

**Central Banking Events:
Effective Oversight of
Payments, Clearing and
Settlement Systems
Clare College, Cambridge, UK**



*Emerging standards:
development and governance*

Harry Leinonen
2 September 2010

**The views expressed are those of the author
and do not necessarily reflect the views of
the Bank of Finland.**

*Global standards are common
in most industries and
especially in networks/communications*

- ◆ Container shipping
- ◆ Flight ticketing
- ◆ Telecommunications, Internet
- ◆ Data processing, office systems
- ◆ Photography, video, audio etc entertainment
- ◆ Etc etc

***Common standards have been the basis for
international connections and scale benefits***

*The payment industry has been an exception,
with few international standards*

- ◆ Credit transfer and direct debit schemes and standards are domestic or even proprietary
- ◆ Card payments are often domestic variants based on international standards
- ◆ International card payment standards/services are linked to closed branded networks
- ◆ E-banking connections usually based on proprietary standards
- ◆ Data content and key structures vary considerably

***Payments currently processed less efficiently than
they would be with on open global standards***

Development incentives and disincentives for standards

Forces pushing for change

- Strive for higher productivity
- Sufficient competition
- Examples in other industries
- Customer demand
- Authority actions



Forces maintaining 'status quo'

- Legacy investments
- Monopolistic structures
- Invisible cost benefits
- Coordination problems
- Regulatory requirements

Banks and customers have different development priorities for payment services

Banks have an interest in

- ◆ Delaying investments (receive same income without new investments as all pay their bills anyway)
- ◆ Reducing competition via domestic proprietary customer standards, monopoly payment processors (ACHs) and hidden charging conventions (float etc)

