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Future of Retail Payments

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

*All payments are transportation of funds
(= transfer from payer account to payee account)*

Payer account

Payee account



- ◆ Basic requirements and development needs
 - transportation (processing) cost efficiency
 - delivery speed
 - security
 - user interface efficiency
 - user integration support

**All kind of service
providers face
same challenges**

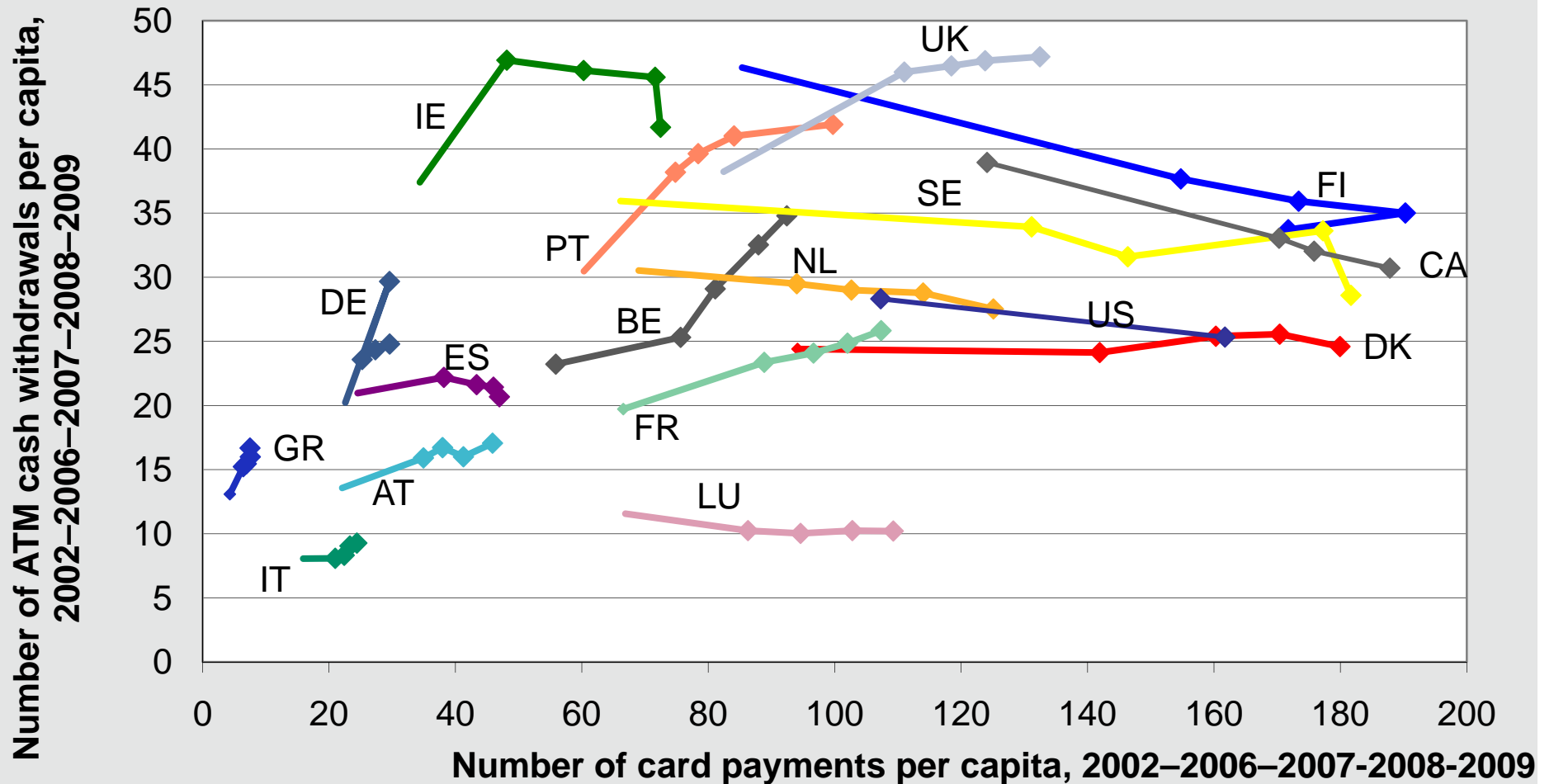
***Payments are non-interesting but mandatory tasks when due
(although some of us try to postpone them as much as possible)***

Legacy system/service developments (in EU)

