



EUROPEAN CENTRAL BANK

EUROSYSTEM

ERPB engagement on digital euro fit in the payment ecosystem

End-user deep dive



09 April 2025

Digital euro project

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Housekeeping rules

Agenda of today's end-user deep dive



15:15h -----

ECB view: **Fit in the ecosystem: Merchants**

- Competition
- Synergies
- Business model

16:15h -----

ECB view: **Fit in the ecosystem: Consumers**

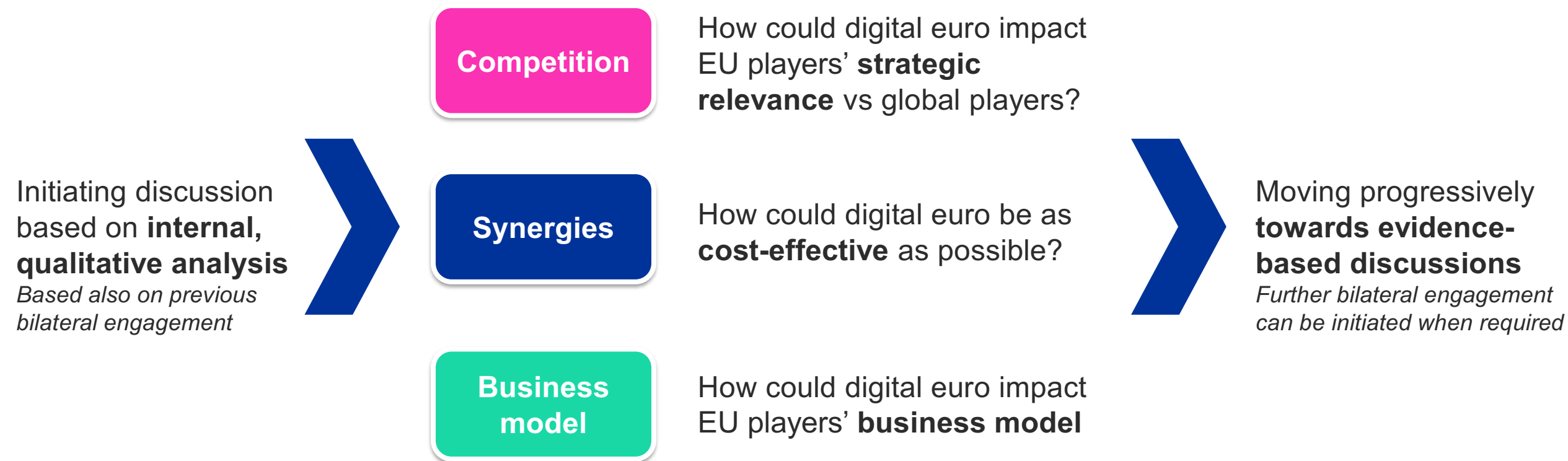
- Digital financial inclusion
- Privacy and fraud
- Competition



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**Deep dive on
Merchants**

Reminder: Engagement on “Fit in the Ecosystem” is structured around three core themes*



* Identifying benefits and reducing potential risks/ unintended consequences



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Competition

Adapting the euro to the digital age

Digital payments: on the rise*



Day-to-day cash payments fell from 68% in 2019 to 40% in 2024*



International card schemes account for close to two-thirds (64%) of all electronically initiated transactions with cards issued in the euro area**



