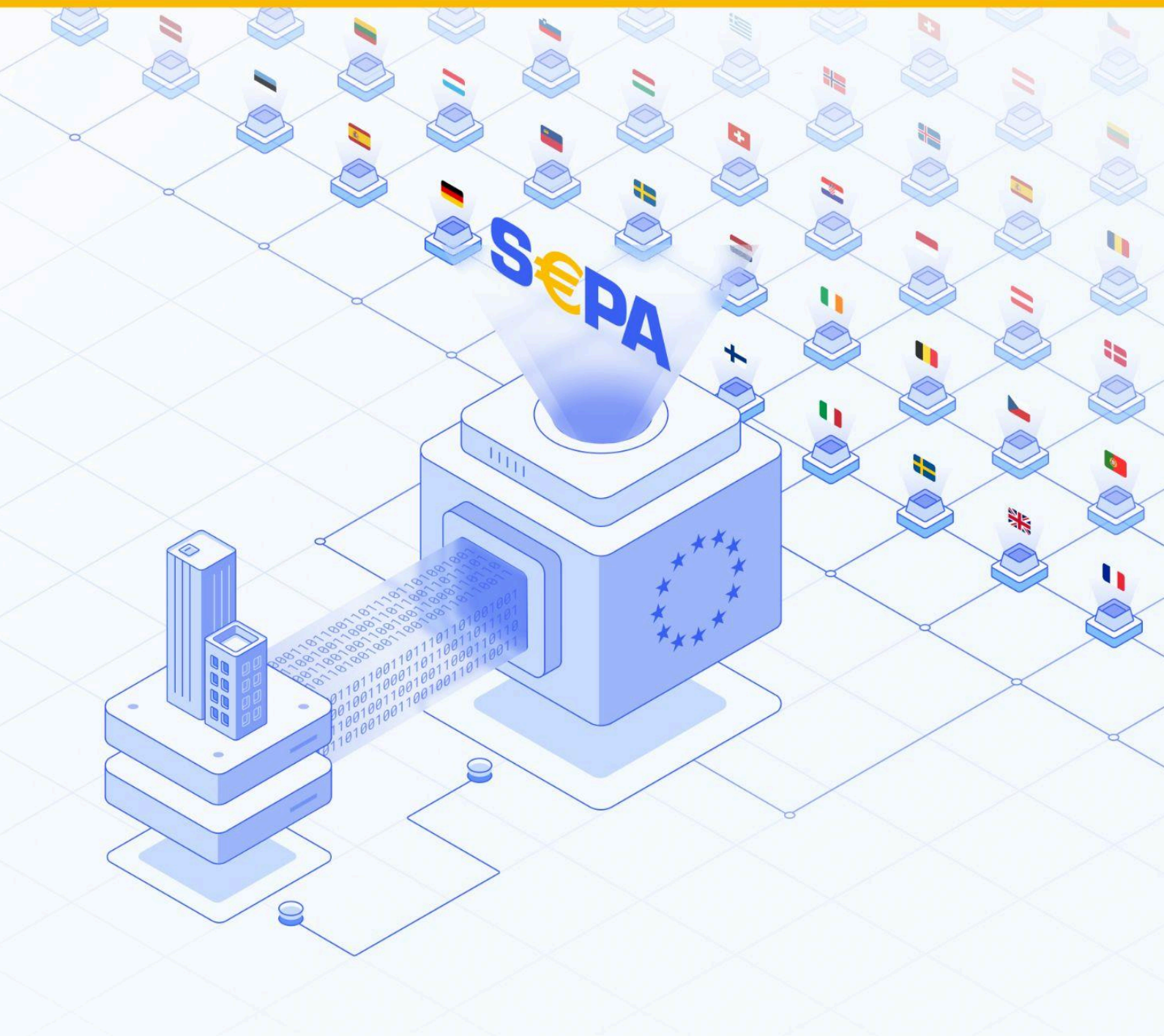
numeral

Becoming a SEPA participant

For growing fintech companies



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Introduction

Payments are at the core of any fintech company's offering. Whether they focus on payments themselves, lending, or investment, those companies must manage bank payments in their products. In Europe, it means accessing SEPA (the Single Euro Payments Area) and its different payment schemes.

Depending on its activities, maturity, and goals, a fintech company has to decide how to access SEPA to send and receive SEPA payments on behalf of its customers.

One option is to become a SEPA participant, which unlocks many benefits yet represents a significant investment. Because this access model is mostly undocumented for fintech companies, assessing its impact and making the right strategic decision is complex.

This guide is brought to you by the team behind Numeral, the API-first bank connectivity and payment automation platform helping SEPA indirect participants connect with their sponsor bank and automate the complex workflows involved in managing SEPA payments.

Why read this guide?

We aim to provide readers with a thorough overview of what being a SEPA participant involves and the benefits of this model, while describing the steps and requirements to become a SEPA participant. We also outline the workflows SEPA participants need to support to manage SEPA payments as well as the technical stack required.

By reading this guide, you will be better equipped to make the right decision for your company when it comes to accessing SEPA to send and receive SEPA payments on behalf of your customers.

SEPA 101

What is SEPA?

SEPA is a single payment area that uses the euro as its single currency. The four SEPA payment schemes are used to send and receive different types of euro payments from one bank account to another, with the SEPA technical and operational standards enforcing speed, cost, and security guarantees.

SEPA was introduced for credit transfers in 2008, direct debits in 2009, and instant credit transfers in 2017. Credit transfers (regular and instant) are used to send a payment from account A to account B. Direct debit is used to debit money from a third-party account B and credit it to account A, based on the authorisation granted through a direct debit mandate signed between the debtor and the creditor.

The development of SEPA is part of the mandate of the Eurosystem, a group composed of the European Central Bank (ECB) and national central banks of other eurozone member states. National central banks make the necessary market infrastructure available to the banks in their respective countries.

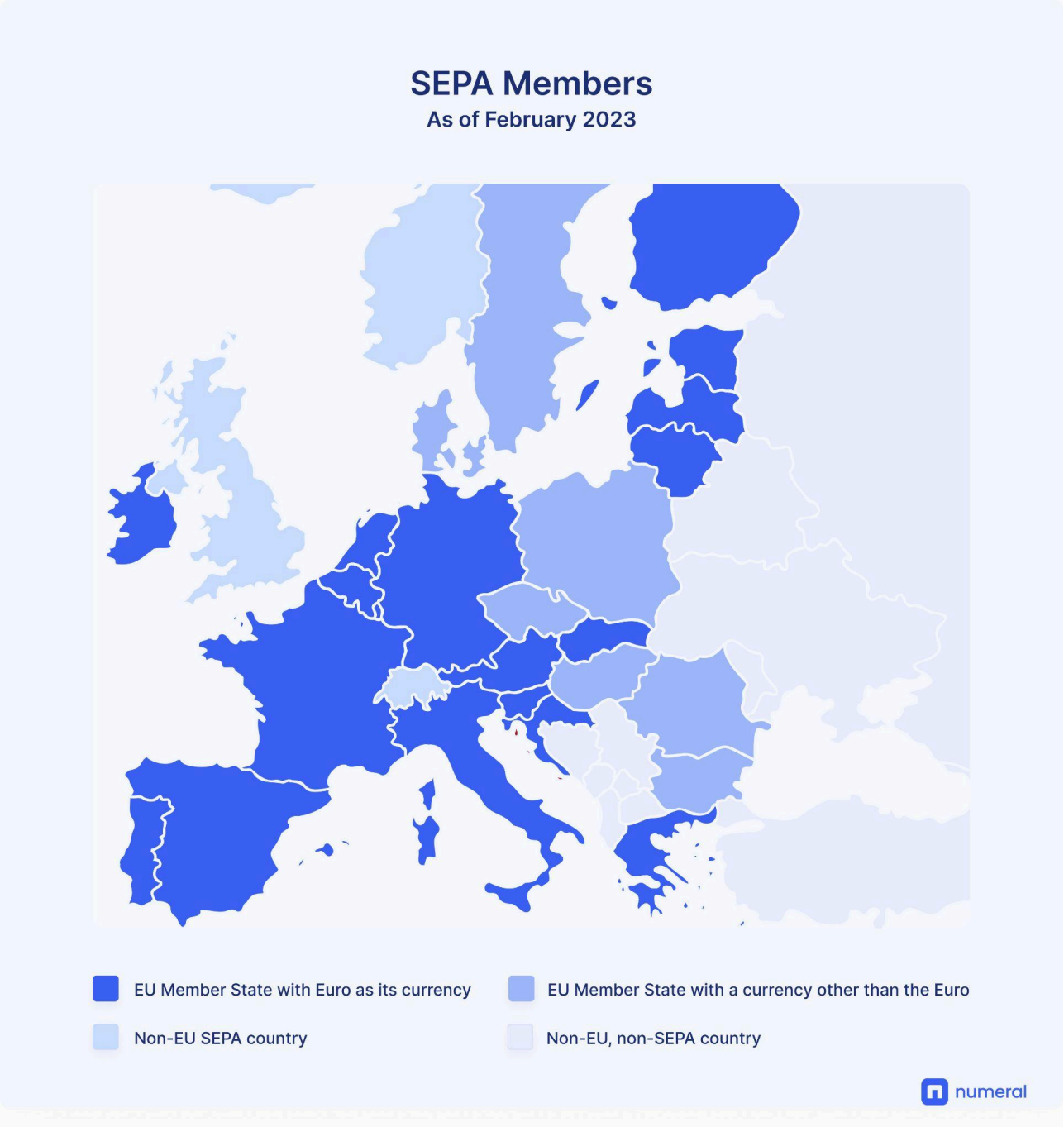
SEPA members

As of February 2023, the SEPA zone spans 36 European countries, including:

