The Changing Retail Payment Landscape
FRB, Kansas City

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The Changing Retail Payments Landscape: An Overview

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

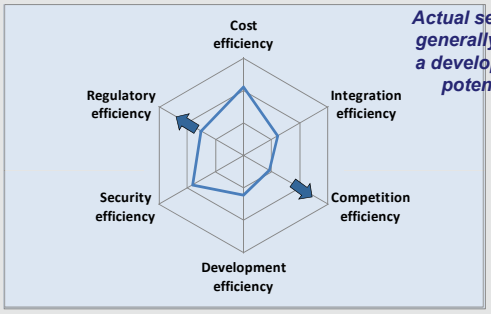
Clear general trends?

- Retail payments will become more low cost, faster (up to real time), more secure, easier to use and integrate with other customer systems
- When and how rapid development will be experienced
- Why do we see development **– or rather – why not?**

Why are telecommunication services developing rapidly, and payment services slowly,

yet both are ICT-based transportation services?

Retail payments have several efficiency dimensions



Actual services generally have a development potential

Development requires improvement along at least one efficiency dimension

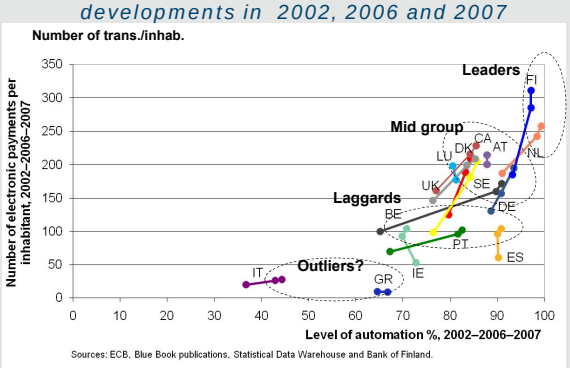
1. *Cost efficiency developments*
= lower service provider (processing) costs

- Lower ICT processing costs; computer power, memory, telecom → **To fractions of cents/transaction**
- Common regional/global standards; ISO 20022 XML, EMV, 3G, RFID → **Like the internet, email standards**
- Electronic straight-through-processing (= paperless payments) → **Just computer-to-computer comm.**
- Efficient customer connections (=high automation levels, direct communication) → **Real-time, on-line, all-time**
- Consolidation, outsourcing → **Few word-wide service providers**

Costs are going down, step by step, but is the development speed sufficiently fast?

Why do we have such large regional differences?

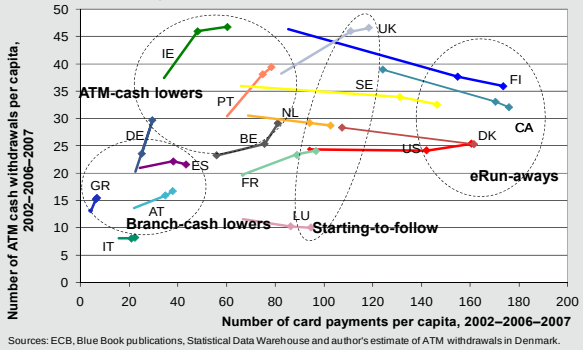
Electronic payment and automation level developments in 2002, 2006 and 2007



Sources: ECB, Blue Book publications, Statistical Data Warehouse and Bank of Finland.

In 2007, most countries showed increased automation levels, some countries lagging behind the overall automation developments

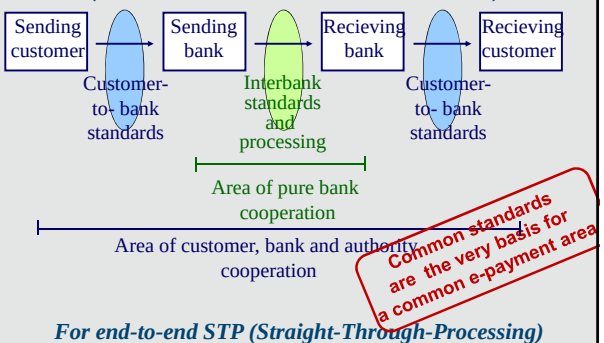
Cash withdrawals and card payments per capita, 2002, 2006 and 2007



Sources: ECB, Blue Book publications, Statistical Data Warehouse and author's estimate of ATM withdrawals in Denmark.

