

# Innovation and Cybersecurity Conference

28–30 August 2018

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**Coordinating** efforts, **establishing** response structures, and **creating** regulatory certainty in a **disruptive environment** where **innovation** and cyber converge

# 2018



South African Reserve Bank

**Helmut Wackett**  
**European Central Bank**

# **Interoperable technologies**

Enhancing interoperable technologies  
in an increasingly disruptive and  
competitive financial ecosystem

Johannesburg, 28 August 2018

# Agenda

- I. Introduction – network industries, interoperability and the catalyst role
- II. The Eurosystem experience - making European retail payments interoperable
- III. The Eurosystem experience – making securities settlement interoperable
- IV. Interoperability and integration amid technological innovation
- V. Conclusions

# Network industries, interoperability and the catalyst role

Market infrastructures / payments = *network industry*



In network industries there is a *need to cooperate to be able to compete - interoperability*

Cooperation means *involvement of all relevant stakeholders* representing both supply and demand sides

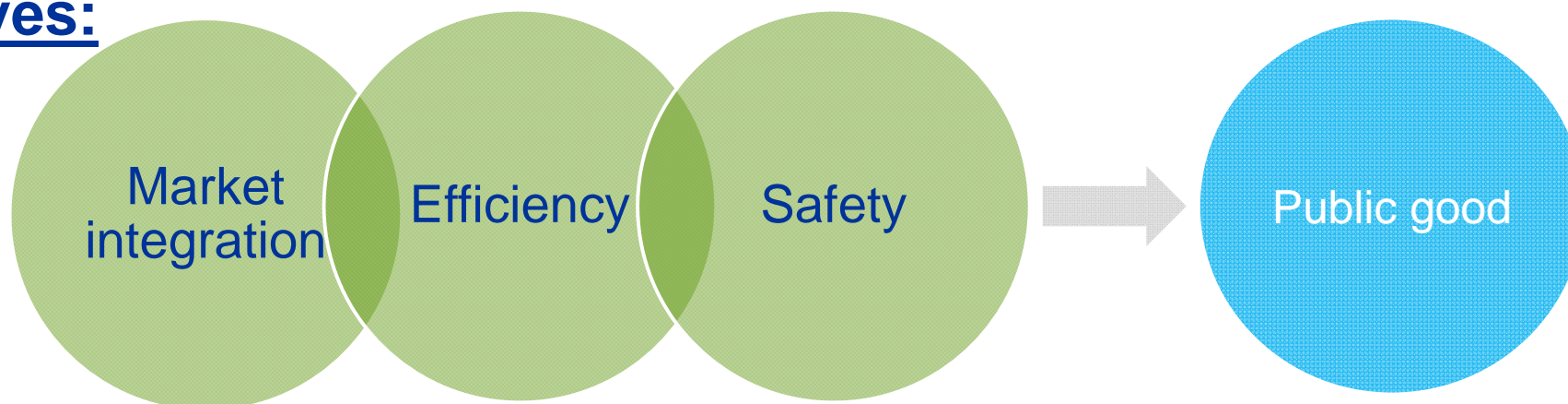
In the EU cooperation needed not only at national level, also at *European level*: top down and bottom up coordination and fertilisation

# Network industries, interoperability and the catalyst role

## Role of central banks as catalyst:

- Develop strategic policy and give guidance
- Work towards optimal market setup -> infrastructures with competition at solution level
- Induce / facilitate change by catalysing private sector efforts (network economy)
- Promote interoperability by harmonisation / standardisation / innovation
- Ensure level playing field

## Objectives:



# Network industries, interoperability and the catalyst role

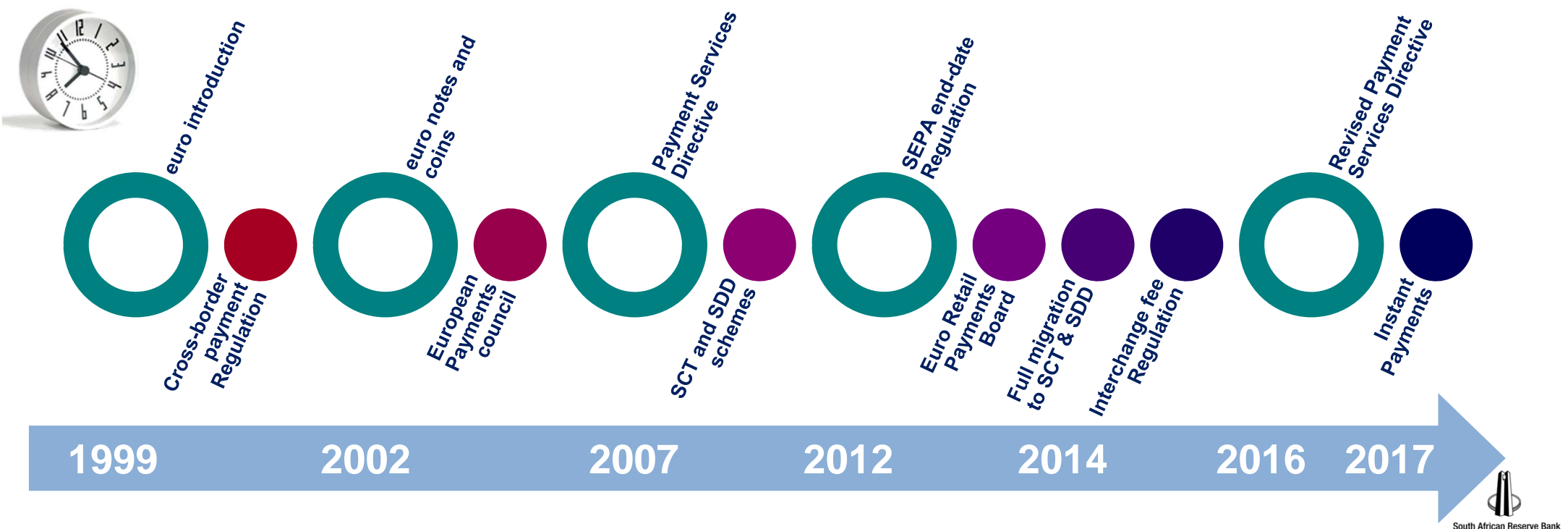
**New technologies present an opportunity and a challenge at the same time to the catalyst function:**

