

A photograph of a person's hand holding a smartphone over a payment terminal at a coffee counter. The background is blurred, showing a cafe setting with a white cup and saucer. The image is overlaid with a dark blue semi-transparent shape containing text.

Key features of the digital euro and how it fits into the digital payment's landscape



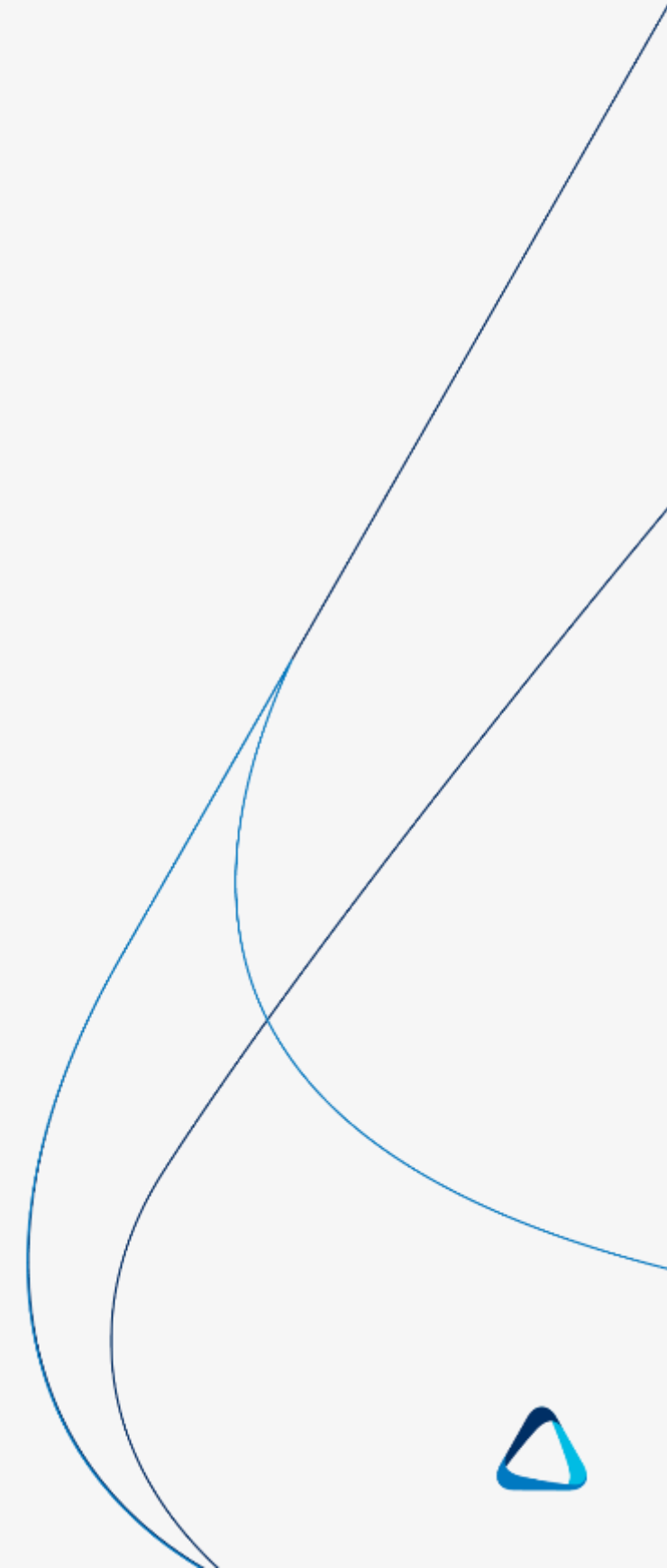
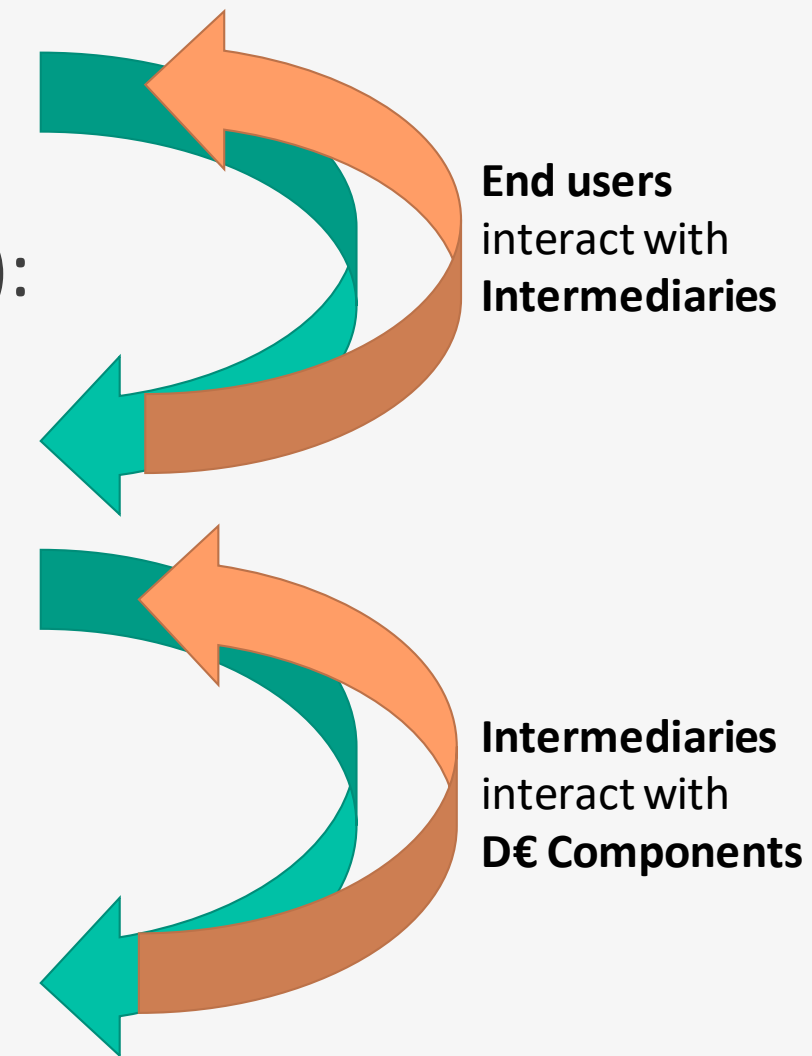
Design and Roles in Digital € Ecosystem

