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Card Issuing

How does card issuing work? [Check here.](#)

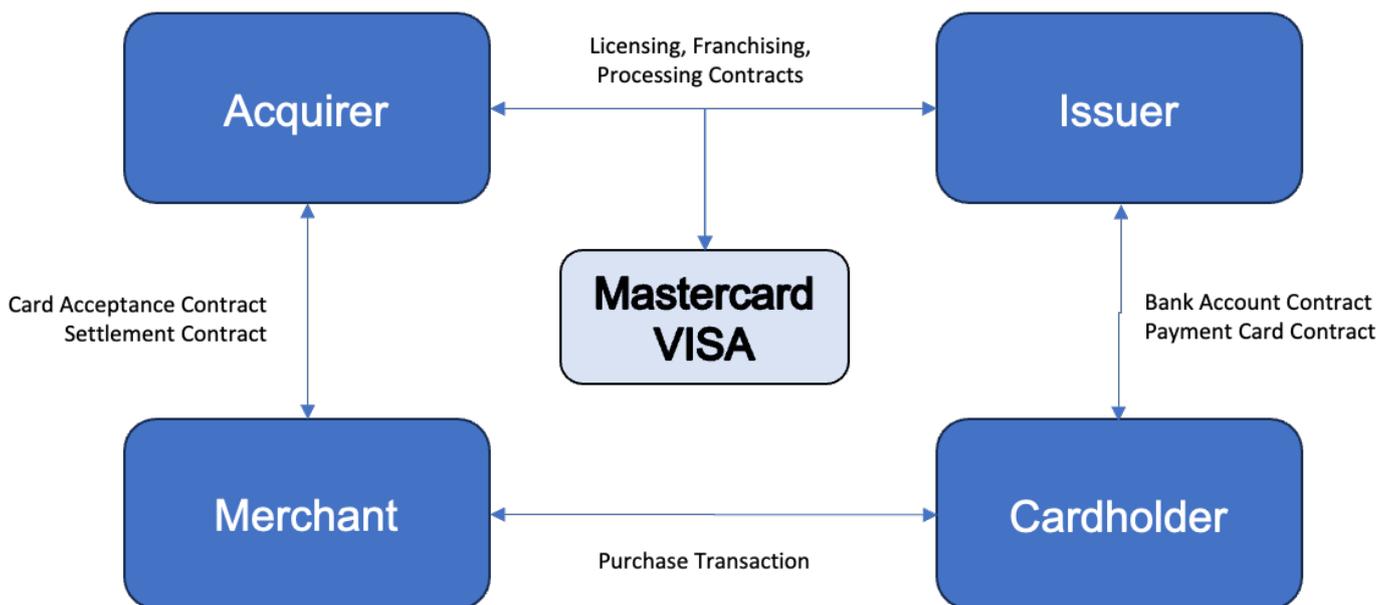
Payment schemes

In this document we describe how payment schemes (Mastercard and VISA) work.

Payment card business is a large global market, which was developed in the USA in the first half of XX century and has grown globally. In this document we will describe the main business principles and in the next chapters we will go into more details. We will focus mainly on Mastercard and VISA operations, as these are the largest payment schemes in the world and the main partners we work with.

Four Party Model

4-Party Payment Scheme Model



Let's start with the general relationships between the parties. In the Mastercard and VISA 4-party model (which is actually 5-party model) there are the following players:

1. Cardholder - has a contract with Card Issuer, which is usually a bank, financial institution, payment institution, credit union, etc. Cardholder keeps a card in a plastic or virtual form that he/she gets from Issuer. Cardholder makes a purchase transaction at Merchant or sometimes withdraws money from an ATM. In the case of an ATM transaction, the ATM operator (usually a bank) acts as Merchant in a standard purchase transaction.

- Cardholder is happy because he/she does not need to carry cash all the time and has money all the time in their pocket or phone.

- Cardholder has to pay card fees to Issuer for getting a payment card.

2. Merchant - delivers goods to Cardholder, but does not receive cash immediately, but accepts the card transaction, which gives him/her almost 100% confidence that he/she will receive money in a few hours or days.

- Merchant is happy because he/she sold goods, usually having sold more than Cardholder could afford with cash. Imagine the situation where you have to pay cash all the time. Would you always carry enough cash with you? What if you want to buy something, but you do not have enough cash?
- Merchant has to pay the so called "Merchant Fees" to Acquirer for processing the transaction. Usually, Merchant Fees are between 0,5-3% depending on transaction value, country, merchant segment, type of card etc. Merchant fees cover most, if not all, of the transaction processing costs. They usually include all the fees charged by Acquirer, Issuer, Mastercard or VISA for the transaction.

3. Issuer - Issuer is usually a bank, credit union or any other payment institution that delivers payment cards to cardholders (consumers or businesses). Issuer signs contracts with cardholders. On the other side of business, Issuer has a franchising or licensing contract with VISA and Mastercard and connects to their network using Issuing Processors. Verestro and our partners (for example [Quicko](#)) plays the role of Issuer and Issuer Processor in our card issuing or BIN sponsorship projects. During the transaction process, Issuer usually gets authorization, clearing and settlement messages that result in transfer of money from a cardholder account to Acquirer so that Acquirer could settle the transaction with Merchant.

- Issuer is happy because they charge card fees to Cardholder (for example monthly per card) and get transaction fees called Interchange Fee from Acquirer. Interchange fee is a very important part of Merchant Fees. In the European Union for consumer cards it is usually in the value of 0,2-0,3%, but in many countries, especially for business and credit cards, it can amount to 1-2% of the transaction value.
- Issuer has to cover costs of card issuing, which include:
 - Cost of payment scheme (Mastercard or VISA) incl. monthly connection, license, authorization, clearing and many many other fees. This is usually the main part of Issuer's costs.
 - Cost of other processors incl. transaction authorisation, card maintenance, card tokenization, plastic card manufacturing, personalisation, delivery, etc.
 - Regulatory costs incl. payment license operations, Anti-Money Laundering processes, etc.
 - Various costs connected with maintaining a relationship with Cardholder incl. proper communications, SLAs, etc.

4. Acquirer - Acquirer is usually a bank or payment institution that signs contracts with merchants, settles payment transactions with merchants and has acquiring contracts with a payment scheme. Acquirer usually provides a payment terminal to merchant locations, and makes sure if it works and is ready for transactions.

- Acquirer is happy because they charge Merchant Fees that usually consist of transaction fees (0,5-3%), sometimes fixed fees per transaction (0,01-0,5 EUR) and monthly fees per terminal.
- Acquirer needs to cover various fees, including regulatory fees, payment scheme costs, cost of processors, terminal purchase and costs of operations.

5. Payment Scheme - Payment Scheme (i.e. Mastercard or VISA) are key for keeping the model running. They develop technical systems that issuers and acquirers are connected to, they process transactions, they develop the market. However, they are also the biggest beneficiaries of the market growth as every new transaction represents revenue for Mastercard and VISA.

Key Processes

There are several processes that take place during card and transaction processing, and here we will briefly describe the most important ones:

- **Card issuing process** - this process or set of processes consists of multiple actions that Card Issuer needs to perform to issue a payment card. They are the following:
 - regulatory compliance - every card issuer in the world needs to comply with law, get license from a national bank or financial regulator, work according to their recommendations and rules,
 - Mastercard integration and licensing - it consists of a formal process, providing necessary cash collaterals, doing technical integration, getting security certifications etc.,
 - card creation process - after signing a contract by a user, Card Issuer needs to create a new card number (using BIN of the issuer - BIN = first 6 or 8 digits of card). When a card number (PAN = Primary Account Number) is created, the card can immediately work as a virtual card or can be sent for personalisation if it is a plastic card. Usually, after the user receives the card (virtual or plastic), the user starts the card activation process, sets the card PIN and can start using it.
- **Transaction process** - this process consists of several operations that result in transfer of money from Cardholder account to Merchant. They are the following:
 - Authorization process is an action that ensures that Merchant can immediately get information if Cardholder has money on his/her card account and if this card is not stolen. The authorisation can happen online (a direct request to Issuer's system to check the balance and card status) or offline (in this case a chip on the card makes a decision if it can approve the transaction without asking Issuer's systems).
 - Clearing process is an action of payment scheme during which clearing files are delivered by acquirers to payment scheme and payment scheme calculates how much money each Acquirer should receive from each Issuer in the world.
 - Settlement process is a process of transferring money from issuers to acquirers and later to merchants so that finally Merchant receives the transaction amount, less Merchant Fees, on his/her bank account. Every Issuer and Acquirer has settlement bank accounts that are used for transferring money from or to. Payment Schemes operate those accounts using something like Direct Debit / Credit to transfer money between Settlement Accounts of various financial institutions.

- 3DS - sometimes additional authentication mechanisms are used to ensure that the person initiating the card transaction is the actual cardholder. In the case of eCommerce transactions this process is called 3DS. During an Internet transaction, the user's browser opens the bank's website, where the user can authenticate the transaction using one-time passwords or other forms of authentication developed by Issuer. After the 3DS authentication is verified, Acquirer receives a special cryptogram that is included in the authorization message and validated later by Issuer during the authorization process.
- Tokenization - tokenization is a process of exchanging a real card number into a token number (similar to a card number) to enable digital and contactless payments. Usually it is connected with transactions performed in cooperation with the so called X-Pays (i.e. Apple Pay, Google Pay, Fitbit Pay etc.). The process of tokenization requires an integration with Mastercard Digital Enablement System (MDES) or Visa Tokenization system (VTS) to enable tokenized payments.
- Refund and reversal - special type of transactions that enable reversing payment transaction either immediately (reversal) or later (refund). Once this process has been initiated, Cardholder can receive money back after successful authorisation.
- Chargeback - process of complaint management. It can be initiated by Issuer in case Cardholder informs Issuer that he/she did not do the transaction or did not authorize it, or goods were not delivered etc. The process is costly for Issuer and Acquirer but ensures security of the system for cardholders.
- Card-to-card transactions and payouts - the so called "payment" or "credit transactions". In a standard purchase transaction money is transferred from Cardholder to Merchant. In a card-to-card transaction or payout transactions, the user gets money on his/her card or on the account linked to the card.

There are other important processes associated with payment systems and card transaction processing, but let's stop here and take a short break to understand these critical processes.

Ranking of card issuing companies

How to choose a BIN sponsor and card issuing partner?

Choosing a BIN sponsor or card issuer is a difficult decision for many partners. Most of our partners do not come from the payment card business, so they learn by doing. In this chapter, we are going to describe the key decision factors of choosing a card issuer and make a simple ranking that we will be upgrading and updating in the coming months and years, as not all information is available to us immediately. On purpose, we will not compare other companies to us, it would not be fair to include Verestro - our goal is to educate in this article.

There are the following key decision factors in choosing a card issuing partner:

1. REVENUE SHARE - Cards issued for my users bring various revenue streams. Are they shared with me?

- ○ Does the card issuer share 100% of interchange with me?
- ○ What is the currency conversion rate that the card issuer shares with me?
- ○ How can I impact and earn on ATM withdrawal fees?
- ○ How can I impact and earn on various consumer fees?
- ○ Can the partner help me with getting the Mastercard or VISA marketing and financial support in the short and long run?

2. COSTS - Obvious point.

- ○ What are fixed and variable fees?
- ○ What is the level of fees in case of low volumes and high volumes?
- ○ Is there any opportunity to minimize costs as the business grows?
- ○ Read this article for more info on standard card issuing costs: [Card issuing - financial details](#)

3. FUNCTIONALITY & SERVICE - a very important point. Critical in the long run.

1. • Does the partner have mandatory functionalities?
- Does the partner offer currencies that I need for my users?
- What are other products that can increase usability or profit that the partner offers?
 - Maybe a loyalty program?

- Any insurance offers and additional benefits that could be sold to customers?
- Perhaps invoice scanning and expense management?
- Maybe white label solutions?
- Card reload mechanisms?
- Payouts to cards?
- etc.
- Does the partner offer quick access to a developer zone or a test environment?
- Does the partner make their APIs public?

3. SECURITY AND FINANCIAL STABILITY - a critical point. Maybe it should be the first one.

- ○ Is the partner a small start-up, burning money or a payment institution generating profits? Can you imagine what would happen to your portfolio and users in case of bankruptcy or hostile takeover?
- Who are the shareholders of the partner? Are these venture funds or strategic, long term investors?
- Does the card issuer make their financial statements public?
- Does the partner offer support in solving PCI DSS issues (Payment Card Industry Data Security Standards)?
- Is the partner audited annually?
- Does the partner work with banks and other large financial institutions or focus only on small, high-risk startups?

Here's an initial comparison of the best known card issuers in the European Union (grades: low - high):

Name	Country	Revenue Share	Costs	Functionality & Service	Security & Financial Stability
Treezor.com	France	Medium	High	Medium	Medium
Swan.io	Denmark	Medium	High	Medium	Medium
Dipocket.org	Lithuania	High	Medium	Low	Low
Solarisgroup.com	Germany	Medium	High	Medium	Medium
Wallester.com	Estonia	Medium	Medium	High	Medium
Stripe	USA	Low	High	High	High
Weavr.io	Malta	Medium	Medium	Low	Medium

Verestro	Poland	Make your own assessment			
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Source: Financial Stability results based on 2022 or 2023 results available in Internet; all other data from publicly available sources. Please make your own assessment.

Card issuing - financial details

How can I earn from card issuing? This is a common question that is asked by our customers. Let me explain the key financial areas connected with this business.

