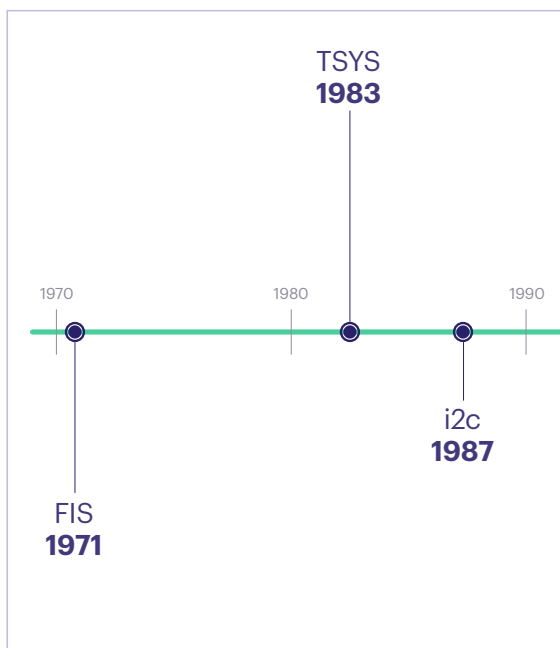MARQETA

» **A guide to understanding**
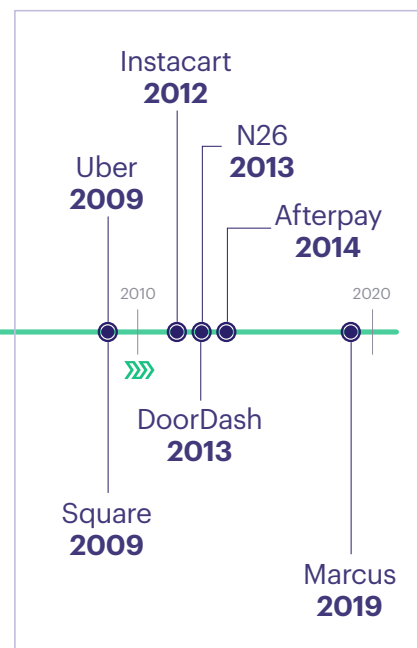
Modern Card Issuing

Some of **the most innovative disruptors in the world** needed more than traditional issuer processors could offer.

Legacy infrastructure was purpose-built and could **not easily be adapted** to new use cases.

Traditional issuer processors   **Innovators**

TSYS
1983

Instacart
2012

N26
2013

Uber
2009

Afterpay
2014

1970   1980   1990   2000   2010   2020

i2c
1987

DoorDash
2013

FIS
1971

Square
2009

Marcus
2019

They needed an issuer processor that let them **customize cards** and **control authorizations** in real time ... **so they turned to modern card issuing**.

MARQETA

Table of contents

》》 MARQETA

MARQETA

Part 1 | Introduction

Modern card issuing solutions:
fast to implement and get to market;
flexible and customizable;
and globally scalable

Part 1 | Introduction

Across industries, many of today's most most innovative business models have one thing in common: Their payment solutions are built on modern payment infrastructure. For many business and technical leaders, this comes as a surprise.

Legacy payments infrastructure has moved money reliably and within certain accepted constraints for decades, but it has rarely served as a differentiator.

» **Legacy payment infrastructure was the status quo up until around the mid-2010s when a group of fast-growing startups decided to raise the bar for payment solutions.**

The business models of these startups — including Uber, Square, Instacart, Afterpay, DoorDash, N26, and Marcus — required highly configurable payment cards and a simple way to manage payment programs. They turned to modern card issuing, a new way of issuing cards and processing transactions.

What is modern card issuing?

Modern card issuing is secure card issuing and processing delivered via an open API platform that enables card issuers to create customized payment card products that leverage just-in-time funding features, authorizing their end-users' transactions in real-time. Integrated with major global and local card networks, modern card issuing allows companies to build payment solutions to their exact specifications and launch them globally.

These solutions are often distinguished by fast implementation and time to market; flexibility and customization; and scalability, resilience, and security to execute on a global vision.

Facets of modern card issuing

A. Fast implementation and time to market

Legacy card issuer processors often offer a one-size-fits-all product.

Any customizations are typically done through consulting services to retrofit and completely redesign the product anew. This would not only lead to long development cycles, but the resulting solution would only be suited to meet present-day needs. Any future improvements might require a full redesign or reimplementation, slowing down an innovator's speed to market.

Industry disruptors want to be first to market, and need one-of-a-kind payment solutions that are ready to meet the changing needs of consumers and businesses around the world.

This means quick iterations and rapid prototyping that require an API-led approach where developers can take complete ownership over their product design and payment experience from start to finish, accelerating time to market and every step in between.

B. Flexibility and customization

One drawback of legacy processors is that they typically do not allow innovators to fully participate in the payment flow.