- The 27 countries members of the European Union (EU)
- 4 members of the European Free Trade Association (EFTA) (Liechtenstein, Norway, Iceland, and Switzerland)
- 4 microstates with special arrangements with the EU (Andorra, Monaco, Vatican City, and San Marino)
- The United Kingdom after they left the EU in 2020

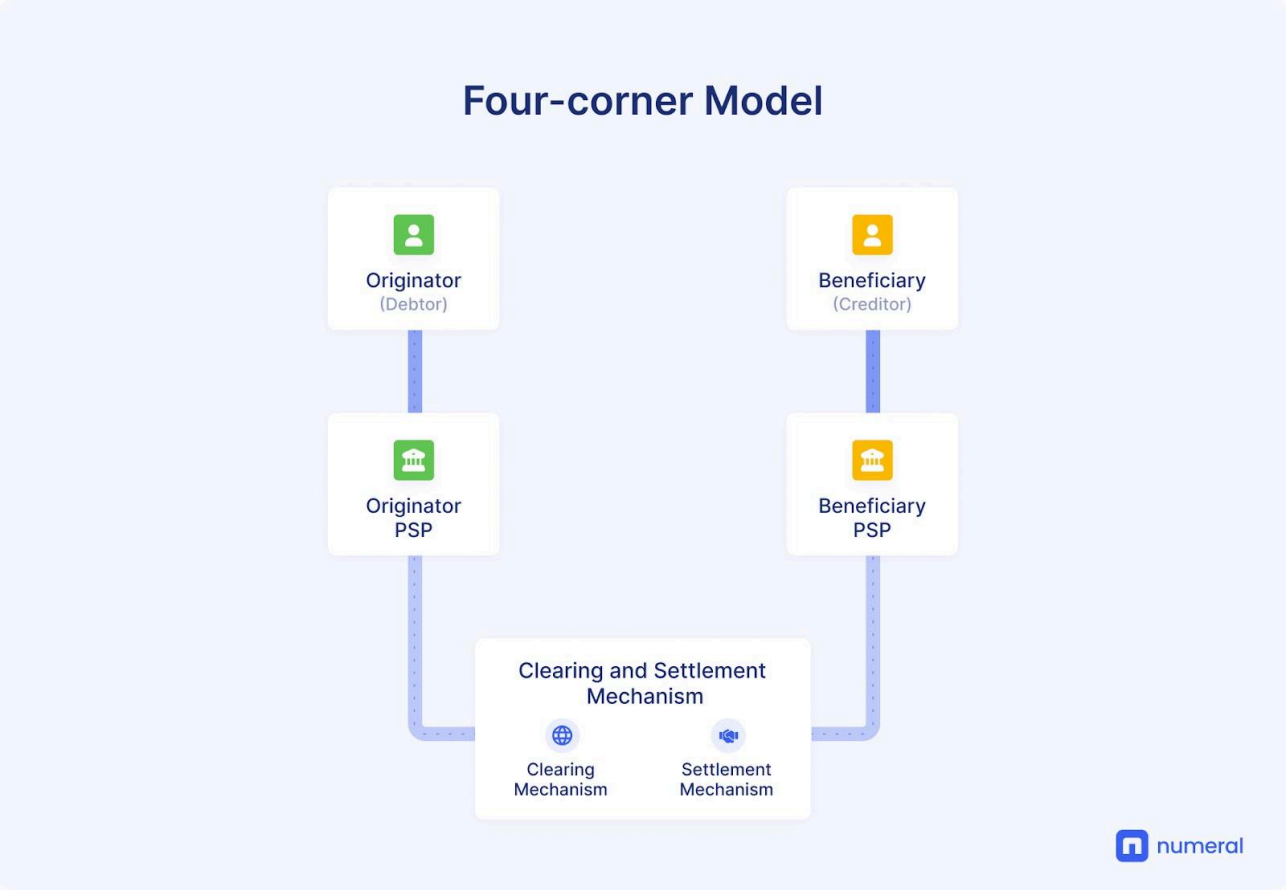
Of the 36 countries in the SEPA zone, 13 do not use the euro as their official currency. Only payments sent and received in euros in these countries can be made as SEPA payments. Payments sent and received in local currencies to and from

these countries use other local or international payment schemes and are not SEPA payments.



How SEPA works

SEPA payments rely on a four-corner model, based on one originator account holder and its PSP (payment service provider, in most cases, a bank) and one beneficiary account holder and its PSP. PSPs are not directly connected to each other but are interconnected through a CSM (clearing and settlement mechanism) for the clearing and settlement of their payments.



Originators and beneficiaries are account holders, and can be individuals, governmental or non-governmental organisations, companies, or any other entity that holds an account with a PSP.

Payment service providers can be credit institutions (often referred to as a bank), payment institutions, or electronic money institutions. A key role and responsibility of PSPs is to send and receive payments on behalf of their customers by holding customer accounts and connecting to the CSMs.

Clearing and settlement mechanisms are responsible for executing the clearing process between PSPs. They aggregate all payment orders between two PSPs across a time frame. At a set point, the CSM then “nets” the payment orders, determining a “gross” payment amount – called the final position – which is then transferred from one PSP to another in a final step called settlement.

In 2021, SEPA payments represented 42% of non-cash payments in the Eurozone in volume but 97% in value.

Types of SEPA access

Sending and receiving SEPA payments

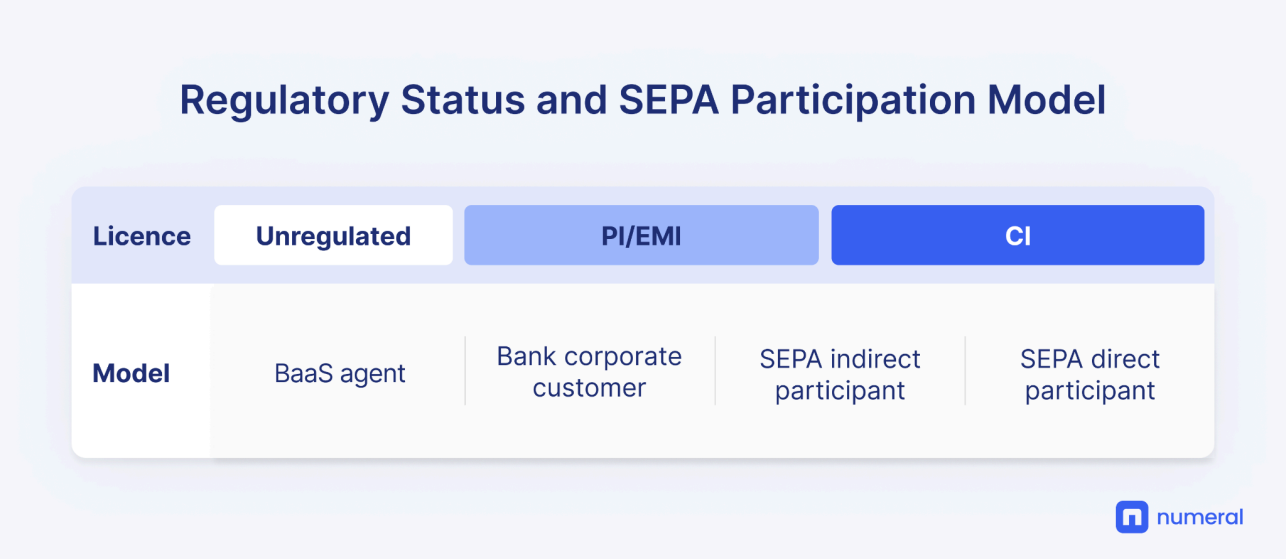
We distinguish two cases of sending and receiving SEPA payments.