- › **Our (high-level) understanding of design and roles in D€ Ecosystem**
- › **D€ Design:**
 - › Online – both or at least one user (payer + payee) device is online
 - › Offline – both user devices are offline
- › **Use cases:**
 - › Person to Person
 - › Payments at merchants (both proximity and remote)
 - › Government payments
- › **Roles:**
 - › ECB/Eurosystem establishes ledger and communication endpoints for D€
 - › Intermediaries onboard and interact with users and D€ components
 - › End users use digital euro



Roles of D€ Actors

- › **End users (Payer and Payee):**
 - › Transacts in digital euro
- › **Intermediaries (Payer Intermediary and Payee Intermediary):**
 - › Onboarding/offboarding end users
 - › Funding/defunding D€ accounts/wallets
 - › Authentication of end users
 - › Authorization of transactions
- › **ECB/Eurosystem (D€ Components):**
 - › Intermediary's dedicated cash accounts (DCA) for D€ (in TARGET services)
 - › Digital Euro issuance
 - › Transaction ledger
 - › Transaction settlement



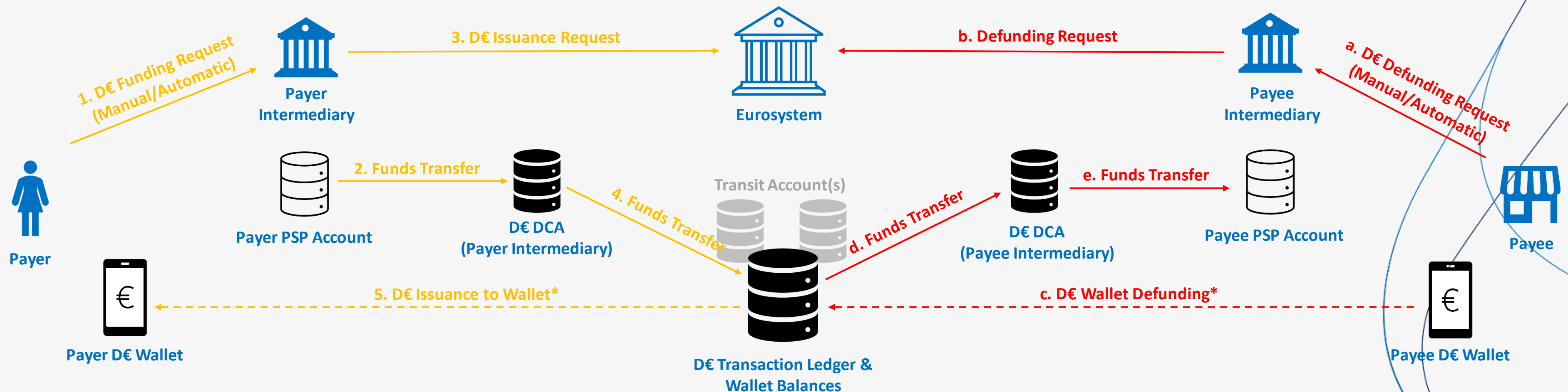
Funding/Defunding Process Overview

Steps 1 to 5 – Funding of D€ wallet

- End user requests D€ funding from Intermediary
- Funds are taken out of End user account at Intermediary
- Intermediary ensures sufficient liquidity in D€ DCA
- Funds are taken out of D€ DCA and D€ is issued to End user wallet

Steps a to e – Defunding of D€ wallet

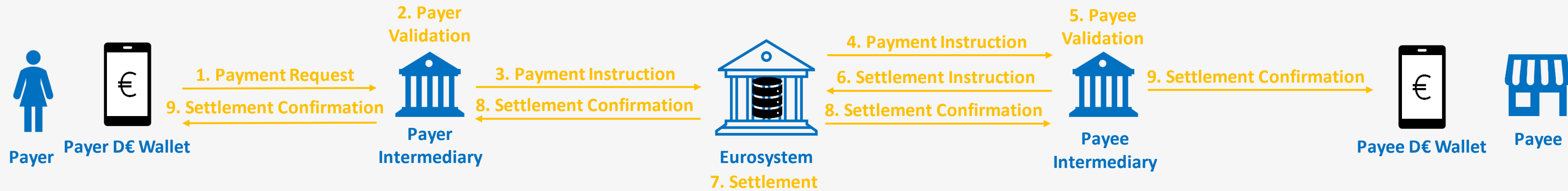
- End user requests D€ defunding from Intermediary
- Intermediary requests defunding from D€ components at ECB
- Funds are taken out of D€ End user wallet and transferred to Intermediary D€ DCA
- Intermediary transfers liquidity from D€ DCA and credits End user account



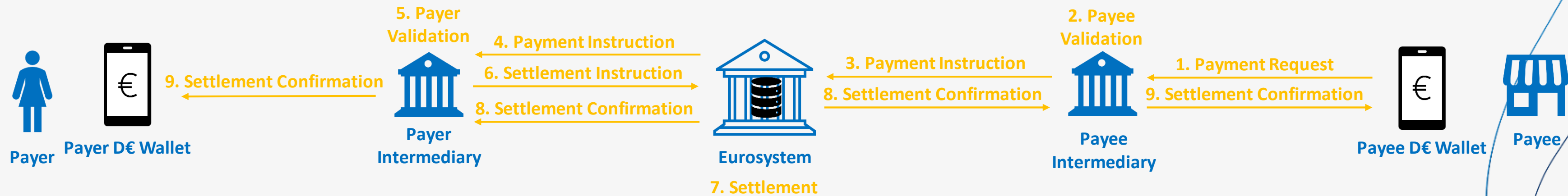
* Wallet Balance is updated in D€ ledger, not actually transferred to/from the wallet EXCEPT in the case of offline D€ (additional components are included in offline D€ issuance)

Payment Process – ON-LINE

> Payer Initiated:

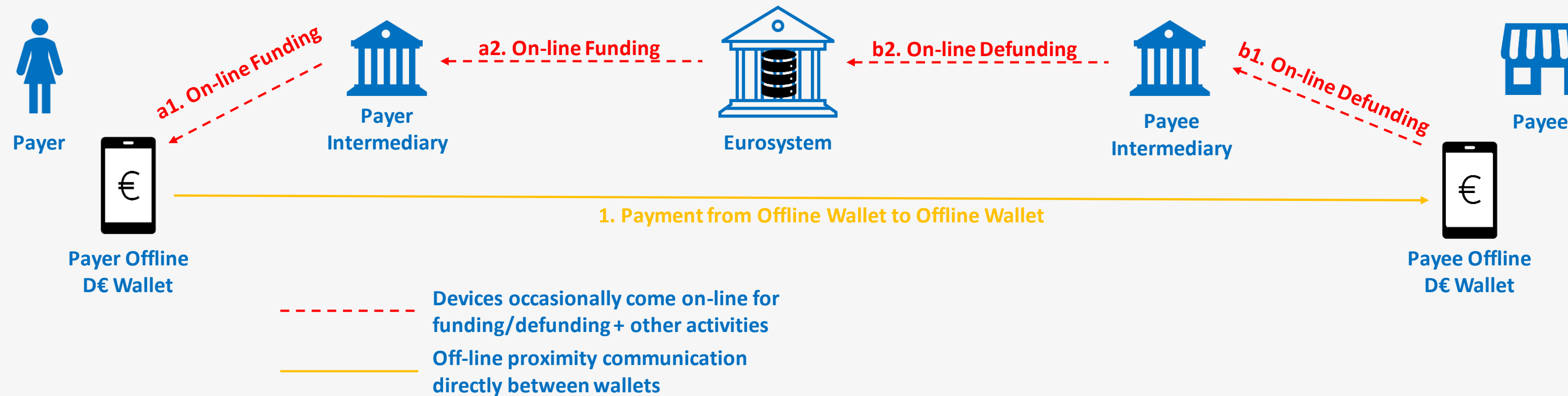


> Payee Initiated:



Payment Process – OFF-LINE

> Payer Initiated:

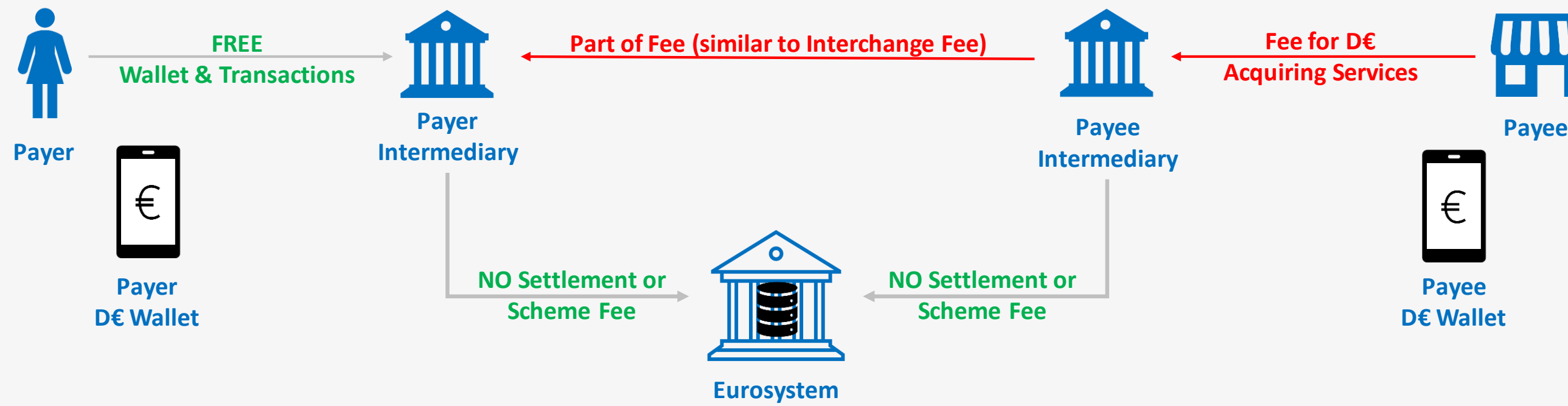


> Payee Initiated:

- > Out of scope for off-line D€?