Online purchases rose from 18% in 2019 to 36% in 2024***



A digital euro: bridging the gap

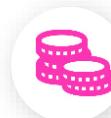
ICSs benefit from trends observed



Growing market share to the detriment of domestic schemes



Smaller merchants pay 3 to 4 times higher MSC than larger merchants

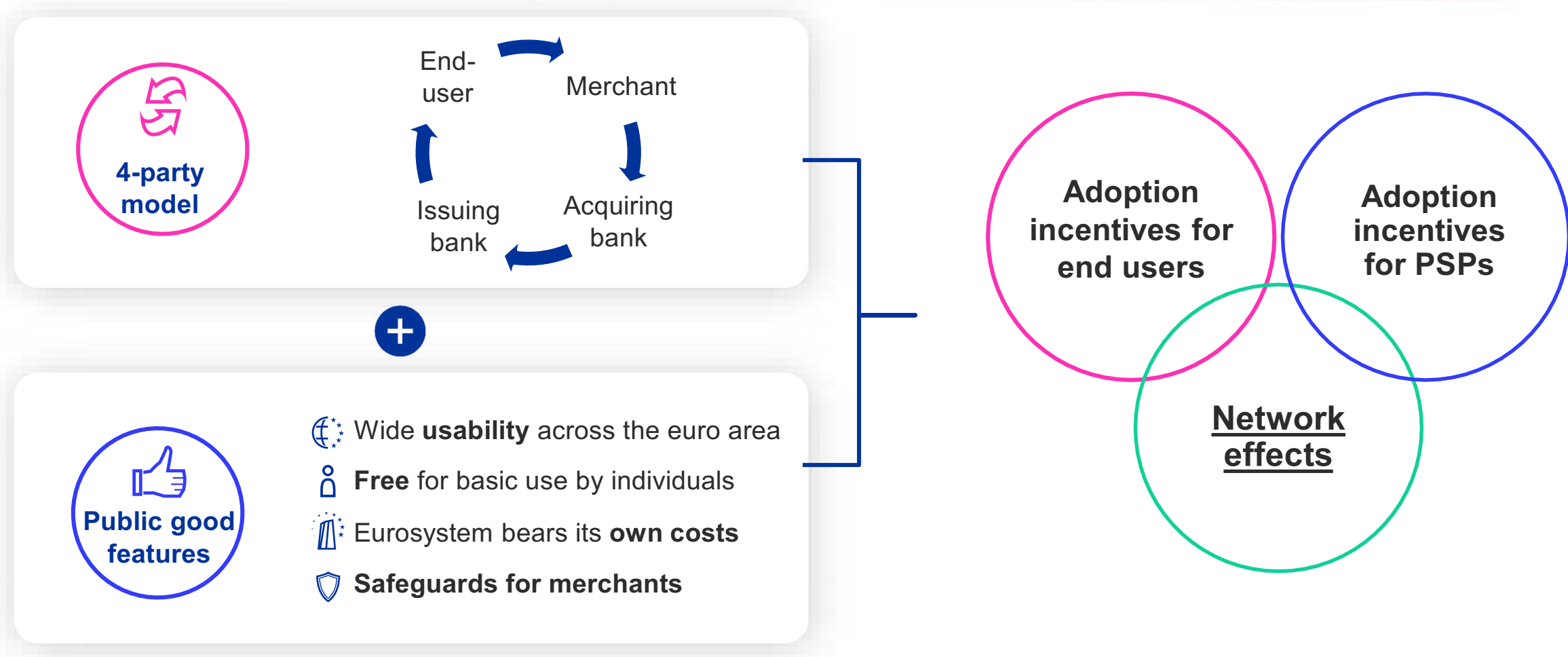


*https://www.ecb.europa.eu/stats/ecb_surveys/space/html/ecb.space2024~19d46f0f17.en.html#toc5, ECB, December 2024.

** In the second half of 2023, based on data collected under Regulation (EU) No 1409/2013 of the European Central Bank on payments statistics (ECB/2013/43)

*** In terms of payment value

A fair and balanced compensation model* for digital euro



* Subject to digital euro legislation.