The first case is an account holder sending and receiving these payments on their behalf. Examples of this case are an individual sending payments to pay for their rent and receiving payments corresponding to their salary or a company sending payments to pay bills from providers and receiving payments from their customers. In this case, the account holder will rely on their payment service provider to send and receive payments on their behalf.

The second case is a payment service provider sending and receiving payments on behalf of their customers, who will therefore be account holders. Examples of this case are a credit institution (bank), a payment institution or an electronic money institution which received instructions to send a payment from their account holder or that received a payment from another financial institution intended for one of their account holders.

In this guide, we discuss ways for payment service providers to access SEPA in order to send and receive SEPA payments on behalf of their customers.

There are four types of solutions for companies to send and receive SEPA payments on behalf of customers.



Payment service providers

Payment service providers include banks (or credit institutions), payment institutions (PIs), and electronic money institutions (EMIs). In this section, we discuss payment institutions and electronic money institutions.

To send and receive SEPA payments on behalf of their customers, companies can become agents of PIs/EMIs, meaning they can become themselves customers of PIs/EMIs, and declared as “agents” to the regulator to:

- Benefit from the licence of a PI/EMI authorising them to, among other financial and payment services, send and receive SEPA payments on behalf of their customers
- Use a PI/EMI SEPA payment services, among other financial and payment services, in their own offering

It is the PI/EMI that will actually perform the SEPA payment operations on behalf of the company’s customers.

PIs/EMIs that offer their services to agents in a white-label manner are usually referred to as banking-as-a-service (BaaS) providers.

Banks' cash management solutions

Companies can subscribe to banks' cash management offers as corporate customers.

Cash management offers include sending and receiving SEPA payments from and to the company's accounts. Companies can use bank's virtual IBANs to track and reconcile payments to the relevant customer accounts.

Banks hold the account and process payments on behalf of the companies.

Companies regulated as PIs or EMIs can send and receive SEPA payments on behalf of their customers via banks' cash management offers.

Banks' SEPA indirect participant solutions

Companies regulated as PIs, EMIs, or CIs can access SEPA and process their SEPA payments to send and receive SEPA payments on behalf of their customers.

The first way to do so is to become a SEPA indirect participant. In this model, companies will connect to one or several SEPA CSMs via a "sponsor bank". The sponsor bank is itself a SEPA direct participant, and will forward messages from and to the SEPA indirect participant to the CSM.

Note that the models described in the sections above are the only ones available to PIs and EMIs. Only CIs have access to the next model.

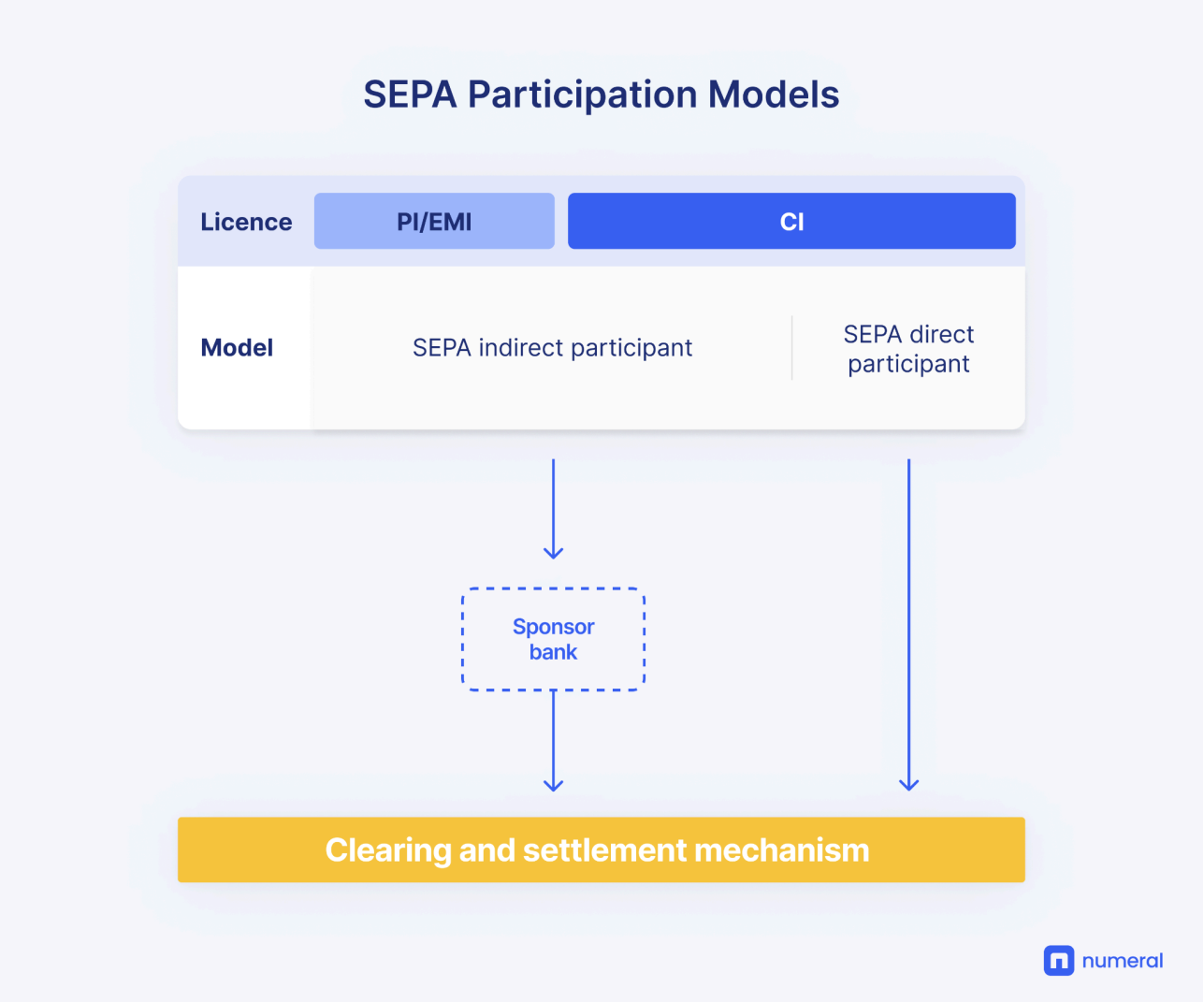
CSMs' SEPA direct participant offers

A second way to access SEPA and process SEPA payments to send and receive SEPA payments on behalf of customers is to become a SEPA direct participant.

This model is restricted to credit institutions, i.e. banks. In this model, PSPs connect directly to the SEPA CSM.

Only a small proportion of credit institutions are direct participants. As of February 2023, only 150 credit institutions are direct SEPA participants in Europe, out of 5,029 total SEPA participants.

SEPA direct and indirect participant



There are two ways to become a SEPA participant: direct and indirect.

But before even considering criteria, the main reason PIs and EMIs will choose the indirect participation model over the direct one is that in order to be a direct participant, you need an account at the European Central Bank (ECB). And to have an account at the ECB, you need to be a credit institution, i.e. a bank.

While SEPA direct participants connect directly to the CSMs, SEPA indirect participants partner with a bank, which is itself a SEPA direct participant and becomes their sponsor bank.

On a high level, direct participants will have lower running costs on payments because connecting directly to the CSMs requires no middleman (the sponsor bank) that usually takes a fee on each payment. In addition, they can themselves become sponsor banks and generate revenue from this activity.

On the other hand, being an indirect participant only requires connecting to a sponsor bank, which is quicker and less expensive than developing and validating an integration with one or several CSMs.

The regulatory process is however not very different. While the sponsor bank bears some responsibility on behalf of the indirect participant, it does require robust and transparent compliance processes from its indirect participant in order to decrease its risks. The sponsor bank will assess these elements to onboard an indirect participant.

SEPA participants, BICs, and IBANs

One key benefit for fintech companies to become SEPA participants is to obtain a BIC and issue their own IBANs. A survey run by Numeral in January 2023 on 200 French consumers shows that consumers are 83% more likely to use the services of a financial services provider if it offers IBANs localised in the same country.