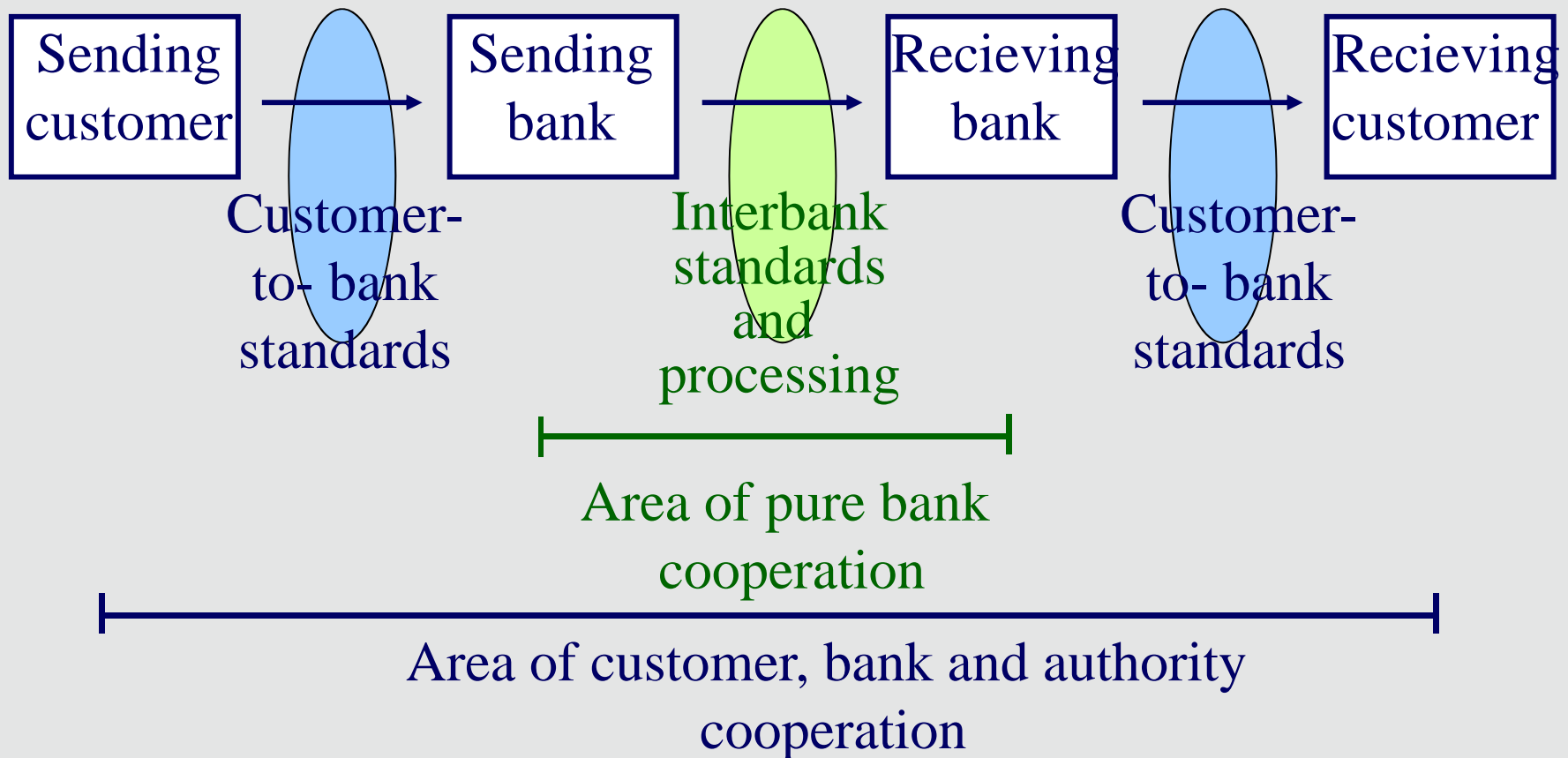
Customers have an interest in

- ◆ Investments in standards which support e-integration
- ◆ Increased competition via open standards

Authorities can promote customer interests by maintaining structures supporting open competition and open efficient standards

Note! Regulation can also stifle development

*Two levels of payment standards
(bank-to-bank and customer-to-bank)*



***For end-to-end STP (Straight-Through-Processing)
common standards are needed,
both interbank and vis-à-vis customers***

Necessary customer-to-bank payment standards

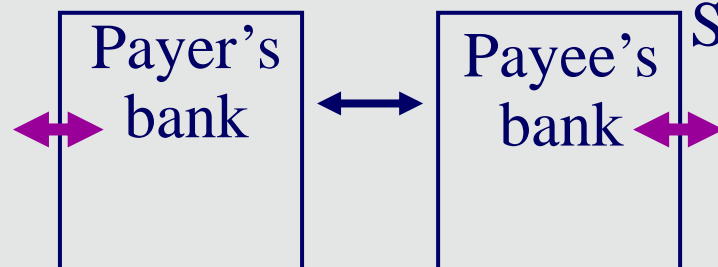
Payer

Sending

- credit transfers
- sending direct debit mandates
- accepting e-invoices

Receiving

- e-invoices
- direct debits
- card payment info
- statements of accounts



Payee

Sending

- e-invoices
- direct debits
- card payments

Receiving

- payment notifications
- credit transfers
- direct debits
- card payments
- direct debit mandates
- statements of accounts

***Common standards facilitate direct reuse of same data within payer's and payee's systems.
Common e-standards are the basis for efficiency.***

Payment standardisation dimensions

- ◆ Data content presentation standards
- ◆ Network address space and interbank “trunk” network
- ◆ Database access keys and integration support
- ◆ Versatility of accompanying data content
- ◆ Identification and security (encryption) standards

***Maximum standardisation benefits
require good solutions for all dimensions***

ISO 20022 XML will be the SEPA payment standard

- ◆ Same standard for interbank and customer-to-bank transfers as well as internal customer processing
- ◆ Same standard across payment instruments credit transfers and direct debits and possibly also for card payments
- ◆ Large data content possibility covering both banks' and customers' processing needs
- ◆ ISO 2022 developments are supported by SWIFT and is the basis for SEPA payments in Europe

***ISO 20022 could develop into a common
Financial Transfer Message (FTM)
for all kinds of payments and related processing***

*XML data description standard = tags + attributes
in a common version-based library*

Data field naming using tags

eg DueDate

Attributes describing characteristics

eg type="xs.date"