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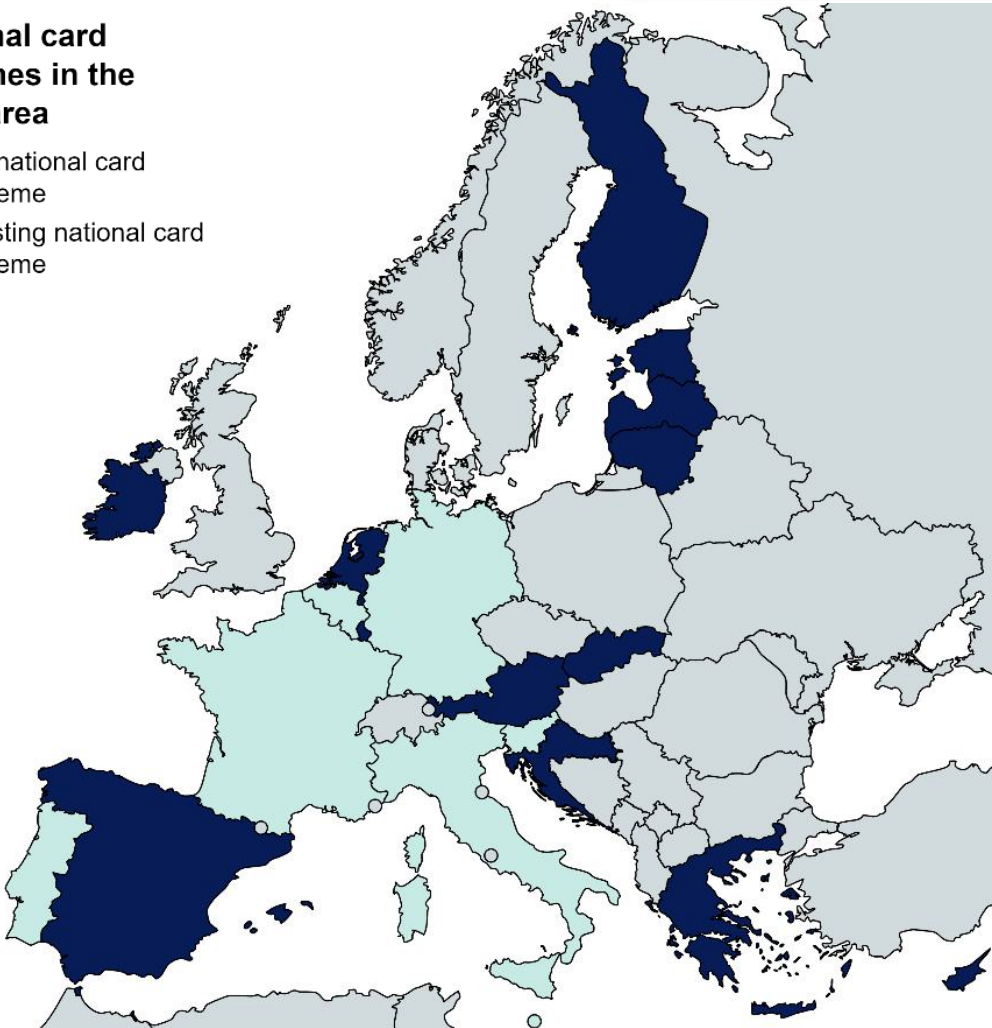
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Synergies

A “European by design” solution ready to serve merchants’ interests

National card schemes in the euro area

- No national card scheme
- Existing national card scheme



Merchants operating across borders in Europe have to integrate and maintain solutions based on different standards



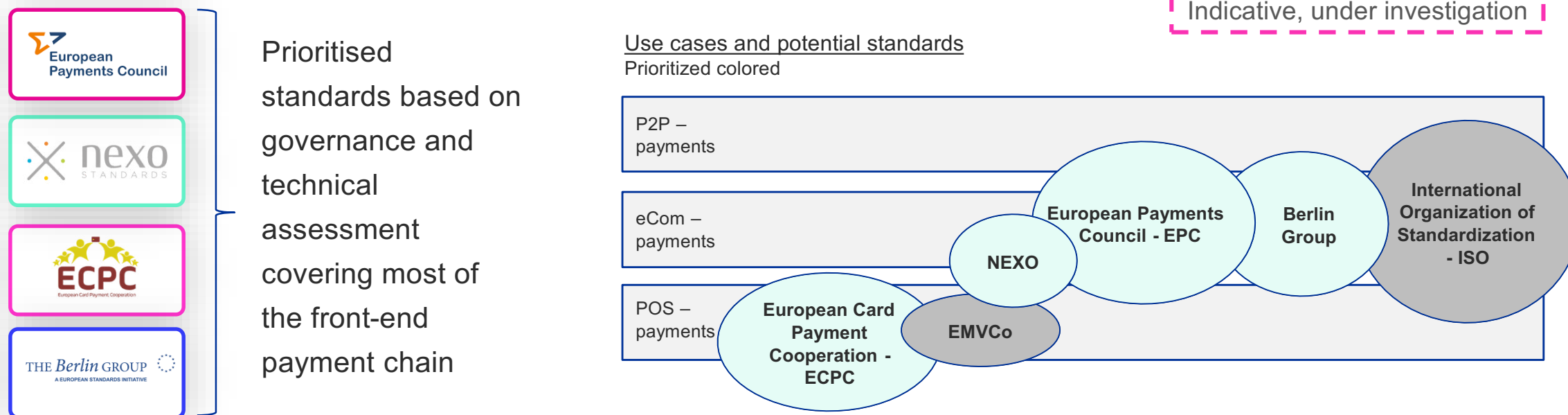
There is currently no European digital means of payment covering all euro area countries: 13 out of 20 euro area countries don't have a national card scheme and instead rely on international schemes for digital payments, which account for close to two-thirds (64%) of all electronically initiated transactions with cards issued in the euro area