What is a BIC

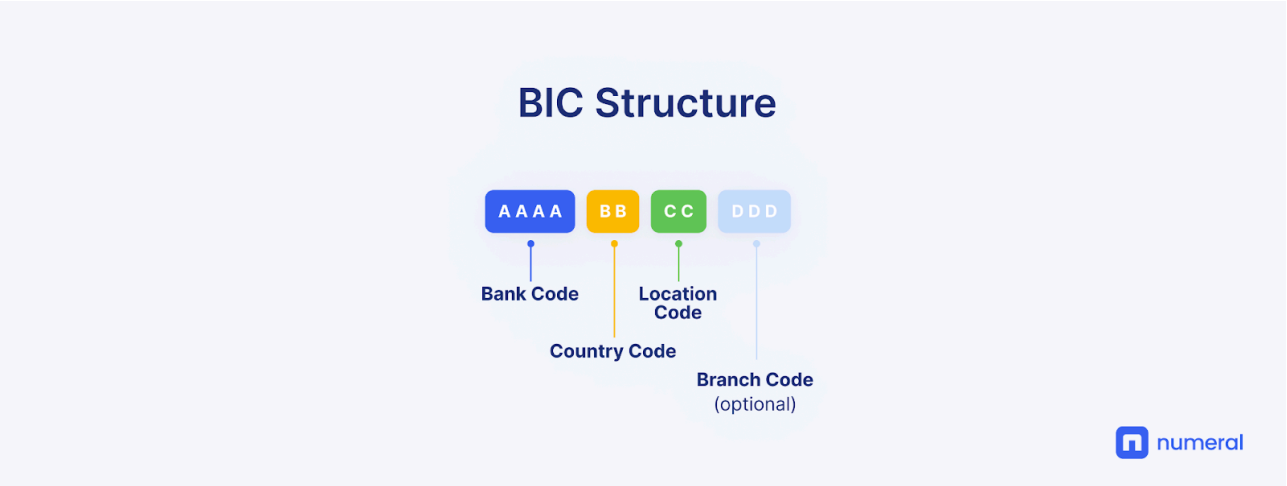
Bank identifier codes (or BICs) are used to identify PSPs across the SEPA zone. BICs are registered and managed by Swift, the global financial messaging network.

The BIC structure is specified by the ISO 9362 standard. BICs take the form of eight (also called BIC8) or eleven (also called BIC11) characters. A BIC8 identifies a PSP in a given country or city, while a BIC11 identifies a PSP's exact branch. The BIC usually includes the PSP shortened name in the bank code, but is auto-generated by Swift. PSPs cannot choose their BIC. Also, payment institutions have 2 figures at the end of their BIC8.

BICs are registered in SEPA routing tables so CSMs can route SEPA messages to the right SEPA participants.

A PSP's BICs country code, and therefore the PSP IBANs' localisation (the link between BICs and IBANs is covered below), depends on where the PSP is licensed and where it operates branches. For instance, a PSP can be licensed in France and therefore have French BIC and IBANs, and have a branch in Italy with its own Italian BIC code and IBANs.

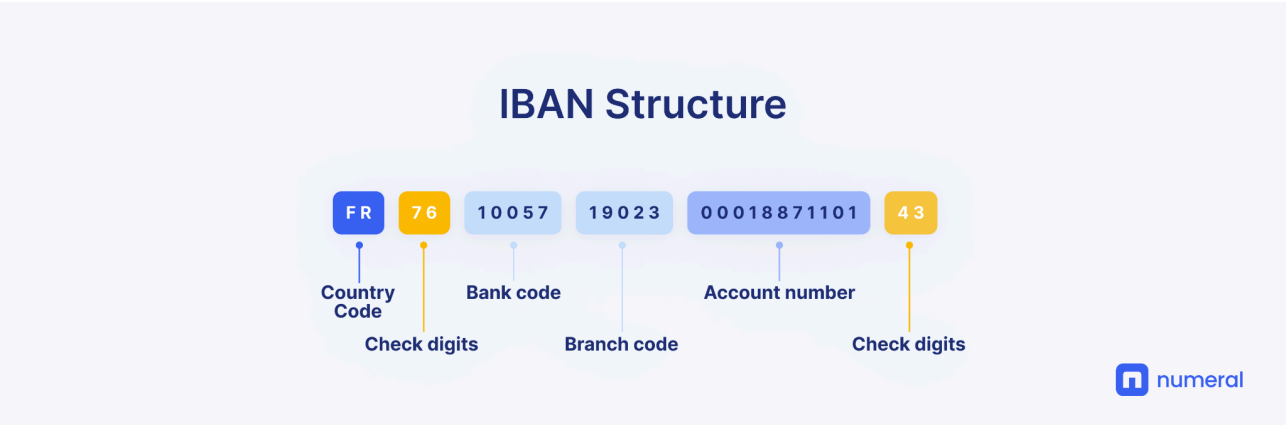
Note that IBANs contain the BIC's information.



What is an IBAN

IBANs (for international bank account numbers) are used to normalise account numbers across more than 80 countries, including the 36 countries that form the SEPA zone. However, several major countries, including the US, Canada, Australia, China, and Japan, are yet to adopt IBANs.

SEPA payments use IBANs as the sole way to identify debtor and creditor accounts. IBANs are meant to facilitate account identification, payments, and international trade by using a common syntax and format. The IBAN format is defined by the ISO 13616 standard. IBANs always start with a two-letter country code, followed by two check digits, and end with the BBAN (basic bank account number).



The length of an IBAN depends on the country. Some countries, like France, utilise nearly the full character capacity with 27 characters, whereas others, like Belgium, adopt a more concise format comprising only 16 characters.

Relationship between BIC and IBAN

While the BIC code is not always present in an IBAN (it depends on the country), IBANs do contain a country code and a unique bank identifier within this country.

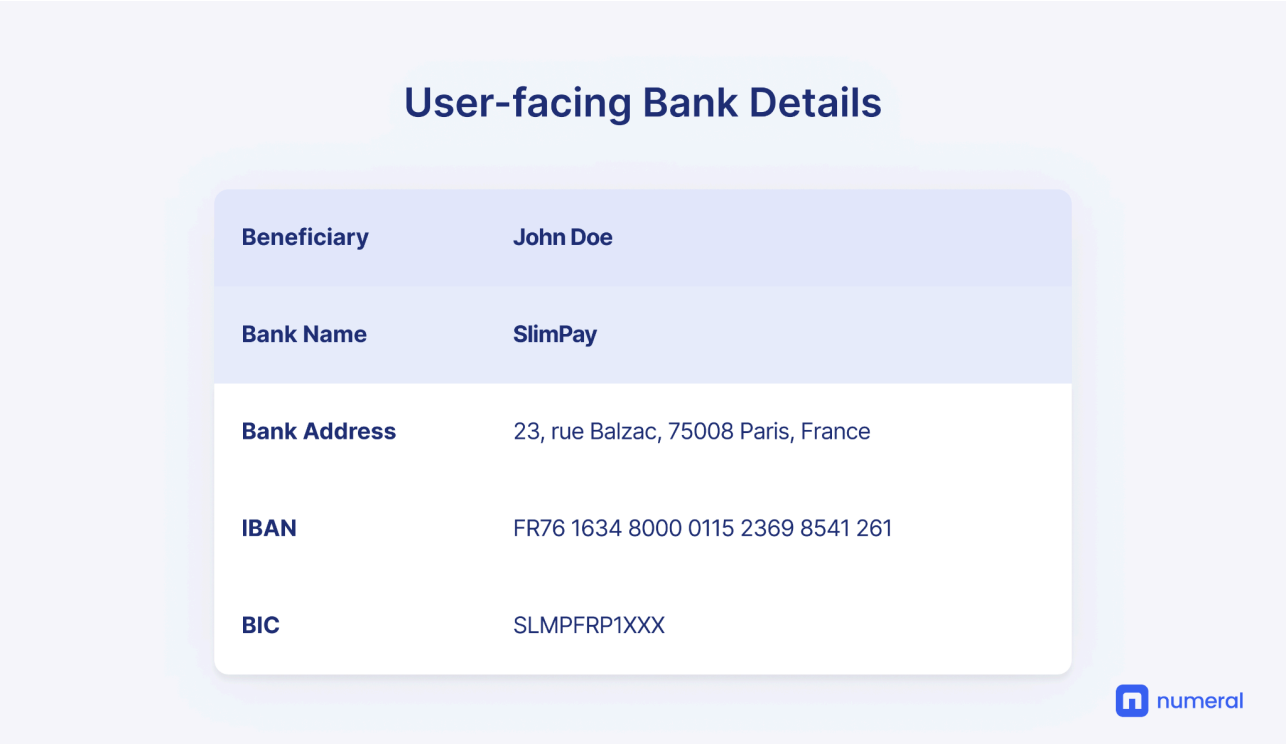
Therefore, IBANs are tied to a specific financial institution, so to a specific BIC.

