

Central Bank Publications:  
Effective Oversight of  
Payments, Clearing and  
Settlement Systems  
Clare College, Cambridge, UK



## ***Emerging standards: development and governance***

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3 September 2009

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



New dominant payment standard

**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)

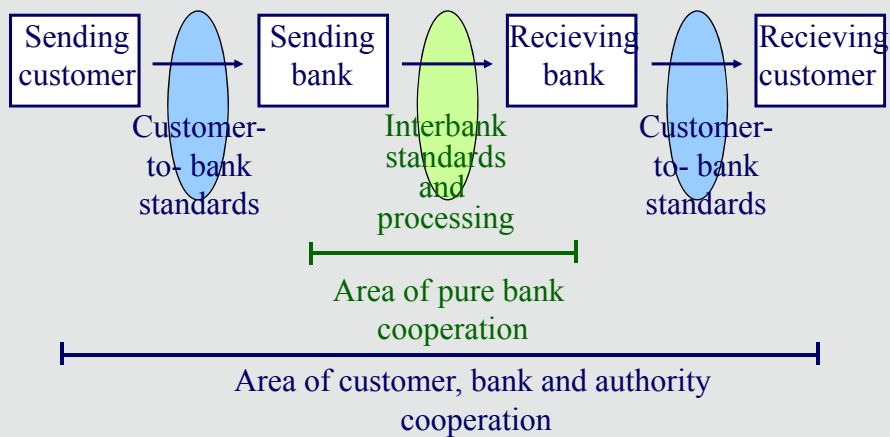
### **Customers have an interest in**

- ◆ 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**

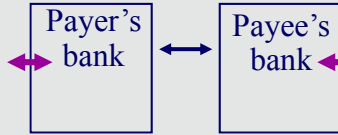
### **Payer**

#### **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 2002 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 2002 developments are supported by SWIFT and is the basis for SEPA payments in Europe