A digital euro would provide a pan-European platform that would standardise digital payments in the entire euro area

Four standard setting bodies and their standards along the digital euro payment chain in focus

- **Standards** pursued or established by digital euro would be **open for private sector** to build on
- **Clarity** to the market **at the earliest**, anticipated for (still) 2025





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Business Model

Public ownership with strong focus on resilience



Monetary and financial stability and no profit maximization

- The objective of the ECB is to ensure that financial stability is preserved and to maintain the crucial role of banks as providers of credit to businesses and the overall economy.



No commercial interest in data

- As a public institution, the ECB has no commercial interest in collecting or exploiting end-user data.



Our money in our hands

- A digital euro would strengthen Europe's resilience and reduce our dependency on private non-European providers – specifically in times of crises

Informed decision making through increased transparency

No scheme fees

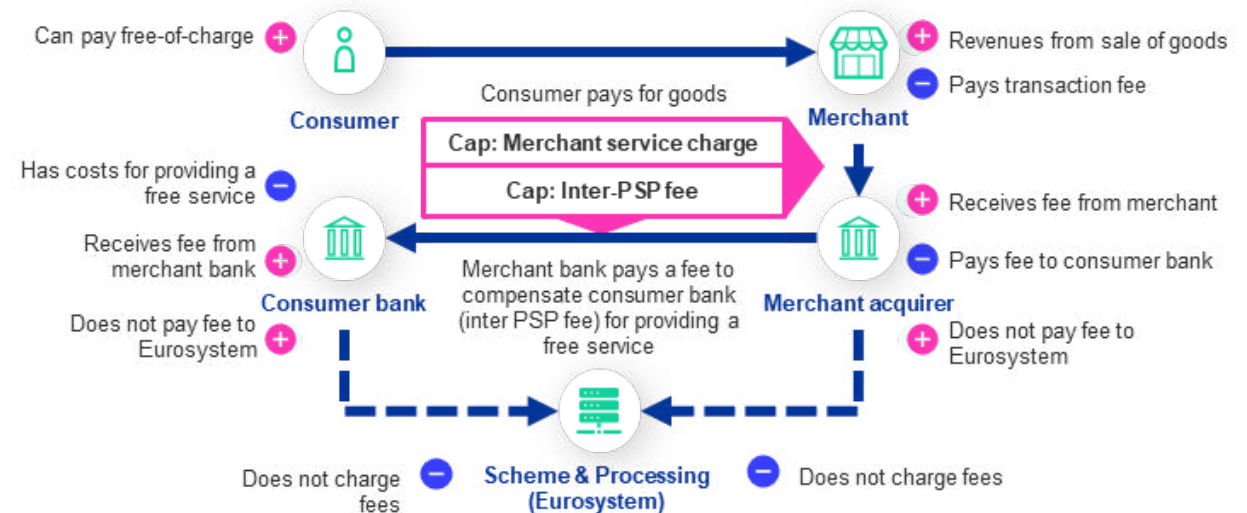
Involvement of market participants in rulebook development

Simple reporting structure



Arguably, the **most complex fee components** that merchants struggle with in terms of transparency **will not be applicable under the digital euro scheme**, as the Eurosystem will bear its own costs.

Through the active participation of market participants in the development of the rulebook, merchants are encouraged to define requirements – also for **reporting standards**.



Complex reporting structures of incumbents disable merchants to make informed decisions

Regulated vs unregulated interchange fee



Card type



Region of issuance



Three party schemes



Merchant sector

Scheme fee complexity drivers



Categories¹



Pass-through limitations²



Different per scheme

Merchants' limited cost control capabilities



Tendering: Pricing structures and different approaches to rates make it complex for merchants to compare the quotes it receives from acquirers



Due diligence: Non-published scheme fees render it difficult for merchants to verify whether charged scheme fee correspond with service provided



Information asymmetry: Merchants depend on acquirers regarding changes to scheme fees, that are unilaterally defined by schemes

¹ depending on cardholder and merchant region, card scheme, authentication method, data capture and security, card type, sales channel, merchant sector

² fee components might be charged in different currency, based on transaction, value, volume or period