That's why, when becoming a SEPA participant, a financial institution has to obtain and register a BIC, as we will cover below, but they don't have to register IBANs per se.

Note that because a bank code is present in an IBAN, it is possible to deduce the BIC from an IBAN. Various entities offer this service, but it is based on not officially maintained registers, so users should be cautious of using paying services to do so.

BICs and IBANs in the customer experience

In the case of SEPA payments, end customers will see BICs and IBANs when sending SEPA payments. They will have to inform the IBAN to send the payment to. Financial institutions will show the name of the financial institution holding the account corresponding to the IBAN to their end customers. Examples include when the end customer needs to top up a digital wallet via SEPA payment, pay a bill, or send money to a friend.



Issuing IBANs

Issuing an IBAN is a process entirely internal for the SEPA participant. They can issue whatever IBAN they want if they respect the IBAN structure and use the correct bank identifier.

For a financial institution, issuing an IBAN means generating a string of characters that respects the IBAN standards and use it to:

- Create a new bank account, assign it the said IBAN, and use it to reconcile sent and received payments on this account and calculate its balance
- Assign it to an existing account as a virtual IBAN
- Assign it to technical accounts, such as revenue, costs, or outstanding payments accounts

When a SEPA payment is sent to an IBAN, the payment is actually only routed to the PSP bank code or BIC. It is the PSP's role to ensure that the IBAN exists, and to attribute the funds of the said payment to the IBAN. That's why it is possible to instantly create a bank account with an IBAN directly accessible through SEPA.

Why become a SEPA participant

As described later in this guide, becoming a SEPA participant is a significant project for a financial institution. Operating as a SEPA participant is also more complex than relying on a PSP to send and receive SEPA payments.

Financial institutions decide to go through such a project because being a SEPA indirect participant brings the following advantages.

Own IBANs and BIC

As the previous section covers, SEPA participants have their own BIC and issue their own IBANs, providing the following benefits.

Bank's name

As SEPA participants, PIs and EMIs will issue IBANs in their name for held accounts. It means that when counterparties receive credit transfers or direct debits from PIs and EMIs or send them credit transfers, they will see the PIs and EMIs' names associated with the payment. In other models, these counterparties would instead see the bank's name for corporate customers or BaaS' name for BaaS agents. In an industry where trust is paramount, this can be a game changer regarding user experience and brand credibility.

Local IBANs

SEPA participants issue their own IBANs in the countries they are licensed in or have branches in and in which they have obtained a bank code, instead of being restricted to the countries their BaaS or corporate bank issue IBANs for. It enables them to issue local IBANs in countries where customers and beneficiaries might not trust foreign IBANs and avoid IBAN discrimination. IBAN discrimination describes businesses not accepting payments from and to foreign or specific country IBANs, which is illegal in Europe but nonetheless widespread practice.

Customers migration

SEPA participants have their own BIC. Their IBANs are tied to their BIC instead of their bank's in the corporate customer model. This enables them to change sponsor banks without migrating their customers' accounts and, therefore, without any impact on their customers.

Increased control over payments

Becoming a SEPA participant gives PIs and EMIs extended controls and visibility on their SEPA payments. Indeed, it opens access to (and the obligation to support) additional payment flows called R transactions.

R transactions include the ability for participants to send and receive return and recall messages and associated reason codes that most banks don't transfer to their corporate customers and most BaaS don't notify their customers of.

R transactions enable PIs and EMIs to manage cases like direct debits sent to closed or blocked accounts, incorrect account numbers, or duplicate payments themselves. They can build their own fallback rules when such issues happen and decide their own policy regarding charging – or not – end users at the root of those cases.

Speed of payments

SEPA indirect participants are one level closer to the CSM than a bank corporate customer and possibly several levels closer than as a BaaS customer.

They process their customers' payments on their own terms (while complying with the regulation and scheme, of course), only depending on:

- Their sponsor bank's cut-off time for indirect participants. This is an important topic to evaluate a potential sponsor bank. A sponsor bank offering more processing windows will offer more flexibility to indirect participants
- The cut-off time of the CSM

It means that outside of the cut-off times mentioned above, the time between when their customer sends them a payment order and when the SEPA participant sends their payment messages to the CSM depends solely on the SEPA participant and

their processes, which can be more tailored to their specific use case than those of their bank or BaaS.

Cost efficiency

Becoming a SEPA participant introduces cost reductions in at least two ways.

Cost of payments

Banks charge payments differently for corporate customers and indirect SEPA participants. While they will vary from bank to bank, payment fees will often be 2 to 10 times lower for indirect SEPA participants, which can lead to significant savings for companies with high payment volumes.

In addition, as SEPA indirect participants process their own payments, they manage payment exceptions such as rejected payments themselves. While sponsor banks charge for the SEPA messages used to manage these exceptions (R transactions), fees for these R transactions are orders of magnitude lower than PSP's fees on payment exceptions

Cost of IBANs

Fintech companies working with the corporate customer model and managing many incoming payments might need virtual IBANs to manage reconciliations at scale. Banks charge for this service. As SEPA indirect participants manage their own IBANs, they can open new accounts with dedicated IBANs or issue their own virtual IBANs for free.

Who can become a SEPA indirect participant

While indirect participation is the only SEPA participant model accessible to PIs and EMIs, most SEPA indirect participants are banks. This section describes the common cases leading each type of SEPA indirect participant to become so.

Type	#	% of total
PI/EMI	209	4%
Credit institution	4,671	96%
- *Branch*	*1,633*	*34%*
- *Non-branch*	*3,038*	*62%*
Total	**4,880**	**100%**

Credit institutions

A credit institution is an entity that receives deposits or other repayable public funds and grants credit for its own account, i.e. a bank.

There are two main cases where a bank might connect to SEPA as an indirect participant.

As a new, small bank

Indirect participation can offer new banks a shorter time to market and lower initial investments than direct participation.

Branches of EEA or non-EEA banks

A non-European bank can decide to launch its EU operations by opening a European branch connecting to SEPA as an indirect participant.

A European banking group can decide to have their home country bank as a direct participant and open local branches in other countries using the indirect participant model. The local branches can connect to SEPA as indirect participants with the home country bank as a sponsor bank.

Payment and electronic money institutions

There are three main cases where a fintech company might decide to become SEPA indirect participant, regulated as PI or EMI.

From regulated PI/EMI corporate customer to PI/EMI SEPA indirect participant

An existing PI/EMI operating as a bank corporate customer can decide to make the investment and become a SEPA indirect participant to benefit from the advantages offered by being a SEPA indirect participant.

From BaaS agent to regulated PI/EMI and SEPA indirect participant

By becoming PI/EMI, a fintech company gains control on its onboarding and compliance processes, as well as its product. Once regulated as PI/EMI, a fintech company can decide to access SEPA as a corporate customer or as a SEPA indirect participant. While more costly than becoming a corporate customer, becoming a SEPA indirect participant adds the benefits discussed above.

For these reasons, the BaaS agent decides to invest in becoming regulated and chooses to become a SEPA indirect participant instead of a corporate customer directly.

New PI/EMI directly becoming a SEPA indirect participant

A new fintech or an existing company launching new services, which include sending and receiving SEPA payments on behalf of their customers, can invest in becoming regulated and becoming SEPA indirect participant without intermediary steps.

How to become a SEPA indirect participant

There are three main work streams to become a SEPA indirect participant, which can be run in parallel: regulatory and administrative tasks, selection of and commercial discussions with a sponsor bank, and technical integration with a sponsor bank.

Regulatory and administrative tasks

In addition to holding customer accounts and sending and receiving payments on their behalf, which are regulated activities, becoming a SEPA indirect participant means accessing interbank communication systems. Different entities manage and oversee such systems with which candidate SEPA indirect participants have to interact.

Request BIC from Swift

To issue its own IBANs and to be reachable from other SEPA participants, a SEPA indirect participant needs its own BIC. The body managing BICs worldwide is Swift. Swift ensures that:

- BICs follow international standards
- BICs are unique to each entity, to prevent routing errors
- BICs country code, location code and branch node correspond to the applicant SEPA indirect participant

SEPA indirect participant candidates can order a “non-connected BIC”, i.e., a BIC not connected to the Swift network, directly from Swift’s website.

Local regulator

Even if the candidate SEPA indirect participant is already a regulated PI, EMI, or CI, they need to declare their intention to become a SEPA indirect participant and register their BIC to their local regulator.