Card processing using a legacy solution meant determining a set of pre-defined payment processing rules, such as a fixed list of accepted merchants, with no ability to verify and modify these rules against real-time data.

While legacy processors were a viable solution for traditional card payments, more innovative card use cases often require active participation in the payment flow.

For example, on-demand delivery companies typically validate the merchant and exact transaction amount in real time before authorizing a payment. Similarly, point-of-sale lenders are able to provide near-instant financing at checkout by dynamically validating the merchant and transaction amount, while also evaluating the creditworthiness of the borrower. In other use cases, card spend can map to different customer loyalty levels that are updated dynamically based on a customer's buying patterns or social sharing.

C. Scalability

The architecture of legacy platforms tends to limit their customers' ability to scale.

Although many could boast of global operations, their global reach tended to result from the acquisition of many local processors. To launch in a new region, customers often had to re-implement their payment solutions. This could result in costly and time-consuming professional service engagements for integration and development for each new market.

Modern card issuing provides an easier path to market with a "build once and grow" model. DoorDash, for example, launched in the U.S. with Marqeta, expanded to Canada, and most recently to Australia. The company was able to implement the same payment solution across multiple geographies successfully.

APIs: at the top of today's payment agenda

Financial services application programming interfaces (APIs) have come of age as both neobanks and century-old institutions respond to consumer demand for fully integrated and personalized services.

While internal APIs enable banks to seamlessly share information between disparate systems, external or open APIs are emerging as the vital enabler underpinning new payments services.

The financial and non-financial institutions that use open payment APIs think differently about their payment strategies. They are adopting more granular functionality in place of traditional monolithic, silo-based payment systems, where individual tasks, such as the transaction clearing, reversals, refunds, and voids flowed through an opaque, closed process. This allows for the creation of new payment experiences, fast and more accessible financial services, and embedded and invisible payments.
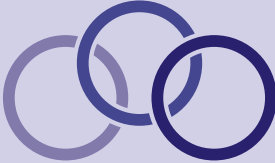
The evolution of payment APIs

Future:
Open, public APIs

Present:
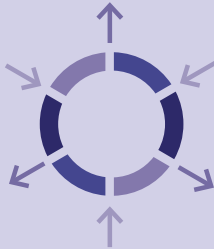Internal and partner APIs

Past:
Monolith solutions with bolted-on APIs

Opening up the opportunities within a broader ecosystem

With modern card issuing, each API calls a service and externalizes the response to other systems, opening up opportunities for innovation and collaboration within a broader services ecosystem.

In this way, modern card issuing APIs become the building blocks of full and customized workflows. For example, one API can create a card, while another requests authorization for a payment on the card, and a third API enriches the transaction data with additional metadata adding context to the transaction, such as order ID or customer location, and so on.

Integration of payment data with other data points

Additionally, APIs enable integration of payment data with other data points. The reality is that much of the valuable information about the consumer or the business context of payments sits outside of the actual transaction. Combining this information with transaction data can create powerful outcomes.

For example, the digital identity of the cardholder (including biometric information) can be a strong input into the card processing workflow, validating the payment not only by exact amount and location of spend, but also by the real identity of the cardholder.
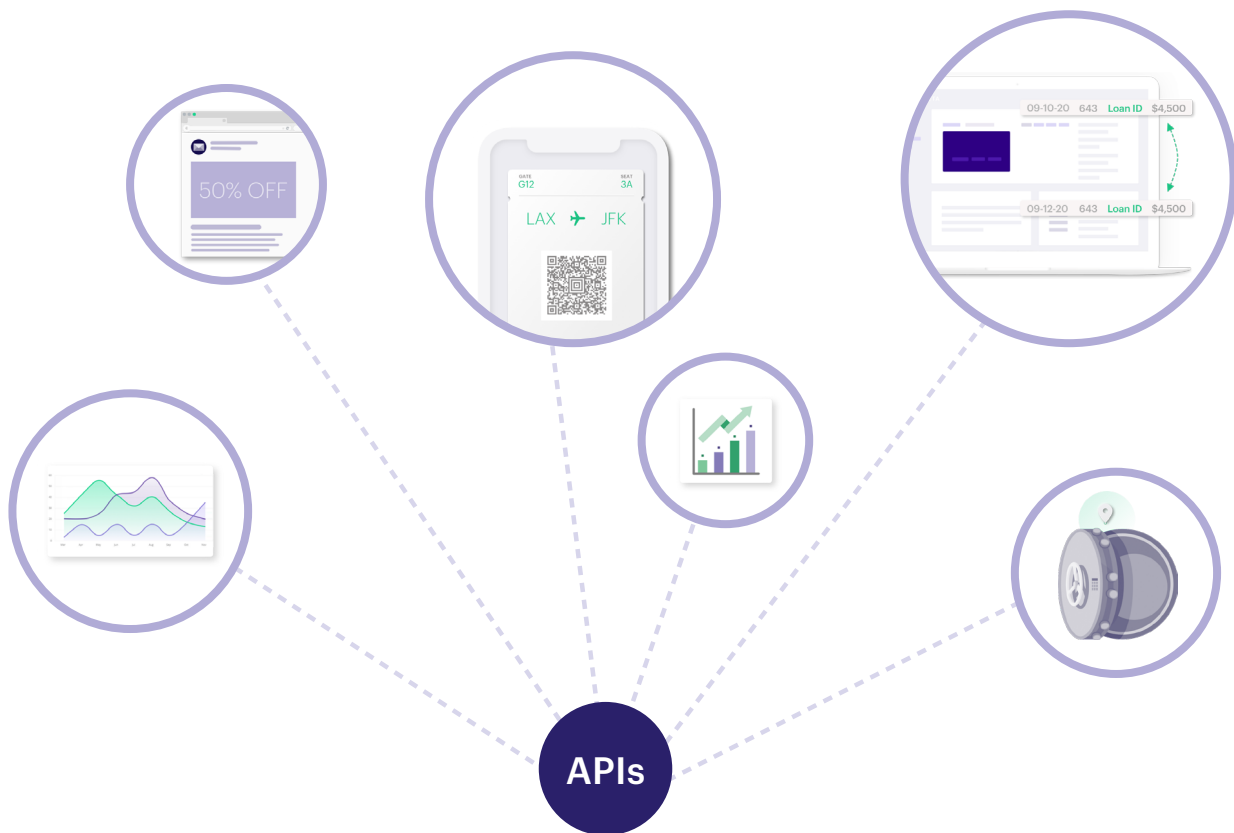
5 characteristics of modern card issuing APIs