Merchant value drivers

| Theme | Item | Value drivers | Rationale |
|-------------|------|---|---|
| Competition | #1 | Better negotiation position for merchants vis-à-vis incumbents (ICSs) | In the two-sided retail payments market, which is characterised by strong network effects, where the value for each group increases as more participants join the other side, new market entrants will have difficulties competing with incumbents that have established wide networks. The digital euro that will be distributed by consumers' banks and accepted by merchants by way of its legal tender status, will create a viable alternative for merchants, aiming to re-balance merchants' negotiation capabilities. |
| Synergies | #2 | Minimising implementation efforts through standardisation | The Eurosystem is committed to drawing from and building on existing standards and scheme solutions as much as possible to create synergies and limit implementation costs. In addition, by establishing open standards, the digital euro aims to integrate seamlessly into existing digital solutions and allow domestic schemes to leverage on a pan-European acceptance network. |

Merchant value drivers

| Theme | Item | Value drivers | Rationale |
|----------------|------|---|---|
| Business model | #3 | Public ownership of the project | The digital euro, that will serve as public good available to all Euro Area citizens, will be issued by the ECB within its mandate of protecting monetary and financial stability. Profit maximization is not among the objectives set by the ECB to roll out the digital euro. Instead, introducing a digital euro would minimise the likelihood of adverse economic outcomes in the future and ensure the resilience of our payment system in an increasingly digital world. |
| Business model | #4 | Informed decision making through transparency | With the absence of scheme fees, digital euro payment transactions should not only be priced competitively, but complexity in terms of transaction fee reporting should reduce significantly , improving merchants' capabilities to make informed business decisions. |

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**Deep dive on
Consumers**

Engagement on “Fit in the Ecosystem” for Consumers has been structured around three core themes

1. Digital financial inclusion

- Availability
- Usability
- Accessibility

2. Privacy, fraud prevention and resilience

- Privacy by design
- Fraud prevention
- Resilience

3. Competition

- Free of charge
- Universally accepted
- A platform for innovation

Digital financial Inclusion



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Leaving no one behind, a digital euro available to everyone



A mandatory public approach is key in ensuring digital euro services are available to everyone and is necessary support to those vulnerable to digital financial exclusion

A public approach via one public institution or PSP in each member state (e.g., post offices) would:



In-person onboarding and support



Defunding with **cash** ensured



Issuance of **physical** card



Services **free** of charge

Advancing digital financial inclusion through the usability of the digital euro



When the investigation phase of the digital euro project started, the first resolution approved by the High-Level Task Force (HLTF) highlighted “the importance of having a broader objective in mind, namely **guaranteeing access and usability** of central bank money



Usability by design



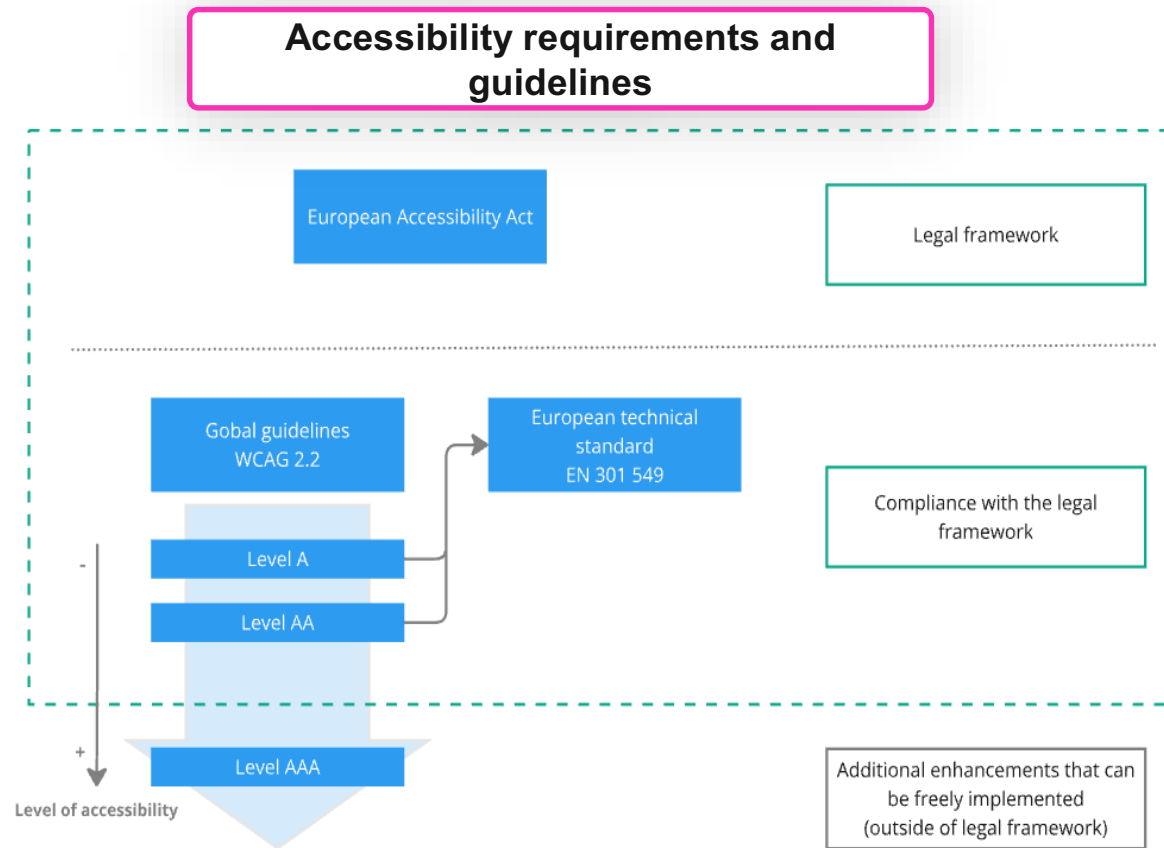
The **digital euro app** will allow end-users to easily access **digital euro** services via a **single, easy-to-use harmonised interface**