Schemes for defining data content

eg <xs:element name="DueDate" type="xs.date"/>

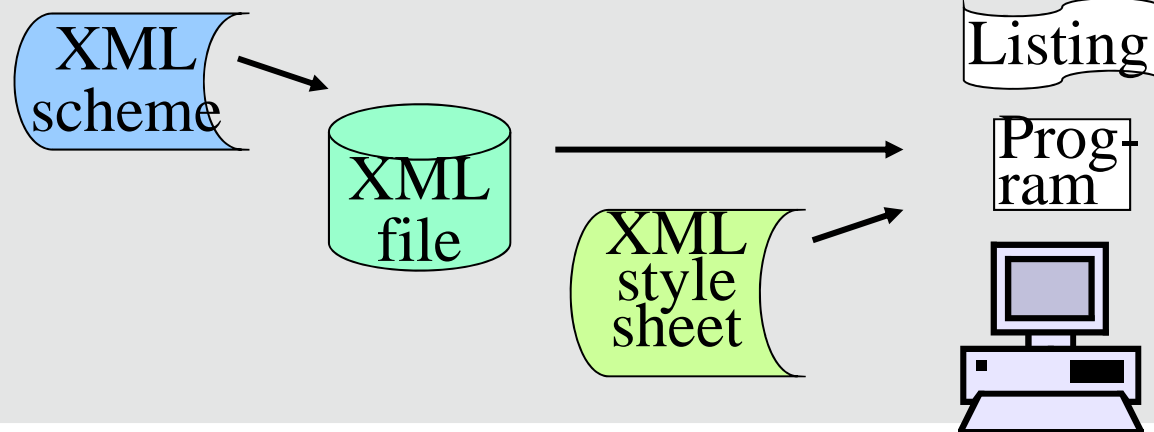
Files with tag and data

eg <DueDate>2007-05-20</DueDate>

Style sheets for presenting data using different media/languages

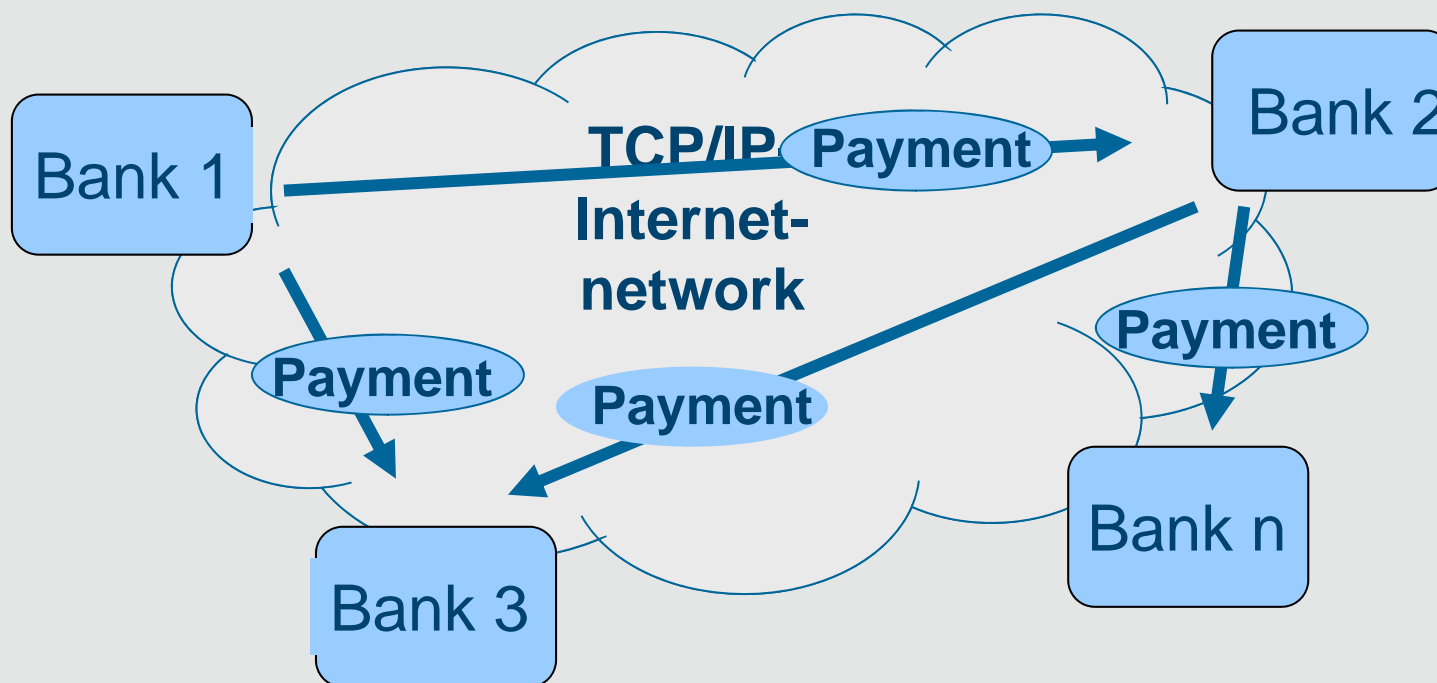
eg paper, screen, etc

**Completely variable,
records in content,
structure and length**



*The same data can
as such be used for
several purposes and
in several languages*

