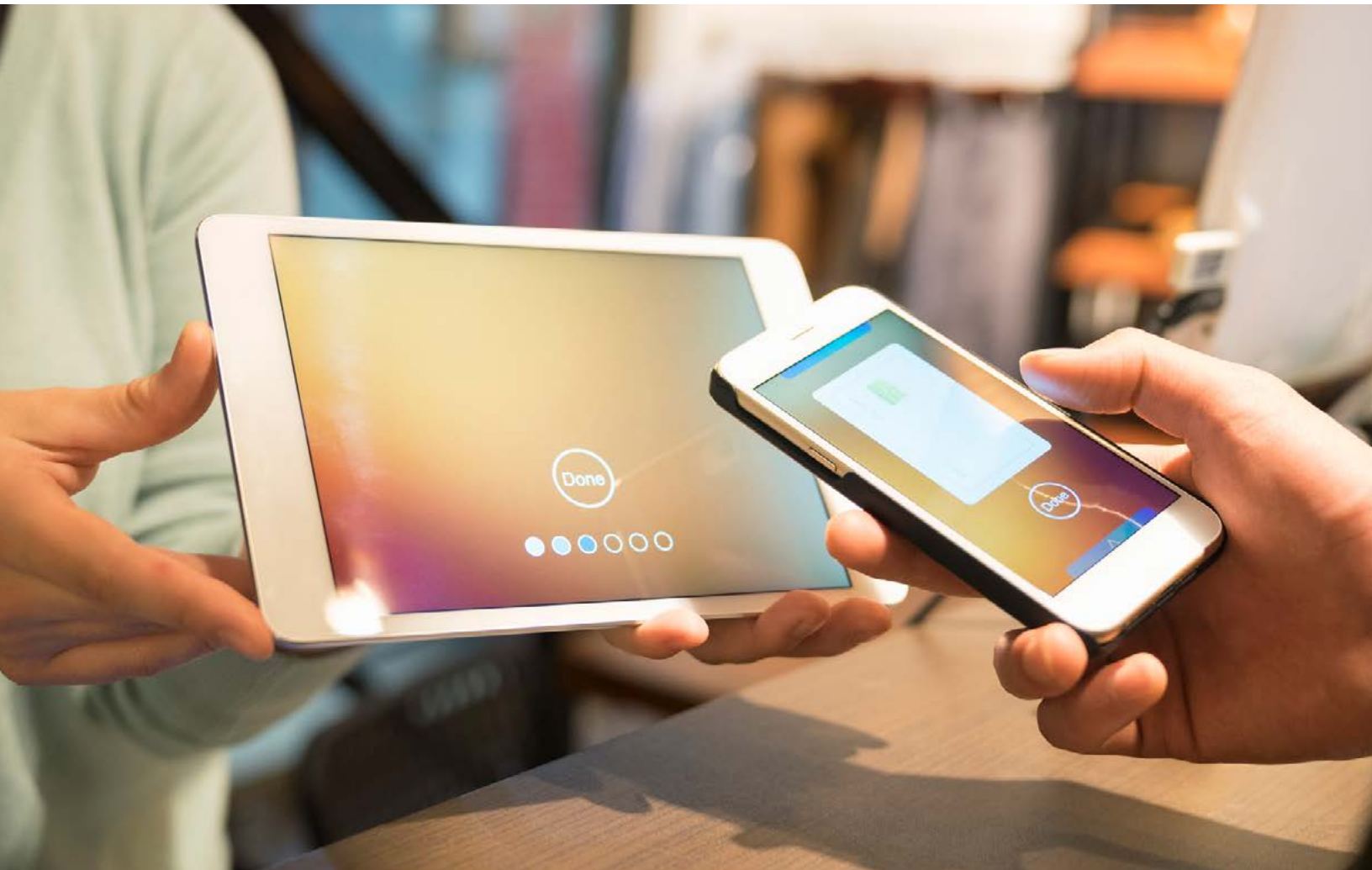
### **3. Test - All stages of different testing before launch**

During and after implementation, a series of different systems-level testing may be required, e.g., systems integration testing (SIT) and user acceptance testing (UAT). However, it is important to ensure testing is done holistically on the different development and integration points. More importantly, test the user experience leveraging on different A/B test scenarios to ensure the whole user experience is tested and released without errors and faults.

