



EUROPEAN CENTRAL BANK

EUROSYSTEM

Digital euro prototype

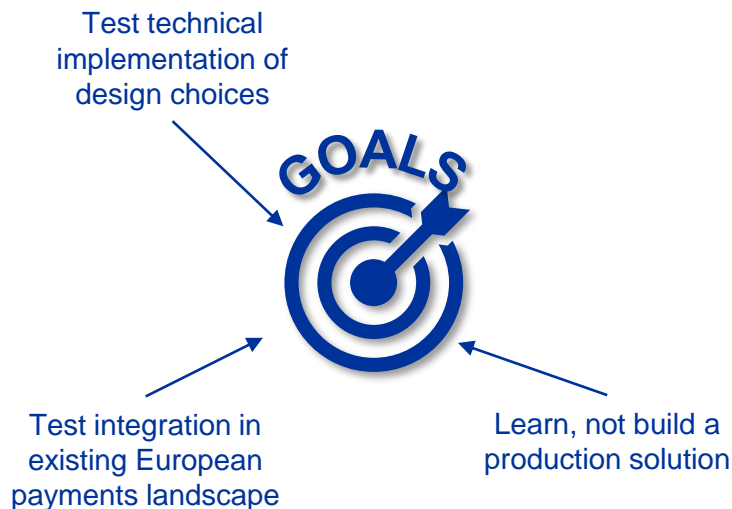
Summary and lessons
learned

4 July 2023

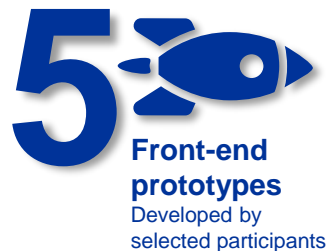
Digital euro project team



Prototype background, set-up and goals



No personal data were processed in the prototyping exercise either by the ECB or by the front-end prototype participants.



Jul 2022 -

Feb
2023



Use cases



Point of sale (PoS):
payer & payee-initiated



Person to person:
online & offline



E-commerce

Prototype exercise results



Possible to smoothly integrate digital euro into the existing European payments landscape, while leaving ample room for innovative features and technologies.



A digital euro could in principle **work both online and offline**, using independent designs.



Important: the specific choices made for the prototypes do not affect any decision relating to a specific technology or functionality for the final digital euro design. The API specifications do not prejudge possible alternative designs. The actual prototypes presented will be discarded and not used further.

Back-end prototype

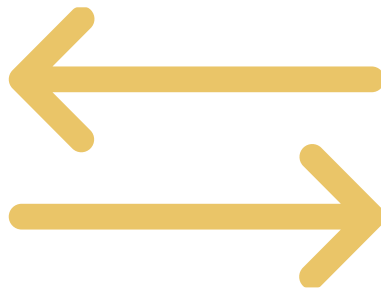
What we developed

- N€XT, a **bespoke centralized settlement system** developed from scratch by the Eurosystem
- **Not a DLT**, but based on a **UTXO data model** (greatest potential for learning)

What we learned



UTXO model allows for fast and efficient validation of transactions



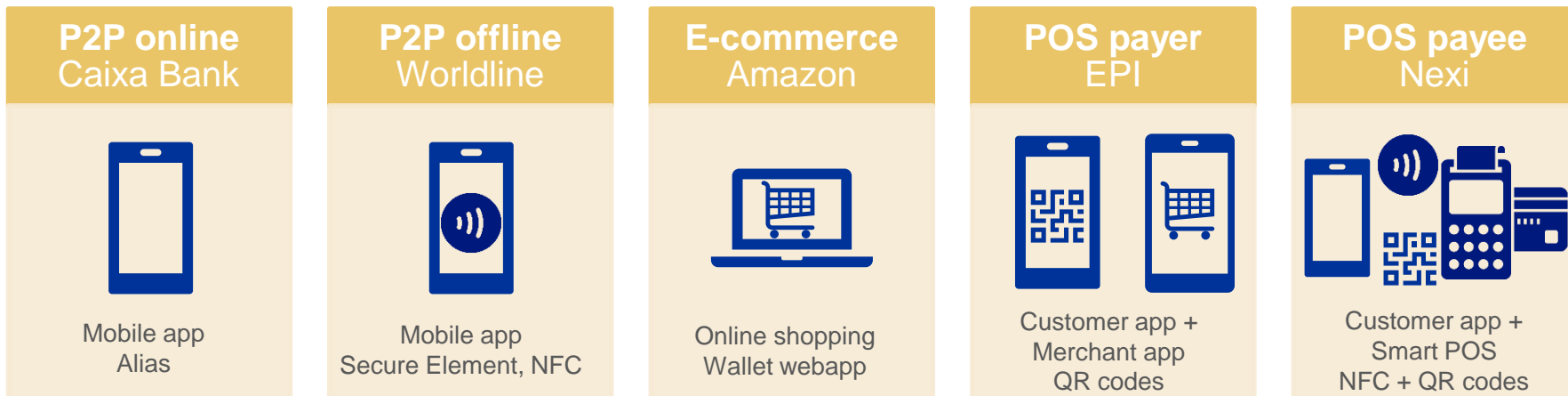
Transaction model based on UTXO can support different types of transactions (future proof)...



... while protecting user privacy by not revealing payment patterns or account balance to the Eurosystem

Front-end prototypes

What was developed



What we learned

- **Smooth interaction** between front-end and back-end with room for **innovative approaches**; adaptation effort for existing PSP systems remains to be evaluated
- **Offline and online can have different data models and be interoperable**: offline data model can be also balance based. **Maturity still a challenge.**