Compensation model 1/2



Compensation model 2/2

- › D€ will be **free** for basic use by **private individuals**, including free:
 - › Onboarding, opening and holding of D€/Wallet
 - › Funding and Defunding
 - › P2P Payments
 - › P2M, P2eM, P2G Payments
 - › G2P Payments
- › **Eurosystem** will **bear its own costs** (settlement, scheme, etc.)
- › **PSPs:**
 - › **Acquirers** – **charge merchants** for ACQ services (in line with cash)
 - › Possible limits on merchant pricing
 - › **Issuers** – **receive** similar incentives as with other electronic instruments
 - › Bears costs with distributing D€ to end users
 - › ISS receives part of ACQ fee, similar to IF
- › **Merchants** will **pay for acquiring services**



Comparison of Payment Instruments

Property/Functionality	Cash	Payment Card	Credit Transfer	Instant Payment	Digital Euro
Payment Scenarios	P2P, P2M (proximity)	P2M (proximity & remote), P2P	A2A scenarios only	All payment scenarios	P2M (proximity & remote), P2P, G2P, P2G
Off-line Payments	YES	NO	NO	NO	YES
Execution Time	1-3 seconds	1-3 seconds	2-4 hours	1-3 seconds	1-3 seconds
Settlement Delay & Funds Availability	NO	Settlement (days) and availability delay (days – month)	Settlement and availability delay (several hours)	NO	NO
Only Bank Account is Required	N/A	NO	YES	YES	NO
Value Added Services (VAS) Development is possible	NO	YES/NO	NO	YES	YES

Points for Consideration

› On-line D€:

- › Process/transaction flow is basically the same as Instant Payments transaction flow
 - › Instant Payments are already well supported in inter-bank space and received by end users
- › Ledger as D€ Component will be very large (a lot of wallets and transactions) – single point of failure (availability, performance, etc.)
- › Compared to existing payment instruments does not address any additional challenges/problems
 - › Overlaps especially with Instant Payments



› Off-line D€:

- › Addresses use cases where both payer and payee devices are offline (cash like use cases)
- › Standardization of POI and Consumer device interaction



Suggestion

- › We propose a **synergistic approach** between **(offline) Digital Euro and Instant payments** solutions, taking a “best of both worlds” approach:
 - › SEPA Instant Payments for on-line transactions and bank to bank communication
 - › Digital Euro for off-line wallet to wallet communication