1. Granular

Well-defined APIs break down ISO 8583 messages — the international standard for exchanging card transaction information — into granular components for third-party integration and construction of customized end-to-end payment flows. Having more fine-grained services will establish a better handshake between systems vs. a one-size-fits-all approach.

2. Comprehensive

Modern card issuing covers a breadth of services. There are card issuing APIs, funding APIs, security APIs, transaction processing APIs, integration APIs, data APIs, real-time webhooks, etc. *(See next page for details.)*

3. Designed for differentiation

Fully programmable, modern card issuing APIs support complex decision-making by adding new inputs to a payment processing flow. One example is a business lending application that proactively took steps to increase a customer's credit line by offering financing flex for big ticket items as their business expanded. Customers could be notified when a purchase exceeded their credit limit and could choose to use the flex option or not.

4. A self-service experience

Developers can easily try out ideas for new card products without entering into lengthy contract negotiations. They can customize, test, and issue cards in a private sandbox that is accompanied by clearly written, in-depth documentation, software development kits (SDKs), and simulation tools to guide them through the process.

5. Designed for performance

Payment APIs must be always available with guaranteed rapid response times. This requires elasticity to be built in, in order to meet operational requirements and support unpredictable volumes.

Checklist for a comprehensive API platform

✓ **Card-issuing APIs**
Create, update, order, or retrieve information about cards.

✓ **Funding APIs**
Define funding sources, move funds into an account, auto-reload, check balances, and create account hierarchies.

✓ **Security APIs**
Authenticate the identity of a requester.

✓ **Transaction-processing APIs**
Set spend controls, currencies, fees, cashback amounts, etc.

✓ **Integration APIs**
Integrate cards into digital wallets, mobile apps, or web applications such as ordering systems, or integrate new cases with card networks' dispute APIs.

✓ **Data APIs**
Gain visibility into the card program and pull global data in bulk or in aggregate.

✓ **Real-time webhooks**
Real-time notifications on card events such as authorization status, transaction completion, chargeback status, and more.

The role of APIs in next-generation payments

Digital wallets

Today, cardholders expect fast, secure, and safe payment methods at every place they shop, whether in-store, in-app, or online. This is accomplished with tokenization APIs.

With flexible APIs, card issuers can instantly and securely request a token, replacing sensitive card information such as a personal account number (PAN).

Secure surrogate data, called a token, can be push-provisioned into digital wallets or securely stored online with merchants for recurring and one-click payments. Updates happen without cardholder involvement.

Cards that are lost or stolen can be replaced without any effort by the cardholder, and cards that reach their expiration date can be extended without any cardholder action.

VISA

"31 million Americans tapped a Visa contactless card or digital wallet in March 2020, up from 25 million in November. The U.S. now has the most contactless cards of any market globally at 175 million, with nine of the top ten U.S. issuers actively rolling out new contactless cards to customers." [1]

Visa, April 2020
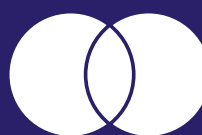
mastercard.