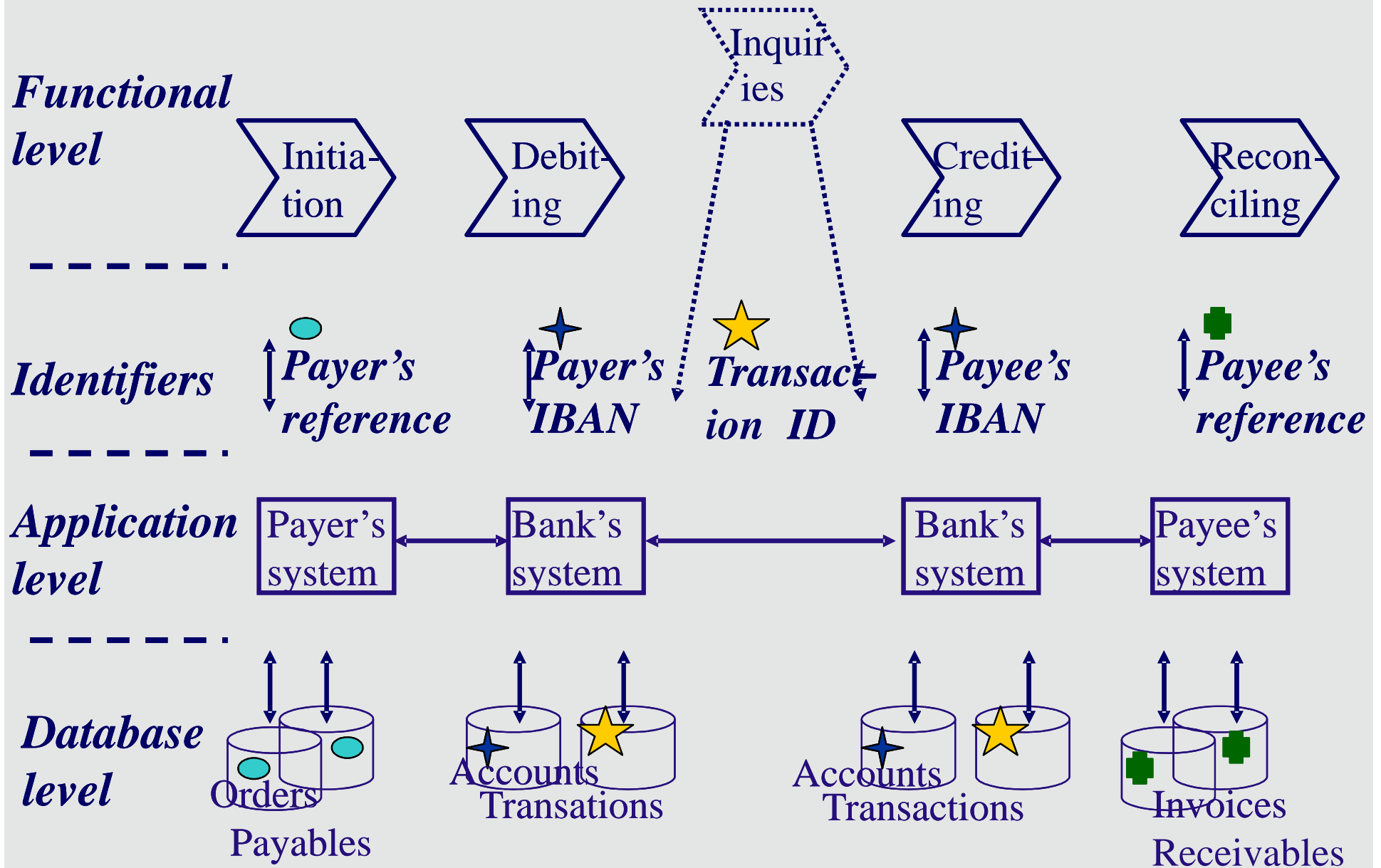
Payment processing requires one or more networks and network addresses for accounts



In a modern network infrastructure, payments are sent via automated routing directly to receiving banks (like emails to email boxes).

Account numbers need to be standardised = IBAN (international bank account number) for efficient routing just as card numbers have been standardised

Standardised database keys = addresses and references



Standardised keys facilitate automatic reconciliation

Receiver reference basis for customer automation benefits ISO standardisation proposal for RF code standardisation


Receiver's account numbers

Receiver

Reference/reconciling number

Sum to be paid

Fordonsförvaltningscentralen, Beskattnng, PB 120, 00101 Helsingfors - Skatterådgivning 0100 7821 (0,08 e/min+1na) varje dag kl. 8-20 - Fax (09) 6185 3604 - verotus@ake.fi - www.ake.fi