Instant payments challenges

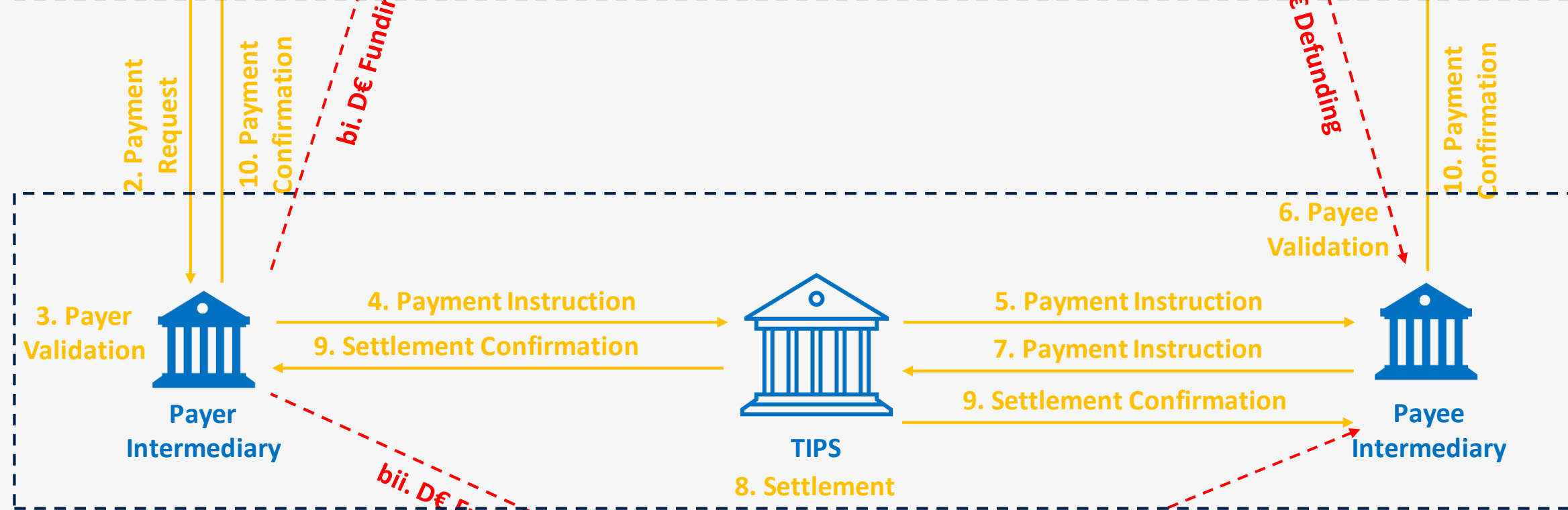
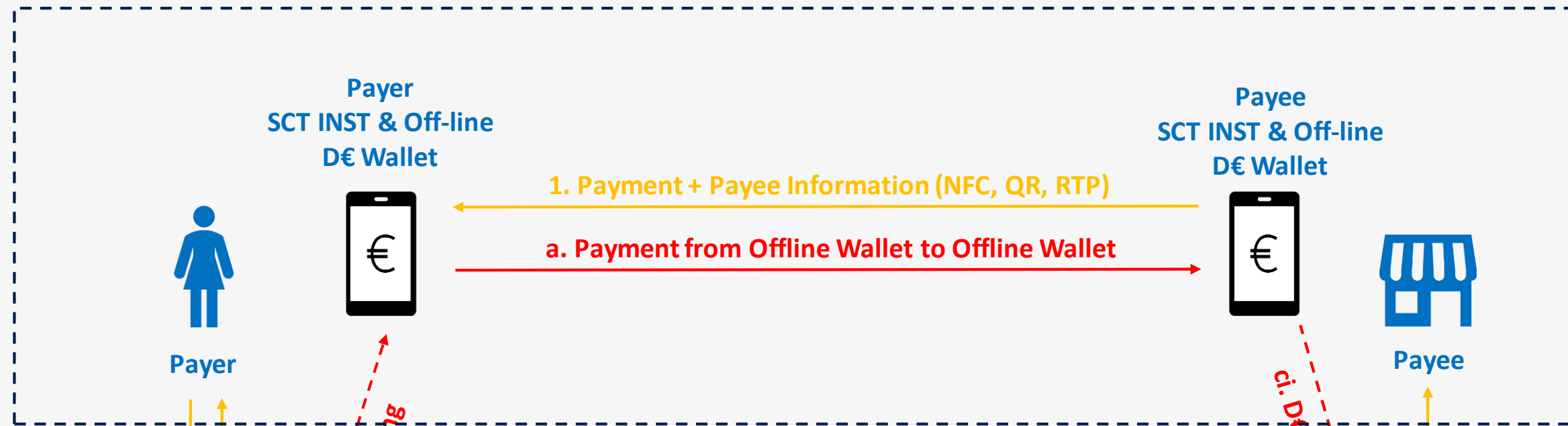
- › Existing Instant payments standards (e.g., SCT Inst) and technical solutions (e.g., TIPS) have standardized Instant Payments in inter-bank space, however significant gaps in standardization exist when used for P2P and P2M use cases
 - › Especially P2M (proximity and remote) is currently dominated by cash and/or card-based solutions.
- › Main obstacles for wider instant payments usage in P2P and P2M use cases:
 - › There are no EU-wide standards for wallet interoperability (common NFC/QR standards, common alias/proxy lookup registry, etc.)
 - › There are no standards for offline payments (required for transit, limited data connectivity and other special use cases)
 - › There is no common business framework (e.g., to make sure that payments are free of charge for consumers)
 - › There are no common standards for dispute resolution
 - › There is no common brand and communication policy