Indirect revenue or cost savings

Usually, the main reason for issuing cards in different segments is indirect revenue or cost savings. The first question that you should ask yourself is connected with your use case. What can a payment card bring to my customers or my business? The answer to this question is different for various business segments and is the most important factor in defining a financial model for such an operation:

- If you are a **bank**, payment cards are obviously a core payment product that lets you earn from various transactions, currency conversions, ATM withdrawals and other fees.
- If you are a **fintech wallet**, it is obviously an important functionality because you compete with banks. It can increase your revenue streams from the same areas as above.
- If you are a **crypto wallet**, you want to offer to your customers a way to use digital assets at brick-and-mortar shops and in eCommerce.
- If you are an **insurance company**, you may want to send insurance in the form of a virtual card with a particular transaction and geographic limit so that your customer could immediately get necessary help.
- If you are an **investment wallet**, where users store value in the form of shares or bonds, you can offer payment cards to them so that they could pay using their shares at standard shops.
- If you are an **eCommerce merchant** or **marketplace**, you may be interested in using payment cards as a way to send back money to your users after their claim so that they could use this card for an eCommerce payment.
- If you are a small, medium or large **corporation**, you may want to distribute cards to your employees so that you limit costs of invoice processing and company invoicing.
- If you are an **HR agency**, you can use cards as a tool to pay salaries to your employees
- If you are a **loyalty program** owner, you may be interested in enabling users to use your points and make purchases at any location in the world.
- etc.

There are many use cases and this is the main value for you. You can charge **additional fees** for this new service offered to your users, or you can **limit your operating costs** thanks to card issuing. However, there are direct revenue streams and costs associated with issuing cards and I

will describe them below:

Direct revenues of card issuing

The following direct revenue is connected with card issuing and card transactions:

1. **Interchange Fee** - when your user pays online or offline at any merchant, there is a fee called Interchange Fee that the issuer of cards receives for this transaction. The value of this fee depends on the country, transaction type, card product type, etc. In general, it is between 0,2% (for consumer debit cards issued in Europe) to 1-2% (for various types of cards for transactions done on other continents). Make sure you check with your card issuer or BIN sponsor how they share this fee with you - it is the most important revenue stream.
2. **Currency Conversion Fee** - every card transaction done in another currency than currency of a card account results in currency conversion. This action usually enables charging fees. Typically, they are between 0,5% to 8% depending on card product, country, currency, etc.
3. **User fee** - card issuers, banks, financial institutions usually charge various user fees for using their payment card. Examples of such fees are: one-time fee for issuing a card, monthly fee per card, annual fee per card.
4. **Transaction fees** - depending on a card product and a type of transaction, card issuers charge users additional transaction fees. A very standard fee is an ATM withdrawal fee - it is almost always valid because there are direct costs of an ATM withdrawal called ATM Service Fee and these costs need to be covered. Sometimes card issuers charge POS or eCOM transaction fees - for example 0,1% fee for every transaction done with a card.
5. **Value added services** - a card product enables you to charge additional services, i.e. insurances, VIP support, concierge etc. that increase your revenue streams.

Direct costs of card issuing

1. **One-time fee for card issuing** - usually 0,1-1 EUR. This fee is charged at the moment of card issuing. This fee covers costs of payment processors, various costs of operations connected with issuing the first card.
2. **Monthly fee per card** - usually you pay 0,1-1 EUR monthly per issued card. This covers both technical, regulatory and financial risk costs of card issuers.
3. **Transaction fees:**
 - per transaction (from 0,05-0,3 EUR) - depends on a type of transaction, region of transaction etc.
 - per transaction value (from 0,01%-0,5%) - depends on a transaction value.
4. **ATM service fee** - very specific fee which is part of a transaction fee in fact. For every ATM withdrawal, a card issuer needs to pay a fee which is transferred to an ATM operator. Usually, it is in the value of 0,5-3 EUR + 0-1% from the transaction value.
5. **3DS operations fee** - transactions in eCommerce require additional authentication. Such an operation usually results in an additional fee charged by a card issuer (0-0,04 EUR per transaction).

6. **Apple Pay fees** - Apple charges additional fees for using Apple Wallet. Those fees are both per card quarterly and per transaction volume - different for POS transactions and inApp transactions. We are not allowed to disclose the level of these fees.
7. **Plastic card related fees** - production, personalization and transport of plastic cards is a serious operation that involves various costs. Typically, between 2-5 EUR per card depending on customer location, type of card, etc.

These fees are usually charged by card issuers and BIN sponsors to their partners. They have to charge them because there are various costs that we need to cover (this issue also applies to Verestro and our BIN sponsors). **The main card issuing costs** are:

1. **Payment scheme fees** - Mastercard, VISA or any other payment organization charge a lot of various fees for connecting with them and using their licenses and technology. This is one of the biggest components of costs for card issuers.
2. **Payment processors** - this is our (Verestro's) role. To issue cards, you usually need to hire external, certified payment processors. They charge a lot of fees for using their technology. Examples of such processors are : Verestro :) , Paymentology, Fiserv, First Data, Marqueta etc.
3. **Card manufacturers and personalisation centers** - if you issue or sell plastic cards, you need to produce and personalize these cards. Companies like Austriacard, Thales, Idemia charge fees for such operations.
4. **Regulatory compliance costs** - to become a card issuer in any country, you need to have a payment license, get certification, fulfill necessary roles that are not present in another business. This is a serious cost for card issuers.
5. **Security costs** - to work with payment cards and process them, you need to fulfill various security requirements. The most important ones are summarized in the Payment Card Industry Data Security Standards. They include not only internal actions but also annual and quarterly audits that you need to perform to be compliant and offer secure operations.

There are other possible revenue streams and costs connected with card issuing, but the ones described above are the most important ones.

Thank you for reading.

Example of Profit & Loss Calculation in card issuing

Calculating profits and losses in card issuing is not easy, especially when various card issuers offer different fee and revenue models. Below I would like to show a few examples.

Let's imagine we are a fintech wallet with 10.000 users and we would like to issue cards for these users. The first step we need to take is to try to forecast key parameters of product, transaction, revenue and cost assumptions:

1. Product

- Product - Debit Business Mastercard card
- Settlement currency - EUR

2. Transactions

- Average number of cards in a year - 10.000
- Offline POS transactions in Europe: Number of transactions per month - 5 ; Average Transaction Value (ATV) - 30 EUR
- Online eCom transactions in Europe: Number of transactions per month - 3 ; ATV - 40 EUR
- ATM transactions in Europe: Number of transactions per month - 2 ; ATV - 100 EUR
- Share of currency conversion transactions in Europe - 10% (transactions done in Polish zloty, Czech koruna, Romanian Lei, Swedish krona etc.
- Offline POS transactions outside of Europe: Number of transactions per month - 1 ; Average Transaction Value (ATV) - 60 EUR
- Online eCom transactions outside of Europe: Number of transactions per month - 1 ; ATV - 60 EUR
- ATM transactions outside of Europe: Number of transactions per month - 0,1 ; ATV - 100 EUR
- Share of currency conversion transactions outside of Europe - 100% (transactions done in Polish zloty, Czech koruna, Romanian lei, Swedish krona etc.
- Share of registered ApplePay cards - 30%

3. Revenue

- Interchange fee for business cards (fee from POS and eCommerce transactions; we assume 100% of interchange stays with partner)
 - in Europe - 1.2%
 - outside Europe - 1.5%
- ATM withdrawal fee - 0.5%
- POS and eCommerce transaction fee - 0%

- Currency conversion fee - 2%
- Monthly fee per card - 1 EUR

4. **Costs**

- One-time fee for an issued card - 0,4 EUR
- Average monthly fee per card - 0,3 EUR
- Fee for offline POS transactions in Europe - 0,10 EUR + 0,1%
- Fee for online eCom transactions in Europe - 0,10 EUR + 0,11%
- Fee for ATM transactions in Europe - 0,9 EUR + 0,3%
- Fee for offline POS transactions outside of Europe - 0,3 EUR + 0,45%
- Fee for online eCom transactions outside of Europe - 0,3 EUR + 0,5%
- Fee for ATM transactions outside of Europe - 0,3 EUR + 1.2%
- Currency conversion fee - 0,5%
- Apple Pay active card quarterly fee - 0,25 EUR

Let's do quick calculations.

Average number of cards in year		10000
		Nbr of transactions
Europe	Offline POS transactions	5
	Online eCom transactions	3
	ATM transactions	2
Outside of Europe	Offline POS transactions	1
	Online eCom transactions	1
	ATM transactions	0,1
Europe	Share of currency conversion	10%
Outside of Europe	Share of currency conversion	100%
	Share of ApplePay registered cards	30%

Europe	Monthly transaction value POS	150
	Monthly transaction value eCom	120
	Monthly transaction value ATM	200
Outside of Europe	Monthly transaction value POS	60
	Monthly transaction value eCom	60
	Monthly transaction value ATM	10
FX	Value of transactions with FX	177
	ApplePay registered cards	3000

Revenues per card	Interchange Europe	3,24
	Interchange outside of Europe	1,8
	ATM withdrawal	1,05
	POS & eCom transaction fee	0
	Currency Conversion fee	3,54
	Fee per card	1
REVENUES PER CARD		10,63

Cost per card	One-time fee for issued card	0,4
	Average monthly fee per card	0,3
Europe	Offline POS transaction fee	0,53
	Online eCom transactions fee	0,344
	ATM transaction fee	2,1
Outside of Europe	Offline POS transaction fee	0,57
	Online eCom transactions	0,6
	ATM transaction fee	1,23
Other	Currency conversion fee	0,885
	Apple Pay active card quartely fee	0,08
COSTS PER CARD		7,0

MONTHLY

Total revenue	106 300
Total cost	70 423
Total profit	35 877

ANNUALLY

Total revenue	1 275 600
Total cost	845 080
Total profit	430 520

Taking into account the above assumptions, you could earn 35.877 EUR monthly and 430.520 EUR annually on such a portfolio. Seems high? Interested what cost of investment is needed? Contact us.

Thanks for reading.

PS. If you are interested in receiving an Excel file related to these calculations, let us know at sales@verestro.com.

Regulatory and license impact on card issuing

Legal issues related to regulatory or payment scheme rules often arise in questions we receive from our partners and clients. In this article I would like to summarize key dependencies, limitations and rules that have a very important impact on payment accounts opening, card issuing and also acquiring or money transfer activities.

When you are launching a payment institution, you have several areas to cover. One of the most important of them is a legal and rules area. Usually this impact can be divided into three main groups of activities: legal requirements, anti-money laundering requirements (which is a specific type of legal requirements) and payment scheme rules. Let me deep dive into each of them.

Legal requirements

To operate payment activities, almost in any country you need to get a payment license. There are various types of payment licenses depending on the country, so here I would like to summarize the most important details. In many cases you can hear about EMI (Electronic Money Institution license), Bank (Banking license), Credit Institution, Acquiring Institution etc. These requirements are usually connected with operational activities that the company needs to fulfill to perform payment operations for other entities. They consist of:

- Regulatory requirements in the areas of security, Know Your Customer, AML, liquidity operations, organizational structure etc.
- Audits performed by regulator
- Risk of penalties for both the company and sometimes persons involved in payment companies
- Outsourcing activities compliance
- Local laws that forbid processing customer or transaction data outside of the country
- etc.

It is important to understand details of such requirements and to follow changes of law and rules on a regular basis.

From the business point of view those requirements force us to :

- Officially register contracts with various partners at the regulator
- Get an approval for particular actions outsourced to partners

- Perform regular monitoring of payment activities done with cards issued for users of our partners
- Follow the national and EU sanction lists
- Being ready to block any transaction, account or card at any time

For our partners - just make sure that you follow the rules we inform you about. They are critical for our activity, licenses, so in fact they are securing your business.

AML and KYC requirements

AML (Anti-Money Laundering) and KYC (Know Your Customers) are part of legal requirements but it is worth presenting them as a separate group because they usually have the biggest impact on operations. The main goal of these rules is to ensure that payment organizations are not used to launder money, support terrorist or illegal activities. They also allow governments to monitor a payment activity area which may be helpful in fighting crime activities.

Key areas of impact of those requirements can be summarized as follows:

- Payment institution is obliged to perform KYC requirements as defined by the regulator - usually consisting of collected proofs of user identity verification (documents, videos, selfie, talks, and other measures)
- In case of business customers and business accounts, not only Board Members but also Beneficiaries of the companies need to go through a KYC and sanction list screening. Beneficiary is defined usually as a person with above 25% shares
- At any moment a payment institution must be ready to present these documents to the regulator
- Persons and entities placed on sanction lists cannot use services of a payment company
- Active monitoring of payment transactions for all users is required
- Sometimes proofs of income can be required

It is interesting that AML and KYC requirements do not block us from issuing cards or opening payment accounts for partners located outside the European Union with our payment companies licensed in the European Union. We are allowed to perform payment activities for Brazil, US, China citizens, as well as the Polish, German or French ones.

Make sure that you collect user documents and provide them during the user registration to us to fulfill those requirements.

Payment Scheme requirements

Payment Schemes (Mastercard, VISA or others) have separate requirements that must be followed by their partners and licensees. These requirements are similar to the previous ones but not always the same. Key requirements that do have impact on business are:

- We are licensed for a particular country or region. In our case it is the European Union countries (in fact the European Economic Area, which is a slightly different area). It means that with our European licenses we can issue cards for people residing, having addresses

or working in the European Union. In case we would like to issue cards for people or entities from outside the European Union we have to get special Mastercard approval which is not impossible but may be difficult to achieve.

- We must follow payment scheme requirements on sanction lists and scan users and beneficiaries against OFAC (US Office of Foreign Assets Control) and United Nations sanction lists.
- We must be ready to follow Mastercard technical and rules requirements that sometimes may have impact on technical setup and use cases of your users
- In case of mandates we need to be ready to implement on time necessary system updates to reach compliance with the Mastercard network

Problematic areas

Usually problems in a business discussion come in the following areas:

- Can we issue cards for non-EU citizens? Answer: generally yes, but sometimes there may be problems, the majority of your business must be in Europe, your user addresses or office should be in Europe etc.
- What documents do we need to transfer to you during registration? Answer: selfie, international passport is usually a minimum

Following regulatory, AML and payment scheme rules is critical for payment companies. We do not have a choice. This is part of the game of card issuing and we must follow requirements. However, it is good that such rules exist. They make our customers' money safer and minimize much bigger risks of running or supporting illegal activities.

