

E-krona, the Riksbank's journey towards a retail central bank digital currency

Philadelphia Federal Reserve
Conference October 26th-27th
Workshop on Payment and Lending

(26.10.2022)

S V E R I G E S R I K S B A N K

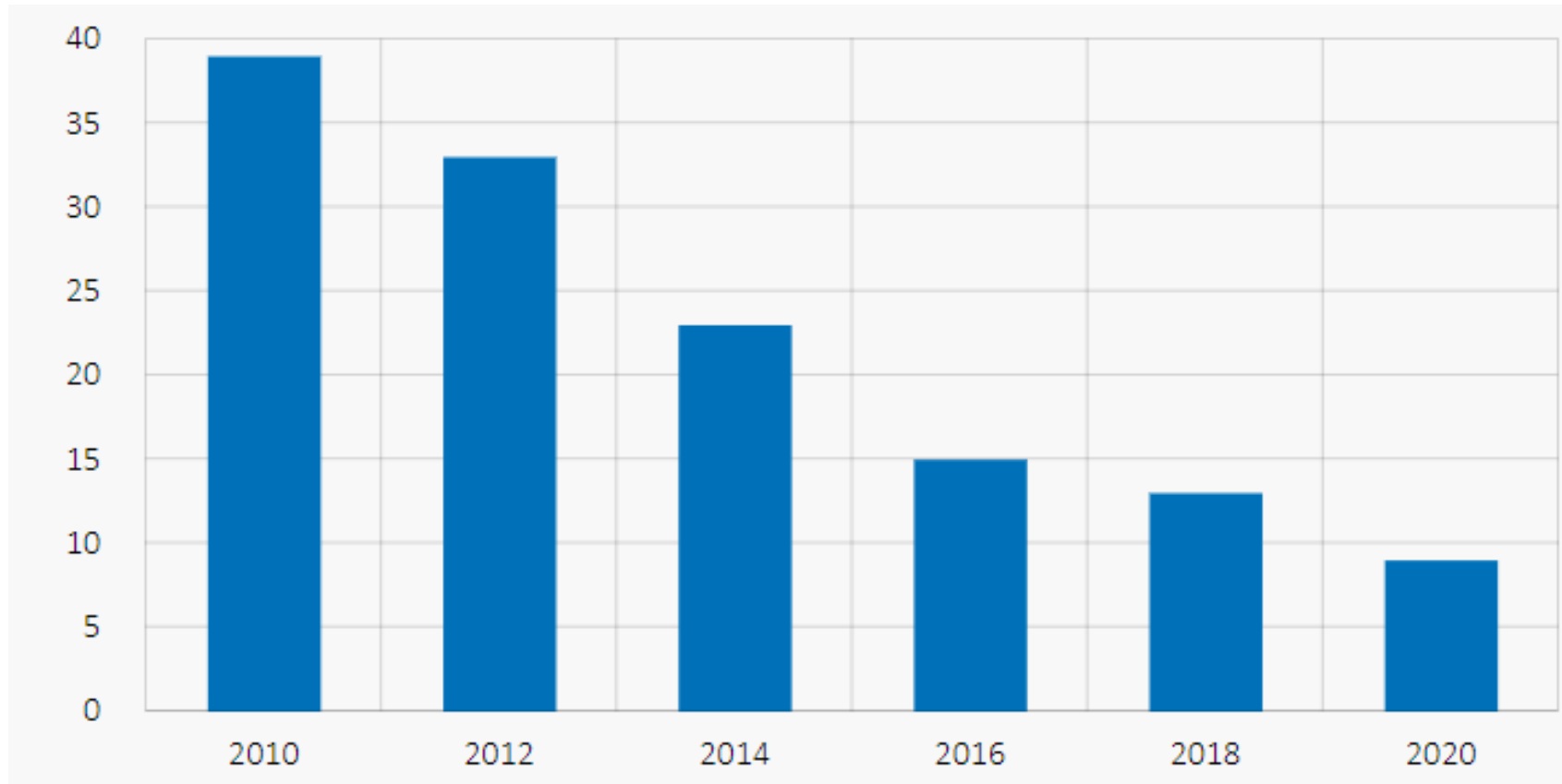
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Agenda