- **Interoperability of systems and participants**
- **Governance**



# Making European payments interoperable

## Timeline of EU payment integration A mixture of public intervention and private initiatives



# Making European payments interoperable



The vision – one single payment market for consumers, companies and other economic actors

## “*One account, one card, one terminal*”

- Make and receive payments under the same basic conditions, rights and obligations, regardless of location.
- Cross-border payments should be as **easy**, **efficient** and **reliable** as domestic payments.





# Making European payments interoperable

The challenge – a harmonised set of payment instruments

## The European Payments Council

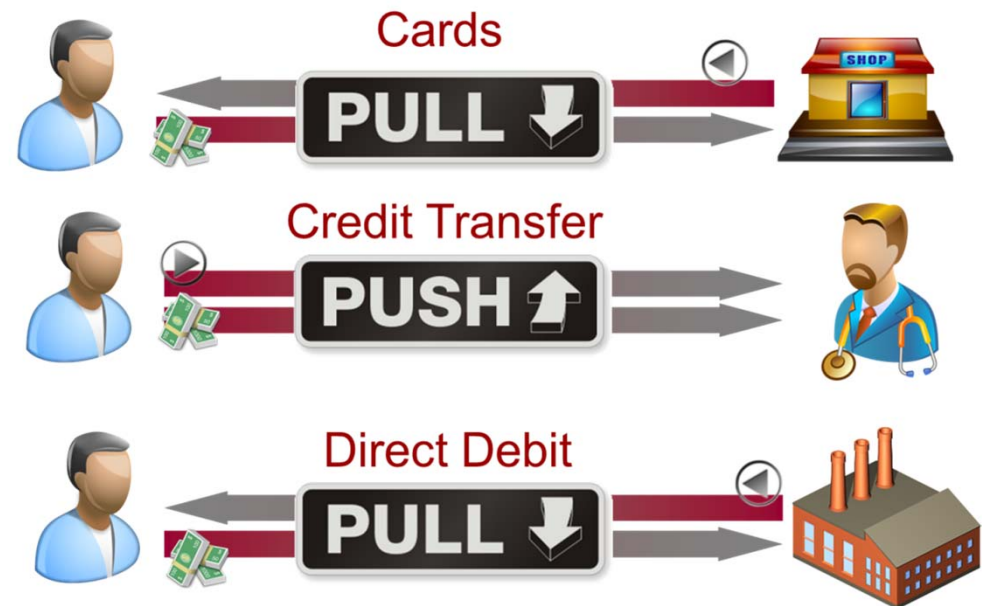
2005: SEPA cards framework (SCF)

2008: SEPA credit transfer scheme (SCT)

2009: SEPA direct debit scheme (SDD)

## Open standards are critical:

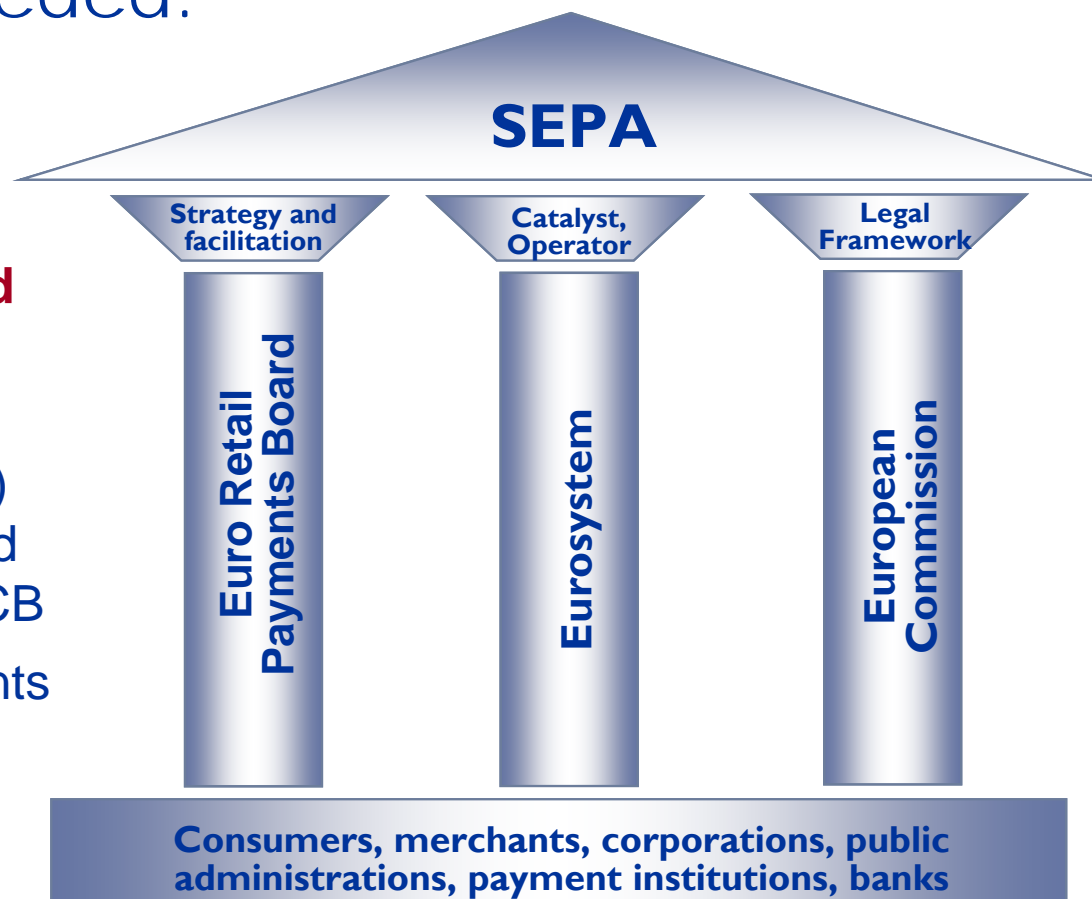
- IBAN
- ISO20022 XML
- Payment cards: migration from magnetic stripe to EMV chip
- Standards for payment cards and terminals