Thanks for reading.

KYC and KYB requirements in card issuing

KYC (Know Your Customer) processes usually raise a lot of questions. In this article, I would like to summarize the most important decision points and requirements.

KYC regulations are directly connected with Anti-Money Laundering (AML), regulatory and sometimes with payment scheme requirements. In general, every payment or banking institution must be aware who its customers are, should know the source of its customers' funds, and should have information about the ways customers use money held by the payment institution. Regulators require that payment institutions know and monitor this in order to limit the risk of supporting terrorist or illegal actions.

The main question in every project is: "Who is the owner of the money on account?" We can have 2 situations:

1. CONSUMERS - If the consumer is an owner of the money on account, the KYC process has to happen. Usually it means that the user (consumer - not a company) needs to provide an ID document or passport and selfie, meeting or video call needs to happen to make sure that consumer is a real person signing a contract with a payment institution. There are various additional verification ways that a payment institution may require, but those are the key ones.

2. BUSINESSES - If a company is an owner of money, the KYB (Know Your Business) process has to happen. Usually it means that the user (company owner, manager etc.) not only needs to provide an ID document and make a selfie or a video call, but the payment institution needs to verify beneficiaries (the owners of more than 25% of shares in the company).

In both cases the payment institution is obliged to check whether the consumer, business manager or business owner is not present on various sanction lists, i.e. OFAC or UN sanction list.

These rules are critical and in fact all other implications are outcomes of them. In projects connected with launching Payout to Cards, the very first question that we need to answer is : "**Who is the owner of the money on account?**" If the consumer is an owner of the account (scenario 1) - the consumer needs to go through the KYC process. If the business is an owner of the money on account (scenario 2), the KYB process will have to happen and there will be no additional KYC.

There may be non-standard situations that will require some analysis. Let me present a few interesting scenarios:

- **Lendtech** - a company that provides loans to consumers. Let's imagine that this company is giving a loan of 1000 EUR to a consumer. We can have a project in two versions:
 - if the consumer receives a loan on his/her personal card - then we have the KYC requirement.
 - but if a card is just a part of Lendtech account and formally the consumer gets a loan at the moment he/she takes out money from the card account - we do not have any KYC requirement; we just need to do KYB for Lendtech. It can simplify user acquisition a lot.
- **Insurance** - an insurance company sends insurance value to users after a claim process or just after an accident:
 - if the user receives a gift card with 1000 EUR, which is the value of the claim, and at the moment of receiving the card, 1000 EUR on this card becomes his/her ownership - we have the KYC requirement for the user.
 - but if the user receives a card with a limit of 1000 EUR and when they pay - they use the insurer's money to cover costs of the claim, we do not have any KYC requirement. KYB will be enough for us.
- **Money transfer company** - let's imagine that the company sends a virtual card with 1000 EUR from Europe to the receiver in Singapore:
 - if the user receives a virtual gift card, and 1000 EUR belongs immediately to this user, we have to do KYC of this user
 - however, if users receive a virtual card with a limit of 1000 EUR and the money becomes theirs the moment they pay or withdraw funds from the card, KYC is sufficient. KYC is not required.

As you can see, there can be different approaches to KYC and KYB requirements, so it is worth reviewing the legal structure and thinking about how to improve the user experience in such projects.

Thanks for reading.

PCI DSS & other security requirements

Very often customers ask questions connected with security. In this article we would like to summarize key requirements connected with Payment Card Industry Data Security Standards (PCI DSS). There are other rules that we and our partners need to follow (like GDPR for example) but it will be the topic for another article.

The most important question that needs to be answered before going into details of PCI DSS requirements is - **Am I actually processing payment card data?**

Key PCI DSS requirements mentioned below apply only in case that the partner has access to card number (PAN - Primary Account Number), expiry data or other related card data. If the partner does not touch them, if the partner cannot see those numbers there is only one requirement - a simple Self Assessment Questionnaire (SAQ) needs to be fulfilled to confirm that the partner is compliant with PCI DSS requirements.

It is very important that you choose the correct way of integration with the card issuing platform. If you use our mobile SDKs or white label products, usually you will not have access to card data and will be able to approve your project just after fulfilling SAQ mentioned above. So please consider this way of integration to avoid additional costs and risks of PCI DSS compliance. However, if you connect via API, which is a usual way of integration, you will have to comply with security rules. Please read this section twice. **This is the most important** - choice of integration method will be decisive if you have to or not go through annual external audits and all hassle connected with PCI DSS.

Assuming you do process card data, depending on what your role is, different levels will be applied to you. You can be a **merchant** or a **service provider**. In simple terms, if you do the work for yourself then you are a **merchant** if you want to further provide the service (intermediary) you are most likely a **service provider**. In card issuing projects you will rather be Service Provider because you offer cards to your users. Let me give some examples:

Service Provider - wallet, crypto wallet, money transfer organisation offering cards to own users etc.

Merchant - insurance company that wants to use card to send money to their users, lending company that wants to send card to users, corporation or firm giving business payment cards to their employees etc.

Who is according to PCI DSS "Merchant"

PCI DSS, or the Payment Card Industry Data Security Standard, defines a merchant as any entity that accepts payment cards (such as credit cards and debit cards) as a form of payment. The term "merchant" can encompass a wide range of businesses and organizations, including traditional retail stores, e-commerce websites, restaurants, hotels, and service providers that handle cardholder data.

Under PCI DSS, merchants are required to comply with a set of security standards and practices to protect the payment card data they handle. These security measures are designed to ensure the confidentiality and integrity of cardholder data, reduce the risk of data breaches, and protect both customers and the payment card industry as a whole.

PCI DSS compliance requirements can vary depending on the merchant's size and the volume of card transactions they process. Merchants are typically categorized into different levels based on their transaction volume, with higher-volume merchants facing more stringent compliance requirements.

There are 4 levels of compliance and requirements depending on volumes of cards and transactions.

Level of PCI DSS	Your business does	What you should do
4	<ul style="list-style-type: none">· Less than 20 000 eCommerce transactions per year· Less than 1 million other transactions per year	<ul style="list-style-type: none">· Complete an annual Self-Assessment Questionnaire (SAQ)· Conduct quarterly network scans by an Approved Scanning Vendor (ASV)
3	<ul style="list-style-type: none">· 20 000 – 1 million transactions per year	<ul style="list-style-type: none">· Complete an annual Self-Assessment Questionnaire (SAQ)· Conduct quarterly network scans by an Approved Scanning Vendor (ASV)
2	<ul style="list-style-type: none">· 1-6 million transactions per year	<ul style="list-style-type: none">· Complete an annual Self-Assessment Questionnaire (SAQ) or ROC conducted by a QSA· Conduct quarterly network scans by an Approved Scanning Vendor (ASV)
1	<ul style="list-style-type: none">· 6 million + transactions per year	<ul style="list-style-type: none">· Complete an annual internal audit· Conduct quarterly network scans by an Approved Scanning Vendor (ASV)

Who is according to PCI DSS "Service Provider"

According to the Payment Card Industry Data Security Standard (PCI DSS), a Service Provider is defined as any business or entity that is not a payment card brand (such as Visa or Mastercard) and is involved in the processing, storage, or transmission of payment card data on behalf of

another organization. Service Providers play a crucial role in the payment card ecosystem, as they offer various services to help businesses accept and process card payments more effectively and securely.

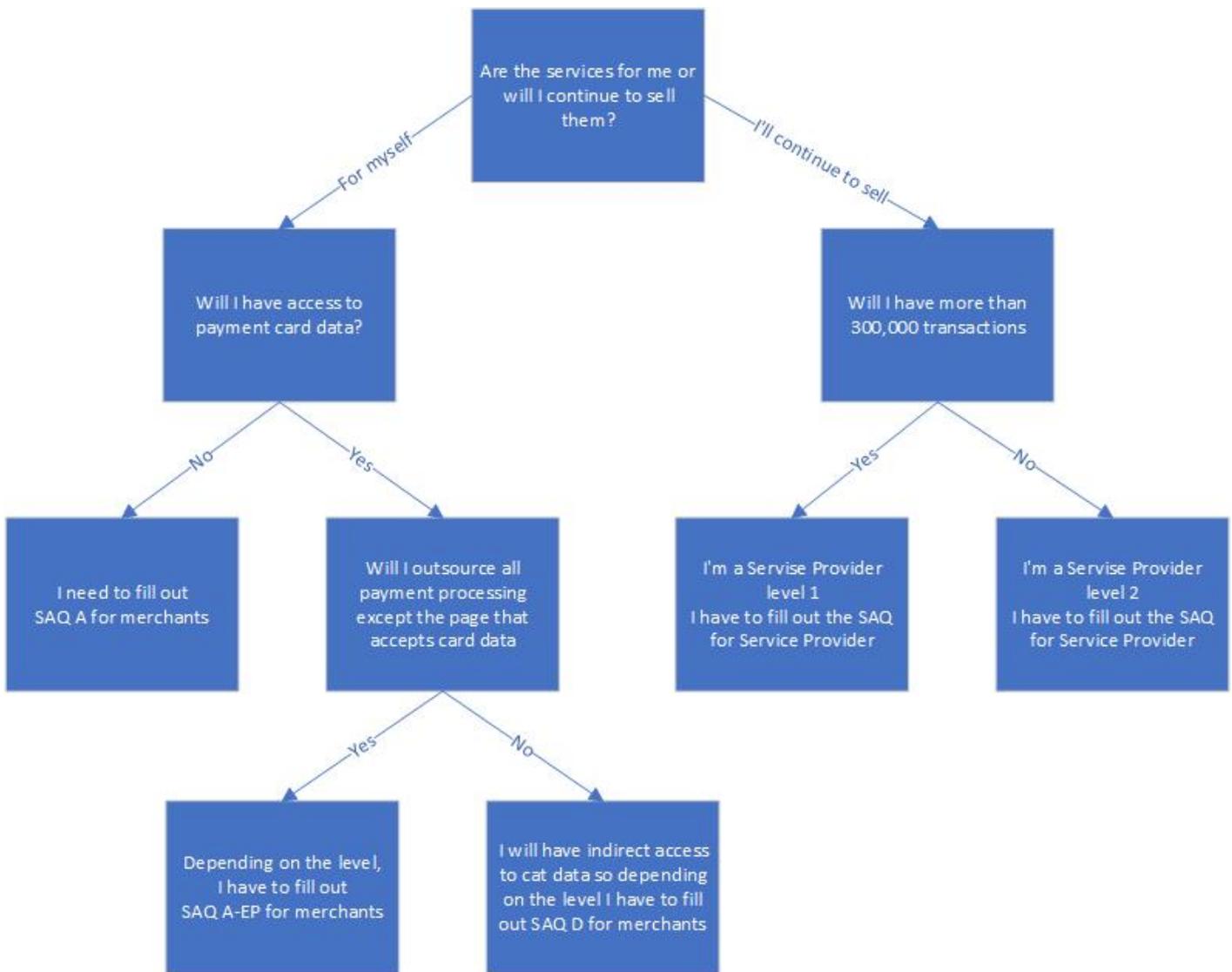
Service Providers can include a wide range of businesses, such as:

1. Payment processors
2. Payment gateways
3. Hosting providers
4. Managed security service providers
5. Data storage companies
6. Point-of-sale (POS) system providers
7. Customer relationship management (CRM) software providers
8. Software-as-a-Service (SaaS) providers

Service providers are categorized based on the services they provide and their interactions with payment card data. Here are some common classifications of service providers based on PCI DSS:

Level of PCI DSS	Your business does	What you should do
2	<ul style="list-style-type: none">· < 300 000 transactions per year	<ul style="list-style-type: none">· Complete an annual Self-Assessment Questionnaire (SAQ)· Conduct quarterly network scans by an Approved Scanning Vendor (ASV)
1 (Verestro has 1 level of PCI DSS)	<ul style="list-style-type: none">· > 300 000 transactions per year	<ul style="list-style-type: none">· Complete annual internal audit conducted by a Qualified Security Assessor (QSA)· Conduct quarterly PCI ASV scans

Verestro has the 1st level Service Provider of PCI DSS which means that we have to go through quarterly PCI ASV scans and an annual external audit performed by certified PCI DSS assessors. In accordance with the principles of PCI DSS Verestro is obliged to check that the partner is working according to PCI rules so we will be checking what the level of transactions and cards in your case is.



So let's remind our two possible scenarios:

Scenario 1 (The partner does not have any access to unencrypted PAN numbers) -> THIS IS THE BEST AND RECOMMENDED SCENARIO. In this scenario you will most likely use our SDKs and admin panel and full encryption of card data. Verestro will guide which Self-Assessment Questionnaire ([SAQ A for merchants](#)) is appropriate and ask a few questions (from SAQ). The document will have to be signed by the partner.

Scenario 2 (The partner can access unencrypted PAN numbers) -> in this scenario:

- Verestro will provide an Self-Assessment Questionnaire (SAQ), and ask a few questions. The document will have to be signed by the partner.
- The partner will perform quarterly PCI ASV ([Approved Scanning Vendors](#)) scans (cost around 1k EUR quarterly or less) - The partner can choose any provider from the PCI Security Standards Council (PCI SSC) or Verestro can recommend a supplier.
- Until the partner reaches 0,3 mln transactions/interactions annually with PAN numbers, the partner does not need to undergo an annual internal audit (in extreme situations, it is

possible to require PCI internal audit from the partner).

If the partner plans to achieve 0,3 million transactions/interactions, there are two options:

- either the partner will move to a scenario that does not touch card numbers using some technology changes
- or the partner should perform an annual internal audit done by a PCI auditor (QSA)

If you would like to discuss your requirements in more detail and receive more information, please contact us.

Thanks for reading.