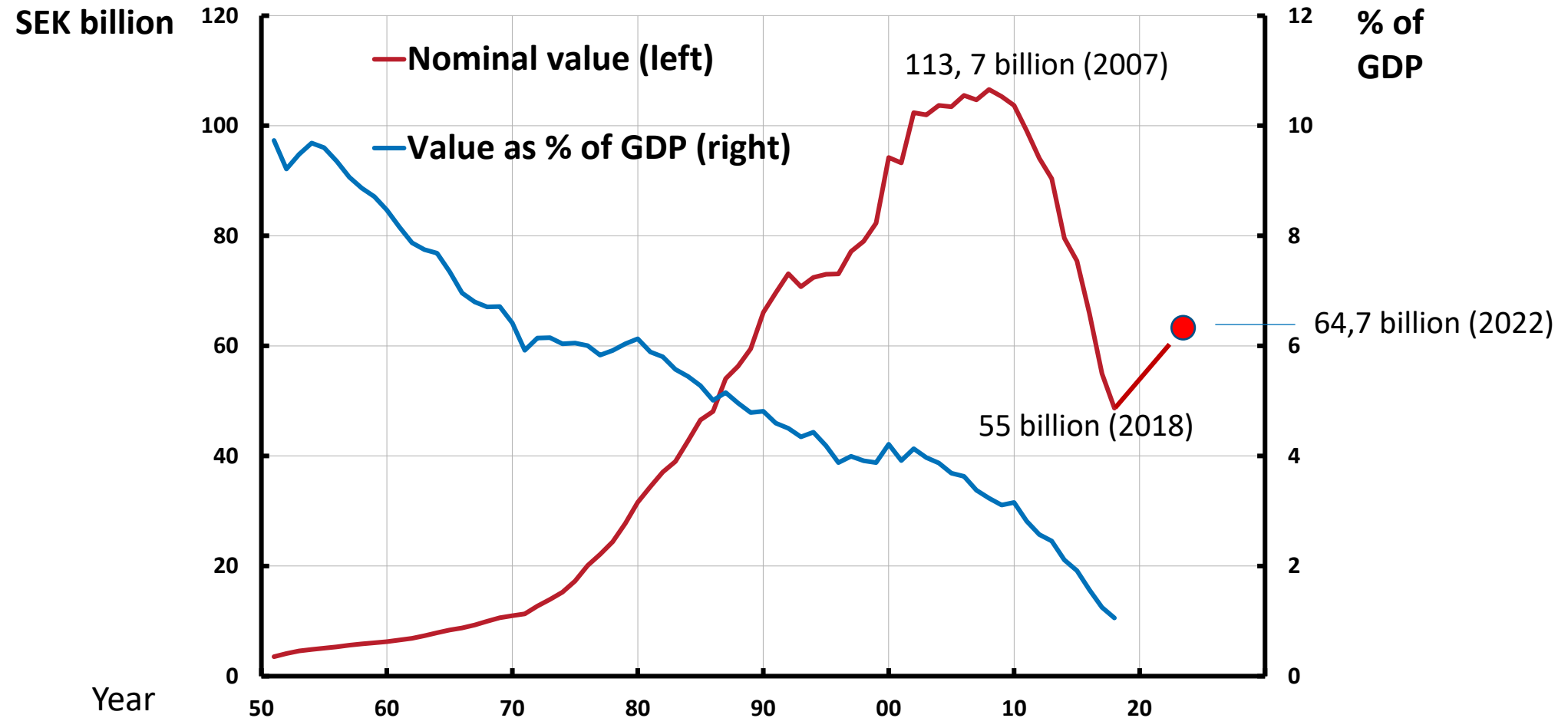
- **The decline in usage of cash in Sweden**
- **The e-krona proof of concept**
- **Looking forward – the next step**

Cash is becoming marginalised in Sweden

Percentage of people paying for their most recent purchase in cash.