# Making European payments interoperable

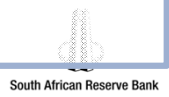
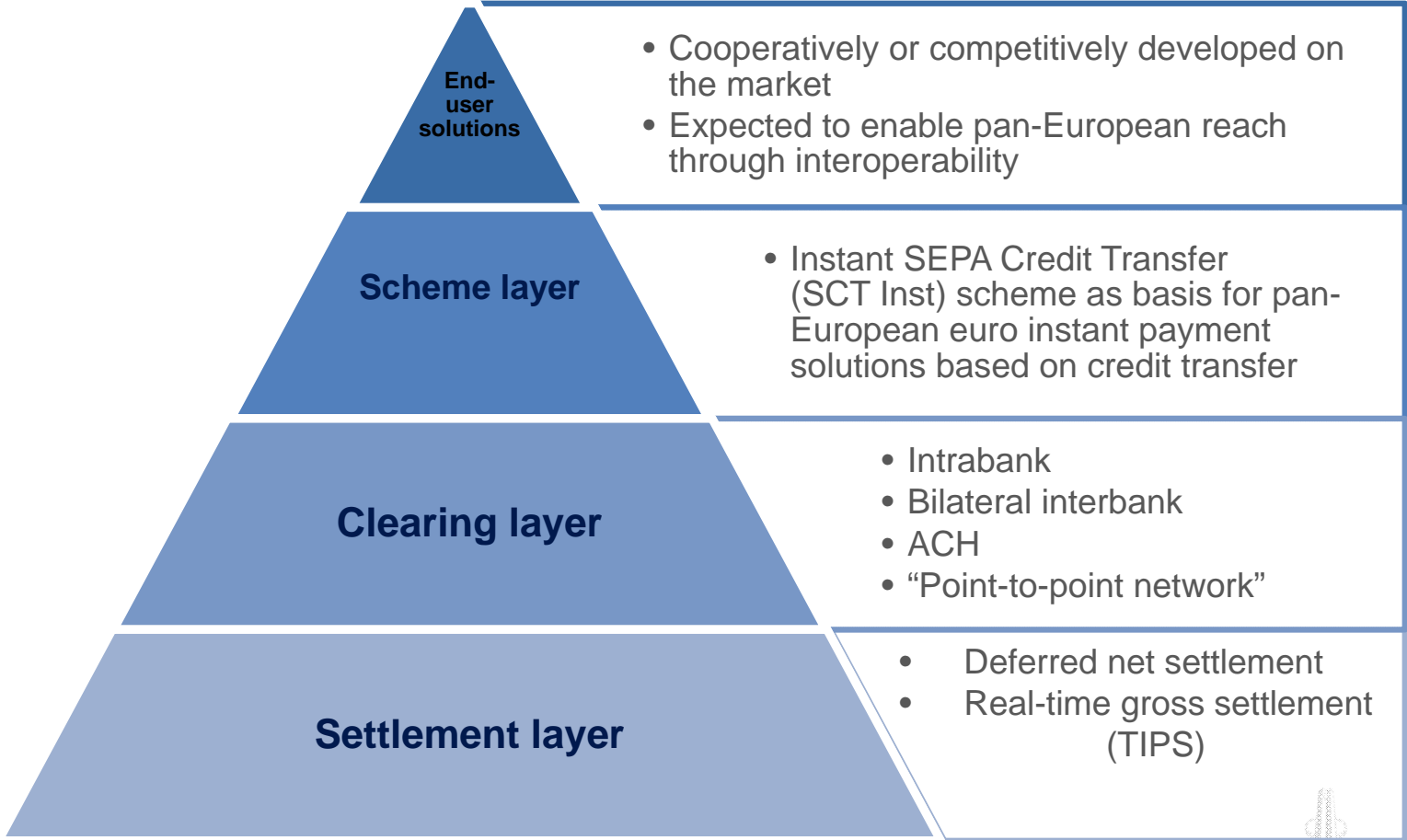
Open governance is needed:

- **The Euro Retail Payments Board (ERPB)** (successor of the SEPA Council 2010 -2013)
- Includes high-level (board or CEO) members representing the demand and supply side, chaired by the ECB
- With links to national retail payments fora and committees (via NCBs)



# Making European payments interoperable

**Instant Payments**  
The European approach to faster payments



# Making European payments interoperable

## What has been achieved:



- SEPA now covers 34 countries (28 EU Member States and 6 non-EU countries/territories)



- Fees for cross-border credit transfers have dropped by around 90%
- All credit transfers and direct debits in euro area according to SEPA standards since 1 August 2014



- Majority of card Point-of-Sale-transactions done with EMV-chip



- Transaction time has decreased from 3 days to maximum 1 day and now going instant

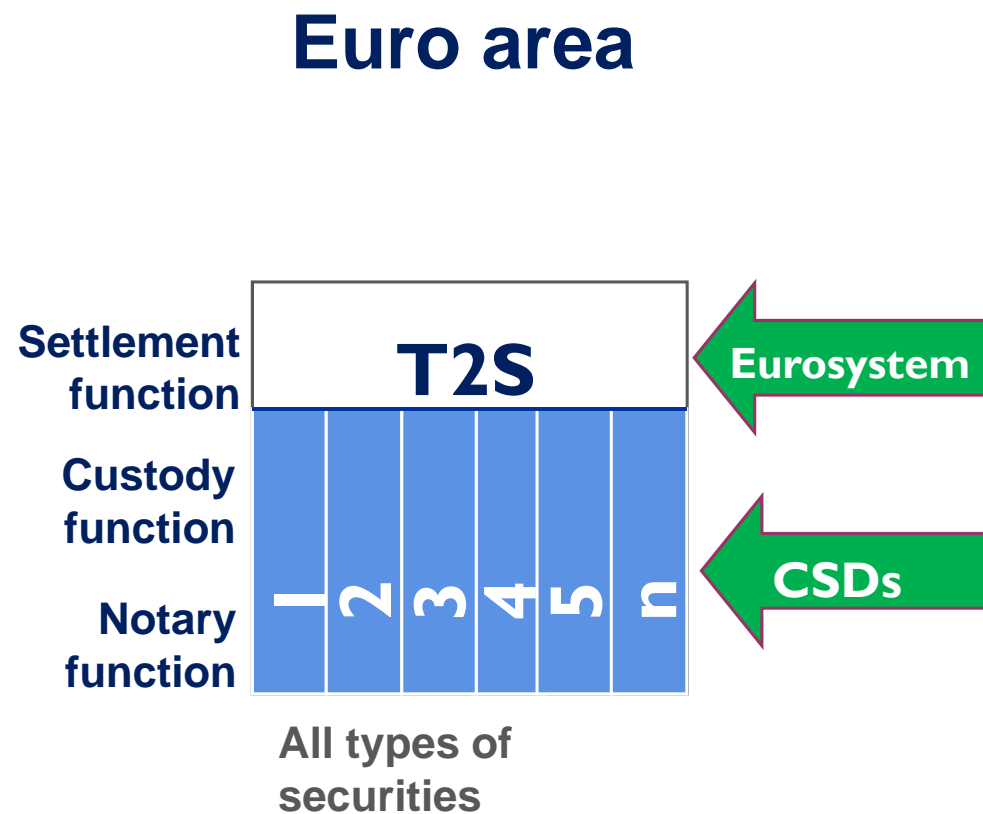
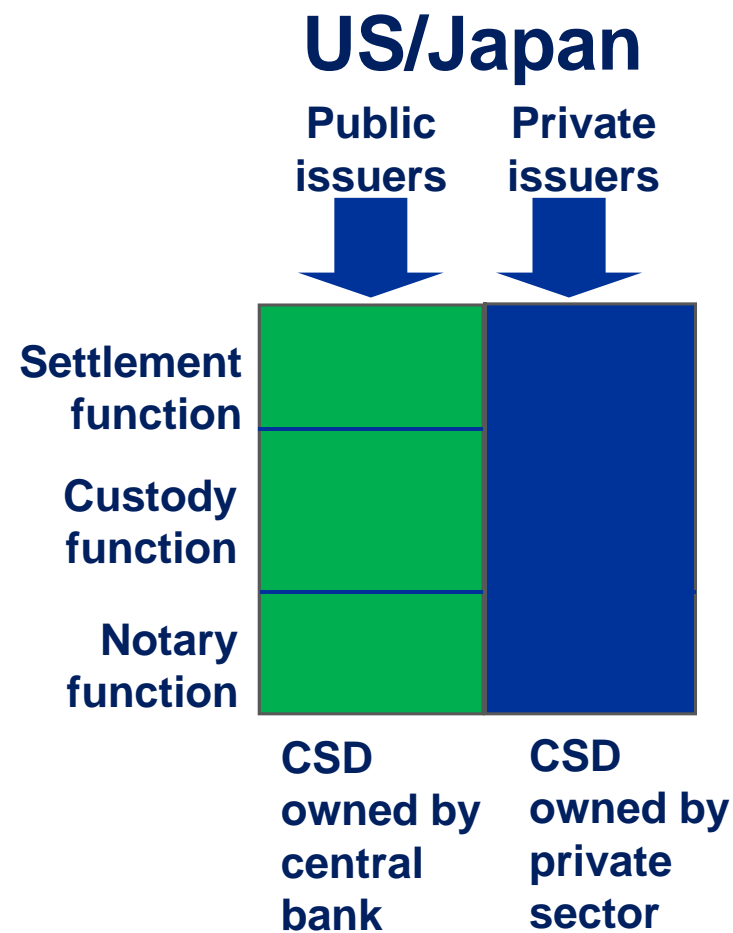