### **4. Evaluate - Evaluation and review of the offering to provide data points for subsequent improvements**

Issuers need to constantly review and analyze the successes and pitfalls of the offerings. Some monitors that can be created include card usage, such as what kind of card is used, where it is used, and the frequency of usage.

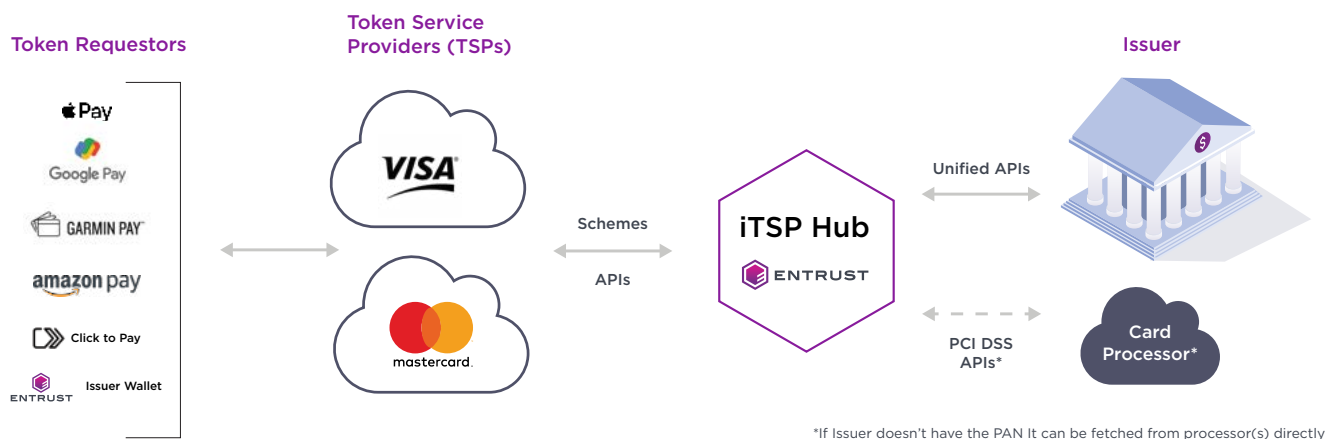
This information helps reveal customer payment behaviors and provides additional insight into how to better service and support cardholders in their transaction needs.



# Entrust Digital Card Solution

The Entrust Digital Card Solution consists of two major solution components including the issuer TSP Hub (iTSP) and Digital Card Solution SDK. Depending on the issuer's in-house capabilities, especially with their CMS solution, the issuer can choose if they need both iTSP and Digital Card Solution or just Digital Card Solution to implement a complete digital card issuance solution for their card program.

## Unified connections to schemes' TSPs



iTSP is a software as a service (SaaS) offering that brings the capabilities of connecting issuers to the schemes' token service providers and the different token requestors that the cardholder may use, to facilitate the issuance and use of a digital card (or a token) for payment transaction. This SaaS offering is hosted with Amazon Web Services (AWS) and is built for high availability and high scalability. This setup is highly secure with end-to-end encryption from back-end, TSPs to mobile, and is compliant with PCI-DSS and GDPR requirements. iTSP is also certified with Visa VTS and Mastercard MDES.

Other than issuance, iTSP has the following capabilities:



#### **TOKEN PROVISIONING**

- Get card information
- Approve tokenization based on token requestor and risk information



#### **STEP-UP**

- Provide authentication methods to the TSP
- Send OTP request messages, adapt to issuer's existing SMS or email services
- Activate token



#### **LIFECYCLE MANAGEMENT**

- Activate, suspend, resume, delete token
- Update card



#### **NOTIFICATIONS**

- Receive tokens and cards
- Notifications from the TSPs and the Token Requestors

The Entrust Digital Card Solution is a white-labelled mobile application or a software development kit (SDK) offering that drives all digital card services. This solution supports iOS, Android, and HarmonyOS, is certified with Visa VTS and Mastercard MDES, and is compatible with payment application standards like WISE and PURE.