Saajan tilinumero Mottagarens kontonummer	Nordea 166030-116676 Sampo 800017-70928183 OKO 500001-2378954	TILISIIRTO GIRERING Maksu välitetään saajalle vain Suomessa Kotimaan maksujenvälityksen yleisten ehtojen mukaisesti ja vain maksajan ilmoittaman tilinumeron perusteella. Betalningen förmedlas till mottagare endast i Finland enligt Allmänna villkor för inrikes betalningsförmedling och endast till det kontonummer betalaren angivit.	
Saaja Mottagare	Ajoneuvohallintokeskus Fordonsförvaltningscentralen		
Maksaja Betalare	Leinonen Harry Leo Jukolabranten 4 B 7 02180 ESBO	Registertecken BBU-969 Välj summa enligt det antal betalningsposter ni vill ha. i 1 rat 94,90 euro i 2 rater 50,58 euro i 4 rater 26,66 euro	
Allekirjoitus Underskrift		Viitenro Ref.nr	1 21231 09695 28113
Tilitä Från konto nr		Eräpäivä Förf dag	21.11.2005
		Euro	94,90

Sum. 20.10



2.9.2010
Bar code containing payment data

Harry Leinonen
SUOMEN PANKKI | FINLANDS BANK | BANK OF FINLAND

Due date

PANKKI
BANKEN

Basic automation benefits of e-invoicing (corporates)

Electronic sending

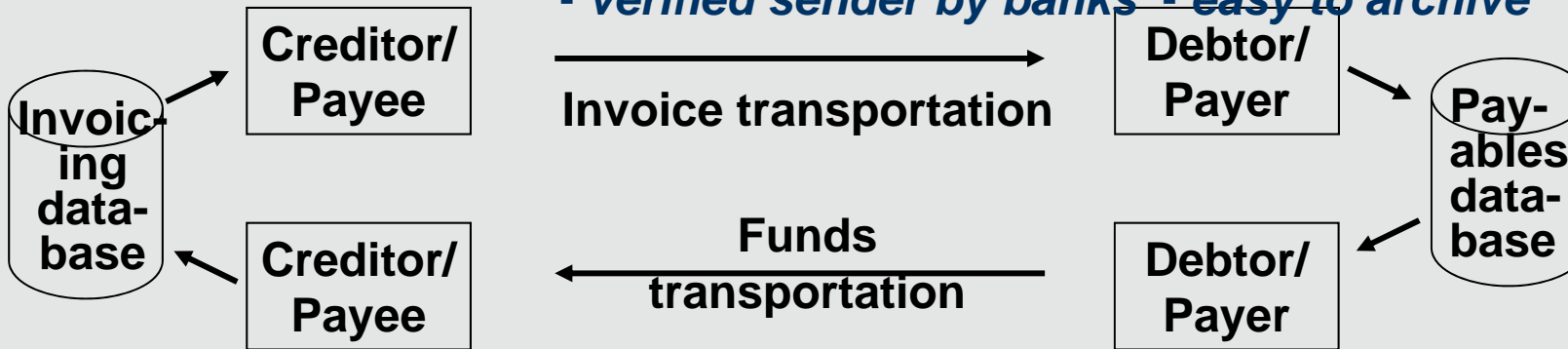
- no printing on paper
- no envelopes
- just a file to the bank

Secure electronic transportation

- no physical processes
- no stamps
- verified sender by banks

Electronic reception

- no letters to open
- no data to key in
- just direct e-input
- easy to archive



Electronic reception of payment

- no paper notifications
- automated reconciling of receivables based on reference code
- just a file from the bank
- easy to archive

Electronic fund transportation

- all relevant information included

Electronic payment initiation

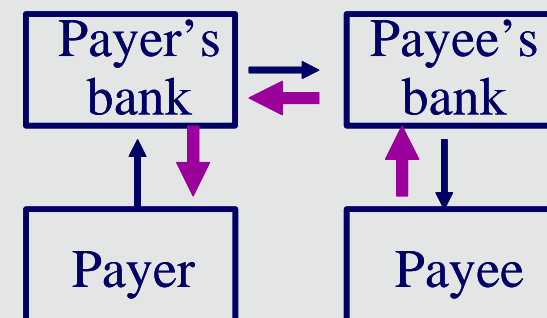
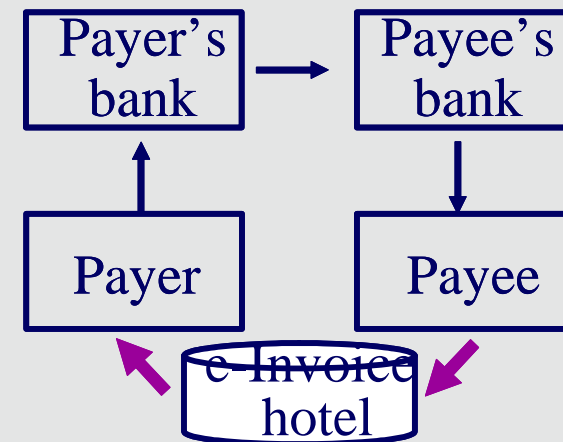
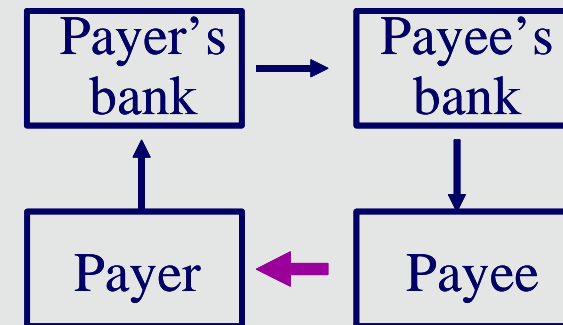
- no paper instructions
- no data key-in
- direct use of e-invoice as e-credit transfer