- Fully interoperable instant payment scheme now live with over 1000 providers, i.e. 25% of European PSPs



- Full stakeholder involvement in developing the future of European payments, via the ERPB

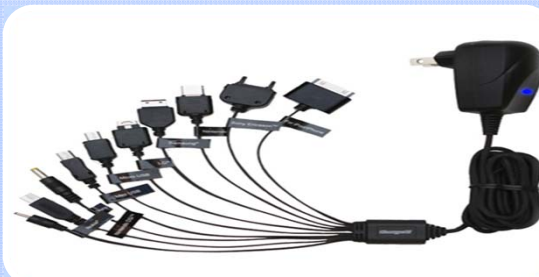
# Making securities settlement interoperable



## Target2 Securities – T2S



Single pool of  
cash and  
collateral



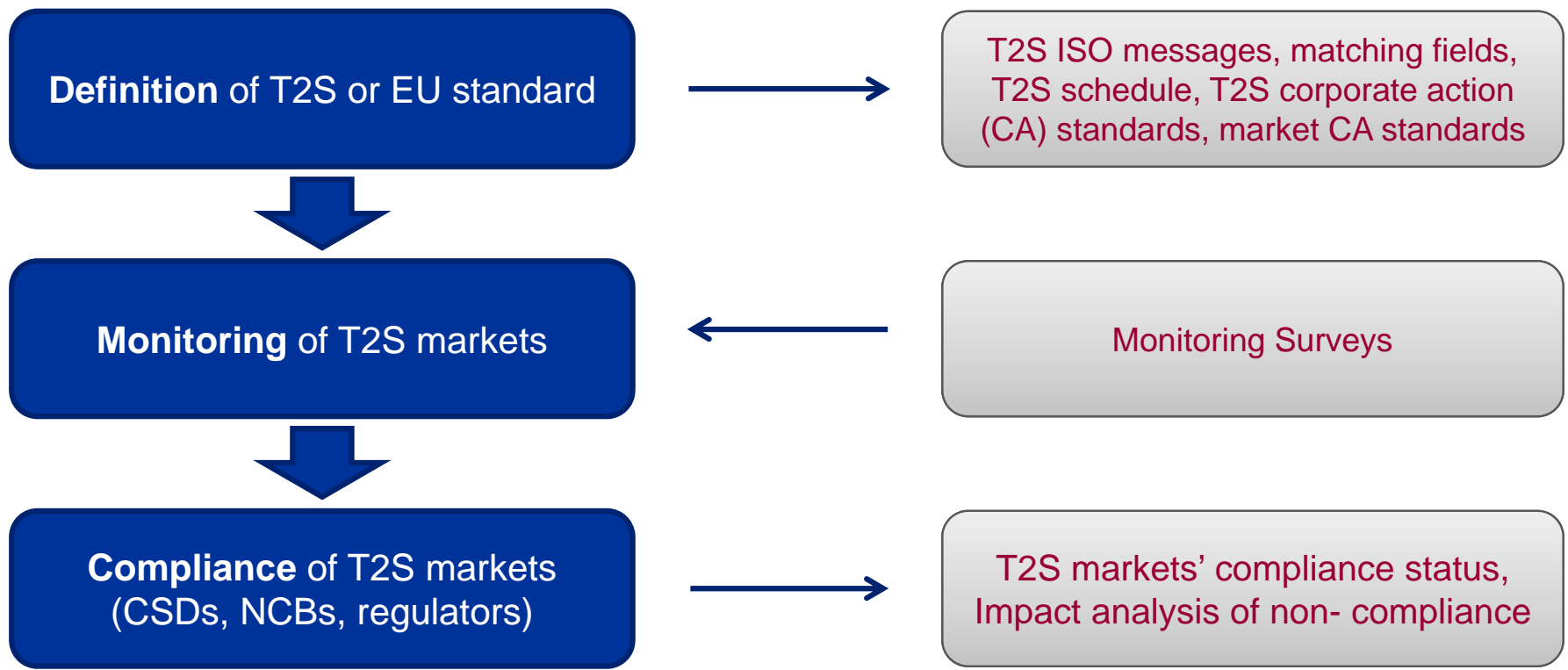
Single  
interface and  
technical  
infrastructure