"Now, as consumers increasingly seek ways to get in and out of stores quickly without touching payment terminals, Mastercard data reveals more than 40 percent growth in contactless transactions globally in the first quarter of 2020." [2]

Mastercard, April 2020

Invisible payments

As seamless payments become more common, the line between purchasing and paying continues to blur. We see this most notably with Internet of Things (IoT) payments. One example is Amazon Go, a chain of convenience stores that allow shoppers to "grab and go" without a checkout experience. Currently, automotive industry leaders are also exploring how connected cars and payment apps can be used to create in-car payments. Soon we may pay for gasoline and drive-thru purchases without reaching for our wallets.

Modern card issuing can securely power these kinds of invisible payments using APIs.

Secure payments can be accomplished with a handful of API calls: one API call could authenticate the shopper with biometric information while another would prompt the card program to issue a virtual card for the purchase amount. A third API call could seek authorization based on the merchant ID and the geolocation of the cardholder through the modern card issuing platform.

The global market for connected cars is expected to grow **270% by 2022**, forecasting more than **125M cars with embedded connectivity by 2022**.[3]

Part 2 | Capitalizing on payment data

ISO 8583 messages define up to 192 data elements including everything from a cardholder's account number to the transaction amount, date and time, and currency type.

Part 2 | Capitalizing on payments data

Card networks worldwide rely on authorization protocols that are aligned with the international financial card transactions standard, known as ISO 8583. Governed by the International Organization for Standardization, ISO 8583 specifies the structure, format, and content of messages.

It currently defines up to 192 data elements including everything from a cardholder's account number to the transaction amount, the date and time, and the currency. Traditionally, these data elements were not easily accessible to card program providers. The messages themselves were difficult for developers to read, parse, and work with.

An open, developer-friendly payment flow results in a better UX

A modern card issuing platform simplifies ISO 8583 messages by converting them into the developer-friendly JSON format and pushing the JSON files to other system endpoints. The platform also replaces card network alphanumeric and character codes with more digestible labels.

Values such as 05, 07, 90, and 91, typically found in Visa field 22, become CHIP, CHIP_CONTACTLESS, and MAG_STRIPE, MAG_STRIPE_CONTACTLESS respectively. Leveraging JSON accelerates coding, speeds new card product development, and creates easier integration with modern applications. As a result, a wider pool of developers becomes available to create advanced payment solutions.

Additionally, modern card issuing enables card program providers to participate in the

authorization flow by allowing them to append custom metadata to ISO messages.

The classic example of this involves appending an order ID to the authorization approval message. This metadata comes in handy later while reconciling transactions with order management systems.

Another benefit of opening up the payment flow is the ability to do transaction matching. Matching authorization messages at the time of the sale to events that are processed by the networks after each transaction — such as clearing records, reversals, refunds, voids, etc. — allow a business to release holds on cardholder funds with confidence and to provide better customer experiences.

The possibilities of an open payment flow

On-demand delivery companies were among the first to realize the opportunities created by an open payment flow. By leveraging modern card issuing APIs, they were able to streamline their payment solutions to respond to ISO 8583 data elements as transactions occurred. This allows them to authorize payments in real time and to dynamically apply big data insights and artificial intelligence to payment decisioning.

Implementing real-time authorization controls reduces the risk that a transaction that did not meet a card program's criteria will be mistakenly approved by a third-party processor. This not only helps minimize fraud, it enables business models based on smarter, more sophisticated payment solutions.

Authorization requests from people, organizations, apps, and devices can be integrated into payment workflows. For example, an AP automation platform can be set up to send a recurring payment to certain suppliers. Once the payment authorization request comes through, the system can check if supplier shipments have been received by checking a field. If the status of that field says "received" payments to suppliers can be released.

Futuristic scenarios such as refrigerators that restock themselves or IoT devices that pay for their own bandwidth are also enabled by an open payment flow.

Examples of open payment flow
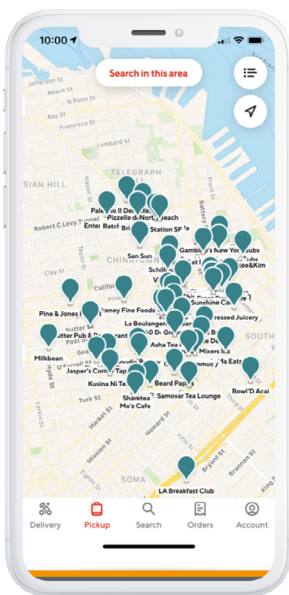
Enables DoorDash to only approve and fund transactions that match the exact merchant ID and total amount of the order to help prevent fraudulent activities
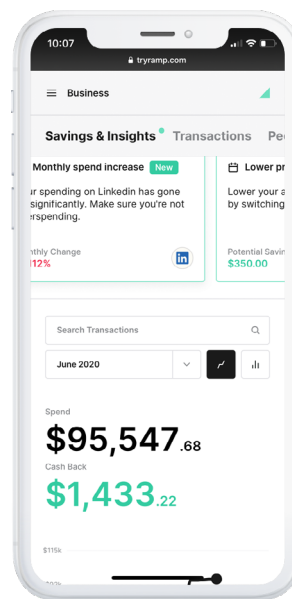
Enables Ramp's expense cards to limit a card to a single transaction type, or to a specific merchant or charge amount to help prevent unauthorized charges

Ensuring payment security

Since 2004, payment card security has been governed by the Payment Card Industry Data Security Standard (PCI DSS). Entities of any size that store, process, or transmit card information must comply with the technical requirements laid out in the standard, although levels of compliance vary. PCI DSS level 1 is the highest and most stringent of the PCI DSS levels, and is required for those that process more than 6 million card transactions annually. Level 2, 3, and 4 are requirements set for those that process fewer transactions annually.