*ISO 2002 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"/>

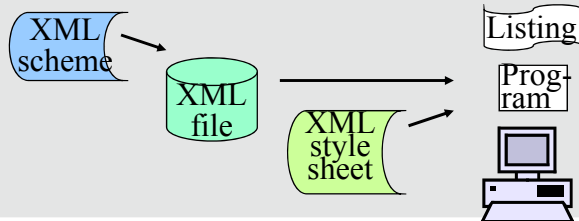
Files with tag and data

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

Style sheets for presenting data using different media/languages

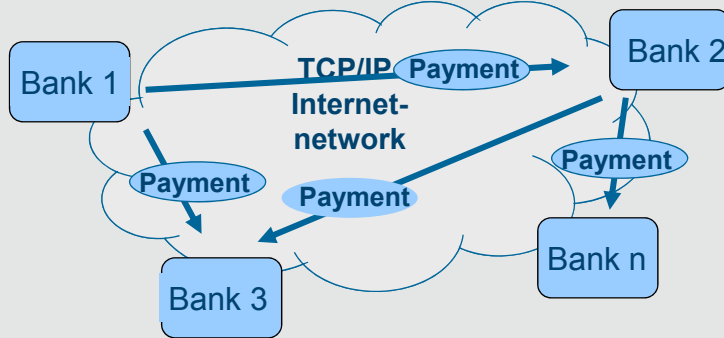
eg paper, screen, etc

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



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

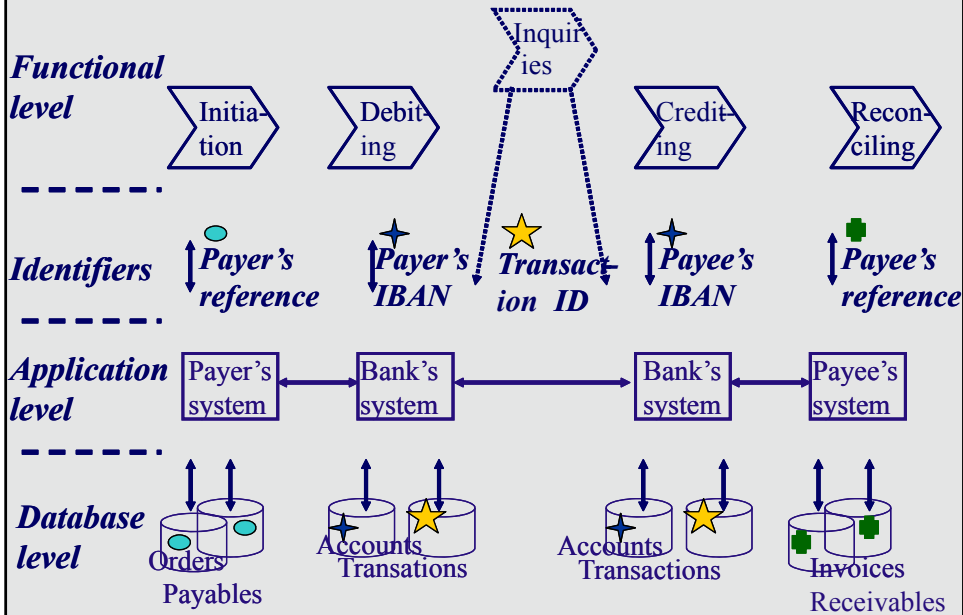
**Payment processing requires one or more networks and network addresses for accounts**



*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**



**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**

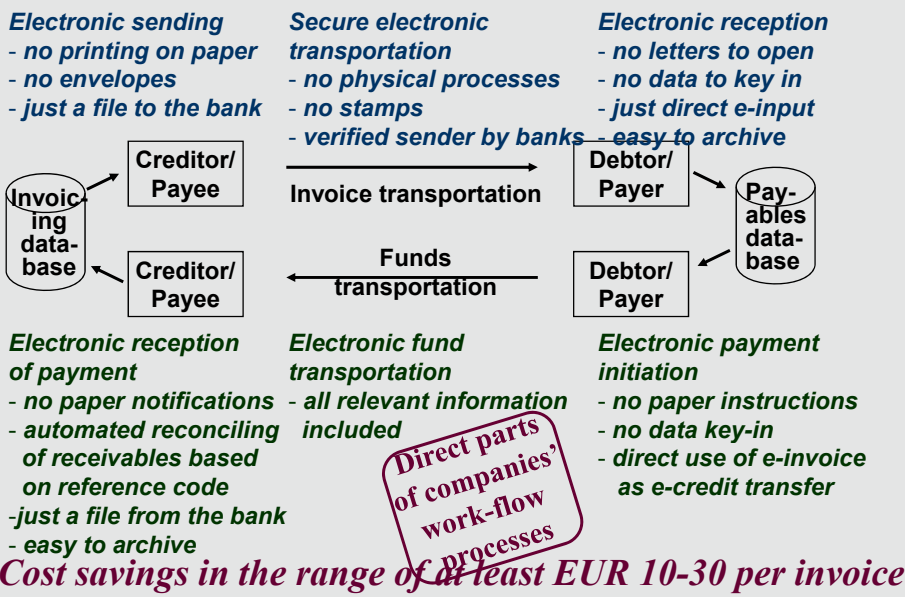
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Saajan tilinumero Mottagarens kontonummer	Nordea 166030-116676 Sampo 800017-70928183 OKO 500001-2378954	<b>TILISIIRTO GIRERING</b> Makau välitetään suojalle vain Suomessa Kotimaan maksujenvälityksen yleisten ehtojen mukaisesti ja vain maksajan ilmoittaman 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	
Maksajan Betalare	Leinonen Harry Leo Jukolabranten 4 B 7 02180 ESBO	Registrertecken 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		Vitetro Ref. nr <b>1 21231 09695 28113</b>
TÄRÄ Från konto nr		Eräpäivä För dag      21.11.2005      Euro      94,90