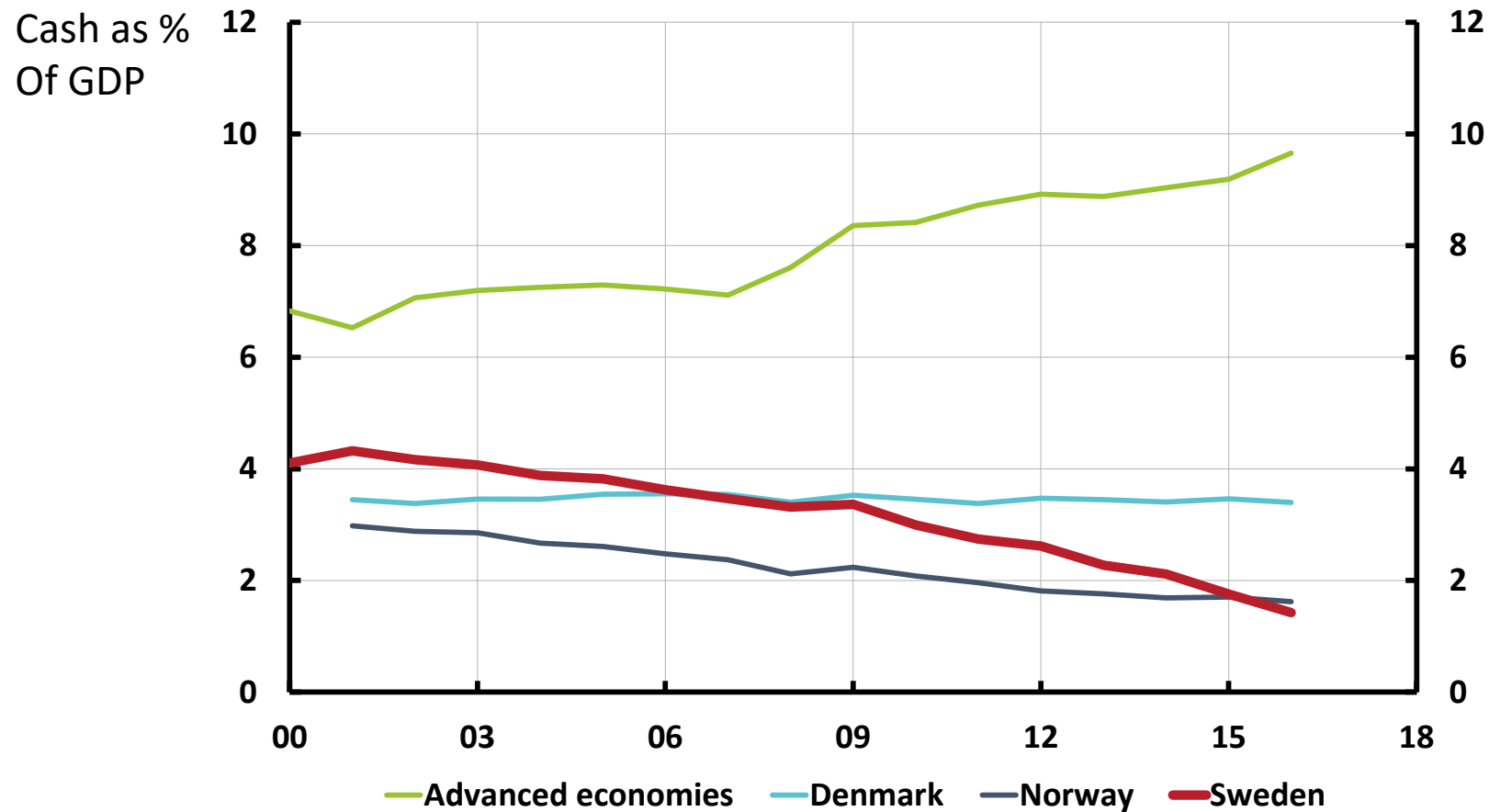


A sharp decline in cash between 2007 and 2018



Source: Statistics Sweden and the Riksbank

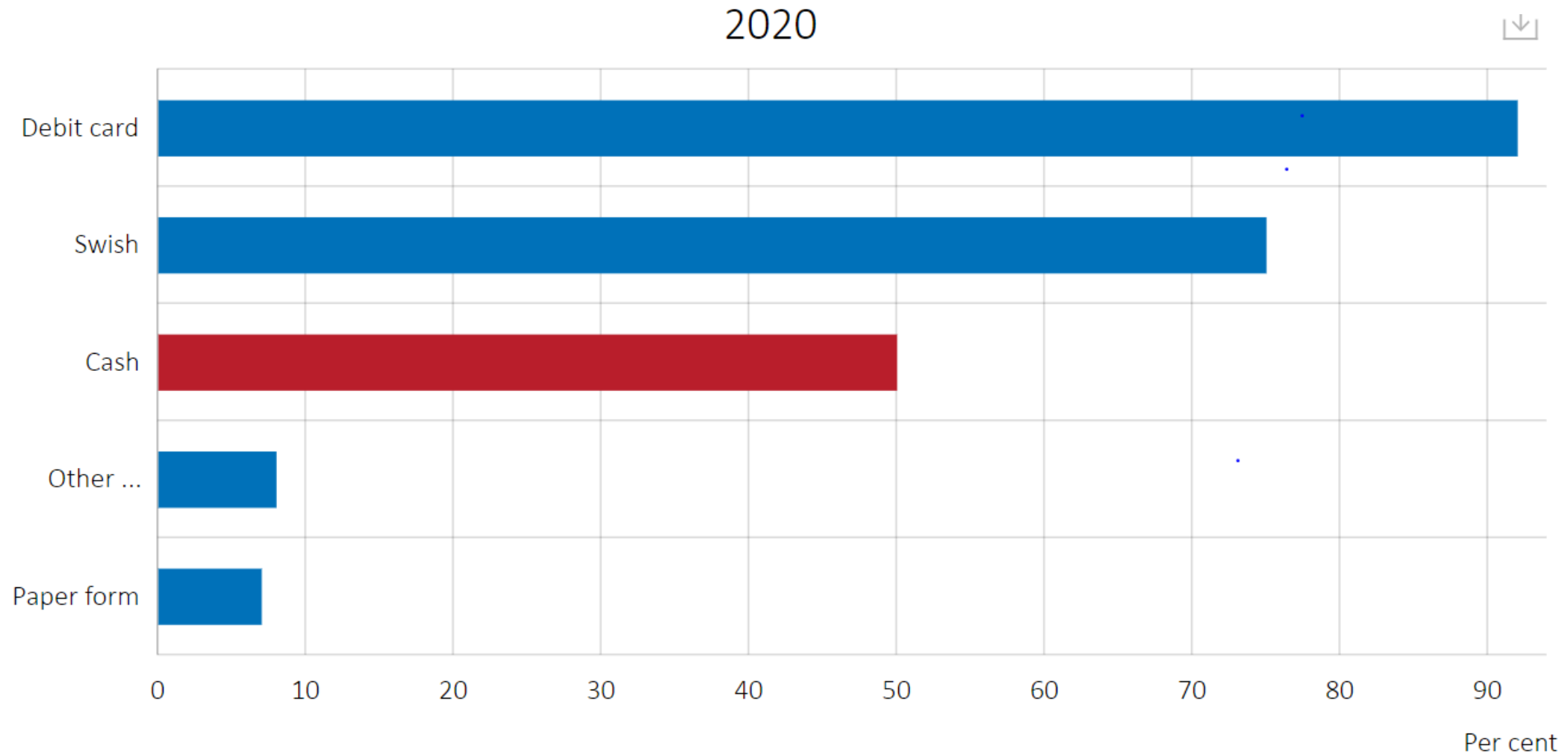
.....Sweden in the forefront globally



Source: BIS Quarterly Review
March 2018 Bech et al.

Card payments and mobile instant payments replaces cash

“What means of payment have you used in the last 30 days?”



2017 – choosing the path at an unknown crossroad



- To ensure **continued access to central bank money** for the general public
- To strengthen the **resilience** of the payment system
- To promote **innovation and competition** on the payment market



E-krona
project
report 1

**September
2017**

E-krona
project
report 2

**October
2018**

Public
consultation
**Q1
2019**



**November
2016**

Identified
need to
investigate
e-krona

**Q1
2018**

Input on
possible
technical
solutions
for an
e-krona

**November
2018**

Economic
Review:
Special
issue on the
e-krona





The E-krona proof of concept (pilot)



- Develop and test a possible **technical solution** Investigate **legal issues**
- Main objective is to gain knowledge of the **possibilities and challenges**