To help their customers reduce their PCI scope, modern card issuing platforms provide security widgets that let card program providers securely display sensitive card data in an application or on a web page using an iframe.

Using these widgets, program admins can activate cards, and cardholders can set their personal identification numbers (PINs). During these operations, sensitive card data does not leave the environment of the modern card issuing platform.

In contrast, legacy providers pass on primary account numbers to their card program providers, requiring them to invest in PCI DSS compliance.

In addition to PCI DSS, modern card issuing platforms often maintain compliance with PCI 3DS and complete SOC 1 and SOC 2 compliance certifications, as well as bank-grade encryption for personally identifiable information (PII), payment card industry (PCI), and personal identification number (PIN) for data in transit and data at rest.

PCI DSS sets the operational and technical requirements for organizations processing payment transactions

LEVEL 1	6M + transactions/year
LEVEL 2	1–6M transactions/year
LEVEL 3	20K–1M transactions/year
LEVEL 4	< 20K transactions/year

Modern card issuing platforms provide **security widgets** that enable card program providers to reduce the scope of any **required PCI DSS compliance.**

From chip cards to biometrics: keep up with rapidly evolving technology

After reaching a peak of 7.2 cents per $100 in volume in 2016, payment card fraud has steadily declined. It is expected to reach 6.8 cents per $100 in volume in 2020 and to continue to fall for at least the next seven years.[4]

The reduction in fraud may be driven by new technologies. In-store purchases, also known as "card present" transactions, are increasingly protected by EMV chips, which generate a unique code for each transaction that can be used only once. And online transactions, known as "card not present," are benefiting from 3D Secure, a protocol for requesting additional verification information.

» **When a cardholder checks out in an online store, the merchant domain can request 3D Secure.**

This request sends a message to the card network domain, along with data about the transaction.

The card network then routes the request to the access control server on the card issuer domain. Modern card issuing platforms give card program providers the choice to automate decisioning by applying preconfigured rules or to delegate decisioning to internal risk systems via an API.

Whether decisioning is automated or delegated, card program providers can decide whether to request one-time passwords or leverage biometric information. They can also dynamically set the threshold for when additional verification is needed depending on factors such as the amount of a purchase or whether it is recurring.

The upside of 3D Secure is more secure transactions. The downside of 3D Secure is additional integration. However, the amount of integration can be minimized when card programs are built on a modern card issuing platform.

VERIFICATION REQUIRED

Mobile biometrics are expected to authenticate U.S. **$2 trillion** in in-store and remote **transactions in 2023**.[5]

Fighting fraud with payments data

The nature of payment fraud is changing as fraudsters adapt to new regulations and new fraud-fighting technologies like EMV chip cards and 3D Secure. At the same time, card program providers face an ever-present trade-off between effective fraud-fighting tactics and the need for a smooth customer experience.

Modern card issuing helps customers meet these challenges with a data-driven approach. Authorizing transactions and funding cards in real time based on a verified purchase amount and

a verified merchant can limit the opportunity for fraud to occur.

In addition to locking down a transaction, ISO 8583 data, such as cardholder location and merchant location; and authentication variables, such as whether a card is present or a pin or signature is used, can all be matched to known fraud patterns and used to create a fraud score.

ISO 8583 data can also be mined during post-transaction analysis to identify new patterns or update existing ones.

Secure advanced card programs with multi-layered card protection

Configurations such as "chip and PIN" or "chip and signature" where the cardholder's identity is verified by their signature or by a PIN

Card holder authentication using advanced 3D Secure for online transactions and EMV chip and PIN for in-store

Real-time authorization based on verified amounts, merchant, time, day, location, and various other spend controls

Real-time fraud scores to flag unauthorized charges and fraudulent transactions

Rich data insights for post-transaction analysis of fraud patterns

Card programs with global scale

A modern card issuing platform is a single, global platform grown organically. This allows for a build-once, deploy-anywhere approach and does not require card program providers to re-implement processing rules within each region. In contrast, platforms that have expanded through acquisitions require separate integration with each acquired processor, incrementally adding complexity to program implementation and extending go-to-market timelines.

The ability to use a single modern card issuing platform across multiple card networks — such as Visa, Mastercard, Discover, ATM, and local debit schemes eliminates the need to integrate with each one of these networks individually. Unaffiliated networks that are supporting prepaid and debit cards through the Durbin Amendment can also be unified on a single platform.