Master balance and collateral in card issuing projects

During the implementation of card issuing projects with Verestro and our partner payment institutions, we receive questions about liquidity management and collateral in card issuing projects. Let me summarize and explain the key dependencies.

There are two important points that need to be taken into account:

1. Collateral - this is a dedicated amount of money and account which needs to be transferred by our partner to our account to cover costs of payment risks and collateral that we need to pay to Mastercard or VISA. Usually it is between 3-5 days of transaction volume. The collateral is non-refundable until the end of the project and may grow in time together with the volume of transactions. If we do not take collateral, there is a risk that in case of growth, we will have to block the partners' transactions because we will not have enough liquidity at Mastercard or VISA accounts.

2. Master balance - it is an account (in other words cash balance) dedicated to our card issuing partners where our partner stores his own money which covers fees paid to Quicko and/or transaction settlement in case of working with external balance API. There are two possible situations that affect the amount of the master balance:

- Scenario 1 - In case External balance API is used which means that partner keeps information about user balance and every transaction authorisation is routed to partner for approval. In such a case we have to keep the Master balance of the partner up to the amount of transactions. Every transaction authorisation is verified by the partner but also on our Master balance account. A day later we have to settle money for this transaction with Mastercard so we must have enough cash on Master balance to cover this transaction amount. Every day or any time our partner transfers additional money to the Master balance to make sure that there is enough liquidity to cover costs of transactions of their users. This means that the amount on the Master balance is high enough to cover transactions of users during a day, week etc.
- Scenario 2 - In case internal balances are used, we have a situation where all users' money are kept at our payment institution. It means that the partner does not need

to provide additional funds to cover transaction volume. In such a case the partner needs to transfer just an adequate amount to cover the amount of transaction and card fees to be paid for card issuing activities.

In all card issuing projects both collateral and masterbalance exist so please make sure you are aware of differences between those two definitions.

Thanks for reading.

Pay with Rewards, Pay with Points

There are multiple use cases in where you can use virtual Mastercard payment cards. Let me explain how it works, how you can offer your users a loyalty program or another point-based program to make transactions at any merchant location.

Let's imagine you provide a loyalty program for your users. You can also have any other point-based offering that enables rewards. You are interested in launching a program in which your users will be able to pay at any merchant location with a Mastercard virtual card.

In such a case you could use our card issuing services with External Balance API. It would work in the following way:

1. We launch a business card program for you. We perform Know Your Business verification with you as a company. Every card issued in the program will be in fact a payment card of your company.
2. You integrate with our Lifecycle API in order to register users and request cards
3. You integrate with card issuing API to manage cards and with External Balance API to be able to authorize transactions.
4. We would also integrate your solution with ApplePay and GooglePay, and the cards would have your visual. Thanks to this, your users could easily use them for any payment.
5. You have to decide what the value of a single point is. You will receive from our system authorization for 20 EUR and you will have to approve or decline this transaction.
6. We will ask you to open an account at our partnering payment institution - you will have a Master balance which will cover direct settlement of payment transactions. You can reload Master balance every day.
7. From that moment users will be carrying your payment cards in their Apple Pay and Google Pay wallets and every transaction will be routed to your system for authorization. At the moment of transaction we will use Master balance to cover the transaction cost and you will charge point balance of the user.
8. Additionally, you could limit merchants where users can make transactions and get an additional fee from the merchant for enabling transactions at a particular merchant.

In today's payment world, such a project is easily available and not difficult to implement. There is a simplified integration and after several weeks you can go live with a new functionality.

Thanks for reading.

Multicurrency cards - 3 implementation options

Multi-currency topic is an interesting and important concept of card issuing that usually requires some explanation. Because of the very big market of currency conversion and usually very high fees of universal banks connected with international transactions, it became popular to implement multi-currency cards. Actually the first **Revolut** use case, heavily promoted several years ago, was connected with this topic. So let's go into details.

There is actually one problem that we want to solve when thinking of implementing multi-currency cards - how to enable the best and most **effective card payments in an international environment**? There are various approaches to this problem:

Scenario 1 - multi-currency cards and accounts

In this example we offer users multiple payment accounts in various currencies.

1. The user gets a single payment card connected with all accounts
2. In case the user pays with currency X, the authorisation system recognises transaction currency and debits account of currency X
3. In case there is no money on this account, system debits another (default) currency

This example is very often used, but it has a few disadvantages. The first is that the user must perform currency conversion before. It is an action before his/her travel and actually it is an unnecessary action from the logic's perspective. It should be more convenient for the user to have one account and cheap currency conversion during every transaction. But usually consumers like the solution because they can manage this currency problem in advance, see FX rate and can make decisions on how much money to convert.

Implementation of this scenario is not easy because card issuing companies either need to enable multi-currency functionality with Mastercard / VISA or to implement multiple settlement accounts with payment organisations and manage conversions accordingly based on transaction currency. There are additional fees that Mastercard and VISA charge for this service which can make this implementation costly.

Scenario 2 - currency conversion on single account

Another way of solving the currency conversion topic is to think about how to enable the cheapest conversion during a transaction. In this example the user does not have to convert currency before

his travel. He just uses his card while travelling. I personally like this approach the most because it is easier for me but in reality many customers prefer scenario 1.

In this scenario, to have dynamic rates, there is a need for online FX API integration and dynamic management of rates during authorisation. Usually card issuers use static conversion rates offered by Mastercard and VISA but this leads to some additional costs and margins. Ensuring dynamic currency conversion during authorization and proper conversion management may be difficult to achieve.

Scenario 3 - multiple cards for different currencies

The third way of managing the multi-currency topic today in the virtual card environment is issuing multiple cards to multiple accounts in various currencies. In today's world this is easily achievable as the cost of card issuing went heavily down. It works in the way that users have several cards, connected with various accounts and card visuals, visible in **Apple Pay** or **Google Pay** with the currency of a particular card. The user can choose a card which is the most convenient for him/her.

In this scenario we need to offer an inexpensive currency conversion mechanism as the user needs to manage balances on each account separately and perform conversion in advance.

This is actually the cheapest scenario of implementation.

While thinking about the multi-currency topic, please consider various scenarios and ways of solving problems. Sometimes the default plan (scenario 1) can be very costly from the transaction processing perspective because of additional fees of payment schemes.

Thanks for reading.

Customer Service and User Claims in Card Issuing

Once you start issuing cards for your users you will experience a wide range of various problems and requests coming from your customers. In this article we would like to summarize the most common issues so that you could get prepared.

Those are:

1. Transactions not working
2. Problems with delivery or activation of plastic cards
3. Transaction reversals and refund issues
4. Fraudster activity

Point 1 - Transactions not working

The most common problem after starting card issuing is connected with performance of transactions. Your users will inform you about problems with transaction authorisations or merchant not accepting their card etc. There can be plenty of reasons of such problems. The most important are:

- User related issues - especially "insufficient funds". User tries to pay and he/she does not have enough money on account but forgets to check. More or less 10% of transactions will fail because of this issue. You need to be ready to inform user that he needs to check his balance on account first. Another problem may be connected with users wrongly performing transaction, entering wrong PIN etc. In this case you will be able to check in card issuing system that transaction failed because of this reason.
- Merchant related issues - 2nd biggest reason of problem. Depending on geography or country merchants and acquirers may decide to decline transaction for various random reasons. Normally it is less than 2% of all transactions. There is very little we can do about it. Sometimes you can contact acquirer, merchant or local Mastercard to check reasons and discuss how to increase acceptance and it is worth doing in many cases. But in reality this may be difficult to change. In this case you will not be able to check in card issuing system that transaction failed. You need to inform user that we do not see this transaction and he needs to contact merchant or acquirer.
- System related issues - 3rd reason of transaction failures is connected with unavailability of merchant, terminal, acquirer, Mastercard or card issuer systems. In such case transaction, most often, you will not be able to see this transaction in our system. You need to inform user that we do not see this transaction and he needs to contact merchant

or acquirer.

Point 2 - Problems with delivery or activation of plastic cards

Usually, when you decide to use not only virtual but also plastic cards, you will experience various problems with personalization, delivery or activation of plastic. In various countries there may be various issues with those processes. They are usually connected with logistics or lack of easy activation methods for cards. Some of those issues can be cleaned by us during the project but for many of them we will not have good solution. Actually, in today's digital world, we do not recommend issuing plastic cards but if you need to do so, let's be ready for such problems.

Point 3- Transaction reversals and refund issues

While paying with cards, customers will experience situations that they want to resign from transaction after some time. Sometimes immediately - and in this case reversals will be used. Sometimes after several days - in this case refund will be used. In such situations we should receive from merchant or acquirer authorization that credits transaction. We should be able to deliver this message to you so that you could increase balance of the user on account. But sometimes this process does not work correctly. If card issuer does not receive message from acquirer or payment scheme, we are unable to give you this information. User's funds may get frozen for 2-4 weeks. It is important that you understand that such things happen.

Point 4 - Fraudster activity

Any new payment activity in the world is attracting attention of fraudsters or payment mafias. There are people in the world specialised in stealing card data or making transactions with cards while having no money on accounts. This is very serious risk for you as they will be testing your systems as well. This is especially visible if you have many "Do not honour" transactions or weak Know Your Customer processes. Be ready for it. Monitor your traffic. Cards will not always work for all payment transactions, some fraud rules will block suspicious activities but your online monitoring is necessary.

Those are key points to remember about. Please do not forget about them while launching your card issuing program with us.

Thanks for reading.

How to prepare for a card issuing project?

Do you want to issue cards to your users? In this article we describe what is required on your side to implement virtual or plastic cards in your applications.

Let's imagine you are a fintech, crypto wallet, lendtech or any other company with a concrete target segment, some or thousands of users and you have a mobile application for your customers. You have decided to go live with card issuance in order to increase revenue and user loyalty. Below we describe the main decisions and steps you need to take to get ready for a card issuing program:

1. **Decide on a card issuing partner** - check out other articles we have on this topic in the Knowledge Center. Make sure that the partner has the necessary functionalities, legal requirements and flexibility that you can accept. Check your partner's financial standing. Contact us for more details.
2. **Analyse and describe your use cases** - describe user flows, develop some initial graphs of how key processes will work. Focus on user onboarding, Know Your Customer steps, card generation and activation, card management and transaction flows. Read the Developer Zone requirements during this step to make sure you are ready to integrate without difficult customisations.
3. **Check the legal environment** - try to analyse and understand the regulatory environment. Check if you can fulfill KYC requirements and how you can collect data from users. It is important that you submit a user selfie and document photos to the card issuer during the verification process. If you are working with us, please make sure that you have a European entity or branch in the EU to sign a contract with us for card issuing.
4. **Verify API integration** - go to the Developer Zone and analyse APIs or SDKs that you will have to connect to. If you want to avoid PCI DSS audits and associated costs, consider using SDKs. It is highly recommended if you have a large group of users.
5. **Make P&L analysis** - consider the revenues from card issuing and the costs of this product. Make sure you understand unit economics. You can use articles in our Knowledge Center to start this work. Choose an affordable partner - do not think that if something is more expensive, it is better in quality. The card issuing business is a cost-based business where low level unit economics matter, especially cost per card and cost per transaction. Revenue share from interchange fees or currency conversions is even more important than costs.

If you have checked these points, you are ready to sign a contract. Contact us sooner, let's work together. We can advise you on many of these points to build the best possible program for you. We have extensive experience in more than 30 countries on 5 continents. Make use of this

knowledge to get started.

Thanks for reading.

How Can I Reload Payment Account or Card?

There are many ways of transferring money to payment account or cards. In this article we would like to explain how it can be done with Verestro and in other cases.

Let's start with definitions so that we speak the same language. What is the card? What is payment account? What is IBAN? It seems simple but actually many customers are using those words in different way than they are.

- **Payment Account** - it is a place in the system of payment institution which holds information about money stored for particular customer. Just it - a kind of Record ID in payment institution. It is not IBAN, it is not card.
- **IBAN** - IBAN is payment account number in international banking standard. This number helps sending wire transfers to Payment Account.
- **Payment Card** - it is another number (PAN - Primary Account Number in terminology of Mastercard and VISA) connected with Payment Account and usually another payment instrument connected with Payment Account. Payment Card is a tool to pay using money on Payment Account and sometimes it is a way to transfer money to Payment Account. To be honest I do not know situations where Payment Card works without Payment Account. In some countries (like USA) usually Payment Account is not used in common discussions but in fact there is always Payment Account connected to Payment Card.

Once we know those 3 definitions let's think go into ways of transferring money to Payment Account which in other words could mean ways of reloading Payment Card. There are several ways that we can use:

1. **Bank transfer to IBAN** - in such case user is sending money from external bank account to our Payment Account using IBAN connected with our Payment Account. Usually it is very easy, fast and effective way of transferring money in case of domestic transfers. It could be costly way of reloading account if customer is abroad.
2. **Payout to Card** - in such case user is sending money from another bank or money transfer organisation using Payment Card number issued by Verestro and our issuing partner. Customer is using Mastercard Moneysend or VISA Direct to transfer money from another account to his Payment Account at Verestro. Usually it is very fast but not cheap way of money transfers.
3. **Card-to-card** - card-to-card transfer is used when user provides at external service another Mastercard or VISA card and transfer money to card issued at Verestro. In such case funding card (card issued by another bank) is debited and our Payment Card is

credited which means that money will appear on Payment Account soon.

4. **Reload by another card via PSP, Google Pay or Apple Pay** - in any wallet of our partners we can provide functionality called Paytool which enables charging another card and sending money directly to Payment Account of user. In this situation funding card is charged as if it was eCommerce transaction. User Payment Account can be reloaded quickly.
5. **Reload by partner** - in many cases our partners can use own funds to reload user Payment Account. Examples of such situations are lending institutions that issue card and reload Payment Account with loan amount. Similar example could be issuing cards for insurance related claims - in such situation our partner (insurance company) adds money to user card and sends card to insured person. Usually such reload happens via MasterBalance which is account that we hold for our partners and it contains their money. This account can be used for reload as is usually used for transaction processing.
6. **Reload by crypto assets** - in some cases it is possible that our partners send crypto assets and we will convert them in cooperation with our partners into FIAT currencies to reload user account.
7. **Openbanking** - our partners can use open banking PIS (Payment Initiation) messages to transfer money to user Payment Account. We can help with such reload tools using our Paytool product.