Minimum UX standards for the integration of the digital euro in PSPs' front-end solutions

Usability is a measure of how well a specific user in a specific context can use a product/design to achieve a defined goal effectively, efficiently and satisfactorily. A design's usability depends on how well its features accommodate users' needs and contexts.

Advancing digital financial inclusion: the accessibility of the digital euro app



The digital euro app will comply with the EAA



But it aims to be more accessible than required by the EAA



Leveraging global guidelines (WCAG AAA) provides an opportunity to design the most accessible front-end interface in the ecosystem

Accessibility requirements aim to ensure that products and services are equally accessible to all, including persons with disabilities.

Privacy, fraud prevention and resilience

Privacy by design and protection for the digital euro services platform

For the **online digital euro**, privacy would be ensured so that the Eurosystem, i.e. the issuer and payment infrastructure provider, would **not be able to directly link transactions to specific individuals**.

For the offline digital euro, payments would offer privacy levels similar to cash, as there would be **no third-party validations** of transactions.

Privacy preserving techniques



Pseudonymisation: Personal data would be transformed so individuals cannot be identified without additional information



Hashing and data encryption: Data remains secure and unreadable during transmission and storage



Data segregation: The data exchanged between PSPs and the Eurosystem would be segregated

Fraud prevention via the centralised RFM component

PSP

Individual fraud risk assessments, enhanced with insights into patterns and anomalies from a central infrastructure-level perspective.

- ✓ D€ risk score will improve PSP's ability to detect fraudulent transactions.

sends request to RFM component

Risk score with reason code

RFM component

Produces real-time risk score with reasoning for online D€ transactions



- ✓ All relevant fraud types
- ✓ All D€-payment use cases (POS payments are not on the critical path due to latency/ fraud risk trade off)

Resilience during internet outages



Offline digital euro payments would enable payments in physical shops and between individuals **without the need for an internet connection.**