The characteristics of modern card issuing platforms are particularly suited to large tech companies that already operate on a global scale. As companies like Google and Facebook move deeper into payments via mobile wallets, credit cards, checking accounts, and cryptocurrency they are increasingly partnering with modern card issuing platforms.

> **With over 2.7 billion monthly active users, Facebook is the biggest social network worldwide.[6] A Facebook payment card would dwarf Bank of America's 54.6 million cards in circulation.[7]**

Advanced technology is shifting consumer behavior, making modern card issuing platforms more relevant than ever

As connected devices become increasingly common in our daily lives, IoT manufacturers are also looking at modern card issuing platforms that can enable consumers to pay from a variety of locations.

These locations include: at home (from smart speakers such as Amazon Alexa and Google Home), in the car, and from smartwatches. As of today 31 million people have used smart speakers to shop for groceries, order takeout, or even call a plumber.[8] We are also expecting to see 125 million connected cars shipped globally by 2022.[9]

MARQETA

Part 3 | Advantages of modern card issuing

1. **Fast and simple to build**
2. **Flexible**
3. **Trusted**
4. **Globally scalable**

1 » Fast and simple to build

With a private sandbox, self-service sign-up, and open APIs, a modern card issuing platform gives you the ability to move quickly. Instead of passing on each new card configuration to your card issuer, you are the builder and can control your time to market and speed of change across the following domains:

Launching a card program

Start with your private developer sandbox where you can build, test, and launch cards quickly. Gain full control and flexibility in customizing your card experiences without involving your card issuing vendor.

Managing the lifecycle of your card program

Use APIs that enable you to cover the entire card-issuing spectrum once your card program is up and running. For example, use APIs to set or update exempted merchants; resolve ongoing disputes; manage damaged, lost, or stolen cards; or change countries of operation.

Meeting regulatory compliance

Use PCI-compliant widgets that enable you to instantly display your card in mobile apps and enable PIN activation without having to go through PCI certification.

Growing your card program

Leverage APIs that work universally across all regions. For example, add new cardholders and run them through a Know Your Customer (KYC) verification process or order new card inventory in bulk.

MARQETA

Modern   vs.   Legacy

Self-service

Modern platforms enable developers and product leaders to try, test, and configure cards in their own sandbox environment leading to faster time to market.

High touch

To access a sandbox environment, legacy platforms require you to go through a sales process. Launching new card configurations are also more challenging and typically require submitting new card configurations via paperwork, which can delay your time to market.

Flexible APIs to drive change and adaptability

Modern platforms are designed for digital builders. They provide actionable APIs to grow and scale a card program, covering the entire spectrum of card creation and customization all the way to change management.

Purpose-built APIs

Purpose-built APIs are typically geared towards retrieving existing information for integration purposes vs. creating new products.

Common legacy APIs can retrieve cardholder data, account status, and transaction history. They can also perform simple functions such as account transfers, requests for a new PIN, activating and deactivating a card, or updating billing. Changes to your program can involve custom services, resulting in hefty costs.

Reduced PCI scope

Modern platforms enable you to immediately display your card in your mobile apps and enable PIN activation without having to go through PCI certification.

Lengthy PCI process

Legacy platforms usually lack PCI-compliant widgets. To reach PCI compliance you would typically need to go through a lengthy certification process.

Modern   vs.   Legacy

Tokenization and digital wallet enablement

Instantly issue virtual cards or provision your cards into digital wallets to extend your program's reach. To enable this, modern card issuing platforms have built integrations with digital wallet providers such as Apple Pay and Google Pay and with global card networks such as Visa and Mastercard. Modern card issuing platforms also provide encrypted/tokenized virtual card data that card program providers can easily use to integrate with digital wallets.

Lack of digital access

This includes instant issuing, tokenization, and provisioning of virtual cards into digital wallets for immediate use.

Use cases such as enabling on-demand delivery workers with contactless payments, as well as point-of-sale lending scenarios where the borrower can immediately access their loan proceeds via virtual cards in their digital wallets, depend on these capabilities.

Reduce development burden by creating actionable data

Modern card issuing platforms simplify, parse, and standardize ISO 8583 messages, translating them into key-value pairs formatted in JSON. They also replace numeric codes with natural language labels that are easier for developers to work with. This data is pushed to customer endpoints, allowing card program providers to participate in authorization requests. Modern card issuing platforms also keep up to date with the different implementations of ISO 8583 across the world as they evolve, adding new fields and codes.

Data is not easy to consume

Legacy platforms typically do not provide an easy-to-digest JSON key-value pair version of ISO 8583 messages or push this data to their customer endpoints to ease the integration. Therefore, if participating in the payment authorization flow is required, a payment innovator will have to build integrations with the card networks in order to receive and respond to ISO messages. This ultimately delays time to market and leads to long implementation cycles.