Those are ways of reload we use today. We are happy to work on other ways of money transfers and enable new ones.

Thanks for reading.

Card Lifecycle Management

Once launching [card issuing](#) projects, our customers usually forget that it is a long-term activity that requires constant verification and improvements. It is very important that you understand and manage your card holders and use best practices in card lifecycle management. Let me summarize key activities from a timeline perspective.

Stage 1 - choosing a card issuing partner

Obvious step. Everybody focuses on financials and technical integration. Very few people check value-added services and other products. Almost no one is aware of PCI DSS & other security requirements that will make your life easier on stage 4 and later ones. Another common mistake is that you do not check the financial stability of your card issuing partner as if it is not important for your business and users.

Stage 2 - implementation

Obviously important. No comments. Check Dev Zone and implement. Make sure your developers read specs carefully. Make sure you understand AML and KYC regulations so that you can comply with rules and the project can be built on strong fundamentals. A common mistake is not to consider Stage 4 - card lifecycle management processes are forgotten.

Stage 3 - launch

Everybody focuses on this moment, plans campaigns, distributes cards. And usually this is the last implementation step of this new product. It is a mistake.

Stage 4 - card lifecycle management

Once you are up and running, it is very important that you are able to monitor your portfolio, create reports, organise personalised campaigns and manage your portfolio in a very active way. There are several rules to follow in order to maximise your portfolio's earnings and performance. The most important ones are summarised below:

- **Portfolio Manager** - have people that will be responsible for the management of your portfolio. 1 person is enough at the beginning. Make sure these people understand goals and work to make your cardholders active
- **Reporting system**- make sure you have a flexible reporting system that gives you information not only about the number of issued cards and transactions, but more importantly on the behaviour of various customer groups:

- have reports how many customers used the card after 1-2 days, be able to find the user IDs
- have reports with customers that used the card after 5 days, 15 days, 30 days
- have reports on inactive customer groups
- **Actions** - be ready to act basing on the user behaviour
 - once you see that your customer is not using the card after 1-2 days - send him/her a notification or an educational reminder
 - once you see that the customer is not using the card for 15 days - maybe you should send a small digital gift to the customer and deliver it if he/she starts using card
 - if you see an inactive customer after 30 days - ask them why they are not using the card; maybe you will get a correct feedback
- **Reporting** - again and again check if your actions work correctly. What is their success rate? How are your customers changing their behaviour?
- **P&L analysis** - make a detailed analysis from a financial perspective, incentivise users to do transactions that are bringing more revenue, think of increasing monthly fees for non-active users
- **Quality reporting** - check the quality of your services, ask users for feedback regularly, collect information, analyse it, make actions to improve
- **Value-added services** - think of launching new services that can improve performance of your portfolio. Maybe a voucher-based ending, card-to-card money transfers, loyalty programs etc. Ask us for best practices and tools that are easy to use.
- **Education** (super important) - never underestimate the importance of educational messages. You can teach customers how to use the card on the internet, tell them how to tokenise the card in Apple or Google Pay, show them how to pay at ATMs. Card issuers tend to forget how cheap and profitable it is to work on user education. Do not assume that everyone everywhere uses payment cards the way you use them today. People sometimes do not know how to use 3DS, they are afraid to use it, etc. Work on that.
- Learn, change, improve...

Card issuing is a long-term activity. Please do not think that you will launch it and everything will work properly. You should be constantly working to attract more users and teach existing users how to use the cards so that they add real value to your business. Good luck!

Thanks for reading.

VISA or Mastercard ?

Sometimes our customers ask if it is better to issue VISA or Mastercard cards. In this article we would like to answer this question.

There are two main payment schemes in card area that have almost monopolised global card business - VISA and Mastercard. Next to them there are several local schemes, sometimes going global that are also worth thinking of in more sophisticated global projects (like UnionPay China, JCB Japan, EC Karte Germany etc.) but in general in majority of projects you will do some business decision if you prefer to issue VISA or Mastercard cards.

In one sentence answer is - usually it does not matter.

But if you go into details, depending on the country or type of program there may be some important differences worth considering. Below we present some important decision points:

1. **Financial and marketing support** - depending on the country and type of program VISA or Mastercard can decide to support financially or from marketing assets your program. If so, it makes sense to consider this as an important factor in decision making process. Check with your card issuing partner if there are such possibilities.
2. **Interchange differences** - in some countries (outside of European Union) there are slight but important differences in Interchange Fees which in the end means that you can earn more from every transaction. Check with your card issuer if such situation exists on your market. If you are going to offer cards globally, it may be also possible that inter-regional (inter-continental) transactions will be more profitable in one payment scheme. So it is worth checking.
3. **Cost factors** - usually fees connected with card issuing program will be dictated by your card issuer or BIN Sponsor but in some cases card issuer may have different fees depending on the cost of VISA or Mastercard transaction fees.
4. **Special local or global card benefits programs** - both Mastercard and VISA are developing various loyalty, discount, value added services that can make your program more interesting for users. In Poland, for example, Mastercard is running very attractive card benefit and loyalty program called "Priceless Specials". It is worth checking as it may be an important value added for your portfolio and users that may be much more important than any financial details.
5. **Brand and acceptance** - in 95% of countries there is no visible difference in acceptance and brand between VISA and Mastercard. But in some cases it exists. For example if you are going to issue cards in Hungary - Mastercard is much more popular and customers are used to it. It is worth checking before making decision.
6. **Educational and consulting support** - it can be valuable help. In various projects, countries or regions payment scheme can have services or people that can help you a lot

in defining good value proposition and important details of card issuing program. This may be very valuable as very often employees of Mastercard and VISA are very professional, have a lot of knowledge and can help you in developing your portfolio. If you have such support, try to use it.

7. **Shareholding connections** - in some cases (like Verestro) one of payment organisation (in our case - Mastercard) will be shareholder of your partner. It may be very valuable as you will have in-depth support of payment scheme and card issuer. It may be useful in various situations, difficult cases connected with rules etc. Make use of such cases, if you can.

Those are main differences. It is worth thinking of. In majority of cases your partner in card issuing will have some preferences and sometimes there will be no choice. But for sure it is worth taking into account during making decision on card issuer and payment scheme.

Thanks for reading.

Card Benefits in Card Issuing Projects

Once you are launching your card program it is important to think about additional benefits that you can deliver for your users or products that can increase value of your program. In this article we will show a few ideas and examples that you can use to strengthen your card project.

- **Education and messaging** - the most important but very often forgotten. No cost benefit. Just start teaching your users how to use cards, how to behave in secure way, how to pay in internet, how to connect to Apple Pay or Google Pay etc. Build ways or use our white label ways of communication. It will pay back for sure
- **Enable new ways of payments** - enable new ways of payments for your users. Teach them how to use their card in friendly, secure, internal environment. Maybe they can buy something on your platform, maybe you can enable money transfer from cards etc. Thanks to such activities you will teach them how the card works and what they can experience. You will lower the level of fear and risks they may fear at Point-of-Sale.
- **Insurances** - think of launching a program with insurances. This became very popular 10-20 years ago in card business. Many banks give users additional insurances that they can buy in their apps. Insurance is an ideal product and card benefit because it increases security feeling among your users. Examples of such insurances are eCommerce payment extended insurance, lost & theft insurance, travel insurance etc.
- **Point based loyalty program** - think of launching point based loyalty program or join existing one. We are using Priceless Specials program done by Mastercard. This can be a strong value added that you can communicate. You can also increase revenues thanks to it and increase cross-selling if you start giving points to users for using non-card based services that you are selling. It may seem difficult to implement but actually it is not.
- **Voucher based loyalty program** - once you have a growing number of users you can start arranging special promos with eCommerce or offline merchants. We can help with it as we are building network of such partners. Thanks to such activities your users will get additional margin or cash back and it will increase retention and happiness of your customers.
- **Premium cards** - maybe it is worth thinking of launching new gold, platinum or World Elite cards for your users. Maybe you could offer much better VIP service, together with concierge for much higher fees. It is very popular among banks and it is one of the easiest way to increase profitability of the portfolio.

There may be more activities but those are the ones that you can implement relatively quickly in order to offer better service and increase revenue.

Pre-paid, debit or credit cards ?

Before launching card issuing program our customers are thinking of card product they are going to use. In this article we will summarize key differences and considerations.

There are three main groups of payments cards: pre-paid, debit and credit cards. Below we summarize most important differences.

- **Pre-paid**

- user has to reload card account to use card (like in debit cards by the way)
- you can issue anonymous, non-reloadable gift cards
- in some cases merchants block BINs of pre-paid cards more often than for debit or credit cards
- you can have consumer and business pre-paid cards
- in many countries, from legal perspective, there is no difference between pre-paid and debit cards

- **Debit cards** - the biggest group of cards in the world:

- user has to have payment account or current account connected with card
- user has to go through KYC (Know Your Customer) process
- user has to reload payment account to use card
- usually you cannot issue anonymous cards, because in general they are always reloadable
- sometimes, if you give loan to customer, debit card can work like credit card
- you can have consumer or business debit cards
- you can have Gold or Platinum debit cards

- **Credit cards**

- user applies for credit and gets it in the form of card
- usually connected with revolving credit (something like credit line) and grace period (no interest for 40-50 days)
- because of credit, user needs to go through KYC and credit scoring so it is more difficult to issue than pre-paid or debit cards
- you can have Gold, Platinum or World Elite credit cards
- you can have consumer or business credit cards
- usually interchange fee is a bit higher than in debit cards
- sometimes approval rates for transactions are higher, some merchants (car rental) require credit cards from their customers

- because credit line is connected with this product, usually it is more profitable than pre-paid or debit portfolio

Those are differences between those products. In majority of cases you should be thinking of debit cards as they give you same advantages as pre-paid and you can convert them into credit cards by giving loans to your customers.

Tips to avoid problems when implementing card issuing

So you have a good business case for issuing cards for your customers and you found a perfect vendor who can provide formal and technical services in this area. Right after signing the contract you're ready to implement. What now?

Now it's time to make sure that the implementation will be as smooth as possible and you and your team won't get stuck on some of the common problems that may happen in the project. Of course each vendor has his own approach, but let us explain how to avoid some of them based on Verestro's experience.

Preparing everything for you takes a moment

Depending on your particular setup we will need 4-8 weeks to prepare everything for you. From dedicated environments so that your customers and their cards will always be safe and secure, to ensuring that you will be able to use the cards in Apple and Google wallets and that your proper logo will appear in the 3DS confirmation screen when customers will be paying online. In the meantime you can focus on understanding all the APIs using Sandbox environment and make sure that your team is ready for the work in front of them – for example by analyzing the documentation carefully. Our services will be available for you one by one, so you don't need to wait full 8 weeks to start implementation – usually first work on your side starts after 2-3 weeks from the kickoff meeting.

Test and adapt

Everyone is always eager to launch the product to final customers – that's obvious. But it's good to plan an extensive testing phase that will limit the potential volume of incidents that may happen once you're live. A simple successful transaction done in ecommerce and brick and mortar POS is a very good prognosis, but should not be the end of testing phase. Take into account different scenarios and edge cases (like reversals and refunds – or even partial reversals). Take into account that there are many players in the world of payments and that a simple transaction is actually a connection of several backend systems (acquirer, issuer, payment network, additional vendors). The more you test, the less surprises will be there in the end.

Knowledge and understanding is key

Issuing cards and processing transactions is unfortunately not like riding a bike – it's easy to forget. During the project with Verestro you'll learn a lot about the world of payments and cards. Make

sure this knowledge is gathered on your side and distributed between team members.

Plan your MVP

Rome wasn't built in a day. Best banks did not simply appear in a moment. Issuing cards is a vast topic that requires a lot of iterations to make sure the basics are solid. It's always good to start with essentials:

- Create user
- Create their balance
- Issue first card
- Digitize the card in Apple/Google Wallet
- Make first eCommerce transaction (with 3DS)
- Make first POS transaction
- Run 'friends&family' phase within your company
- Then start adding features and more functionalities

If you'll start focusing on 'nice-to-have' features too early in the process, you may lose sight of more basic processes that may cause delays in the whole project.

Having all of that in mind should make your project more streamlined and effective.

Know Your Customer – in-house or outsourcing

From time to time, our customers ask us whether it is better to perform **Know Your Customer** activities in-house or to hire a company to do it for them. In this article we would like to answer this question.

KYC activities are very important. **On-boarding** your customer is actually the first process that the customer uses, so smooth processes are critical for our future relationship with a particular customer. If the process does not work correctly, the customer can block and all our marketing and acquisition efforts will be useless. But how to do it right?

You can have 2 general scenarios:

Scenario 1 - build KYC in-house

You can start building this process yourself using **your IT team**. Actually, it is not so difficult. The process consists of a few **obligatory steps** that have to be performed by user:

1. Get user data
2. Get user photo or video
3. Get pictures of user's document or documents
4. Check sanction lists
5. Approve / decline / get into interaction

It seems to be easy but actually it is not so easy. There are some security and legal regulations that need to be fulfilled. There are specific requirements of payment institutions that will have to be fulfilled. You need to collect this knowledge, be ready to update your systems. Additionally, you have to think of automatizing this process on your side so that the user does not wait too long for approval of their application. From a financial perspective it sometimes can be much cheaper than automated KYC. Let's do a quick calculation. If you hire a person and pay 10 EUR per hour to this person for performing KYC activities you can imagine that such a KYC employee will perform simple consumer KYC actions (verification of data, photos etc.) for one customer during 1 minute. It means that the cost of processing a single application is 10 EUR divided by 60 minutes = 0,16 eur per user!!!