Libra
June 18,
2019



November 2016
Identified need to investigate e-krona

September 2017
E-krona project report 1

Q1 2018
Input on possible technical solutions for an e-krona

October 2018
E-krona project report 2

November 2018
Economic Review: Special issue on the e-krona

Q1 2019
Public consultation

May - December 2019
Procurement of supplier

January 2020
CBDC Coalition

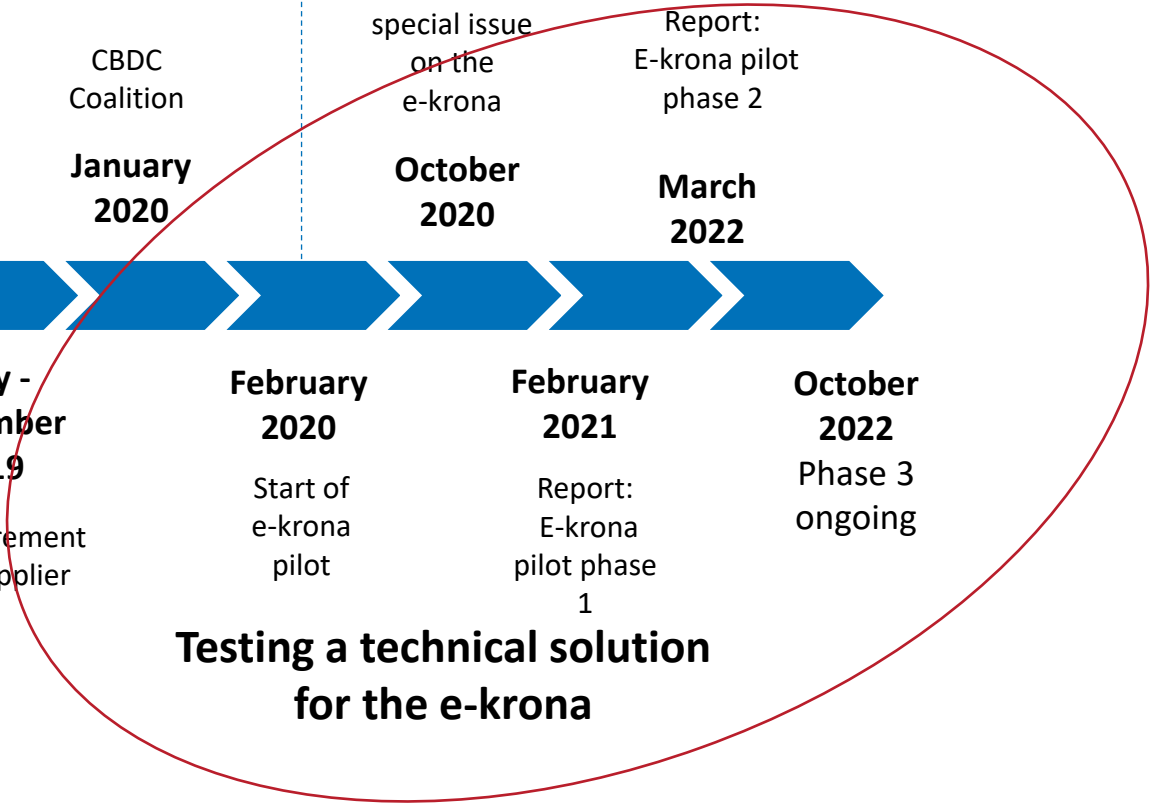
February 2020
Start of e-krona pilot

October 2020
Economic Review: Second special issue on the e-krona

February 2021
Report: E-krona pilot phase 1

March 2022
Report: E-krona pilot phase 2

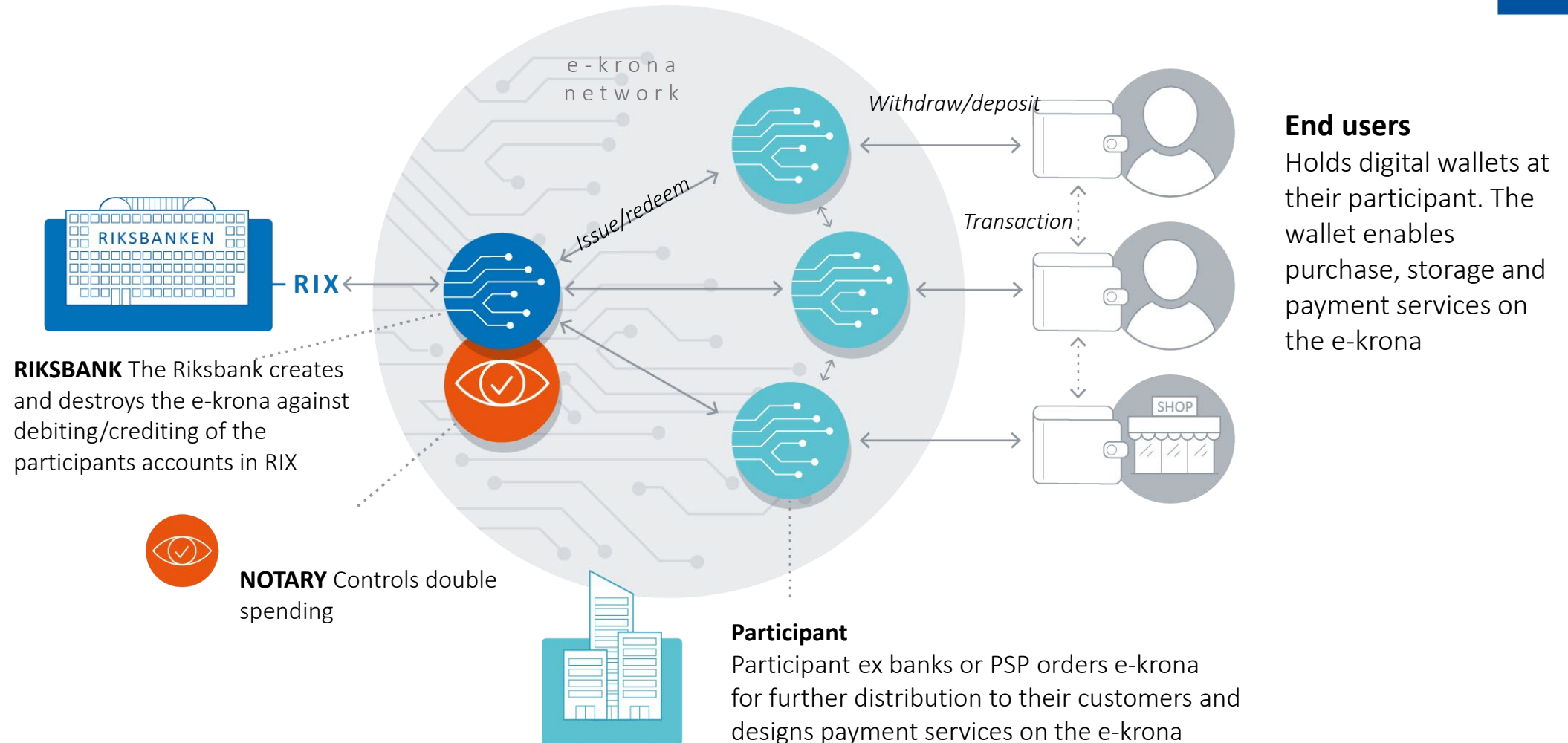
October 2022
Phase 3 ongoing



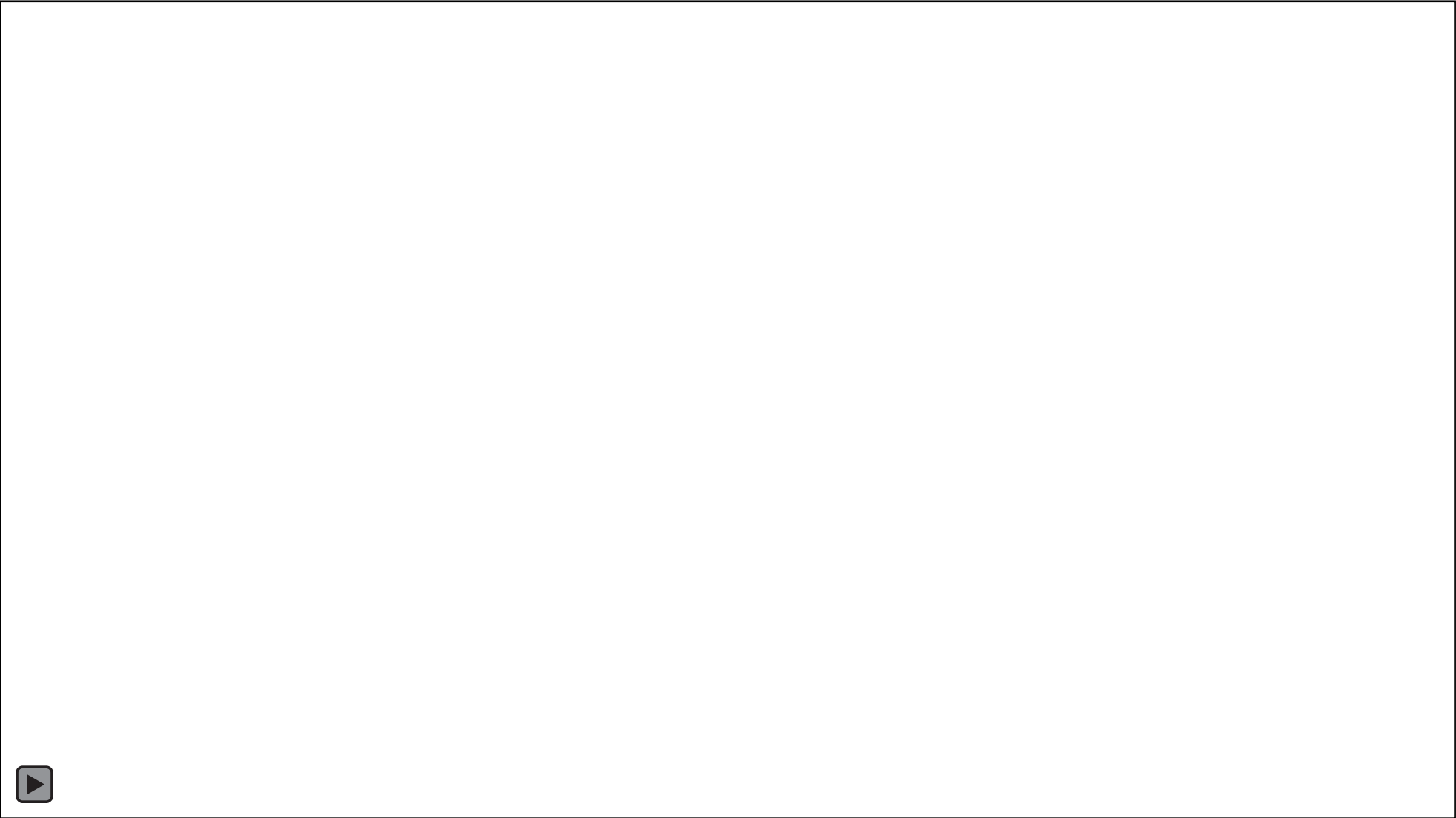
Testing a technical solution for the e-krona



The distribution model of the e-krona POC



E-krona POC payments



Activities e-krona phase 2-3