2 » Flexible

Modern card issuing platforms come equipped with their own processing engines. And because they have parsed and interpreted the ISO 8583 messages, card program providers can participate in your cards' authorization and transaction decisions. They also have the ability to use dynamic spend controls to customize the behavior of cards.

Expense management programs illustrate how flexible you can be with dynamic spend controls

Imagine an expense management program where the daily limit for all cards is capped at $2,000. Within this program, a modern card issuing platform can define multiple card products, each with its own characteristics and behavior, but all capped at the spend limit of $2,000 per day.

An executive card could have a $5,000 monthly limit, and all executive team members can each use a $5,000 monthly total, but the entire spend could not exceed the total $2,000 per diem defined at the program level.

A project-based card could be defined as a multi-use card with a monthly limit of $3,000. This could be used at certain merchants such as Staples or Office Depot. Similarly, all cardholders associated with this card product can spend up to $3,000 per month, but in total they can not go over $2,000 per day.

Customizable features of a modern card platform

● ——— **Preset controls such as list of accepted merchants, time, and date**

● ——— **Dynamic controls such as geo-location of the cardholder or real-time price**

● ——— **Real-time data validation and notifications, programmable through APIs**

Modern   vs.   Legacy

Dynamic spend controls

By opening the payment flow, modern card issuing platforms empower you to validate and authorize your card transactions against criteria such as spend amount and the time, date, and frequency of your transactions, as well as a list of merchants, a specific merchant, countries, and currencies, or even dynamic data such as the geolocation of the cardholder or their risk profile.

Fixed spend controls

With legacy processors, spend controls are always preset and are not dynamically validated against live data such as geolocation or a customer's loyalty score. So even though a card can limit spend to only a list of preapproved vendors, this data has to be hard-coded and can not be dynamically retrieved from another system. This creates limitations for many use cases, including the travel and expense management cards explained above.

Customization across all aspects of your card program

With modern platforms, customization can be reflected across the entire card lifecycle including in card art, design, and messaging, as well as card authentication for both "card present" and "card not present" scenarios. Not all card issuing platforms offer built-in 3D Secure authentication for "card not present" scenarios. Those that do enable you to customize your cardholders' authentication experience by integrating it with, for example, your biometric app.

Limited customization

Legacy card issuers often have only one printing facility, which limits card design and branding options, which can mean long shipping times depending on the customer's location. Additionally, they don't offer built-in 3D Secure authentication, requiring you to work with a third-party provider, which consecutively will result in additional integration and vendor management responsibilities for you.

MARQETA

3 » Trusted

A modern card issuing platform provides a trusted environment for payment processing through security, data insights, and real-time notifications.

| Modern | vs. | Legacy |

Security

Storing or transporting sensitive card and transaction information requires a PCI-compliant cardholder data environment (CDE). Becoming PCI compliant is not a simple undertaking. PCI compliance ranges from level 1 to 4. The certification process takes 6 to 12 months and requires significant resources.

Using an already-certified modern card issuing platform removes these barriers. These platforms also provide widgets to help you secure, display, and activate cards and set PINs in your web and mobile applications without any additional development effort.

Lack of security widgets

Although legacy platforms are required by the networks to get certified and annually validate PCI DSS compliance, these platforms usually don't provide the security widgets to minimize PCI scope for their card issuers.

Card program providers who are processing on these platforms would need to obtain PCI DSS certification on their own in order to exchange card information with these processors or display sensitive card information in their applications.

Modern   vs.   Legacy

Data insights

A modern card issuing platform provides insights across the entire card lifecycle in one unified platform. This includes data about issued cards and their inventory, card usage and cardholder behavior, analysis of all transactions across all locations and merchants, as well as data about chargebacks and disputes.

The data is available through exposed APIs and endpoints as well as through pre-built reports and data visualizations. Through the use of APIs, a modern card issuing platform can expose a larger breadth of raw data about its cards to you, so you can build your own data visualization, discovery, and analysis. You can also use this data to create your risk and machine learning algorithms to find growth trends or develop predictive risk behaviors.

Limited and fragmented reporting

In contrast to the raw data offered by modern platforms, legacy solutions typically provide only out-of-the-box reports, which offer a narrow view of the information and limit free data exploration and analysis.

Additionally, on a global level, the information can be fragmented. Instead of unified reporting, data is collected by each processor. Card program providers have to combine reports to get the global view that is available as a default on a modern card issuing platform. Only in this way can card program providers understand spending patterns across regions and cards and identify opportunities for growth and risk mitigation across geographies.

Real-time notifications

Modern card issuing platforms provide the ability to trigger alerts based on contextual data points. With an event-driven design, a modern card issuing platform uses push notifications to send real-time updates about your card operations or transaction fraud. You can use these notifications to take action or to pass information to your cardholders.

Lack of immediate insights

Legacy platforms are built on dated technology and do not carry modern web design and development requirements, and therefore do not offer real-time notifications.