Direct parts of companies' work-flow processes

Cost savings in the range of at least EUR 10-30 per invoice

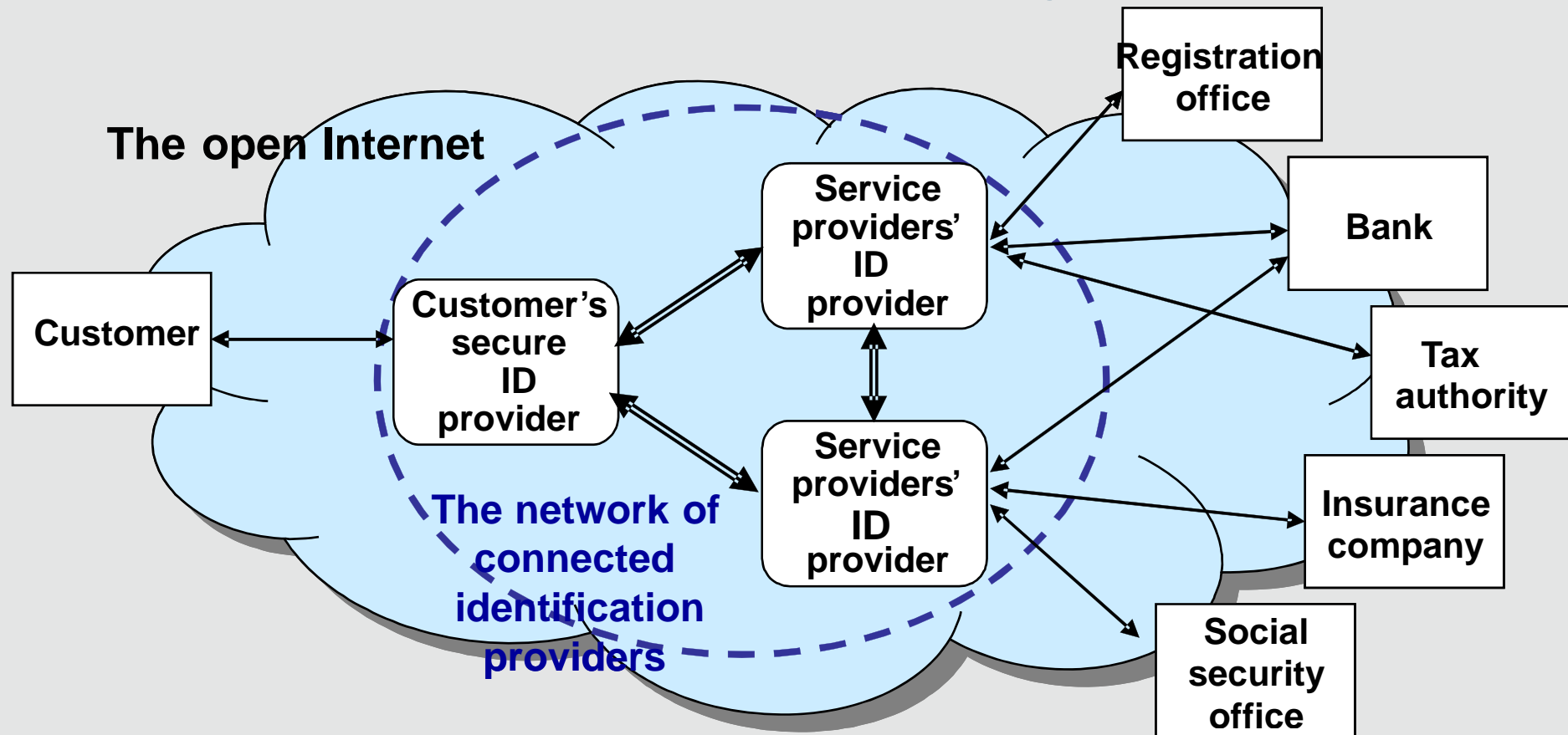
E-invoicing alternatives

- ◆ **Direct customer-to-customer (like mail today)**
 - eg via emails, but connection, addressing and security problems
 - works among large companies
 - ‘BizTalk’ network developments may change the situation in future
- ◆ **e-invoice hotels plus roaming among them**
 - special operators connecting and converting formats
 - how to build sufficiently wide roaming space?
 - possible temporary solution until common international standards
- ◆ **Bank provided service**
 - routed using IBANs over interbank payment networks
 - works generally, available for all kinds of companies
 - especially suitable for consumer billing



Network of identification service providers

Customers need to identify themselves to several e-service providers in an open global e-world



A common secure eID service is needed to build thrust within an m-to-n communication setup, (e-)payments must be secure

Physical customer & account identification device