Declare BIC to the EPC

The European Payments Council (EPC) provides the technical framework for SEPA payment schemes. To access SEPA, candidate SEPA indirect participants need EPC validation. This validation is requested by declaring a BIC to the EPC.

It also implies providing the EPC with a legal opinion from a lawyer, which is required to guarantee the EPC that the SEPA indirect participant has completed all the necessary regulatory steps to become SEPA indirect participant.

Choose CSMs

A sponsor bank might work with several different CSMs. The SEPA indirect participant can choose which CSMs the sponsor bank will exchange their SEPA messages with. Also, the SEPA indirect participant might want to work with different CSMs for different schemes.

Register BIC with CSMs

This is how a SEPA indirect participant registers on the CSM and when the CSM will add the SEPA indirect participant BIC in its systems to route SEPA messages to the SEPA indirect participant. The sponsor bank does this on behalf of the SEPA indirect participant.

Sponsor bank

As discussed in this guide, the SEPA sponsor bank is the most critical partner for a SEP indirect participant. As such, it is present at several steps of a SEPA indirect participant's project.

Choose a SEPA sponsor bank

Candidate SEPA indirect participants can evaluate potential SEPA sponsor banks through several factors.

All sponsor banks do not offer all SEPA payment methods. A bank can offer the reception of SEPA instant credit transfers, but not the emission of such payments. Same goes for SEPA direct debits.

In addition to SEPA payment-related services, candidate SEPA indirect participants should evaluate sponsor banks offers related to bank accounts.

As covered later in this guide, a SEPA indirect participant needs a safeguarding and a settlement account to process SEPA payments. Sponsor banks can charge significant costs for the management of these accounts.

It is also critical that the sponsor bank allows intraday transfers between the settlement and safeguarding accounts, to optimise treasury management between these accounts and avoid insufficient funds on the settlement account, which can lead to high financial penalties and impossibility to process payments.

The ideal sponsor bank should also debit fees from a different account than the settlement or safeguarding accounts to ease the bookkeeping process for the SEPA indirect participant.

Other considerations when selecting a sponsor bank are: the latter's experience with indirect participation, including how many underlying indirect participants it has, and for how long it has been offering this model. In addition, companies should evaluate its support model and team if it includes value-added services such as fraud detection or BIC reachability, and its SEPA payments pricing.

Discuss commercial terms

SEPA indirect participation is a commercial offering from sponsor banks. So commercial discussions are part of the process, including the support model, settlement and safeguarding accounts pricing model, payments pricing model and actual total pricing.

Sponsor bank onboarding

After a sponsor bank is chosen and a contract is signed, the sponsor bank will start onboarding the future SEPA indirect participant. It includes designating the project team on the bank's side and giving access to technical integration documentation and a testing environment to ease the development of the integration.

Open settlement and safeguarding bank accounts

SEPA indirect participants process payments of their customers themselves. To do so, the regulation requires them to use a settlement and a safeguarding account, which we will cover below. Note that financial institutions sending and receiving payments on behalf of their customers as bank corporate customers also need a settlement and a safeguarding account. Those accounts can be opened at any bank, but most of the time are opened at the sponsor bank for simplicity reasons, and the sponsor bank will run their KYC checks on the indirect participant before opening the accounts.

Technical integration

To process SEPA payments on behalf of their customers, SEPA indirect participants need to integrate with their sponsor bank technically.
The SEPA indirect participant needs to connect with the sponsor bank's system that will forward SEPA messages from and to the CSMs. In some cases, the SEPA indirect participant must connect to a different system, the sponsor bank's cash management system, to manage their settlement and safeguarding accounts.
For both integrations, the SEPA indirect participant needs to:

- Obtain technical documentation from the bank
- Develop the connectivity between its systems and the bank's systems
- Develop the logic to translate the bank's file formats into its own systems' managed file formats or APIs, and vice-versa
- Run SEPA certification with the bank. The bank will make sure that:
    - All files sent from the SEPA indirect participant are conform
    - All files sent to the SEPA indirect participant are processed adequately and on time
- Run penny tests in production

When working with technology providers that provide bank integrations, like Numeral, the technical integration tasks of the SEPA indirect participant are cut down to:

- Integrating the technology provider's API into their systems
- Setting up the technology provider's solution, such as defining batching rules or notification settings

Operating as a SEPA indirect participant

A SEPA indirect participant must manage multiple workflows to send and receive SEPA payments in compliance with regulations and SEPA rulebooks.

Processing payments

Processing outgoing SEPA payments

Sending a SEPA credit transfer

When a SEPA indirect participant receives the instruction from a customer to send a SEPA credit transfer (SCT), it needs to:

- Ensure the instruction complies with its internal rules (e.g., amount, frequency, and destination country) and anti-money laundering (AML) / countering the financing of terrorism (CFT) checks
- Make sure the customer's account has sufficient funds
- Queue the payment and add it to the next payment batch, which takes the form of one or multiple financial institution-to-financial institution credit transfer messages (pacs.008), and package these messages in a file
- Send this file to the sponsor bank, which will, in turn, run its AML and CFT checks and forward it to the CSM

Sending a SEPA instant credit transfer

When a SEPA indirect participant receives the instruction from a customer to send a SEPA instant credit transfer (SCT Inst), it needs to:

- Ensure the instruction complies with its internal rules (e.g., amount, frequency, and destination country) and AML and CFT checks
- Make sure the customer's account has sufficient funds
- Reserve the funds in the customer's account
- Generate the financial institution-to-financial institution credit transfer message (pacs.008) and create a new file or API call
- Send this file or API call to the sponsor bank, which will forward it to the CSM

Sending a SEPA direct debit

When a SEPA indirect participant receives the instruction from a customer to send SEPA direct debit, it needs to:

- Ensure the instruction complies with its internal rules (e.g., amount, frequency, destination country, and mandate reference)
- Queue the collection and add it to the next collections' batch, which takes the form of one or multiple financial institution-to-financial institution direct debit messages (pacs.003), and package these messages in a file
- Send this file to the sponsor bank, which will, in turn, forward it to the CSM.
- If the debtor bank accepts the SDD, the creditor SEPA indirect participant will receive the corresponding funds in its settlement account on the day of the execution of the SDD
- Reconcile the received message with the funds received on the settlement account
- Transfer corresponding funds from the settlement account to the safeguarding account
- Reconcile the transaction with the payment from the settlement account to the safeguarding account

Processing incoming SEPA payments

Receiving a SEPA credit transfer

When a SEPA indirect participant receives an SCT message (pacs.008) from another financial institution, it needs to:

- Parse the received message to identify the customer account to credit
- Check if the payment complies with the SEPA indirect participant rules
- Make sure the customer account exists and is not blocked
- Reconcile the received message with the funds received on the settlement account
- Transfer corresponding funds from the settlement account to the safeguarding account
- Reconcile the transaction with the payment from the settlement account to the safeguarding account

Receiving a SEPA instant credit transfer

When a SEPA indirect participant receives an SCT Inst message (pacs.008) from another financial institution via its SEPA sponsor bank, it needs to do the following in less than 10 seconds in order to comply with the rulebook:

- Parse the received message to identify the customer account to credit
- Check if the payment complies with the SEPA indirect participant's rules
- Make sure the customer account exists and is not blocked
- Send back a confirmation message
- Transfer funds from the settlement account to the safeguarding account

After these initial steps, the participant needs to:

- Reconcile the received message with the funds received on the settlement account
- Reconcile the transaction with the payment from the settlement account to the safeguarding account

Accepting a SEPA direct debit

When a SEPA indirect participant receives a SEPA direct debit (SDD) message (pacs.003) from another financial institution, it needs to:

- Parse the message to identify the customer's account to debit
- Make sure the customer's account exists, is not blocked, has sufficient funds and has not blocked the originator of the SDD
- In the case of SDD B2B, check that the SDD originator's mandate has been registered and authorised
- If all checks are successful, the SEPA indirect participant does not have to send a message in return but needs to transfer the corresponding amount from the safeguarding account to the settlement account

Payment status reports

In addition to SEPA payment messages themselves, SEPA indirect participants must be able to exchange payment status reports (PSRs) with their sponsor bank. Examples of information included in PSRs are:

Status Code	Description
ACCP	Payments have passed technical and functional validations.
ACSP	Payments have been accepted and processed.
PNDG	Payments have been put on hold. A reason is included (e.g. payment didn't pass AML/CFT check)
RJCT	Payments have been rejected by the bank.
ACSC	Payments have been processed and settled.
PART	At least one payment of the file is accepted and processed, and at least one payment of the file is rejected.