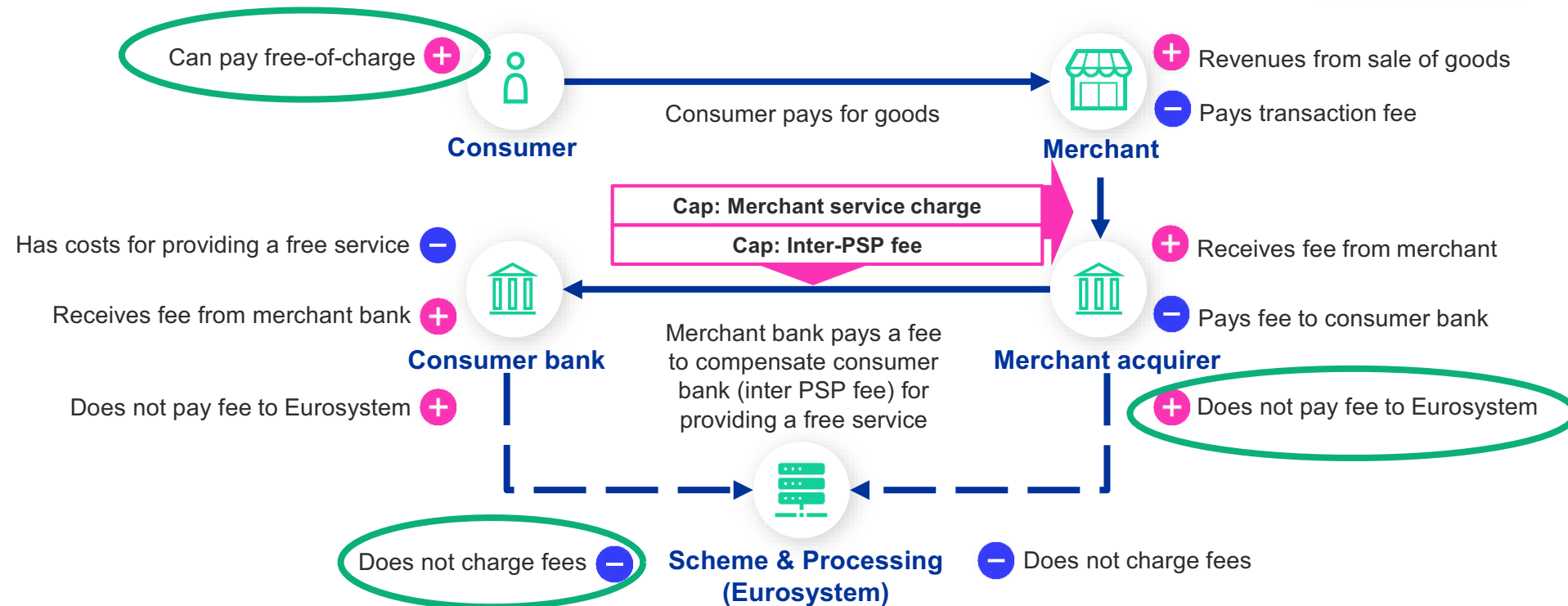


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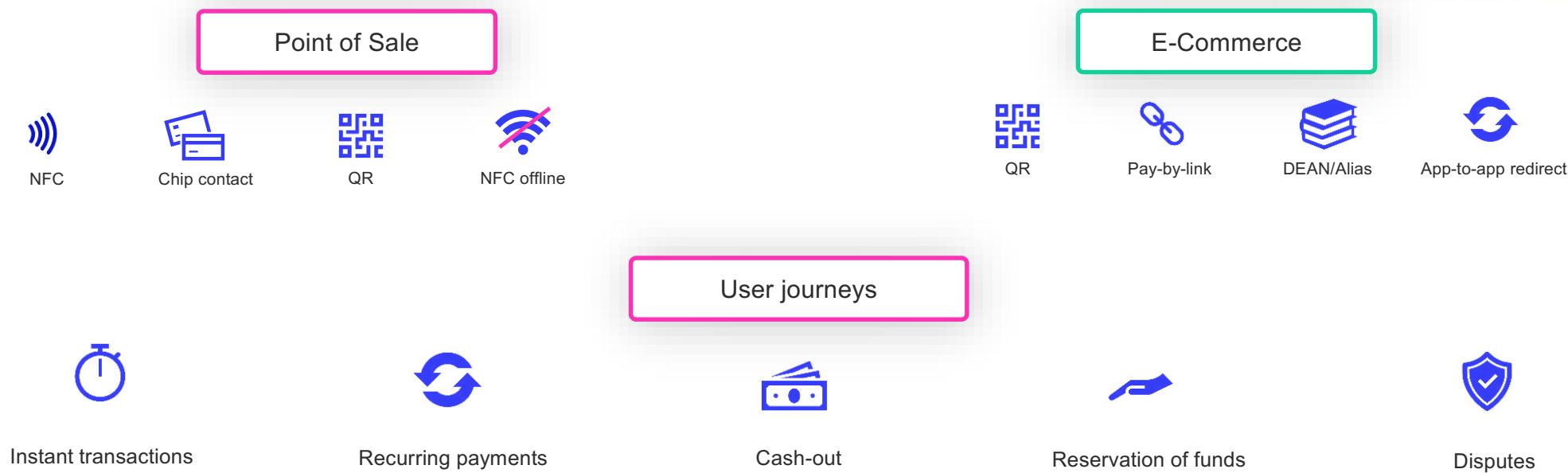
Competition

Free of charge with price benefits passed on to consumers



The Digital Euro will be **free for consumers**—no scheme or processing fees, and merchant service charges are **capped**. This will allow businesses to **pass savings to consumers, aiding price stability**. Additionally, essential services like **account opening, transactions, and fund management will be free for users**.

