MARQETA

WHITEPAPER

The complete guide to selecting the right card processor

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Introduction

Today, billions of transactions happen in a matter of seconds between merchants, processors, card networks, and banks. A terminal at the store, an online webfront, or a back office process initiates the transaction. The payment information is sent from the merchant processor to the card network and to the issuer's processor for approval. After checking to ensure that the transaction information is valid, the issuer/processor authorizes the card holder to make the purchase. Then, the issuer/processor sends the authorization response back through the card network, and it ends up back at the merchant terminal with a response to the card holder.

The entire process happens in a few milliseconds — and while it may sound simple — there is a lot of complexity that the issuer/processor should be able to handle. Selecting the right processor — the one that is right for you — will make a big difference.

In this whitepaper, we will walk you through the different processing options to help you make the right choice.

Choosing the right processor: legacy and modern options

When launching a new card program and choosing the right processor, you have a few options. One option is to build your own. However, knowing that it has taken a decade, or in some cases longer, to perfect and market-test a card processing engine for the vendors already in this space, this is unlikely the path you want to choose.

The second option is to go with a legacy processor — one that large financial services firms use to process the credit or debit cards they issue. Unfortunately, legacy processors typically use antiquated systems that still utilize mainframe-era technology. Although this type of technology generally scales well, it lacks flexibility and customization.

Even if your legacy processor offers APIs to offer some level of customization, being beholden to older backend processor configurations will severely constrain the user experiences you can offer your card holders.

From a consumer's perspective, this often manifests itself in frustration when customer experience with cards seems stuck in the 90s, without true innovation outside of rewards and pricing.

Also, beware of legacy processor software contracts. They are typically 3 to 5 year contracts. A lot can change in this time period, and being stuck with a legacy solution can put you behind the market and limit your ability to serve future customer needs.

Modern card issuing and processing engines offer customization of spend controls to create a personalized experience. They are also built on modern technology, infrastructure, and programming languages. They provide open APIs, so your systems can directly communicate with these processors without the need of an extra "translator" layer. This consequently lowers your development efforts and speeds time to market, not to mention making changes and configuration updates a lot simpler and faster.

For innovators who are looking to issue their own branded cards, another option exists: Modern card issuing.

Ground your evaluation in 3 critical factors

To ensure you select the right processor, consider solutions that can help you rapidly go to market but not at the cost of being generic — and ultimately think long-term and examine the processors that can give you the ability to grow your user base and generate revenue through adoption.

To ground your decision, let's analyze these three core pillars in detail.

- Unlock the power of customization.
- Lower development time and effort.
- Build a path to global scale.

1. Unlock the power of customization

1.1. Open APIs and sandboxes

Develop a try-before-you-buy mentality — where you can experience the technology without going anywhere near a contract. Look for solutions that provide publicly documented APIs, extensive developer guides, and immediate access to a sandbox environment to help you develop a prototype easily and gain visibility and transparency into the strengths of the systems. With this approach there is no need to request a sales person to contact you and go through qualification hoops before you gain access.

Ever since the U.K.'s Open Banking Standards were introduced at the start of 2018, Open banking initiatives continue to advance and proliferate across the world.

As APIs are set to play a vital role in open banking, you want to ensure that your card programs embrace such a change to drive innovation and provide integrated payment experiences for your consumers.

Capgemini World FinTech Report 2019 states that 89% of banks leverage APIs to collaborate with fintech firms as part of their business strategy.

1.2 Advanced controls

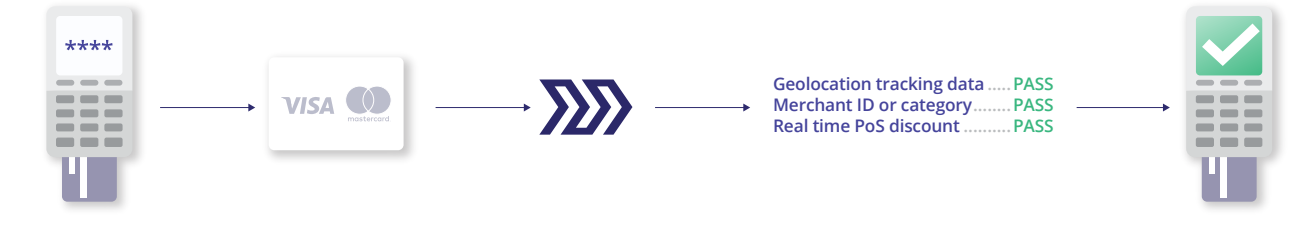
To avoid creating generic card products, you should look for solutions that let you configure your transaction authorizations in a very granular way (e.g., personalize your cards to allow transactions at specific merchant or merchant categories, or to enable transactions over a given period of time at certain merchants). These controls should be applied in real time.

You can also achieve maximum flexibility by layering your controls. For example, you can decide to limit a card spend to $100 per diem general, but only $20 of that on ATM withdrawals.