Processing payment errors and exceptions

The flows described above are the flows when everything goes right, or "happy flows". But for various reasons, errors and exceptions might happen.

SEPA rulebooks specify and standardise how to handle these errors, and SEPA indirect participants must be able to send, receive, and process the messages related to these cases. Those messages are called R transactions.

Causes of such errors or exceptions might be:

- The beneficiary account of an incoming SEPA payment does not exist or is blocked
- The debtor account of an incoming SDD does not exist, is blocked, does not have sufficient funds, or cancelled the mandate
- The originator of an incoming SEPA payment must recall the payment because of a technical error that sent the payment by mistake or detected that the payment was fraudulent

When such cases happen, SEPA indirect participants must be able to

- Receive and parse the incoming message from the CSM via the sponsor bank or generate and send the message to CSM via the sponsor bank
- Process the message, for instance, accept a Recall and send a corresponding Return

- When the message involves a money movement, process the incoming or outgoing payment and reconcile settlement and safeguarding accounts accordingly

Managing settlement and safeguarding accounts

Safeguarding customer funds is not a requirement limited to SEPA direct or indirect participants. Any payment and electronic money institution sending or receiving payments on behalf of customers must either safeguard customer funds in a safeguarding account or contract insurance to cover customer funds. The latter option appears to be rarely chosen. Most PIs and EMIs work with a settlement and a safeguarding account.

We describe here how this process works for SEPA indirect participants.

The settlement account is an account held by the sponsor bank for the SEPA indirect participant. The settlement account is the account where:

- Funds will be debited by the SEPA sponsor bank to honour outgoing payments (SCTs sent, SCTs Inst sent, and SDDs received)
- Funds will be credited to by the SEPA sponsor bank to honour incoming payments (incoming SCTs, incoming SCTs Inst, and SDDs sent)
- Funds will be credited to or debited from by the SEPA sponsor bank to handle recalls and refunds. We will cover that in more detail later

The safeguarding account is usually held by the sponsor bank of the SEPA indirect participant for practical reasons, including intraday safeguarding movements, but can technically be held by any licenced credit institution. It is the account that holds the SEPA indirect participant's customers' funds.

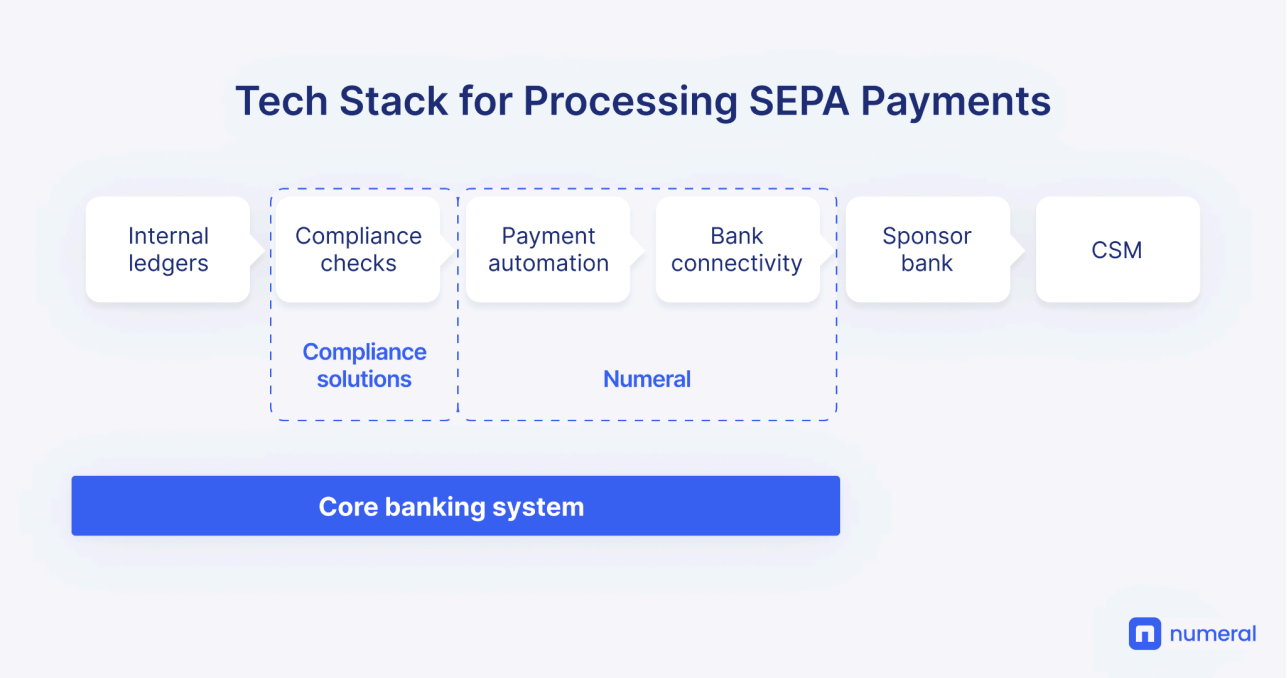
When a payment arrives on the settlement account, it is allocated to the corresponding customer's account and funds are then transferred to the safeguarding account.

For a SEPA indirect participant, managing settlement and safeguarding accounts mainly means two things:

- Being able to honour outgoing payments: Making sure there are enough funds on the settlement account that the SEPA sponsor bank can debit to honour outgoing payments at settlement time for SCTs sent and SDDs received or at any time for SCTs Inst sent
- Regulatory compliance: Regulation requires that PIs and EMIs' customers' funds cannot be held on the settlement account after the end of the business day following the day the funds have been received. They should be transferred to a safeguarding account held by an authorised credit institution (in our case most often the sponsor bank) within that time frame. The SEPA indirect participant needs to make sure they transfer all funds received (incoming SCTs, incoming SCTs Inst, and SDDs sent) from their settlement account to their safeguarding account in that timeframe

Technical stack for SEPA payments of SEPA indirect participants

Manually managing the workflows described above is not realistic. However, building the systems that automate them can be a daunting project. In this section, we detail what those systems are and what types of solutions exist on the market.



Core banking system - in partnership with Tuum

Core banking systems such as Tuum are the core technological platforms for many financial institutions. Per Gartner, a core banking system (or CBS) is a back-end system that processes daily banking transactions and posts updates to accounts and other financial records. Core banking systems typically include deposit, loan and credit processing capabilities, with interfaces to general ledger systems and reporting tools.

In the scope of SEPA payments, a core banking system has several key roles.

First, it manages customer accounts, which includes:

- Operating the logical “split” of the safeguarding account into customer accounts
- Assigning IBANs to accounts
- Operating ledger tasks such as calculating balance for the customer accounts and assigning transactions to customer accounts
- Generating account statements

It also performs part of the payment processing. For both incoming and outgoing payments, the CBS will check that corresponding accounts have sufficient funds, exist, and are not blocked.

For incoming payments, the CBS will identify the customer account linked to the payment using the IBAN included in the SEPA payment messages and assign the funds to the correct customer account when these funds are transferred from the settlement account to the safeguarding account.

For outgoing payments, the CBS will first run regulatory checks:

- It will check the payment destination against a list of sanctioned countries or entities, using solutions like Thomson Reuters or Comply advantage
- It will run anti-money laundering (AML), countering the financing of terrorism (CFT) and anti-bribery checks. Note that these checks can be performed by third-party solutions connected to the CBS, such as Hawk.ai, Salv, Feedzai, SaS, and Marble

It will then withdraw the funds from the correct customer account in the ledger when funds are transferred from the safeguarding account to the settlement account.

Also, sponsor banks can offer off-the-shelf solutions to indirect participants that do not have the teams and tools to handle these regulatory requirements in-house.

Finally, these compliance processes can be audited by the sponsor bank, which will ensure that transactions going through its systems are compliant.

Payment and bank connectivity

CBSs can have native payment solutions and native bank integrations with certain sponsor banks. Still, the SEPA indirect participant might want to work with unsupported sponsor banks or a CBS that doesn't have a native payment solution.

Bank connectivity and payment automation solutions like Numeral help SEPA indirect participants in three ways.

Connecting the SEPA indirect participant's systems to the SEPA sponsor bank

In order to send and receive SEPA payments, a SEPA indirect participant needs to be connected to SEPA. It does it through its SEPA sponsor bank, through which it will exchange SEPA messages with the clearing and settlement mechanism (CSM).

Connecting to the SEPA sponsor bank means establishing a secure and stable connection with the SEPA sponsor bank interfaces (whether SFTP servers, APIs, or message brokers) and packaging SEPA messages into a format accepted by the bank (whether XML files or specific API calls).