Some countries still move from branch to ATM, while others from ATM to POS

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



For end-to-end STP (Straight-Through-Processing) common interbank and customer standards are needed

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 are 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

1. Cost-efficiency conclusions

- Payment systems will be redesigned using modern tools to achieve cost-benefits
- International interbank standards will be developed and implemented also on national levels
- Interbank clearing systems and networks moves to real-time processing and network administration

Major possibilities for cost-efficiency developments but when and driven by whom?

Minimising bank costs is not necessarily optimal for the economy.

2. *Integration efficiency developments*

= customers' possibilities to exploit e-payment data

- Complete electronic customer-to-bank standards
- Remittance/reference data for automatic reconciliation
- Complete customer-to-customer information
  = e-invoicing/e-order/e-accounting information
- Standardised merchant terminals
- Integrating payment services in mobile phones
- Automated reconciling/transaction checks

Customers will just need to accept and check payments once with a simple click

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

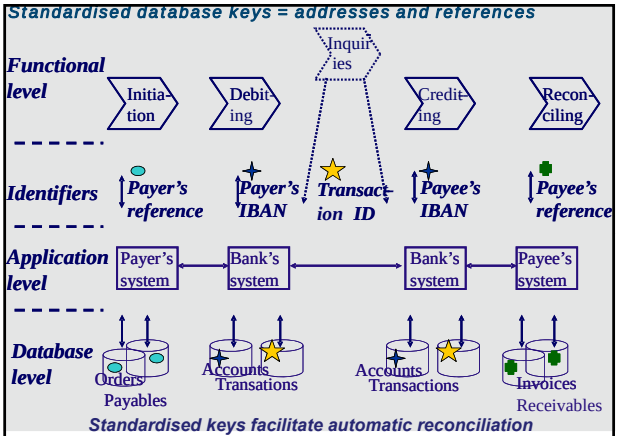
Payer's bank ↔ Payee's bank

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 re-use of same data within payer and payee systems. Common e-standards basis for efficiency.

Standardised database keys = addresses and references



Standardised keys facilitate automatic reconciliation

IBAN, International Bank Account number (ISO 13616)

IBAN BE62 5100 0754 7061

- Recognition tag
- Country code
- International check digits
- Domestic account number

An international account address standard is the basis for STP

Structured creditor reference number
ISO RF standard proposal (SEPA rulebooks 2010?)

RF cc 1234568901234567890 1

- Data ID
- Payee provided number for automatic reconciling
- Common standardized check digit

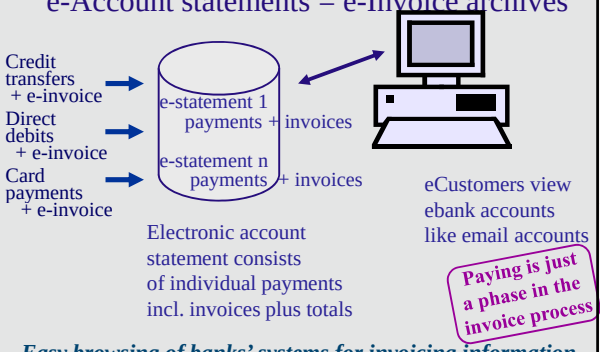
In spite of its simplicity, RF is the basis for payee STP benefits

E-invoices = expanded payments

- Data processing limitations minimised the accompanying remittance data
- Today, these limitations have disappeared and payments can efficiently contain any amount of accompanying data
- Synergies and efficiency can be gained by combining payment and invoice data into e-invoices processed as payments
- Savings can be over 30 euro/invoice and therefore more than EUR 50 b per year in the euro area alone

E-invoicing is the largest single cost saving opportunity avaible in daily business administration

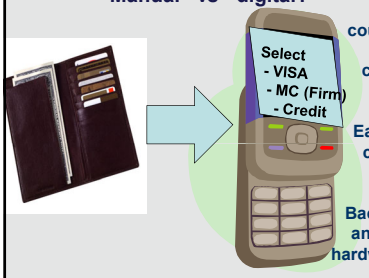
e-Account statements = e-Invoice archives



Easy browsing of banks' systems for invoicing information or customers' copies of e-statements

Will cards be digitalised and stored in mobile phone?

Manual vs digital?