Additionally, if you need to perform regular scanning of sanction lists, avoiding per user costs becomes more critical because there may be requirements that users are scanned against sanction lists once per month... If you have 0,1 eur cost per such scanning it means that you have variable

cost of your operations. Very important disadvantage.

Advantages:

- Full control over the process
- Possibility of changing process in-house after product launch
- Full control over costs
- Possibility to avoid variable costs per user
- Possibility to avoid recurring costs per user
- Quicker responses to regulatory complaints as everything is in your system
- No dependency on external partners

Disadvantages:

- You need to spend time and energy on this process
- Time consuming process
- High fixed costs (team to develop and update the system)

Scenario 2 - outsource KYC

In this scenario you perform a tender and **choose the best KYC provider** for you. You can be quick with this process, you will get all technology this partner has but you will have to pay per user and maybe for some development and customizations. You will have an outsourcing company that most likely will have to be officially registered at your regulator as you are outsourcing anti-money laundering processes to this partner. It is definitely an easier process at the beginning of your journey but think about dependencies and cost.

In the long term you may also encounter problems with your partner that some specific requirements or unhappy path for your users does not work correctly. You should not think that you can automatize 100% of your on-boarding processes and you do not need to hire anyone. You must have some manual process, possibility to check application yourself and you must hold data yourself for future use.

From a financial perspective – you will have to pay per user or sometimes recurring fees per verification additionally. This may be a heavy cost for your business model. I think that this long term dependency is the critical disadvantage and you need to be careful.

Advantages:

- Quick time-to-market
- Professional processes achieved quickly

Disadvantages:

- High variable costs – clicks per user, monthly per user etc.
- Dependency on particular vendor
- Tendency to forget that you must have manual processes built together with such partner

- Risk of regulatory incompliance in case you do not monitor partner correctly

Summary

It is a difficult choice. In our opinion, in the short-term, it may be better to involve a 3rd party. However, in the long term, risk of dependencies, partner stability and variable fees seem important and you need to carefully consider if you do not want to have those capabilities in-house. Please also remember that while implementing 3rd party automatic solutions, you must have a manual process ready to process unusual customers.

Our services in this area are focused on this strategy. We use both 3rd party vendors and an internal system for managing KYC processes for ourselves and for our customers.

Reverse solicitation – marketing & promotion of card issuing in multiple countries

One of the **limitations in global card issuing** and account opening activities is connected with licenses and regulations for particular countries. Payment institutions like our partners have Mastercard or VISA licenses for particular countries as this is the way Mastercard and VISA system works. In European Union it is possible to get license for the whole region but in other countries and regions you must get license per country.

This makes the process of issuing cards in today's digital economy difficult, as you typically run promotions and marketing activities in multiple countries. You have users from Europe, Asia, Africa, America and other continents. It would not be wise to limit your payment services to users from certain countries.

This is a critical point that you should discuss with your card issuer at the beginning of your cooperation. The answer to this problem is not simple or black and white. There are some important considerations that we will present below:

- **Multi Card Issuing and Processing** - We believe that integration with multiple card issuers licensed in multiple countries is critical to the success of global programs. Verestro works with payment organizations in multiple countries and solves this problem globally. In such cases, these problems disappear.
- **Regulatory Compliance** - Your payment processor must verify that it is legally possible to open payment accounts and provide payment cards to users from many countries. In the case of Quicko (our BIN sponsor), we are allowed to open payment instruments and accounts to users from multiple countries, provided we meet AML requirements.
- **Mastercard and VISA Rules** - Mastercard and VISA give licenses for certain countries. It is impossible to get license for all countries. There are some specific processes to get approval for program in other countries than you have payment scheme license, but it is not clear in fact and there are some risks for each program.

So this is not a black and white issue. There are some general rules you should follow as our partner, so let us describe them:

1. You should be able to prove that the main focus of your marketing actions are **in Europe**. We may ask some additional questions. Mastercard can have a look at place where transactions are happening etc. Try to focus on Europe.
2. You should be able to provide proofs that even if we are distributing cards to people living abroad there is an economic interest of those people in Europe. Maybe they **travel to Europe**, maybe they **have employees in Europe** etc.
3. The best would be that your users have **resident addresses in the European Union** that they are registering during card on-boarding. This solves all the problems.
4. We would like to approve marketing activities in countries outside of Europe. It is important that we are aware, maybe we **inform local Mastercard** so that they are aware.
5. We are and will be working with many partners globally to **solve such problems** in the long run.

Please cooperate with us in this area. It is an important topic in our cooperation and we do want to support you to be able to issue cards globally.

Payouts to Cards & Money Transfers

Here you can find information about money transfers to Mastercard and VISA cards.

Payout to Cards

How does Payout to Cards work? Payout to Cards is a relatively new area of payment business that is not very common, so this article brings more information about it.

What is Payout to Cards? Actually, the answer is simple. It is nothing more than a normal bank transfer, but made to a card number instead of a bank account number.

Transfers to bank accounts are pretty common and I guess we understand how they work. A bank or another financial institution connects to Automated Clearing House (usually National Clearing Center or National Bank or inter-bank organization), implements the solution on both frontend (internet banking, mobile banking, internal systems) and backend (integration with core-banking system and ACH), and once Customer wants to send money and enters IBAN (bank account) of the receiver, the transfer is performed. In such a case the bank sends technical information to ACH and sends money or performs settlement either with another bank or National Bank, or any other payment organization responsible for this transfer.

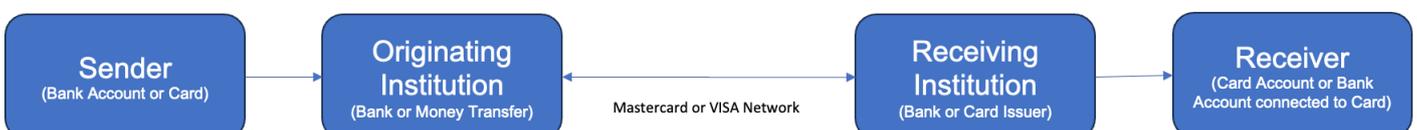
Payouts to cards work completely in the same way, but the money transfer is done to Mastercard or VISA cards. At Mastercard, this solution is called "MoneySend" (sometimes Mastercard Send or Cross-Border Send), while at VISA it is called "VISA Direct". In case of such a transaction Customer of the bank or any other money transfer organization initiates payment via the Internet or mobile application and sends money to the Primary Account Number (card number) of the receiver. The settlement of money happens via the Mastercard and VISA networks - actually through settlement bank accounts registered at Mastercard and VISA to perform a card transaction. Money is taken from the settlement account of Originating Institution (sending institution) to the settlement account of Receiving Institution.

We present this on the chart below.

Standard Banking Transfer



Payout to Card



In fact, there are not many differences between a standard bank transfer and Payout to Cards. Real differences are a natural result of using payment cards to process transactions. The main differences are:

- **Pricing** - obviously pricing of such a Payout to Cards is different than a standard banking transfer - usually more expensive. This is the outcome of the pricing policy of VISA and Mastercard. Nothing else. On average, Payout to Card costs around 0,5-1% + 0,1-0,8 EUR per transaction.
- **Speed of the transfer delivery** - Receiver of a Payout to Cards transaction usually receives money (globally) within 30 minutes. It is a big game changer compared to SWIFT or SEPA transfers. It really works globally. Imagine that you can send money from Brazil to Germany in 30 minutes! From Singapore to Pakistan in 30 minutes!
- **Using a card number** - Receiver needs to share his/her card number (only 16 digits) with Sender. This is a significant problem because we do not like sharing card numbers with other people. Actually we are taught that it is risky. This can impact a user conversion in many use cases.
- **Issues with a receiving network** - Sometimes it is difficult or impossible to send transactions to particular countries. For example Germany or the USA are countries where such transactions are blocked - banks usually do not accept receiving Payouts to Cards. This may be a problem for some use cases and some transaction corridors.
- **Maximum transaction value** - VISA and Mastercard decided that there are some maximum transaction values. Usually it is around 5-10k EUR or USD per transaction. There are also some monthly limits per user. It does affect the user experience but this value is growing over time.

In general, it is a great functionality that works well for banks around the world as competitive to SWIFT and ACH. It gives added value to the user who wants to transfer money quickly, especially internationally. Worth considering for all money transfer organizations and banks. The implementation of Payout to Cards can be greatly simplified by Verestro and our partner payment organization Fenige. Please check us out!

Currency Management in Payouts to Cards

There are many questions about how to manage currencies in payout products. Let me briefly describe several possible scenarios.

Let's start with dependencies that have an impact on choosing various scenarios.

1. **Sender's card account currency** - first you have a user with a payment account in a particular currency, for example USD, EUR, CHF, RON etc.
2. **Transaction currency** - transaction that sending user can choose
3. **Acquirer settlement currency** - there are settlement currencies that an acquiring institution (Originating Institution) cooperating with VISA or Mastercard uses to settle money with them, for example USD, EUR, PLN. Of course, it can differ from the user account currency.
4. **Receiver's card issuer settlement currency** - a bank, which issues a card for the receiver, can have various settlement currencies with Mastercard or VISA.
5. **Receiving card settlement currency** - additionally, there is a settlement currency of the receiver's card, issued by another bank. It can be any currency, for example UAH, CZK.



That's why it is complex. At various levels of transactions there are various currencies and of course in case of currency conversion at any step various additional FX fees apply. That's why the choice of currency management strategy is not an easy one.

Additional decision factors are related to particular use cases I want to present. There are a few possible ways of offering Payouts to the user. Let's have a look at 3 scenarios:

1. **User chooses how much money in their currency they want to transfer** - example: User has an account in USD and wants to send 100 USD to a friend. User does not know if the friend has an account in USD, EUR or PLN. He/she does not care.

- A. In such a case there is no problem if Sender and Receiver, Acquirer and Issuer have an account in the same currency as available settlement accounts of Acquirer. Transactions will be processed and settled in the same currency through the chain. This almost always applies for USD, EUR transactions.
 - B. If Sender has an account in USD, Acquirer has a settlement currency in USD, Issuer has a settlement currency in EUR, Receiver has a card account in EUR, there will be currency conversion that will happen on Receiver's side. His/her bank (card issuer) will convert the incoming USD to EUR and charge currency conversion fees.
 - C. If Sender has an account in CZK, but Acquirer does not have a settlement currency in CZK, but only USD and Receiver has an account in USD, there will be conversion happening on Sender's (acquirer) side. The sending institution will convert 1000 CZK of User to USD, will charge currency conversion fees and Receiver will receive USD after conversion. Receiver's bank will not get any currency conversion fees.
2. **User chooses currency of Receiver** - Example: User has an account in USD but needs to pay 100 EUR to Receiver because he/she knows that Receiver wants to get 100 EUR.
- D. It is possible to recognise the settlement currency of Receiver thanks to BIN tables shared through payment schemes. Thanks to it Sender will know that Receiver's card is issued in USD, so only USD will be allowed for this transaction. In such a case currency conversion will always happen on Sender's side. In case User has an account with EUR, their Acquirer (Originating Institution) will convert 100 EUR to USD and will initiate a transaction in USD. In case User account is in a different currency than the settlement account of Acquirer, additional currency conversion fees will apply and will be charged by Acquirer.
3. **User does not have a choice** - in such a case we offer only a payment in currency defined by the payment provider, for example always the same currency as the User account.
- E. In such a case User can send only one currency. Usually the same as his/her account currency. If User's account currency is the same as the settlement account of Acquirer, the transaction will be processed as in point 1B, which means that currency conversion can happen on Receiver's side if Receiver's card currency is different from the settlement currency.
 - F. In case User can send money in the currency which is not the settlement account of Acquirer in, some additional conversion fees will apply on Acquirer's side (like in scenario 1C).

It may look complicated, but if you look at it from the point of view of currency conversion points (5 places where conversion can happen) it is easier to understand.

Our recommendation is to use Scenario 1 and focus on implementing Scenario 1A (we can enable currencies which will be the most popular for your payment corridors). In some cases our partners use Scenario 2. It is important that calculation of commissions and spread is always dynamic, so Sender knows in advance the cost of these transactions.

I hope this article can help you understand currency conversion details. Thank you for reading.

KYC requirements in Payout and Money Transfer projects

Know Your Customer (KYC) processes usually generate many questions. Key requirements and decision points are summarized in this article.

The KYC regulations are directly related to AML (Anti-Money Laundering), regulatory and payment scheme requirements. In general, any payment or banking institution has to know who their customers are, what the source of their customers' money is and how the customers use the money held by the payment institution. To limit the risk of supporting terrorist or illegal activities, regulators require payment institutions to be aware of and monitor them.

The key question in every project is: "Who is the owner of the money on the account?" There may be the following situations:

1. **CONSUMERS** - If consumers own the money on account, the KYC process has to happen. It usually means that the user (consumer - not a company) needs to provide his/her ID document or passport and selfie, a meeting or video call needs to happen to make sure that the consumer is a real person who signs a contract with the payment institution. There are many additional verification ways that the payment institution may require, but these are the main ones.
2. **BUSINESSES** - If a company owns the money, the KYB (Know Your Business) process has to happen. It usually means that the user (company owner, manager etc.) needs to provide not only his/her ID document and make a selfie or a video call, but the payment institution needs to check beneficiaries (owners of more than 25% of shares in the company).

In both cases, the payment institution is obliged to check whether the consumer, company director or company owner is on various sanctions lists, e.g. OFAC or UN sanctions lists.

The above rules are critical and in fact all other implications are results of them. In projects related to the implementation of Payout to Cards, the first question we need to answer is: "Who is the owner of the money on the account?" If the consumer is the owner of the account (scenario 1) - the consumer must go through the KYC process. If the business is an owner of the money on the account (scenario 2), the KYB process will have to happen and there will be no additional KYC.