- Integration of **external participants** to the test environment
- Establishing support for **alias** instead of complicated adress
- **Offline payments**
- POS payments with **payment terminal integration**
- Evaluation of **performance** and **scalability**
- Evaluation of **smart contracts/programmable payments**
- **Cross border payments**



Lessons learnt from a technical perspective

- The e-krona POC enables a **parallel infrastructure**
- New possibilities – **smart contracts/programmable payments**
- A **new and untested technology** for retail payments
 - The **sharing of data** in a DLT solution is challenging from a personal data protection and bank secrecy perspective
 - **Performance issues** in stressed scenarios –football game scenario
 - Challenging to apply the **legislation regarding settlement** on a DLT solution



Legal Analysis in the e-krona Pilot



- **Legal tender** and an official representation of the Swedish currency (krona).
 - The e-krona should be considered as a **dematerialisation of cash**
 - **Cash is no longer a promissory note/debt instrument** and can not be interest-bearing
 - The amount of e-kronor issued shall be booked as a **liability item in the Riksbank's balance sheet.**
 - E-krona should not be included in the asset base of the intermediary.

Legal Analysis in the e-krona Pilot 2



- E-krona shall be **protected** in the event of the **intermediary's bankruptcy**.
- Only the Riksbank shall be able to **issue and redeem** e-kronor.
- Physical cash and digital cash – “e-kronor” – shall **co-exist** and complement each other.
- The Riksbank should be able to **issue rules and regulations** for technical or monetary restrictions on the electronic wallets and/or charge fees or provide compensation

The road ahead for the e-krona project