- ◆ Cash and cheques are converted to card payments
- ◆ Debit card payments grow faster than credit cards
- ◆ Direct debits and credit transfers show stable growth
- ◆ Total value of credit transfer has decreased due to crisis
- ◆ Credit transfer values dominate over all others (x10)
- ◆ Paper payments move to electronic version
- ◆ Large variations in national developments

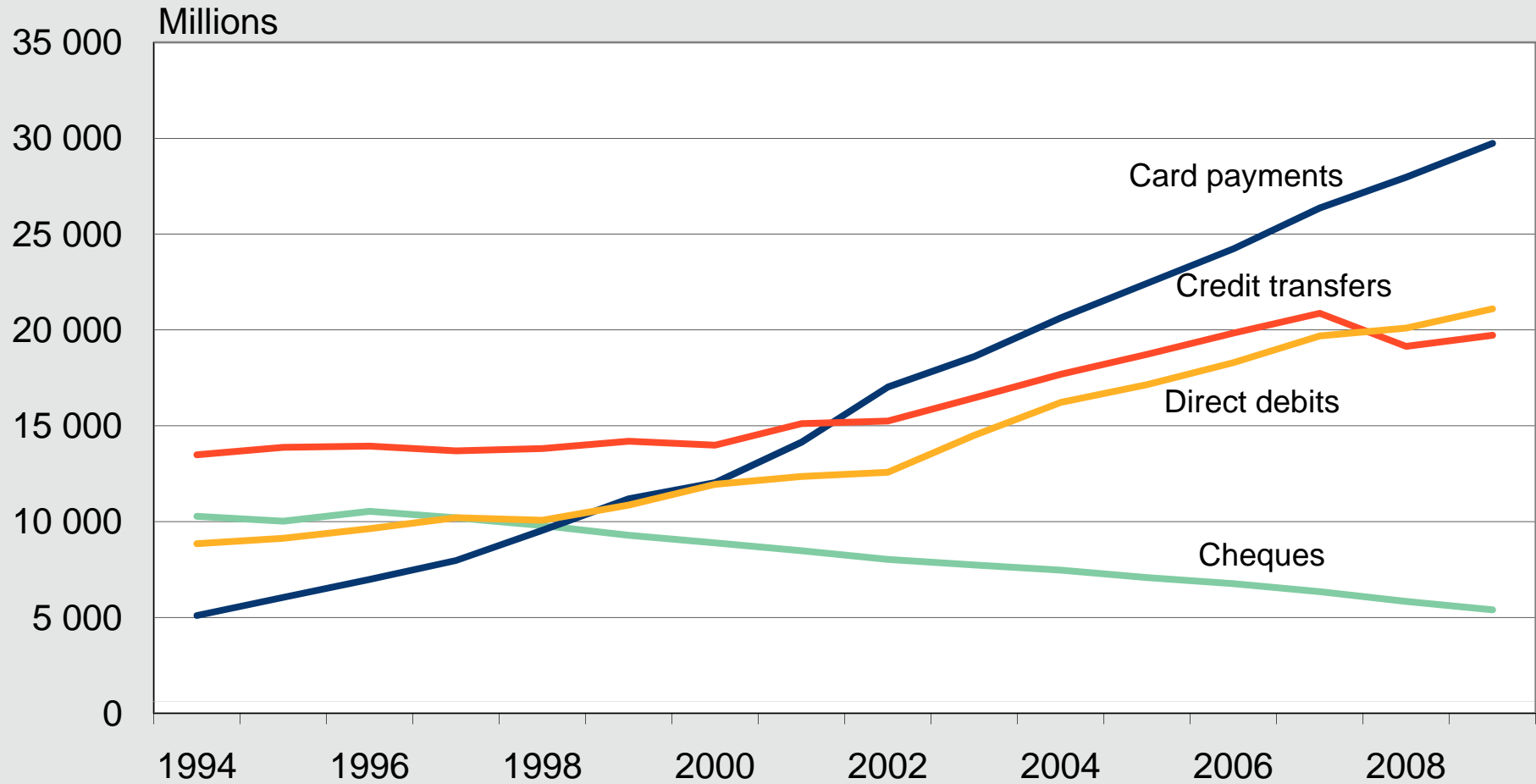
The content and service level of legacy services are rather stable (=slow improvement developments)

Cash withdrawals and card payments per capita, years 2002, 2006, 2007, 2008 and 2009