1.3 Participating in the authorization decisioning

Note that only some processors offer you the flexibility to participate in authorization decisioning in real time. While you may not need this feature for scenarios where your card program is designed to check a series of predetermined parameters (e.g., only approve transactions for certain merchants) to authorize transactions, in order to create a differentiated experience you may want to consider another option.

To participate in the authorization decisioning, your processor would pass the authorization requests to your system, so you can take part in approving or declining each transaction in real time. This gives you the ability to customize the approval logic in a way that makes sense for your business. For example, you can decide to have part of the transaction approval criteria include whether an on-demand service courier is on shift at that moment, or perhaps whether the merchant's location matches the GPS coordinates of the courier. This gives you the power to create unique controls using data that the issuer/processor doesn't have or using a data point that is not available in a predetermined fashion.



2. Lower development time and effort

2.1 Latest card-related technologies

With the latest innovations in payments, integrating with the newest card-related technologies is critical to your success.

When card networks release new features, your processor needs to quickly support those features. By using a modern processor, you will ensure that your customers get the most forward-thinking offerings in payments, and you, in turn, gain higher card adoption and a competitive differentiator.

For example, by providing push-provisioning into a digital wallet you will enable immediate transactions, providing your consumers with access to funds using just a click of a button from their mobile app while they wait for physical cards to arrive in the mail. This means immediate revenue for you.

3D Secure is another example of technology advancement. While it is not common for processors to build their own 3DS access control servers in-house, some do. Processors that have built their own 3DS technology in-house provide a couple of advantages. First is the economics, as you don't have to pay another vendor for 3DS. Second, you don't have to worry about the security and process of transmitting data between the processor and a separate 3DS provider.

2.2 The complications of ISO 8583 messages

ISO 8583 is an international standard for systems that exchange financial transactions initiated by payment cards. It defines a message format so that different systems can communicate card transaction requests and responses.

Processors use ISO 8583 messages to communicate with card networks. These are complex message types that are difficult to parse and interpret. If you are participating in the authorization decision, then looking for a processor that takes on the burden of handling these messages will be advantageous to you. If the processor offers the ability to participate in authorization decisioning, pay attention to whether the processor is just passing you the ISO messages or whether the messages flow through their platform.

For one, if the messages are just passed to you, you would need to parse and standardize these messages and keep up with the periodic format changes from the card network. Secondly, you would be responsible for additional services, which will cost you operational overhead.

USD 2.25 billion

2020: 22.4%

According to a Research and Markets report, the worldwide tokenization market is projected to reach USD 2.25 billion by 2020. This growth will reach a compound annual growth rate (CAGR) of 22.4%.

Let's explore these complications.

Development time and effort to decode ISO 8583 messages

Developers approaching ISO 8583 often incorrectly expect that this is a simple matter of coding to network specs.

However, coding to spec is the basic foundation. Once you get to production, you will experience situations that are not always to spec. Merchants sometimes send data they aren't supposed to and the card networks allow it, even if it's against the file spec. An issuer/processor that has been doing this for years has seen, encountered, and reacted to a wide variety of these types of scenarios. This is an ongoing process since merchant software is ever-changing.

For example, the card network may mandate message changes that merchant acquirers do not properly adopt on time. If an issuer/processor responds to an ISO 8583 message strictly according to spec they may find their cards declining in the market because some merchants aren't prepared to consume the data is being properly sent. Using an issuer/processor with a hardened platform can help prevent having to discover and address these scenarios on your own.

Supporting specs from multiple card networks

In some markets, issuer/processors are also mandated to support multiple card networks. For example, in the U.S., the Durbin Amendment requires an unaffiliated debit network to be supported for prepaid and debit cards. These card networks also include fee-free ATMs and local debit schemes. Although ISO 8583 messages typically share common fields across card networks, there are a large number of fields that are not consistent across all card networks, or are unique to a specific network.

This means that you may need to parse and standardize multiple specs and manage periodic updates across multiple card networks. Networks generally release updates once per quarter, which require development and certification efforts.

Managing authorization holds and releases

Touching ISO messages also means you need to implement the rules around when authorizations should expire. This is governed by a series of guidelines. For example, hotels and car rental charges are held typically for 30 days, as opposed to the typical 7 days. You would need to take these rules into account when you control the parsing and implementation of ISO messages.

Transaction matching post authorizations

Another challenge in developing your own ISO parsing is transaction matching, which requires an extensive development cycle.

Transaction matching happens when you are matching authorization messages to things that are delivered by the networks after each transaction — such as clearing records, reversals, advices, and incrementals. Poor matching algorithms can lead to cardholder funds being held up or released in incorrect ways, which subsequently result in bad user experiences. Unfortunately, card networks don't provide unique keys that can consistently be used to match the transactions. Most issuer/processors have developed their transaction-matching algorithms over a long period based on incremental market learnings.