In the majority of Payout to Cards projects we are in Scenario 2. It means that the KYB process needs to happen and there will be no additional verification of consumers. The reason for that is that we usually talk with payment institutions, wallets, fintechs that have registered users, the

users have their accounts (already after KYC) and our money transfer institution will work directly with this business customer to enable Payouts from accounts of this payment institution to the receiver. The account owner will be a payment institution or a business that we work with. From a legal point of view, our customer (B2B customer) will take money from the user's account, place it on their own account and initiate a payment to the receiver from their own account. In such a situation we will do KYB, we will verify if our partner has a legal right to perform such activities and it will be enough. We will request our partners to send us some customer (Sender) data including the first name, last name, but nothing else.

In some situations there will be a need to initiate direct payments from the consumer account to the receiver - Scenario 1. In this scenario we will require that either the partner does a professional KYC process according to requirements (see above) and sends results of KYC to us, including a selfie, ID documents etc. Or in specific cases we can perform KYC on behalf of the partner.

I hope I clarified the topic. Please make sure that you define quickly if you are in scenario 1 (consumer KYC) or scenario 2 (business KYB) and you can quickly enable Payouts with us.

Thanks for reading.

Various forms of money transfers

There are multiply forms of money transfers. In this article we would like to summarize the most important pros and cons of every solution:

1. **SWIFT** (Society for Worldwide Interbank Financial Telecommunication) - inter-banking payment scheme enabling global transfer, International standard
 1. Pros - almost any currency; global network, unlimited amount of transfer
 2. Cons - time of transaction (sometimes a week); cost of transaction (example: 0,3%+10 usd or more); available to banks only
2. **Payouts to Cards** - using Mastercard and VISA network, global transfers, international standard
 1. Pros - almost any currency; global network; speed (even 30 minutes to transfer money between continents)
 2. Cons - Cost of transaction (example: 1% + 0,5 usd), limited amount of transfer (10.000 usd)
3. **Crypto** - using cryptography to transfer value, global transfer, international standard but sometimes forbidden by law
 1. Pros - multiply but virtual currencies; global network; speed (even 5 minutes)
 2. Cons - high costs (example: 1-2%), very often forbidden by regulators, risk of loosing money, needs crypto exchange involvement
4. **SEPA** (Single Euro Payment Area) - European standard or euro currency standard
 1. Pros - speed (immediate or 1 day), price (below 1 EUR)
 2. Cons - works only from EUR to EUR, works only in European Union
5. **Payouts to wallets** - various providers offer various payouts mechanisms to multiply local wallet providers or cash-out networks
 1. Pros - localization
 2. Cons - no global standard in speed and price, usually more expensive
6. **Virtual cards** - you can issue virtual card, send card data to receiver and receiver can use card globally
 1. Pros - global standard, very quick and very cheap, receiver can use card for ATM withdrawal, POS and eCommerce payments
 2. Cons - not standard way of sending money, receiver reluctance
7. **Local ACH** (Automated Clearing House or local scheme) - there are multiply local or national payment schemes globally that you can use once you integrate with them. Usually require bank license to integrate.
 1. Pros - quick and cheap, standard in the country

2. Cons - no global standard, works only locally

If you are asking yourself which solution you should use for your user it is actually a wrong question. We recommend to use all. Give choice to your users, apply various fees on various methods of transfer, let users choose the best way of payments for them. It is actually very important strategy because:

- for users in Poland SEPA transfer or local ACH are the most common ways of payments nowadays
- for users in Ukraine Payouts to cards are the most common mechanism they have been using for years
- for users in USA SWIFT or local payment schemes are the most common mechanism

If you are building international service, you really need multiply ways of sending money for your users.

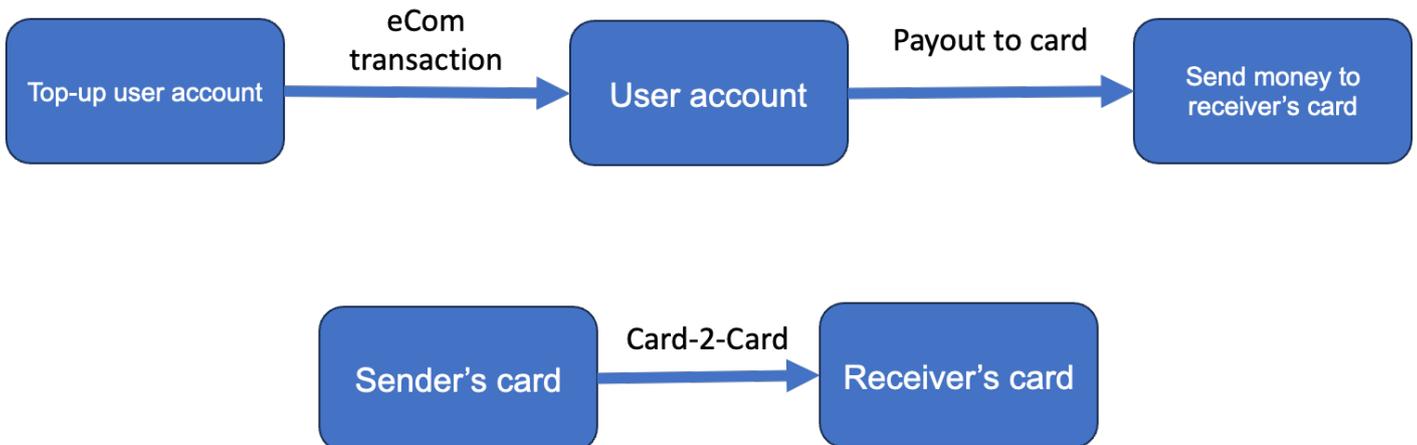
Thanks for reading.

Payouts, eCom Transactions or Card-to-Card Payments?

While thinking about card based money transfer solutions our partners usually ask for three products - payouts to cards, eCom transactions or card-to-card payments. In this article we will describe differences between those 3 ways of money transfers.

Let me start with a chart.

Three forms of card based money transfers



There are three use cases that you may be interesting in. Choice of product depends on use case decision.

Use Case 1. Top-up user account - in this case our starting point is user's account kept somewhere in your systems. Your users have need to reload this account with money. You can use various forms of transfers to your account but if you want to reload account from Mastercard or VISA card we should enable eCom transactions to you. You will be registered as merchant with our partnering acquirers and we will enable payments using cards, ApplePay, GooglePay or other means of payment.

Use Case 2. Payout to card - in the case we assume that your user has account and money on this account. Our need it to enable payments from this account to any card in the world. This money transfer will be very quick - less than 30 minutes. In this case you should be using our product called "Payouts to cards". This will enable your user to transfer money to any Mastercard or VISA card.

Use Case 3. Card-2-Card - in this case our assumption is that you do not have user's account. You do not store money of your users. You just want to enable money transfer service from one card to another card. From Mastercard to VISA, VISA to Mastercard or Mastercard to Mastercard or VISA to VISA card. In such case we recommend that you use card-2-card product.

It is important not to mix those use cases and choose correct product. All three products have different fees, AML requirements so please think of your use case and let's decide what to use.

Thanks for reading.

Tokenization & Contactless

More knowledge on ApplePay, GooglePay, HCE and other ways of NFC and eCommerce payment using tokenization (MDES and VTS)

Issuer Wallet and ApplePay / GooglePay - Differences

As we have implemented more than 50 contactless and tokenization projects for banks, fintechs and other payment institutions, let me share a quick view on key differences between various types of contactless payment technologies.

X-Pays

If you are a card issuer in today's world, you usually need to implement ApplePay and GooglePay to let your users benefit from various payment activities on mobile phones. We think it is obligatory in today's world for standard card use cases. The power of Apple and Google is so strong that avoiding these platforms really impacts your customers.

In general, implementation of these technologies is not difficult. If you use our Token Management Platform, implementation time can be reduced to weeks. Additionally, you have to sign contracts with Apple and Google. In the case of Apple, they charge additional fees for registering a card at ApplePay. In the case of Google, they collect all transactions of your users to earn money on advertisement and data management. These are key disadvantages. In both cases you have to follow their requirements and changes, but if you cooperate with certified providers, you do not have problems with this, as a processor can solve these problems on your behalf.

Both Google and Apple solutions enable contactless, inApp and eCommerce payments on their browsers. The non-contactless payment transactions are an important part of these projects. You should focus not only on contactless payments.

It is worth mentioning that implementation of tokenization usually gives you access to other X-Pays like Fitbit Pay, Garmin Pay or others. They are much smaller companies and we treat them as nice-to-have in card issuing projects today.

Issuer Wallet SDK

Before Apple Pay and Google Pay appeared, both Mastercard and VISA invented other ways of contactless payments on mobile phones. They were called differently, but today they are mainly called Issuer Wallets. In such cases you do not sign contracts with Apple or Google, but you implement technology (both mobile SDKs and backend) that allows you to go live with contactless payments on mobile without signing contracts with Apple or Google. Actually it was possible for Android only, but recently (2023/2024) Apple allowed non-ApplePay contactless payments on iPhones in the European Union.

In such cases you need to get and certify SDKs and backend components to go live with contactless payments. Such developments usually take 12-24 months and the software must be kept updated all the time, so it is actually better that you try to use a certified partner for this activity to avoid on-going development costs just for your project. From a contactless use case perspective, transactions work in a very similar way to X-Pays, but you have more flexibility. On Android, for example, you can implement a contactless payment just after unlocking the phone screen. You can - but do not have to - ask for additional authentication. You are also sure that data of your users and their transactions will not be shared with external entities (Apple and Google) for their benefit.

A big advantage of the Issuer Wallet SDK is that it can work not only on Android phones - for example, we have live implementations on Huawei devices. This detail has an important business impact on your users.

In today's world, working with Apple or Google is obligatory in our opinion, but we strongly recommend implementing Issuer Wallets at the same time, as it will give you more flexibility and business security in the long run. The costs and processes do not differ a lot, but the additional benefits of an issuer wallet such as flexibility, more devices, lower transaction costs make it worth implementing.

Thanks for reading.

NFC on iPhone/iOS

What happened?

As part of an agreement between the European Union and Apple, Apple has decided to open access to its NFC module to 3rd party developers. It allows the creation of solutions for contactless payments (HCE), an alternative to Apple Pay.

This article aims to explain the challenges and opportunities related to this technology.

How it works?

- **NFC payments.** Users of participating third-party banking or wallet apps can initiate NFC transactions from within the app with compatible NFC terminals.
- **Default app settings.** Users can choose any eligible app as their default contactless payments app which will enable the app to support Field detect and Double-click features.
- **Field detect.** The default contactless payments app automatically launches when the user places the device in the presence of a compatible NFC terminal and after user authentication (if the iPhone is locked).
- **Double-click.** The default contactless payments app automatically launches when the user double-clicks the side button (for Face ID devices) or the Home button (for Touch ID) and after user authentication (if the iPhone is locked).
- **Payment support for non-default apps.** Eligible apps running in the foreground can prevent the system default contactless app from launching and interfering with the payment.

What are the differences compared to Android?

Since 2013 Android allows implementing alternatives to Google's own Google Pay, and there are already a few mature solutions on the market. [Apple's NFC API](#) offers very similar capabilities from both a technical and user experience perspective. However, there are a few differences:

- **Not possible to directly ask a user to set your application as the default NFC payment app** - on Android, when users open your app, they can be presented with a dialog window that asks them if they want to use your app, as the default NFC payment app. Apple's documentation doesn't seem to hint at such a functionality.
- **Apple needs to give you special entitlement to access the NFC module** - without Apple's approval, it's not possible to include NFC payments into your app. This entitlement can be requested here: <https://developer.apple.com/contact/request/hce-payments-entitlement/>

- **Security certification** - every app enabling NFC payments needs the EMVCo certification. As NFC on the Apple platform is a new thing, it's still not clear how exactly security certification will look like, however due to fundamental differences between Android and iOS we can expect slight differences.

What are the differences compared to Apple Pay?

Apple's API allows 3rd party developers to implement most of the functionality offered by Apple Pay. Two slight differences are:

- Power Reserve Mode - Apple Pay allows payments with the default card for some time after the iPhone battery is depleted.
- Express Transit Mode - allows to pay for public transport tickets in a few areas with compatible cards, without unlocking the iPhone. Full list of locations is [available here](#).

Will it work outside the EU?

Companies registered in the European Economic Area can offer this functionality to customers based in EEA. The table below shows various combinations of companies wanting to offer HCE payments in their App and customers, and the expected outcome according to Apple's requirements.