Universally accepted as legal tender and therefore available for any digital payments across all euro area countries



Whereas **point-of-sale** acceptance methods are compatible with both **card-based** and **mobile phone-based** payment instruments, **e-commerce** is limited to **mobile phones** and **web-based** acceptance methods. **Offline** means of payment are expected to be limited to **point-of-sale only**.

The various acceptance methods support **instant transactions**, various **recurring payments** (of static or variable amounts), **reservation of funds**, **cash-out** at point-of-sale or **disputes**.

A platform for innovation and value added services



Consumer value drivers

| Theme | Item | Value drivers | Rationale |
|-----------------------------|------|---------------|--|
| Digital financial inclusion | #1 | Availability | The digital euro will help advance digital financial inclusion and address the needs of vulnerable groups that are underserved by PSPs or at risk of exclusion due to the digitalisation of financial services. |
| Digital financial inclusion | #2 | Usability | To be successfully adopted by consumers, the digital euro would be simple to understand and “easy to use” , whether it is used to settle transactions via PSPs’ interfaces or via the digital euro app. |
| Digital financial inclusion | #3 | Accessibility | Accessibility of the digital euro is key as central bank money should be available to all, including persons with disabilities whose needs are not systematically met by private payment solutions. |

Consumer value drivers

| Theme | Item | Value drivers | Rationale |
|--|------|-------------------|---|
| Privacy, fraud prevention and resilience | #4 | Privacy by design | For online digital euro payments, privacy will be ensured by preventing the Eurosystem from directly linking transactions to individuals. Offline payments offer cash-like privacy without third-party validation. The digital euro uses privacy-enhancing technologies like pseudonymisation, hashing, and data encryption to secure data, protecting user identities. |
| Privacy, fraud prevention and resilience | #5 | Fraud prevention | The online digital euro will include a robust fraud prevention and detection mechanism through the establishment of the Risk and Fraud Management (RFM) component . This enhances PSPs' ability to detect fraudulent transactions that they might not otherwise identify by enriching their individual fraud risk assessments with insights into patterns and anomalies from a central infrastructure-level perspective. |
| Privacy, fraud prevention and resilience | #6 | Resilience | The offline digital euro will enhance payment system resilience by enabling transactions without an internet connection , ensuring digital payments can continue during internet outages, thus maintaining economic activities. |

Consumer value drivers

| Theme | Item | Value drivers | Rationale |
|-------------|------|---------------------------|--|
| Competition | #7 | Free of charge | With no scheme fees or processing fees charged by the Eurosystem and capped merchant service charges, these savings can be passed on to consumers . Additionally, the basic use of the digital euro, including opening an account, conducting transactions, and funding or defunding, will be free of charge for consumers. |
| Competition | #8 | Universally accepted | The digital euro, as legal tender, could be used anywhere in the euro area for electronic payments in shops, online, or from person to person, much like cash today. It would be universally accepted and available for any digital payments across all euro area countries. |
| Competition | #9 | A platform for innovation | The digital euro would offer a foundation for further innovation by private payment service providers, serving as a platform for a range of additional services such as cashback, loyalty programs, personalised product recommendations, digital receipts, and embedded payments. |

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4

Next steps: Feedback
we seek from the
ERPB associations

ERPB technical session members are invited to:



Provide views on the technical presentation **by 24 April 2025**

- Members are invited to share:
 - **Feedback** on the presented value drivers and their impact.
 - Estimate **likelihood** of materialization for each value driver
- Would members see any **additional value driver** that would reflect substantial market dynamic impact caused by the adoption or the issuance of the digital euro?

Next steps

 ***Deep dive on key topics during physical workshop scheduled for 19-20 May 2025 to foster collaborative understanding***

- ***Workshop will start at 11:00 at the earliest on Monday 19 May***
- ***Agenda and logistic details will be shared soon***