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

A stepwise move from manual to digital, with parallel usage possibilities

2. Integration efficiency conclusions

- Largest area on increased benefits
- Customers' payment costs are much larger than banks' costs
- Formatted remittance information need to increase
- E-integration will be the focus of future service developments
- E-invoicing and m-payments are new forms of ICT-synergies which will change old business practices

The market will be redistributed, if main banks are slow to provide e-integration services as e-integration is the main driving force for change

Competition efficiency developments = sufficient competition for improved customer service

- Control of monopolies (= ACHs, payment networks, payment scheme owners)
- Open standards
- Portability issues
- More open price competition (= transparent pricing, low level of cross-subsidising, low or zero interchange fees)
- Lower entry-barriers for service provision

The two largest barriers for payment developments are
- the current market competition setup and
- hidden/embedded pricing conventions.

Maintaining or removing the barriers will make the difference.

The payment network monopoly

- Customers must be reachable in the same network or within interoperable networks for making payments
- Banks must cooperate to establish common networks
- The network administrators and centralised processors are in monopoly positions in their networks
- There are seldom many parallel competing networks
- The governance structures of networks are important (public ownership, big banks' club, user involvement etc?)

It is in the public interest to control monopolies, ensure good governance and openness as end-user services are determined based on network capabilities

Proprietary vs open standards

- Efficient ICT-based payment processing require comprehensive interface and integration standards
- Customers are locked in by standards
- Banks have an interest in providing proprietary standards to increase the barriers for changing service provider
- Open standards facilitate easy change of service provider
- Open standards need to be updated in order to avoid locking in customers to old-fashioned standards

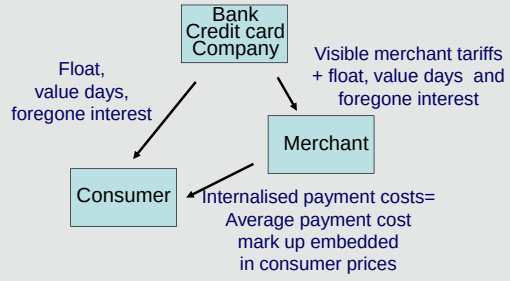
It is in the public interest to promote modern and open payment standards and the authority interest for standardisation has increased

Portability (=customer ownership of addresses and data) promotes competition

- Changing service provider is more difficult if it requires changing account number addresses
- Portable mobile telephone numbers point to the competition effect of network address portability
- Changing service provider is also more difficult if you cannot bring with you the archive of transactions and other data (eg e-invoices)
- eData portability have become an issue also in other network services

It is in the public interest to keep the barriers low for changing service provider and thereby support portability of network addresses and customer data

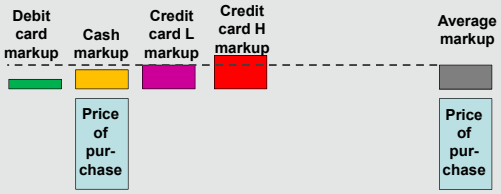
The majority of payments tariffs are hidden = the largest barrier for change?



In the end, all payment costs always paid by consumers –

merchants just pass through bank tariffs similarly as VAT (merchants are not the final payers)

Transparency or non-transparency ?



Transparent surcharging vs non-transparent internalizing

- If consumers can see the cost differences, they can make informed selections
- Charging for cash and credits would reduce use of cash and credit when customers would see true costs/prices

Main fallacy of two-sided market theory: Consumers are better off with non-transparent pricing

Finnish average merchants' payment mark-ups in 2007

Card type	Banks' merchant fees	Cross-subsidi-sation%	Average subsidy per trans (€)	Corres-ponding ATM-withdrawal fee (€)	Corres-ponding interest rate pa
Dom. debit card	0.11%	-0.38 %	-0.13		
Int. debit card	0.33 %	-0.15 %	-0.03		
Cash	0.80 %	0.17 %	+0.02	**0.80**	
Visa/Mastercard	1.00 %	0.52 %	+0.32		**10-14%**
Other credit cards	3.50%	2.72 %	+1.71		**35-45%**
Average mark-up	**0.53%**				

Consumers are quite sensitive to visible price differences and payment habits would probably change considerably if banks' tariffs were transparent

Note! Banks' tariffs in line with instrument costs

Hidden pricing promotes inefficiency

- Cost differences remain unseen
- Lack of incentives to economise
- Limited price competition
- New efficient service providers have difficulties in entering the market when their efficiency difference is not noted
- Slow development pace due to lack of incentives

Cash has been the dominant payment method and embedded pricing was efficient, however, when the time for change has come, transparent pricing promotes change.