MARQETA

4 » Globally scalable

When scaling your card program, modern card issuing platforms ensure that you are able to handle expected and unexpected increases in usage as well as the steady growth of your program adoption.

Modern vs. Legacy

Build once, deploy anywhere

A modern card issuing platform is designed for a build-once, deploy-anywhere approach and does not require you to integrate with each local card network separately.

Reimplementation in each region

While legacy global issuer processors operate at scale, their reach into global markets has generally been accomplished through acquisitions. Having a global brand often has meant acquiring several regional processors.

For businesses looking to grow quickly, global expansion with a legacy solution may mean lengthy and expensive reintegration and reimplementation in each new region.

Modern   vs.   Legacy

Auto-scaling and on-demand elasticity

Modern platforms provide a single, global cloud infrastructure that automatically and elastically scales as your traffic and transaction volume grows. New resources are spun up as needed. Redundancy, disaster recovery, and failover are built in.

High-cost capacity planning

Legacy platforms don't run on modern cloud infrastructure and as a result scalability becomes a manual task. As your program grows, there will be times where you need to spin up new resources. A legacy provider will help you identify the needs and statically set additional computing resources to ensure optimal utilization and responsiveness.

Resiliency and full backup service

Modern platforms not only allow you to design your own system endpoints to directly participate in the payment authorization flow, they provide a VIP service that provides authorization services when your endpoints are unavailable.

This service can be implemented based on your business rules and ensures business continuity even if your own infrastructure suffers under unusually high transaction volumes or outages. Additionally, the platform stores any unsent webhooks for later transmission, so that card states and account balances on your system correspond with activity that occurred while this service was in effect.

Limited service

Legacy platforms, on the other hand, don't offer an open payment flow for you to take part in authorizing your transactions in real time.

Therefore, they don't need to assume the responsibility for keeping track of your card states or account balances when your system fails.

Legacy platforms diverge any stand-in processing (STIP) to the card networks, which, in turn, puts the responsibility back on you to reconcile your internal transaction records during the time of the outage with the balance updates that occurred while the card networks STIP service was in effect.

Closing thoughts

In the several years since its debut, modern card issuing has helped card program providers overcome daunting challenges. The early adopters of modern card issuing — Uber, Square, Instacart, Affirm, DoorDash, and N26 — had to overcome steep barriers to entry, shifting demographics, rising customer expectations, and changing regulations. Innovators in their space, these companies needed a new way of thinking about traditional payment services.

Since then, these new entrants have grown to be leaders in their own right.

No longer scrappy startups, they relied on modern card issuing platforms to set the agenda for commerce in their respective industries. Their success is a testament to their vision and execution, and also to the importance of adopting the right technology at the right time for the right reason.

To follow the example set by their success, others must learn from their use cases and the underlying technology that has enabled their payment solutions to form custom experiences and new modes of money movement.

Sources:

1. Visa, April 2020
   https://usa.visa.com/visa-everywhere/blog/bdp/2020/04/30/merchants-and-consumers-1588276426783.html

2. MasterCard global consumer study, April 2020
   https://www.businesswire.com/news/home/20200429005592/en/Mastercard-Study-Shows-Consumers-Globally-Make-the-Move-to-Contactless-Payments-for-Everyday-Purchases-Seeking-Touch-Free-Payment-Experiences

3. Research and Markets, November 2020
   https://www.globenewswire.com/news-release/2020/11/19/2129803/0/en/Global-Connected-Car-Market-Outlook-2020-Overview-of-how-Tech-Companies-are-Helping-Automakers-with-their-Connected-Car-Strategies.html

4. Nilson Report, Nov 2019
   https://nilsonreport.com/upload/content_promo/The_Nilson_Report_Issue_1164.pdf

5. Accenture 2020 trends
   https://www.accenture.com/_acnmedia/Thought-Leadership-Assets/PDF-2/Accenture-Fjord-Trends-2020-Report.pdf

6. J. Clement November 2020
   https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/#:~:text=With%20over%202.7%20billion%20monthly

7. List of Major Credit Card Companies & Card Networks [History, Most Popular Cards, and More]
   https://upgradedpoints.com/list-of-credit-card-companies

8. eMarketer Industry Insights, Jul 2019
   https://www.emarketer.com/content/smart-speaker-shopping-gains-traction

9. Counterpoint research April 2018
   https://www.counterpointresearch.com/125-million-connected-cars-shipments-2022-5g-cars-2020/

About Marqeta

Marqeta is the modern card issuing platform empowering builders to bring the most innovative products to the world. Marqeta provides developers advanced infrastructure and tools for building highly configurable payment cards.

With its open APIs, the Marqeta platform is designed for businesses who want to easily build tailored payment solutions to create best-in-class experiences and power new modes of money movement. Marqeta is headquartered in Oakland, California.

For more information, visit www.marqeta.com, Twitter and LinkedIn.