Harmonisation  
and single  
rulebook

# Making securities settlement interoperable

## The T2S Harmonisation Process – by the Eurosystem’s AMI-SeCo:



# Making securities settlement interoperable

## T2S harmonisation activities:

ACTIVITIES – PRIORITY 1			DEFINITION	MONITOR	COMPLIANCE
1	T2S MESSAGES	T2S ISO 20022 messages	G	G	B
2		T2S matching fields	G	G	R (3)
3		Interaction for registration	G	G	B
4		Interaction for tax info	G	G	B
5	SCHEDULE OF SETTLEMENT DAY		G	G	Blank
6	T2S CORPORATE ACTIONS STANDARDS		G	G	R (9)
7	LEGAL HARMONISATION	Settlement finality I (moment of entry)	G	G	B
8		Settlement finality II (irrevocability of transfer order)	G	G	B
9		Settlement finality III (irrevocability of transfers)	G	G	B
10		Outsourcing IT services	G	G	B
11	SETTLEMENT DISCIPLINE REGIME		Y	X	X
12	SETTLEMENT CYCLES		G	G	B
13	CSD ACCOUNT STRUCTURES	Availability of Omnibus Accounts	G	G	B
14		Restrictions on Omnibus Accounts	G	G	R (1)
15	T2S ACCOUNTS NUMBERING	Securities accounts numbering	G	G	B
16		Dedicated cash accounts numbering	G	G	B
ACTIVITIES - PRIORITY 2			DEFINITION	MONITOR	COMPLIANCE
17	LEGAL HARMONISATION	Location of Securities Account/Conflicts of Law	Y	X	X
18	CORPORATE ACTIONS MARKET STANDARDS	CA market (CAJWG) standards	G	G	G
19	PLACE OF ISSUANCE		G	X	X
20	TAX PROCEDURES	Withholding tax procedures	R	X	X
21	SHAREHOLDER TRANSPARENCY - REGISTRATION		R	X	X
22	MARKET ACCESS		G	X	X
23	SECURITIES AMOUNT DATA		G	G	R (1)
24	PORTFOLIO TRANSFER		Y	X	X



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# Making securities settlement interoperable

## T2S harmonisation – compliance results by markets (July 2018):

T2S markets	Priority 1															Priority 2	
	1 T2S messages ISO 20022	2 T2S matching fields	3 Interaction with T2S (registration)	4 Interaction with T2S (tax procedure)	5 Schedule for the settlement day	6 T2S CA standards	7 T2S settlement finality I	8 T2S settlement finality II	9 T2S settlement finality III	10 Outsourcing IT (settlement services)	12 Settlement cycle	13 Availability of omnibus accounts	14 Restrictions on omnibus accounts	15 Securities account number	16 Cash account number	18 CA market standards (CAJWG)	23 Securities amount data
AT	B	B	B	B	Blank	R-?	B	B	B	B	B	B	B	B	B	G	B
BE Euroclear	B	B	B	B	Blank	R-?	B	B	B	B	B	B	B	B	B	G	B
BE – NBB-SSS	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	G	B
CH	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	N/A	G	B
DE	B	B	B	B	Blank	R-?	B	B	B	B	B	B	B	B	B	R-No info	B
DK	B	B	B	B	Blank	R-?	B	B	B	B	B	B	B	B	B	G	B
EE	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	G	B
ES	B	R-?	B	B	Blank	B	B	B	B	B	B	B	B	B	B	G	B
FI	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FR	B	B	B	B	Blank	R-Dec 2018	B	B	B	B	B	B	R-?	B	B	G	R
GR – BOGS	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	B	B
HU	N/A	R-?	B	B	Blank	R-Dec 2020	B	B	B	B	B	B	B	B	N/A	R	B
IT	B	B	B	R-?	Blank	B	B	B	B	B	B	B	B	B	B	G	B
LT	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	G	B
LU – LUX CSD	B	B	B	B	Blank	R-Dec 2018	B	B	B	B	B	B	B	B	B	G	B
LU – VP LUX	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	G	B
LV	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	G	B
MT	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	G	B
NL	B	B	B	B	Blank	R-?	B	B	B	B	B	B	B	B	B	G	B
PT	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	R-No info	B
RO	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	G	B
SI	B	B	B	B	Blank	B	B	B	B	B	B	B	B	B	B	B	B
SK (CDCP)	B	R-Mar 2019	B	B	Blank	R-?	B	B	B	B	B	B	B	B	B	R-No info	B
SK (NCDCP)	B	R-Mar 2019	B	B	Blank	R-?	B	B	B	B	B	B	B	B	B	R-No info	B