Zero interchange fees and acceptance "at par" promote competition

- In early 20th century FED regulated that cheques should be accepted at par in order to promote competition
- The same rule has not been followed for credit cards. (Why?)
- Interchange fees inflate merchant tariffs and are based service providers' cartel-type of decisions
- Interchange fee type of constructions eg roaming charges in mobile telephone services or electricity transfer charges have been regulated in other industries

Interchange fee limitations have been implemented in several countries and their number is increasing

New entrants

- Licensing requirements support legacy service providers, but regulations seem to become more liberal
- Infrastructure participation rules pose barriers, but openness requirements seem to be popular
- The payment service business model based on hidden/embedded pricing and cross-subsidies is the major entrance barrier (ie new entrants cannot show their efficiency or rely on cross-subsidies allowing revenue streams

Successful new entrants need to follow a business model

a) With synergies and cross-subsidies from other business lines or

b) Sufficiently high customer (integration) cost-savings to provide pricing possibilities at costs

3. Competition efficiency conclusions

- Competition authorities have found it important to increase competition in the payment industry by
  - controlling monopolies,
  - requiring openness and portability and
  - limiting interchange fees
- The business model based on hidden/embedded pricing is the strongest barrier for competition and development
- The possibilities for new entrants in the market are small due to the current subsidisation-based business model

Increased competition would be the best guarantor of improved efficiency and lower tariffs

Development efficiency developments

- The zero-sum cannibalism dilemma
- Open standards with development supporting features
- Governance to support developments
- Incentives to support developments

Development undertakings often face a stability vs risk discussion: "Don't fix it if it ain't broke"?

The legacy payment industry is captured by a 'zero-sum cannibalism' dilemma

Customer with fixed volumes (= externally given as payments are complementary products)

Banks need to agree on developments = network requirement

Customer forced to use available legacy solutions

New solutions will 'eat' volumes of old solutions without new revenues but with new investments

Improving customer services will in most cases increase banks' investment costs, reduce margins on current volumes and thereby reduce overall profits as hidden revenues are fixed.

Banks are often better off by a "wait and see" strategy in the current market setup.

Open developmentable standards

- Open common standards increase the interest for software houses to build “plug-and-play” payment applications and interfaces
- XML is flexible, modular, version-based and improvable, it contains possibilities for change and expansion
- Governance of standards should be open also to end-users

Standards should be flexible to develop and the attention on new payment standards have increased

End-user governance and interest

- Customers have more costs than banks and therefore interested in developments
- Merchant-based card payments emerging (eg PayFair)
- Multinational companies press for change (eg TWIST-standards)

End-user impact has more strength in small economies?

Incentives for development

- The current business model for payment limits development eg long processing time increase float
- Regulations can be used to create different kinds of incentives
  - Decreasing of forbidding float and value-days (eg Norway and EU Payment Service Directive)
  - Requring more pricing transparency (eg EU Payment Service Directive)

Changing incentives can be a strong development driver

4. Development efficiency conclusions

- The complementary status of payments with given volumes result in reduced service provider incentives for development
- Flexible standards emerge and promote e-banking
- End-users will become more interested in payment developments, especially large companies and merchant chains
- Authorities interest to press for developments has increased

Sufficient development incentives seem to be lacking

Security efficiency developments

- Improved customer e-identification
- Enhanced automated encryption devices
- Improved network security

The security solutions must be in a cost-efficiency balance

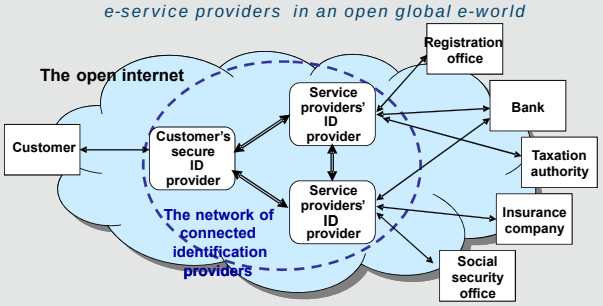
Towards a common standardised e-identification

- E-banking, e-commerce, e-government etc all require a secure customer remote identification
- Customers will have problems if all e-service providers use their own identification methods
- A secure solution would consist of PIN, biometric ID and a security device
- A standardised solutions would require the same kind of interfaces and application, but in addition a trusted third party administration