- ◆ Security by physical items, passwords and recognisable features
- ◆ Remote access require a secure physical identification device
 - Electronic secure password generator
 - Chip card
 - Mobile telephone security feature → Mobile payment
- ◆ Common standards are needed for world-wide customer identification

***Common security standards would speed up developments
and improve the security level***

International payment standardisation bodies

- ◆ ISO, International Standardisation Organisation, official
- ◆ CEN, European Committee for standards, official
- ◆ SWIFT, bank driven, international payments
- ◆ EMV, Mastercard&Visa driven, chip card authorisation
- ◆ EPC, European Payment Council, euro-payment standards (includes former ECBS European Committee for Banking Standards), bank driven
- ◆ TWIST, user-driven, e-invoicing etc

Topical issues in these bodies

- ***General payment standards (ISO 20022)***
- ***Mobile payment standards***
- ***e-invoicing standards***

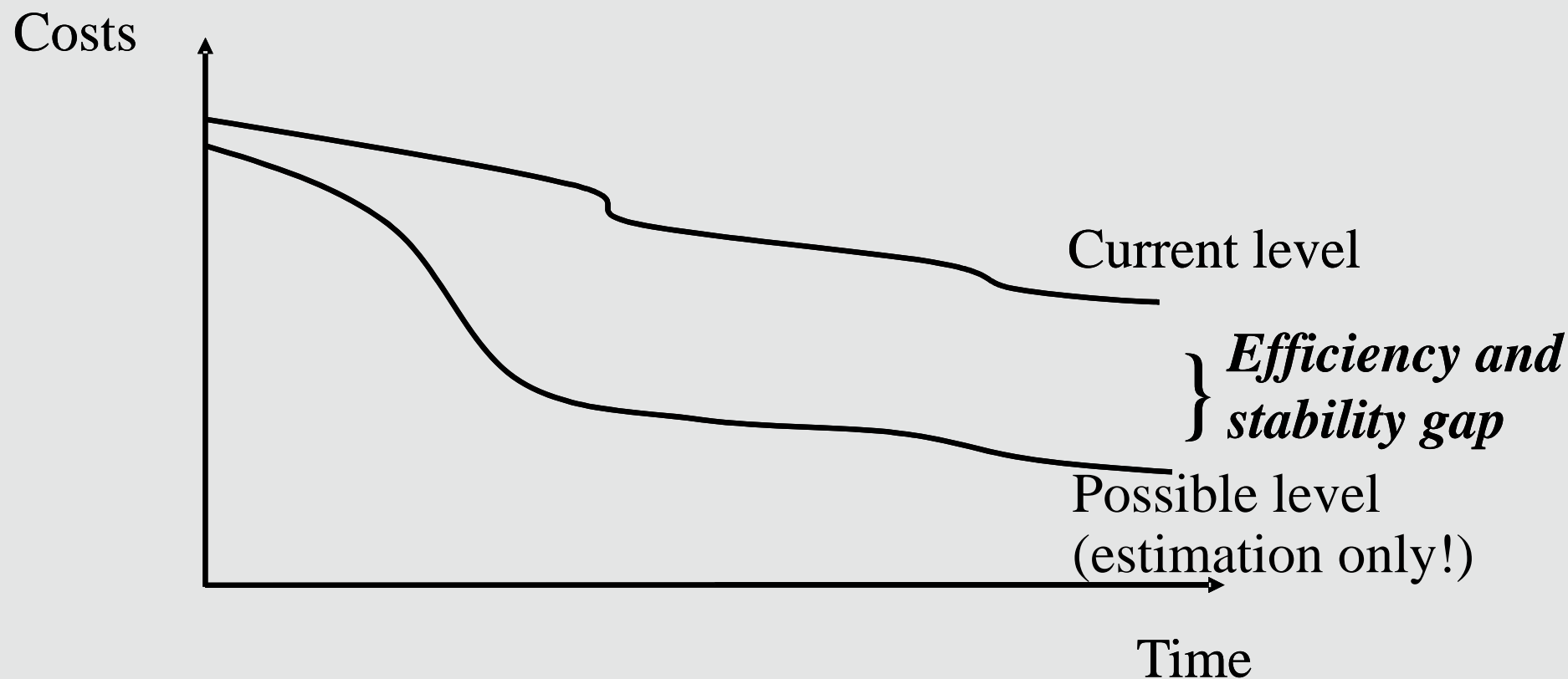
How to ensure interoperability and cooperation?