Building an optimal solution

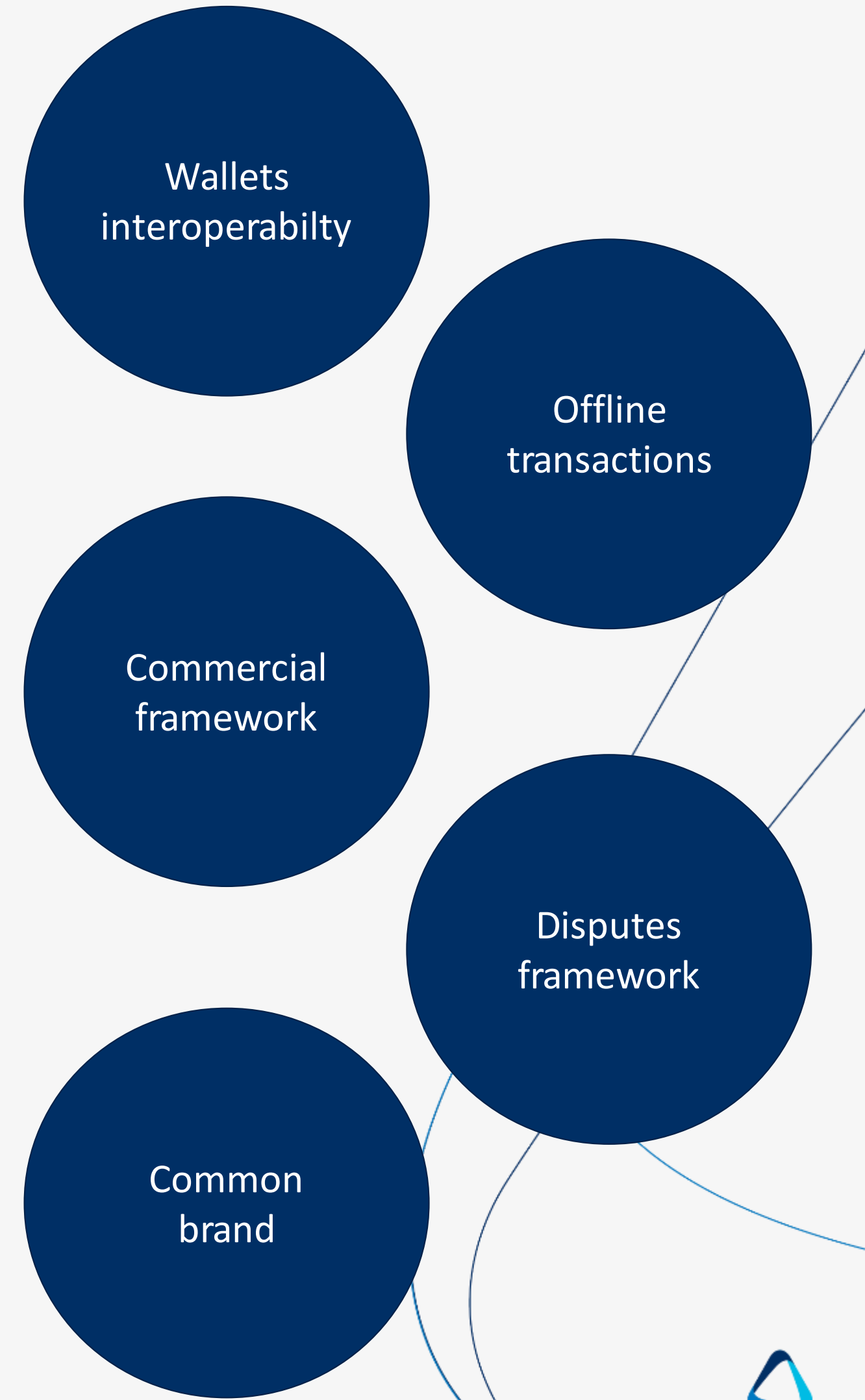
- › Instead of duplicating functionality (from an end user perspective) between Instant payments and online Digital Euro solutions, we propose to build the Digital Euro solutions in a way they complement the existing and relatively widespread Instant payments solutions.
- › We believe that offline Digital Euro could be positioned as an extension of Instant payments, thus maximizing use of existing infrastructure and at the same time providing tangible benefits for the end users (both consumers and merchants). In other words, IP should be part of d€ scheme (addressing on-line payments).
- › In order to become a widespread solution, Digital Euro will have to address all of the obstacles mentioned on previous slide.





D€ Transaction Ledger & Wallet Balances

- SCT Inst payment flow
- Off-line proximity communication directly between wallets
- - - Devices occasionally come on-line for funding/defunding + other activities





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