The identification problem could best be solved via TELCO, bank and authority cooperation with an international applicability

The 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 could be based on functions within the SIM card of mobile phones

Improved encryption devices

- Secure payment connections require tamper-resistant devices for encryption key storage and for the encryption process
- Modern mobile hand-sets contain necessary security features and these can be integrated for example with PCs
- Mobile payments and e-banking in general could use the same encryption and identification methods

The EMV chip card solution is an initial step towards common security devices

Improved network security

- Society is more and more dependent on Internet
- Viruses, malware and spyware are common place in Internet
- The current wide openness in Internet provides e-criminals with good hideaways and low probability of being caught
- Increased monetary value in Internet will seduce more e-criminal activity

Internet security will need more public attention, when the overall dependence increases, but it seems to be a difficult policy problem to solve

5. Security efficiency conclusions

- Currently proprietary e-identification solutions prevail, but there is a growing interest for standardised solutions
- Strong tamper-resistant security devices will be required and mobile hand-sets seems to be a promising solution
- Increase Internet security will be necessary, but the policy issues seem to be difficult to solve

The e-security must be strong enough to provide customers with sufficient trust in the e payment services and the price of increased security has to be in balance with its possibilities to fence off e-criminality

6. *Regulatory efficiency developments = promoting efficiency and not the opposite*

- Basic research and information
- Recommendations
- Leading by example and by stating government customer requirements
- Providing cost-efficient and integration supporting operational services
- Co-ordination and rule-type of regulations
- Incentive-enhancing regulations

Note! Regulators can both speed up and delay developments

6. *Increased authority interest in retail payments*

- More research in costs and prices
  - eg European studies on social costs and bank tariffs
- More and new type of recommendations
  - eg BIS/CPSS recommendations and ECB oversight requirements
- Government users are more active
  - eg e-Invoicing requirements in Nordic countries
- New rule-type of regulations are introduced
  - eg Processing speed requirement in Europe and Norway
- New incentive changing regulations are implemented
  - eg Interchange fee rules in Europe, Australia etc

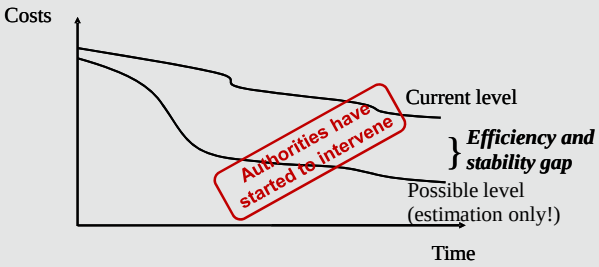
Authority involvement has been able to speed up developments

The dilemma of cash

- Central bank product yielding seignorage (= a way to tax criminal use)
- From social cost point of view cash is only efficient for coin-size payments (see European cost studies)
- Cash enjoys legal tender status and cross-subsidisation and hidden pricing benefits
- Cash induce different kinds of criminality, tax-evasion and other socially non-optimal behaviour (according to Nordic studies 40-60% of cash usage is grey or black)

Making cash costs transparent is politically difficult, 'nudging' towards more efficient means of payments could be one road towards increased efficiency

Status quo implies an 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 the gap away

6. Regulatory efficiency conclusions

- Active authority involvement in retail payments has started
- Authorities will push the industry towards new dominant payment technology
- Regulations will increase and follow the rules for other network industries
- Incentive regulations will be most beneficial socially
- The efficiency/criminality issues of cash have to be tackled sooner or later

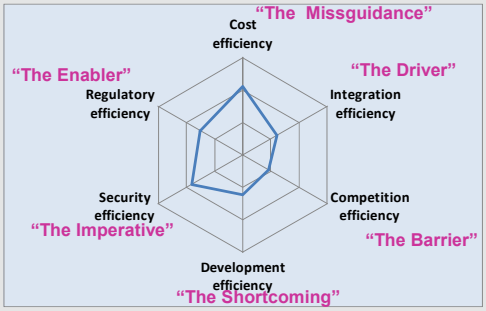
Authority involvement can enable rapid development

We seem to be heading for a "Worldpay" solution via some intermediary steps

based on common standards and some common payment networks

SEPA is hopefully the beginning of true international payment developments

Which would the efficient steps be?



Thank you for your attention.

Questions?

More information in Bank of Finland publication A:111

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

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