# Making securities settlement interoperable

## T2S harmonisation – where we started from (status in 02/2013):

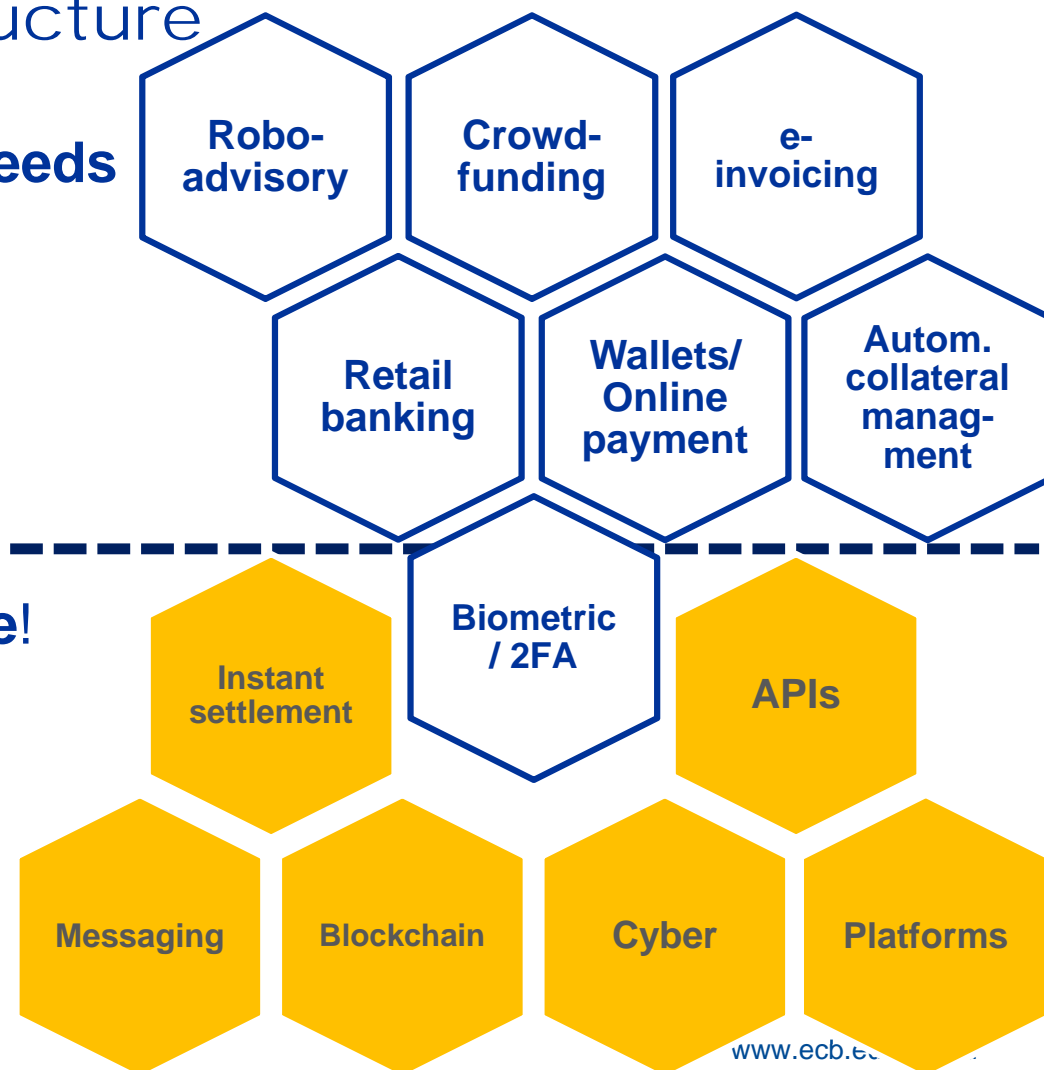
T2S Markets	Priority 1							Priority 2		
	1 T2S messages ISO 20022	2 T2S messages Matching fields	6 Schedule for settlement day	7 T2S corporate actions standards	9 T2S Settlement Finality II	10 T2S Settlement Finality III	15 Availability of omnibus accounts	16 Restrictions on omnibus accounts	20 Corporate actions market standards (CAJWG) <sup>23</sup>	26 Securities amount data
AT	G	G	G	R	B	B	B	B	G	B
BE - Euroclear	G	G	G	G	B	G	B	B	G	B
BE – NBB-SSS	G	G	Y	Y	G	G	B	B	R - No info	B
CH	G	G	G	Y	Y	G	B	B	Y	B
DE	G	R	Y	R	G	G	B	B	G	B
DK	G	R	Y	R	B	Y	B	B	G	B
EE	G	G	G	R	B	G	B	B	Y	B
ES	G	G	G	Y	B	B	B	B	G	B
FI	G	R	Y	R	B	B	B	Y	Y	Y
FR	G	G	G	G	B	G	B	B	Y	B
GR – BOGS	G	G	Y	Y	B	G	B	B	R – No info	B
HU	G	G	Y	R	Y	Y	B	B	R – No info	B
IT	G	Y	G	G	B	G	B	B	G	B
LT	G	G	G	R	Y	Y	B	B	R – No info	B
LU – LUX CSD	G	R	G	Y	G	G	B	B	R – No info	B
LU – VP LUX	G	R	Y	Y	B	Y	B	B	R – No info	B
MT	Y	Y	Y	R	Y	G	B	B	R - No info	B
NL	G	G	G	G	B	G	B	B	G	B
PT	G	G	G	G	G	G	B	Y	G	G
RO	G	G	R	Y	B	G	B	B	R	B
SI	G	G	G	Y	G	G	B	B	R	B
SK	G	G	G	R	Y	Y	B	Y	R - No info	Y



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## Fintech and the enabling infrastructure

- Innovation of services addresses **users' needs**
  - can be a 'social phenomenon'
  - Sometimes **risk of market to overreact**
  - Central Banks to be **mindful of hype**
- Infrastructure layer must remain **up to date!**
  - accommodate / **foster** innovation
  - enforce **safety**
  - avoid **fragmentation**