Bar code containing payment data      **Due date**

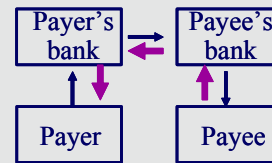
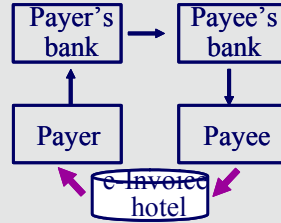
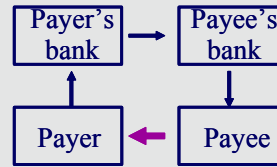
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**Basic automation benefits of e-invoicing (corporates)**

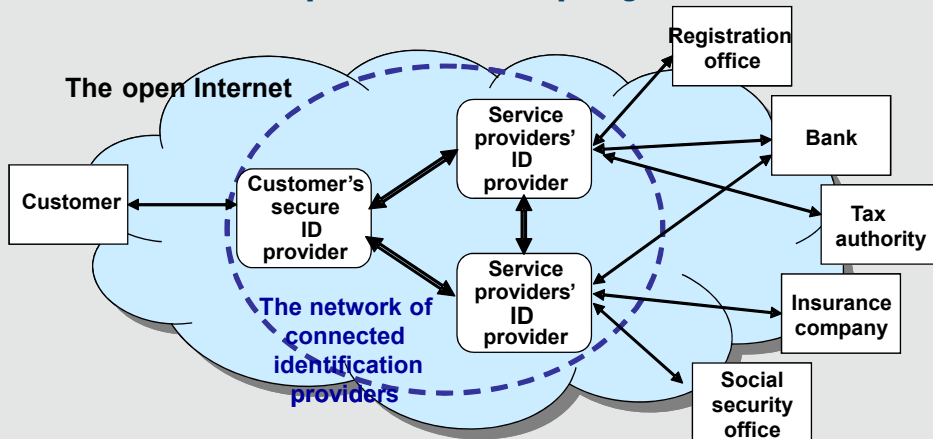


## **E-invoicing alternatives**

- ◆ **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 trust 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*

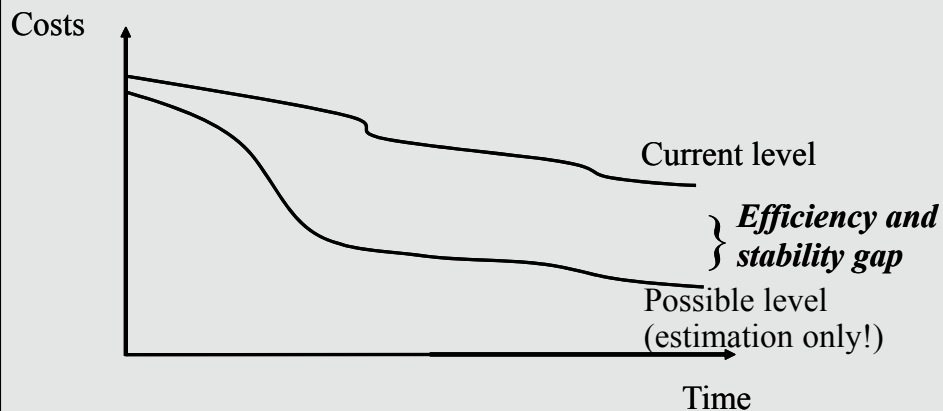
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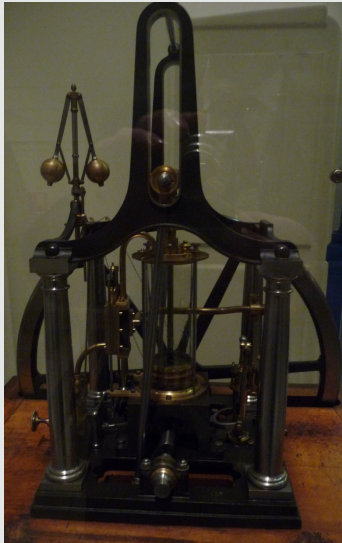
## **Status quo implies increasing efficiency gap**



*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*

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***Thank you for your attention.***

***Questions?***

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***More information in BoF publication A:111***

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

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