For this connection to be robust, it must authenticate with the sponsor bank's server or APIs, have a retry logic when technical exchanges fail, and account for banks' and CSMs' cut-off time.

On the SEPA indirect participants' side, Numeral connects with CBS via API, and also provides webhooks that SEPA indirect participants can subscribe to in order to receive notifications of any event happening in the platform.

Processing SEPA payments

That's the core of a solution like Numeral. While a CBS can perform a part of the payment processing, SEPA indirect participants need a solution to create and read the SEPA messages they will exchange with the CSM.

In this section, we describe the technical workflows required to do so and that solutions like Numeral enable SEPA indirect participants to manage.

Managing outgoing payments

When a payment instruction is given, here are the steps Numeral performs to effectively send the SEPA payment in compliance with the rulebook and regulation:

- Receive payment instructions, whether initially generated from an end-user interface or automatically from a third-party solution
- Turn the payment instructions into financial institution to financial institution SEPA messages that the sponsor bank will forward to the CSM
- Package the SEPA messages into API calls or files supported by the sponsor bank
- Send API calls or files to the sponsor bank via the sponsor bank connectivity systems (API, SFTP server, message broker...)

Managing incoming payments

As a SEPA indirect participant, you must be able to process incoming payments, which are payments sent to your or your customers' accounts from other financial institutions. Here are the steps Numeral performs to do so:

- Download the payment files or receive the API calls from the sponsor bank via the sponsor bank connectivity system
- Parse the API calls or payment files to identify SEPA messages and related payments
- Turn the SEPA messages into instructions understood by the CBS
- Send the instructions to the CBS

Managing payment errors and exceptions via R transactions

Payment errors and exceptions might happen for various reasons. In SEPA, these errors are managed via messages called R transactions, that SEPA indirect participants must be able to send and receive.

Solutions like Numeral help SEPA indirect participants manage these exceptions by both sending and receiving R transactions.

Sending R transactions

When Numeral receives exceptions from the CBS, it turns them into R transaction messages. These messages are then packaged into API calls or files supported by the sponsor bank, and sent to the sponsor bank.

When necessary, for instance in the case of a return, Numeral reconciles the settlement and safeguarding accounts transactions with the transfers related to the R transactions.

When a SEPA indirect participant receives R transaction messages from its CSM through its sponsor bank, Numeral downloads the files containing these messages and parses them to identify the said R transaction.

Receiving and processing R transactions

Numeral then displays the R transactions in its dashboard to enable the SEPA indirect participant's compliance and banking teams to review and accept, deny or challenge them.

Numeral also turn R transactions into instructions understood by the CBS, before sending them to the CBS.

When necessary, similarly to when sending R transactions, Numeral reconciles the settlement and safeguarding accounts accordingly.

Transactions monitoring and errors resolution

Other errors than the ones linked to R transactions can happen, and while Numeral usually automates most of the workflows described above, human intervention can still be required.

High level monitoring and reporting

SEPA indirect participants need a view of their payment operations to make sure their payments are processed correctly, in a timely manner and identify when repeated errors happen to optimise their operations.

Specific payment issues investigation

SEPA indirect participants need to identify payment issues when they happen and identify their root causes. To do so, they need access to all the linked information to

such payments, including the linked creditor and debtor bank accounts, files related to the payment, or transfers between the settlement and safeguarding account linked to the payment.

Manual tasks to solve the issues

When the SEPA indirect paritipant's team has identified the root cause of a payment issue, they might need to perform manual tasks to resolve it, such as manually sending or approving a payment, or perform a manual reconciliation.

That's why Numeral comes with a dashboard allowing finance and operations teams to have the required visibility and manually resolve the issues when necessary.

Managing settlement and safeguarding accounts

As described previously in this guide, operating as a SEPA indirect participant also implies the management of a safeguarding and a settlement account for regulatory and operational constraints.

SEPA indirect participants connect to these accounts through their bank's corporate cash management connectivity solutions.

To perform the necessary transfers between their settlement and safeguarding account, Numeral creates and sends corporate to financial institution SEPA messages to the SEPA indirect participant's sponsor bank, and reconciles these payments with the corresponding transactions to ensure accurate tracking.

SEPA indirect participants can choose how often in the day they want to transfer funds between the two accounts depending on their needs, while respecting the regulatory requirement to transfer customer funds received on their settlement account to their safeguarding account before the end of the next business day.

Numeral for SEPA indirect participants

Numeral helps SEPA indirect participants connect with their sponsor bank and automate the workflows involved in SEPA payments processing.

Having already integrated with leading sponsor banks and supported financial institutions in their SEPA indirect participation project, Numeral's platform accelerates the technical side of such projects, virtually enabling fintech companies to be technically able to process SEPA payments by simply connecting to our API.

As highlighted in this guide, the chosen sponsor bank will become a key partner of the SEPA indirect participant. That's why we are building a growing number of relationships with Europe's leading sponsor banks. We believe that the success of a SEPA indirect participation relies on much more than technology. We want to ensure we offer our customers and prospects the correct guidance.

If you are a financial institution exploring a SEPA indirect participation or a bank looking at expanding its SEPA indirect participation offer, feel free to contact us.

About our partner Tuum

Tuum is a next-generation core banking technology provider, bringing together expertise in technology and banking.

Its API-first, cloud-agnostic and highly configurable banking platform covers all retail and business banking processes, allowing banks, fintech startups or even non-financial companies to easily roll out customer-centric financial solutions. The modularity aspect enables each company to pick and choose the exact capabilities they wish to start with and always add additional ones in the future.

Its capabilities are packed into modules, enabling businesses to implement and pay for the capabilities they need:

Core banking: The core banking module provides different account types, keeps records of the transactions made on the accounts, and allows creating and enabling of prices for the transactions. It also includes an option to manage deposits and currency rates.

Payments: The payment module provides capabilities to initiate and validate payments according to specific payment formation rules like SEPA and also several local payment rules. It also incorporates automated payment processing and settlement via different payment service providers or through partners like Numeral as per requirements.

Lending: The lending module facilitates a three-step loan management process consisting of loan application, loan offer and loan contract. This module also allows for setting up and managing different loan products. Additionally, the customers can enhance the loan module capabilities with the optional debt and collateral management APIs.

Cards: The card module facilitates issuing of debit and credit cards. It includes the ability to define card products by enabling a specific set of features for the card user. By default, the card module is integrated with Tuum's banking core, but it can also be integrated with other core banking solutions via APIs.

To learn more about Tuum, visit tuumplatform.com.

Appendixes

Glossary

Term	Definition
AML	Anti-money laundering
BIC	Bank identifier code
CBS	Core banking system
CFT	Countering the financing of terrorism
CI	Credit institution
CSM	Clearing and settlement mechanism
ECB	European Central Bank
EEA	European Economic Area
EMI	Electronic money institution
EPC	European Payments Council
IBAN	International bank account number
PACS	Payment clearing and settlement ISO 20022 message
PAIN	Payments initiation ISO 20022 message
PI	Payment institution
PSP	Payment service provider, either bank or non-bank
SCT	SEPA Credit Transfer
SCT Inst	SEPA Instant Credit Transfer
SDD Core	SEPA Direct Debit Core
SDD B2B	SEPA Direct Debit Business-to-Business
SEPA	Single Euro Payments Area

SEPA messages

Category	Payment Method	Corporate Customer	SEPA Participant
Payments	SEPA Credit Transfer	pain.001.001.03	pacs.008.001.02
	SEPA Credit Transfer Instant	pain.001.001.03	pacs.008.001.02
	SEPA Direct Debit Core	pain.008.001.02	pacs.003.001.02
	SEPA Direct Debit B2B	pain.008.001.02	pacs.003.001.02
R transactions	Return (SCT / SDD)	N/A	pacs.004.001.02
	Reversal (SDD)	pain.007.001.02	pacs.007.001.02
	Recall (SCT)	N/A	camt.056.001.01
	Recall request positive response	N/A	pacs.004.001.02
	Recall request negative response	N/A	camt.029.001.03
Inquiries	Payment status request	N/A	pacs.028.001.03
	Non-receipt claim	N/A	camt.027.001.03
	Resolution of investigation	N/A	camt.029.001.03

Further readings

- Mègue, Jean-Paul. *SEPA Credit Transfer, How to Understand and Add value to your SCT Payment Project*, October 2018.
- European Central Bank Statistical Warehouse, https://sdw.ecb.europa.eu
- European Payments Council, https://www.europeanpaymentscouncil.eu
- Euro Banking Authority, https://www.eba.europa.eu
- Numeral *The Ultimate Guide to SEPA*

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