This supports and enables the different token requestors like Apple Pay, Google Pay, Issuer's own wallet, and other e-commerce platforms like Amazon and Netflix.

# All digital card features in one single SDK



Welcome and Initialization



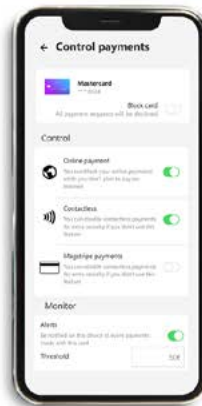
Video ID Verification



Card Issuing and Activation



Secure Card Display



Card Alerts and Control



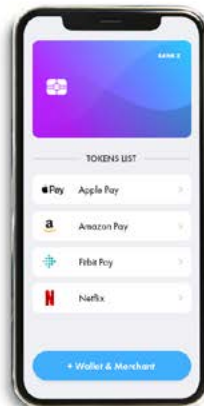
Secure PIN Display



Merchant Token Push



X-Pay Token Push



Token View



Token Control



Strong Authentication



Payment



### **MOBILE PAYMENT**

Turn the mobile banking app into an NFC wallet.  
Enable banks to keep the strategic relationship with their customers for mobile NFC payment.



### **TOKEN MANAGER**

Let the customer self-manage their digital cards.  
Provide state-of-the-art management service while reducing human support.



### **SECURE INTERFACE**

Securely display the card information in the application.  
Let your customers pay on the internet without a plastic card.



### **X-PAYS AND MERCHANTS PUSH**

Conveniently and securely push cards into Apple Pay, Google Pay, Fitbit Pay, e-commerce merchants from the mobile banking app.  
Simplify digital card activation from banking apps into all use cases.



### **PIN MANAGEMENT**

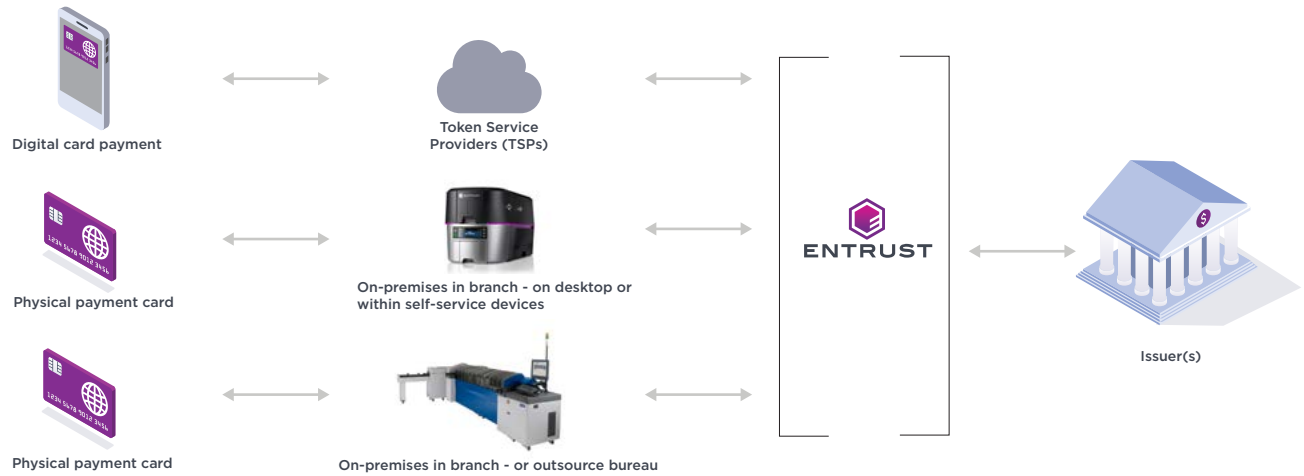
Securely display the PIN in the application and let your customer choose their card's PIN.  
No need to send or resend a PIN mailer; the PIN is immediately available in the app.