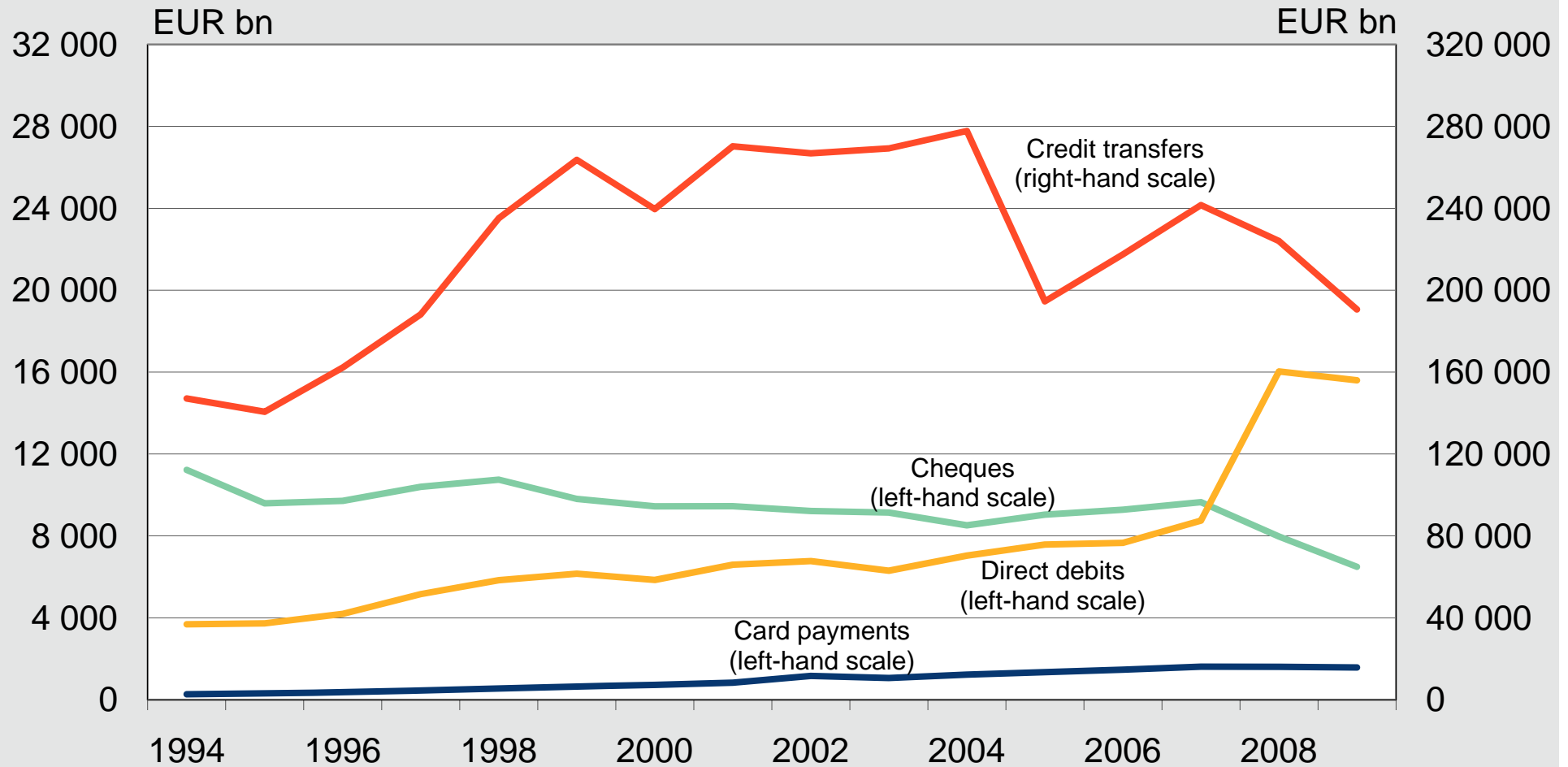
Sources: ECB, Blue Book publications, Statistical Data Warehouse and author's estimate of ATM withdrawals in Denmark.