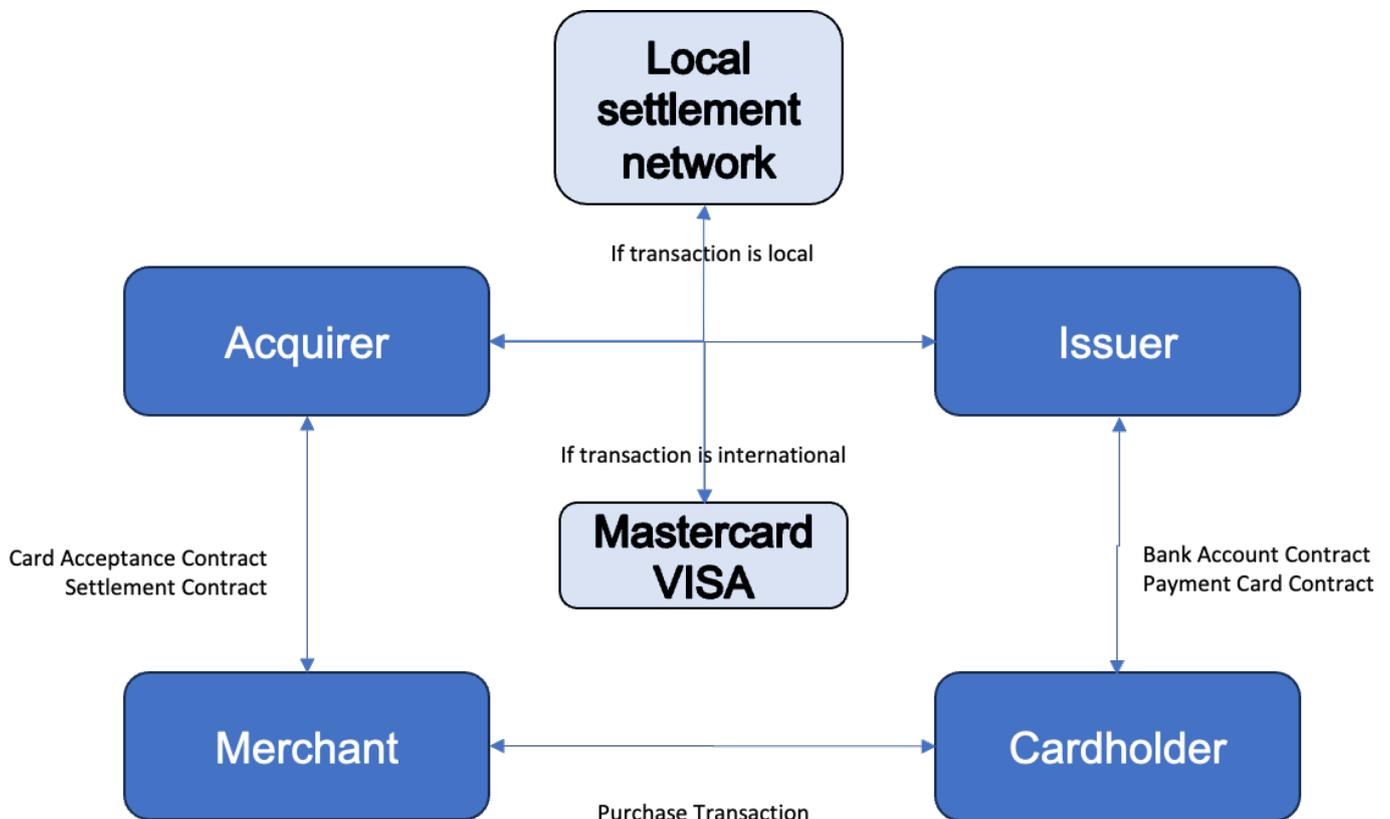
	Company developing App established & licensed for payments in EEA	Company developing App not present in EEA or not licensed for payments in EEA
EEA citizen, transacting in EEA country	HCE available	HCE not Available
EEA citizen, transacting outside EEA (traveling)	HCE available	HCE not Available
non-EEA citizen, transacting in EEA country (traveling)	HCE not Available	HCE not Available
non-EEA citizen, transacting outside EEA country	HCE not Available	HCE not Available

Pay by Account - NFC from bank account

As we have done several Pay by Account projects I would like to share some information what is the best way to implement such solution.

Pay by Account or in other words mobile NFC payments directly from bank account is an important product development step for many local schemes. Usually it is not enough to enable money transfers, QR payments or bill payments and it would be beneficial to make use of global authorisation and clearing network of Mastercard and VISA. In such case users of local schemes like BLIK in Poland or PIX in Brasil could be using or are using mobile phones to pay globally.

The solution is not difficult to implement using virtual cards and some local settlement ideas. There are the following architectural components:



Key implementation steps are the following:

1. Every user interested in using contactless, eCommerce, or inApp payments will get hidden virtual payment token
2. Token will be tokenised at mobile phone of the user (usually Issuer Wallet SDK) and will be used for payments on standard Mastercard or VISA acceptance network
3. In case token is used to do domestic transactions at acquirers and terminals integrated with local scheme, authorisation and clearing will be routed to local scheme
4. In case token is used for international transactions, globally, at any terminal in the world, authorisation and clearing will happen via standard Mastercard or VISA settlement network

To enable this project you need to have virtual card issuer or card issuing processor with super low fees per card - test us :) You will also need some support of Mastercard or VISA to agree on such processing mechanism. Additionally certified SDKs and backend components for contactless payments will be necessary (we can provide as well).

There have been already several implementations of similar schemes in the world. We are happy to discuss this setup in more details.

Thanks for reading.

On-device tokenization in India

Payment law in India required a few years ago that server based card-on-file systems are not allowed. Instead, there is a necessity to store user data on-device to perform transactions.

This is an interesting topic that impacted a lot of local players like big merchants, Cred, Phonepe or Amazon so let me describe it in some details because maybe it will be implemented in a few years in other countries as well.

Requirement for storing tokens in a secure way on customer devices forces us to implement and certify secure SDK in which payment token data will be saved. It is a similar concept to standard HCE (Host Card Emulation) implementation for mobile NFC payments. While registering to a merchant or wallet system, the user adds a payment card, performs tokenization with approval (One-Time-Passwords) of the issuing bank and the token connected with his card is stored in this wallet / SDK.

Once we have a secure place of storing the user's token on his mobile phone we can use this token for multiple purposes:

1. NFC / contactless payments - the user uses his phone to perform transactions on a contactless acceptance network. Token and payment keys are transferred through the contactless interface to the payment terminal and acquirer for authorization.
2. inApp - the user chooses products and adds them to the basket in the merchant app, clicks that he wants to pay with a particular wallet or payment brand and confirms the transaction in a wallet app. The token is taken from an SDK, transferred to the cooperating acquirer in the form of a DSRP message (Dynamic Secured Remote Payment) and processed in standard way
3. web purchase - the user chooses products and adds them to the basket on the merchant website, clicks that he/she wants to pay with a particular wallet or payment brand and receives a push notification in his/her mobile app to finalize the transaction. As above, the token is taken from an SDK, transferred to the cooperating acquirer in the form of a DSRP message (Dynamic Secured Remote Payment) and processed in standard way. There could be a possibility to store the token inside the browser of the user on his laptop / PC but this requires more discussion with Mastercard and VISA.

To enable these use cases, several implementation points needs to be considered:

- types of devices - an inApp and web purchase can work on all devices (iOS and Android) but NFC is enabled on Android only. Apple is blocking the NFC access outside of the European Union today.
- VISA vs Mastercard - do you need a solution working for both schemes? Are there any local certification requirements?
- Issuers - are banks ready to connect to your new X-Pay wallet? Which banks are enabled on local markets?
- local on-soil requirements - is there a need to store data in the country? What are the legal impacts?

This is an interesting development and area of work. We are live with a few partners and are happy to work with new ones. Please contact us if you are interested.

Thanks for reading.

White-label App vs. In-house App Development

In the world of growing IT development costs, our customers are asking more and more questions regarding white label frontend and mobile app development. In this article we will focus on the most important advantages and disadvantages of using white label frontend products.

Let's start with an introduction. As a company willing to launch new fintech products or willing to implement a mobile application for your users or employees, you need to make a business decision on how to implement it:

1. **Your own development (in-house)** - in this case you will hire developers, choose a front-end technical framework and will work with your team to implement a mobile app fully dedicated to your business.
2. **Choosing a white label product** - in this case you have to choose a vendor of a white label application, learn how to customise this application and eventually hire a team that will work on customisations necessary for your business use cases.

This choice is actually a super important decision that many business people underestimate. Let's focus on the key advantages and disadvantages of working in both models.

Scenario 1 - In-house app development

This is a common scenario for many banks, new fintechs, corporations, etc. It seems to be very easy. You will hire one or two developers for a few months and after this period of time you will have a perfect product that will include multiple functionalities. You can then resign from developers and have great business use cases for your customers. To hire developers you will usually try to hire an external IT outsourcing company that will promise to you that it is easy, fast and inexpensive.

Nothing in the above sentences is true! :) Really nothing. Many business people, especially company managers, think that front-end development is easy. That everything works great on any type of phone and that integrating backend APIs is super easy and fast.

Disadvantages

In reality, it takes time. A lot of time. To have a very good front-end product built from scratch, without bugs, you usually have to plan 12-24 months of constant development, tests, changes etc. And after this period you cannot resign from the development team. You need to have people that will work on changes, updates, will implement technical updates required by Apple, Google,

security rules etc. Let's do a quick calculation. The smallest IT team today consists of 4-5 people: backend developer, frontend developer (one or two depending on chosen technology), tester, product owner / scrum master / project manager / UX person. If you want to have fast development, this team should be bigger (8-10 people). Additionally you need hosting services - AWS or Azzure can quickly become a large part of your cost structure. You need additional software and systems connected with development work, such as Slack, Jenkins, Kubernetes, etc. All of this costs money. In short, you should expect the following costs:

- 5 people * min. 6.000 EUR average cost = 30.000 EUR monthly
- 5.000 EUR hosting monthly
- 1.000 EUR additional costs
- not including office costs, bonuses etc.

TOTAL: 36.000 EUR monthly cost -> FOR THE SMALLEST POSSIBLE TEAM!

And let's imagine that you have to spend 10 months for MVP development -> 360.0000 EUR one-time fee.

It is the cost you have to cover just to implement your MVP. Without any marketing, without any customer reactions, no sales during the period. In reality I think that you should assume that this cost of doing the implementation in such a way is 2-3 times higher than this minimum cost - almost 1 mln EUR.

Additionally, you should take into account that development done by a very small team requires technical compromises. Most likely you will not use Native iOS and Android technologies that are the best from UX perspective. IT companies will recommend to you various hybrid technologies which is always a compromise in the UX area. You will also not gather experience from other projects done in similar areas. Your mistakes will usually be first mistakes, your developer mistakes will require updates, etc.

What's even more important, you need to think about long-term development, hosting and maintenance costs. Maybe you can limit the team by 50% but costs of hosting will grow for sure with new users coming to your system. I would assume that you will have a monthly cost of 10-20.000 EUR to cover to keep the application running.

Advantages

Apologies for describing so many disadvantages but I think it is true. However, there are big advantages. If you can afford those costs and time spending, you will have full freedom. You can do with your app whatever you want to do. You can implement new features, change everything, implement new technology quickly. The dependency is only on your budget. I fully admit that this is a super important advantage that can be strategic for many start-ups and companies. I am just not sure that you must get this advantage at the very beginning of your project. Sometimes cost and time is much more important than full freedom of development. Go-to-market time may be decisive for getting new investors, growing revenues will be critical to proving that there is a problem you are solving.

Scenario 2 - White label application

Using a white label application is another strategy you can choose. In such a situation the majority of components of your application are already developed. You use an already existing product that can be customised to your requirements and you hire your developers just in case you want to make various non-standard changes in the app.

The following rules for choosing a white label application vendor are very important:

- Carefully choose **technology** - please remember that native iOS and Android solutions are just better from the UX and performance behaviour. This is what Apple and Google use for their apps.
- Check the **possibility of customisations** - make sure you understand flexibility of the product, if you can add new features, if your developers can work on the code, if you can change just colours and logo or the entire look and feel in the long run.
- Verify **experience** - check examples of other customers using this product. See how they look like, test them.
- **Prices** - obviously important. Remember to check both one-time and on-going maintenance prices. The 2nd ones are even more important.
- **Intellectual property** - very important. Is it possible that you get full IP rights to the copy of your application. Would you be able to change the development later to your own development.
- **Security and financial stability** - make sure you work with a partner that is financially stable and will not close your project in the middle of the development.

These are the most important issues that you need to check. Once you check them and they are acceptable for your business, you may get a result that your product can be 5 times faster on the market, costs can be 4 times lower, revenues will appear much faster etc. Today, the cost of white label applications can be as low as 40-60.000 EUR for development. The maintenance - 4-5.000 EUR. It can be critical for the business, especially during the first phases of growth.

Summary

I recommend that you do not believe that the world of front-end development is simple and inexpensive :) Do not make this mistake. Consider carefully if you have enough time and money. In fact, one of the most important aspects of project development is the comparison of revenues and costs. Costs are known for sure. Revenue is usually unknown. Make sure you do not overinvest. It is very easy to make a decision that you want to spend half of your 2 mln EUR on technical solution but actually it will be much, much better if you spend 200.000 EUR on a technical solution and the remaining 800.000 EUR will be used for promotions, marketing, user acquisition. This usually matters the most.

Anyhow, good luck. Thanks for reading.

Multi-acquiring in eCommerce Payments

When you are thinking of starting acceptance of eCommerce payments via cards or other payment methods, you should definitely consider long term strategy and multi-acquiring scenario.

Starting point for any merchant, marketplace or other digital platform is the way you are going to charge users in Internet. Normally, you are thinking of choosing acquirer like Stripe, Adyen or local providers from your country. Let's think of strategic implications.

Assuming you have one acquiring partner at a time and you customise your platform to their requirement you are actually building very strong dependency on this partner. Very often you will ask this acquirer to provide Card-on-File functionalities, cards of your users will be stored by this acquiring partner. Sometimes acquirer will have features that support easier transaction conversion but they will be hosted on the partner side to avoid PCI DSS requirements and costs. By implementing such functionalities that will be good for your users and UX, you are actually becoming more and more dependent on your acquiring partner. It means that your negotiating power is going down and cost of transaction processing will grow.

The bigger your business is, the bigger the problem is. What is the solution to such situation?

It is called multi-acquiring. You should choose technology platform, compliant with PCI DSS requirements that can integrate with multiply acquirers globally so that you are not dependent on a single acquirer but have technical platform which enables switching transaction from one acquirer to another one. Such platform should enable tokenization of cards and transactions, should take all PCI DSS problems from your shoulders, should be integrated with multiply acquirers from the moment of start. Thanks to it, you can switch VISA transactions through one acquirer, Mastercard through another one. You can use one acquirer on Mondays and another one on Fridays. You can switch transactions done in Europe with one acquirer and performed by users from America with another acquirer.

It gives you flexibility. It improves conversion rates. It gives you opportunity to negotiate transaction fees regularly. It does not increase costs on your side as you have multiply partners integrated to the platform which means that you do not need to cover all costs of integration yourself.

Multi-acquiring is a very powerful tool for developing your eCommerce business.

Thanks for reading.