Managing PINs

Touching ISO messages also may mean that you have to manage personal identification numbers (PIN)s on your own, which requires you to generate and store secure data. You also need to become payment card industry (PCI) compliant as there are strict rules as to how PINs are stored and transmitted. Additionally, you must manage the encryption of keys with card networks and card fulfillment providers. Another layer of complexity is enabling offline PINs which require you to embed each PIN within each card's EMV chip that can be periodically updated.

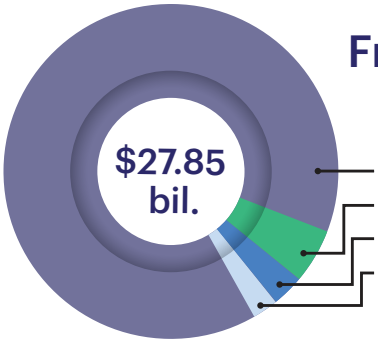
2.3 Data insights

Data is a critical part of any card program, as it enables program oversight, reconciliations, and fraud management. Look for a processor that provides rich data insights in multitudes of ways such as:

- Real-time transaction authorization data to participate in the approval process
- Notifications in real-time when a transaction clears or a card is declined
- Search and lookup capabilities to find a certain cardholder or tokenized card
- Data view APIs that you can pull for specific scenarios
- Tabular and aggregated views for reporting or reconciliation work
- Data visualizations to help you see trends and patterns

2.4 Risk scoring

Real-time risk scoring and decisioning protects your loyal customers and helps you save on chargebacks. Ensure that the processor is able to provide you ways to evaluate each transaction's risk in real time, and open APIs so you can implement your own fraud rules if you desire to do so.



Fraud by Type of Card 2018

Type	Fraud ($bil.)	Volume ($tril.)	Per $100 in Vol.
Global Brands[1]	24.86	33.731	7.37¢
ATM[2]	1.58	1.947	8.13¢
Domestic[3]	0.81	4.001	2.01¢
Private Label[4]	0.60	0.903	6.68¢

[1] Visa, Mastercard, UnionPay, AmericanExpress, Diners, Discover, and JCB.
[2] From transactions processed by nonglobal networks such as Cirrus and Plus.
[3] Maestro, Elo, Rupay, Interac, Cartes Bancaires, Mir, and 82 others.
[4] Includes store, gasoline, airline, medical, ACH debit, prepaid, etc.

Source: *https://nilsonreport.com/upload/content_promo/The_Nilson_Report_Issue_1164.pdf*

In November 2019, card fraud losses reaches 27.85 billion, an increase of 16.2% from $23.97 billion from 2017

3. Build a path to global scale

3.1 Modern infrastructure

Meeting customers' growth demands requires having modern architecture that can take on significant volumes. Legacy solutions, while scalable, require capacity planning, procuring additional servers, and configuring a scaleout architecture. Their lack of agility to bring new functional enhancements to market can subsequently impact user experience.

Modern infrastructures are typically built on cloud hosts, and inherit the elasticity of auto-scaling resources and multiple failover zones. This matters because it enables you to grow your customer and user base while maintaining a highly performant system. With on-demand growth comes instant issuing of cards for thousands of users and real-time transaction processing, while customizing the transaction rules according to your specifications.

3.2 Global integrations

Expanding to new geographies should never require you to deal with different technologies, different integrations, and different processes. Ensure that you select a processor that has built global integrations to reduce your time and effort in expanding your programs.

3.3 Administration tools

Having a single, unified interface to manage your card program is critical to your growth. You may want to run a simple search for transactions, update user information, manage a card's lifecycle, run reports, and more. Having your processor platform provide rich administration capabilities is especially important if you are not PCI certified.

Closing thoughts

As you launch a new card program or continue to personalize your card products and attract new customers, you also need to ensure that your underlying processor is fully equipped to handle growth and customization.

While legacy processors offer scalable technology, they are limited in customization and are often high in cost. To offer personalization beyond the simple rewards programs of these legacy processors, you should use processors on modern infrastructure with open APIs and dynamic spend controls.

Ensure that you calculate the costs of implementing and upkeep the complexities introduced by the networks on a continuous basis. For example, if you decide to implement the parsing and standardization of ISO 8583 messages, ensure that you account for continuous upkeep of modified fields and message format. To reduce your burden, look for processors that don't just pass these messages from the network on to you.

Also, if you are not PCI-certified, be wary of things that require you to be. For example, if you will need to take in, store, and manage sensitive card information such as PINs. PCI certification is a large lift with ongoing upkeep and audits.

Lastly, always look out for a processor that incorporates the newest card technologies so you can be at the forefront of payments innovation. This will help you drive adoption faster, and offer your customers the most advanced features before they become ubiquitous.

Want to learn more? Please contact partner@marqeta.com