Governance issues in standardisation

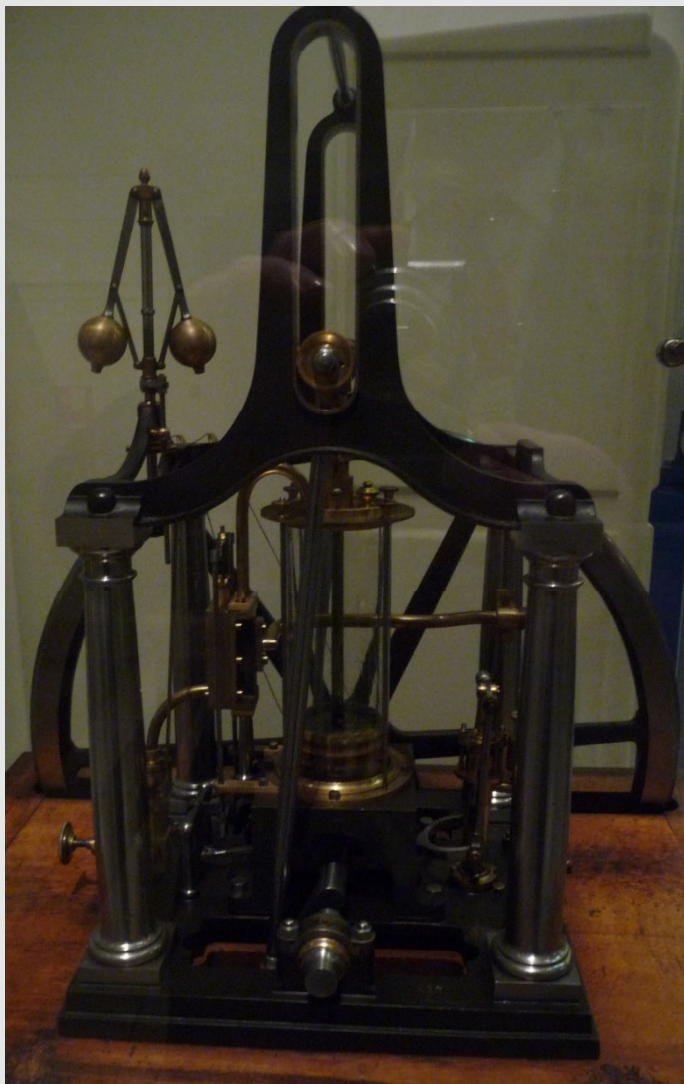
- ◆ **How to ensure inclusion of customer views?**
- ◆ **How to further openness and competition?**
- ◆ **How to support rapid developments and avoid lock-ins in old standards?**
- ◆ **How to select the efficient routes among several alternatives?**
- ◆ **How to find the balance and good timing between legacy investments and renewal needs?**
- ◆ **How to move from domestic markets to international communications?**

Increased authority involvement (recommendations, regulations etc) seems to be the solution for improvement of payment processing governance

Status quo implies increasing efficiency gap



*If the industry is not able to close the inefficiency gap,
political pressures will at some point
Be strong enough to regulate away the gap*



Thank you for your attention.

Questions?

More information in BoF publication A:111

*Harry Leinonen: Payment habits and trends
in the changing e-landscape 2010+*

HARRY LEINONEN

**Adviser to the Board
Financial Markets and Statistics**

**BANK OF FINLAND
Snellmaninaukio, Helsinki
PO Box 160, FI-00101 HELSINKI, FINLAND
phone +358 10 831 2112, fax +358 10 831 2311
mobile phone +358 400 506 780
harry.leinonen@bof.fi
www.bof.fi/sc/hleinonen**