Bank of Finland
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Mobile payments and the need for a trusted central administrator

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Basic elements of payment systems

- All payments are debits to sending and credits to receiving accounts
- All payment instruments need issuers and acquirers
- A network is needed to connect issuers and acquirers
- All payment systems have schemes/rules agreed on by issuers and acquirers
- Merchants and other payment receivers need terminal devices for electronic payments

Mobile payment products will contain the basic elements in some form

Will cards be digitalised and stored in mobile phones?

A mobile phone could store details of all cards and select the correct card based on parameters and learning

Easier to provide and update cards completely remotely over the air

Back-ups safely in the network and down-loadable in case of hardware failures or loss of phone

Mobile phone-based solutions improves the customer initiation device compared to cards

- An independent screen and keyboard as user interface
- Vast data storage capacity
- Good processing possibilities
- Improved security features

The main improvement with mobile payments are in the domain of efficient customer interfaces, security and local processing capacity

Full utilisation of mobile technology improvements would provide

- NFC (Near Field Communication) for payment data capture
- Camera and scanner for data capture
- POS, Internet, and person-to-person payments
- Secure identification feature via SIM or other security card
- Complete transaction record with payment details
- Immediate real-time payment processing and notifications
- Automated reconciliation
- Global standards for all phones and networks
- Global terminal standards

Mobile telephone payment technology could efficiently replace most of the old technologies

Future dominant mobile payment issuers and accounts?

1. Card accounts of current systems
2. Current bank accounts
3. TELCO phone call accounts
4. Money remittance accounts
5. Specialised payment institutions
6. Central banks

All types of issuers can use the mobile technology and different schemes can exist in parallel

Scheme + network = pricing + business model

- Schemes and networks can be open or closed; one open type is sufficient, but closed solutions require several in parallel (eg one direct debit scheme/network versus several card schemes/networks on local level)
- New services can be priced by their improved convenience
- Schemes can be used to limit service possibilities (eg no person-to-person payments with credit cards)

Mobile technology can be employed by old and new schemes/networks; a business incentive is needed in all cases

Current mobile payment product diversity

- Several local/national brands in different countries
- New entrants trying to capture part of the payments market
- TELCOs expanding their services

M-PESA vodafone obopay

New entrants try to capture local markets via new services and technology by pricing the new convenience

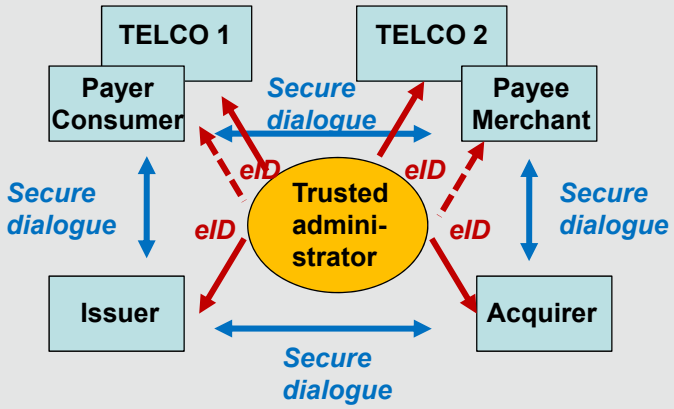
A clash between two network structures: banks vs TELCOs

SEPA-wide or global mobile multi-issuer mobile payment network and scheme would require

- A common network with common technical standards for all issuers and acquirers
- A common business scheme
- A common security architecture and trusted administrator for securely identifying all parties
  - Payers (mainly consumers)
  - Payees (mainly merchants)
  - Issuers
  - Acquirers
  - TELCOs

An open architecture involves an unlimited number of acquirers, issuers and TELCOs

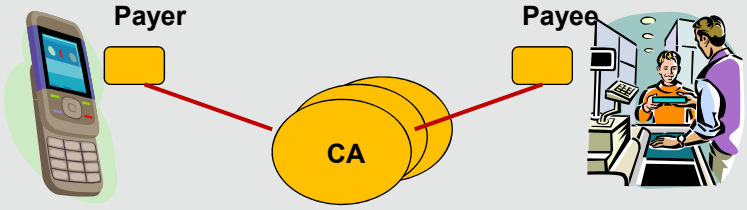
Electronic payments and identification require a common trusted security administrator



To implement secure electronic dialogues, all electronic devices need electronic IDs

A secure payment dialogue requires

- PKI (Public Key Infrastructure)-based identification and encryption
- A trusted CA (Certification Authority)-based certification network
- Tamper resistant hardware devices for key storage and encryption/identification processing



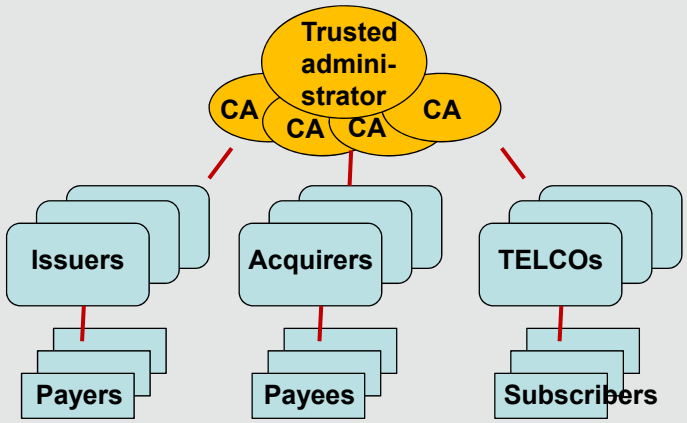
The individual CAs need to form a certification network in order to link customers using different CA services

One phone to many accounts, many issuers and several TELCOs –solution needed

- Most of the current systems have limitations on number of accounts, issuers and TELCOs
- An open solution should be free of limitations, ie it should be possible to make mobile payments using different issuers and TELCOs
- However, this requires a trusted party to administer the security keys for the different issuers and TELCOs on the security platform (chip) on the phone

For this, the industry needs to agree upon an open structure for security architecture

Hierarchical open security structure



General interoperability requires common standards, architecture and central administrator

A mix of closed solutions will result in

- Merchants having to select which schemes to accept
- Merchants having relationships with several acquirers
- Terminal providers having to develop multi-scheme terminal systems
- Parallel administrators and networks
- Payers having to check on acceptance of the services they want to use
- Limitations on person-to-person payments (just within the same issuing network)

Closed networks can agree on some common standards in order to increase efficiency and reduce unnecessary duplication

Will we have ONE global mobile payment scheme used by everyone

or

the current diversity of payment services utilising the new technology for making current offerings more efficient?

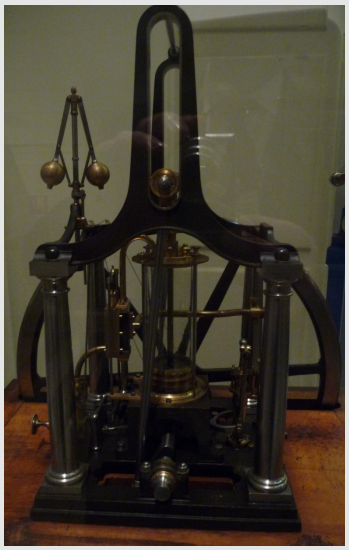
We will at least start with some kind of mixed situation!

Which will be the business cases for

- ***legacy bank services (= cannibalising old payment services)***

- ***new entrants' services (= extra revenue at low cost including synergies)***

and the authority policy/regulation reactions?



Thank you for your attention.

Questions?