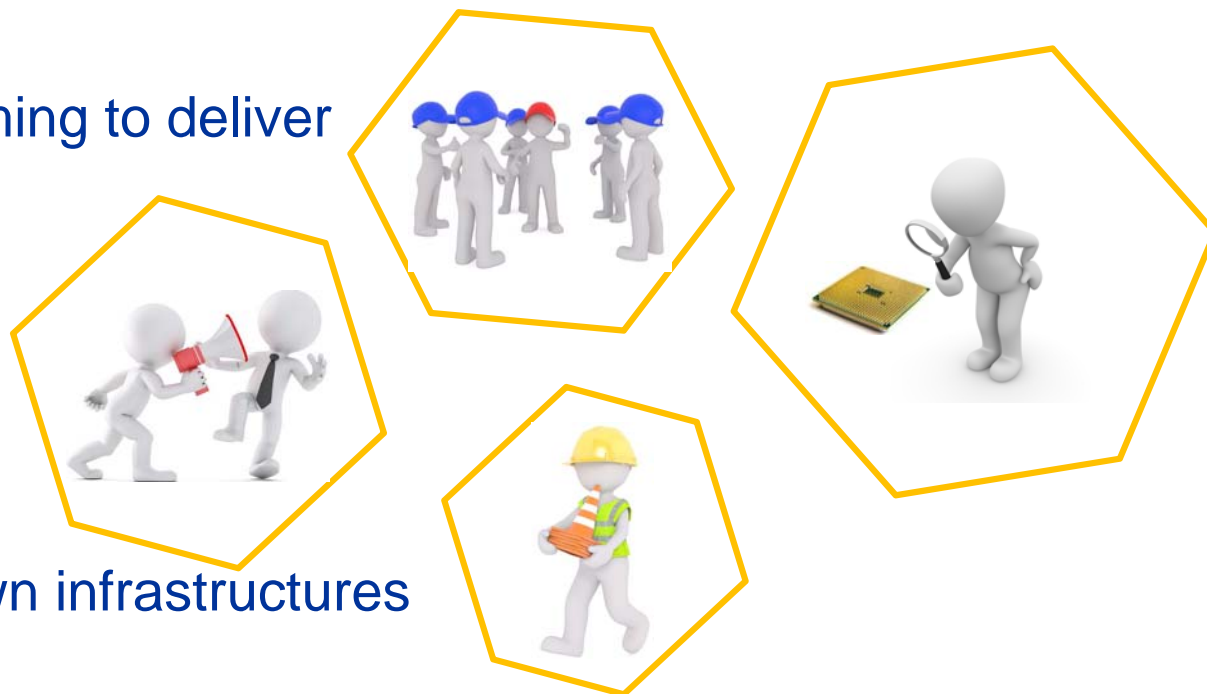
## Central Banks' role in technological innovation

Delve into technologies to **understand** impact on market activity (beyond IT!):

1. **foster** market innovations aiming to deliver safety and efficiency gains

2. **avoid** re-fragmentation

3. **enable** innovation through own infrastructures



**Coordinated** efforts necessary at the **industry level** and with **other authorities**



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## Collaboration with market stakeholders

ECB builds on successful track record of **AMI-SeCo community** and governance to ensure that:

### I. Fintech solutions **smoothly interact**

### II. 'New' world is interoperable with **legacy systems**

- DLT-TF analysed potential impact of DLTs on integration
- Fintech-TF is assessing feasibility of market-wide use cases that might solve pain points of current post-trade environment



Hands-on collaboration with other authorities

**Experimental work** with blockchain/DLT protocols (to deepen understanding):

I. Work within EU central bank community:

- DLT **learning tool** for EU central banks established in March 2018
- **Hackathon** with EU central bank community conducted in April 2018



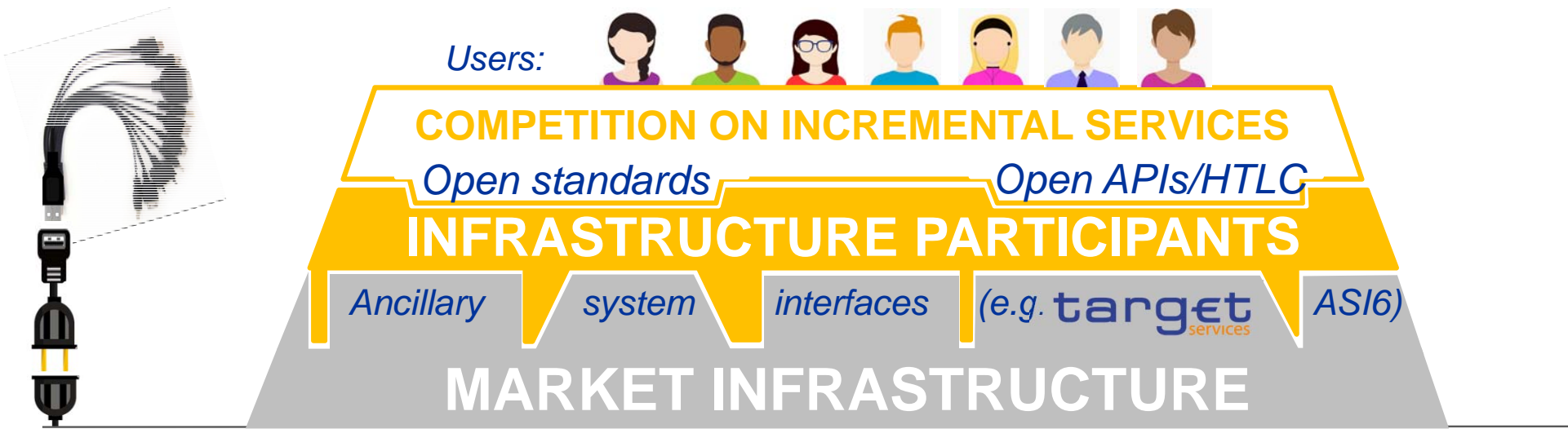
II. Bank of Japan/ECB cooperation (research project 'Stella'):

- Phase 1: Can **liquidity-saving** mechanisms of RTGS be run on DLT?
- Phase 2: How can **DvP** can be achieved across ledgers?



## Enhancing interoperable technologies

- **Standards** and modern **functionalities** are key to enable use of new technologies
- Central banks and market infrastructures need to be open for innovation but technological change at the infrastructure layer is **not always necessary**



Coordination on standards may be difficult but **fragmentation is not an option!**  
➡ proper **governance** and a **catalyst** are warranted



## Use of open global standards is critical to facilitate interoperability

Europe is leading the way in this area;

- SEPA, instant payments, T2S

Technological change is **introduced by market participants** to address user needs

Central banks should continue to **enhance interoperability and innovation** to **support the market**:

- Act as a **catalyst** to foster standardisation
- **Provide functionalities** enabling reachability and harmonisation