### **STRONG CUSTOMER AUTHENTICATION**

Use the chip-like security of payment solutions to provide super-secure while convenient customer authentication.  
Meet the European PSD2 compliance requirements with convenient UX.

On top of the core capabilities of the digital card issuance solution, Entrust can also provide issuers with consulting services and professional services. We can provide issuers with an end-to-end offering from conceptualizing the digital card issuance setup requirements and provide support to implement, integrate, and develop different mobile applications that will suit your needs.



With the combination of traditional physical card issuance solutions and digital card issuance solutions, Entrust offers the industry’s most complete payment issuance solution by creating integrated, seamless physical and digital payment experiences for your customers.

For more details on our card issuance solutions, please contact us or visit the Entrust website: <https://www.entrust.com/issuance-systems/instant/financial-card>.



# Entrust Digital Card Solution key differentiators

## Leading certifications

- Visa VTS, Mastercard MDES, CB certified (also compatible with WISE and PURE)
- Live with all available use cases (Apple Pay, Google Pay, Fitbit Pay, Garmin Pay, Bank Pay, e-commerce merchants)

## Security

- World's first Visa security certified
- In-house leading security mechanisms and end-to-end encryption from back-end, TSPs to mobile
- Audited by world's toughest security labs

## Experience

- Provide a fully digital and unified card experience to your customers
- Bring convenient instant digital card services



## Innovations

- Offer latest digital card features and innovations directly in your mobile banking application

## Simplified integration

- Simplify your project by leveraging one single SDK to support all your digital card use cases
- Zero back-end integration possible
- White-label application to reduce your mobile development
- Saves issuer time and budget yet creates a high ROI

## Industrialized SaaS platform

- High-availability, -redundancy, -scalability, and -performance 99.9%, 24/7, EU PCI DSS data centers
- GDPR compliant/no personal data stored
- Automated delivery and tests (>45k tests per day)
- Continuous integration
- Full API

## Complementary or standalone

- Upgrade your existing banking app and card portfolio with leading digital card SDK or build new digital card programs for your customers with an all-in-one solution

## Payment expertise & global footprint

- With over 52 years of experience in payment card issuance solution, supporting issuers of any size in their card issuance strategy both for physical card and digital card.
- Serving issuers across the global, helping them issue different international payment schemes cards like Visa, MasterCard, JCB, Unionpay, AMEX and etc, and also other different domestic schemes like Brazil Elo, India Rupay, France Carte Bancaires, Singapore NETS and etc.



# Issuer benefits

- Ease of integrations with different CMSs and different TSPs via iTSP Hub
- Scalability: choose only what you need now, and extend when you are ready
  - Different schemes and TSPs
  - Credit card, debit card, prepaid card
  - Different mobile features
  - Digital card and/or physical card
- End-to-end lifecycle management of all digital cards (or tokens) issued
- Flexibility in choice of token requestor and TSPs
- Integrates with Apple Pay, Google Pay, and Samsung Pay
- Compliance with PCI DSS and GDPR guidelines; Visa and Mastercard
- End-to-end service and maintenance provided

For more details on the Entrust Digital Card Solution, please contact us or visit the Entrust website: <https://www.entrust.com/issuance-systems/products/software/entrust-digital-card-solution>.

For more information

**888.690.2424**

**+1 952 933 1223**

**sales@entrust.com**

**entrust.com**

## ABOUT ENTRUST CORPORATION

Entrust keeps the world moving safely by enabling trusted identities, payments, and data protection. Today more than ever, people demand seamless, secure experiences, whether they're crossing borders, making a purchase, accessing e-government services, or logging into corporate networks. Entrust offers an unmatched breadth of digital security and credential issuance solutions at the very heart of all these interactions. With more than 2,500 colleagues, a network of global partners, and customers in over 150 countries, it's no wonder the world's most entrusted organizations trust us.

Learn more at  
**entrust.com**



Global Headquarters  
1187 Park Place, Minneapolis, MN 55379  
U.S. Toll-Free Phone: 888 690 2424  
International Phone: +1 952 933 1223

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