Use of cashless payment instruments within EU15, number of transactions



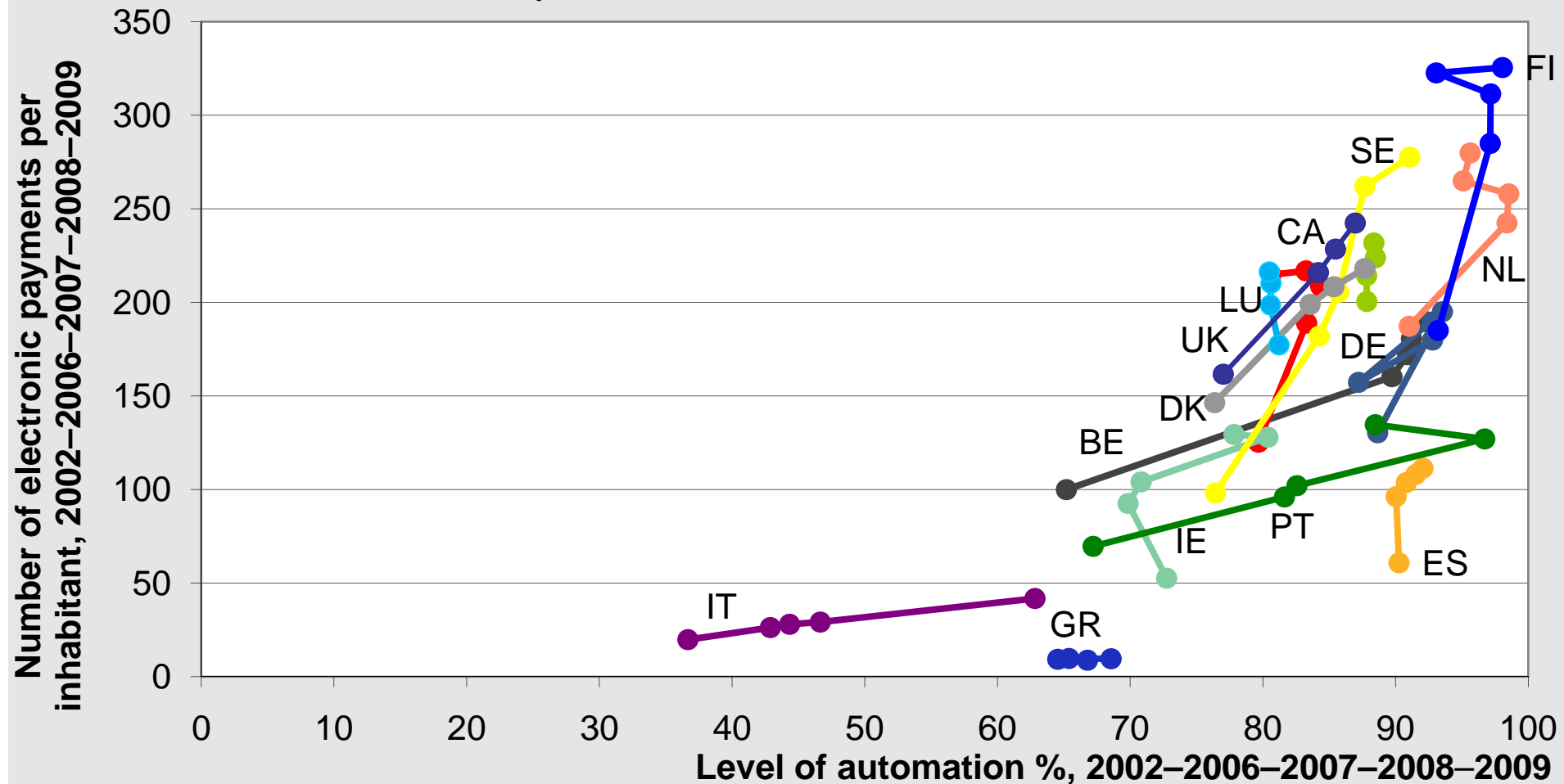
Sources: ECB, Blue Book publications and Statistical Data Warehouse.

Use of cashless payment instruments within EU15, value of transactions



Source: ECB, Blue Book publications and Statistical Data Warehouse.

Electronic payment and automation level developments in selected countries, years 2002, 2006, 2007, 2008 and 2009



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

Service level failures of old service providers give new entrants opportunities

- ◆ Network reach
 - Limited global and C2C reach and large unbanked population
- ◆ Transportation costs
 - Current charges are high compared with general web-level
- ◆ Delivery speed
 - Current batch speed of 1-2 days below real-time e-expectations
- ◆ Security
 - E-banking solutions are often inconvenient and unsecure
- ◆ User interface efficiency
 - Current “clumsy” proprietary standards without global web-reach
 - Request for easy-to-use “web-native” e-/m-platforms
- ◆ User integration support
 - Request for more automation and increased data content

***By who and when will a new e/m-generation
of payment services be provided?***

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.

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

Important technology developments

- ◆ Unrestricted low-cost data storage and communication
- ◆ World-wide immediate internet availability
- ◆ Low-cost real-time processing (cheaper than batch)
- ◆ Mobile 3G , 3.5G ... 4G developments
- ◆ NFC (Near Field Communication) for data input
- ◆ Improved security solutions/modules
- ◆ Payment shareware/freeware module developments

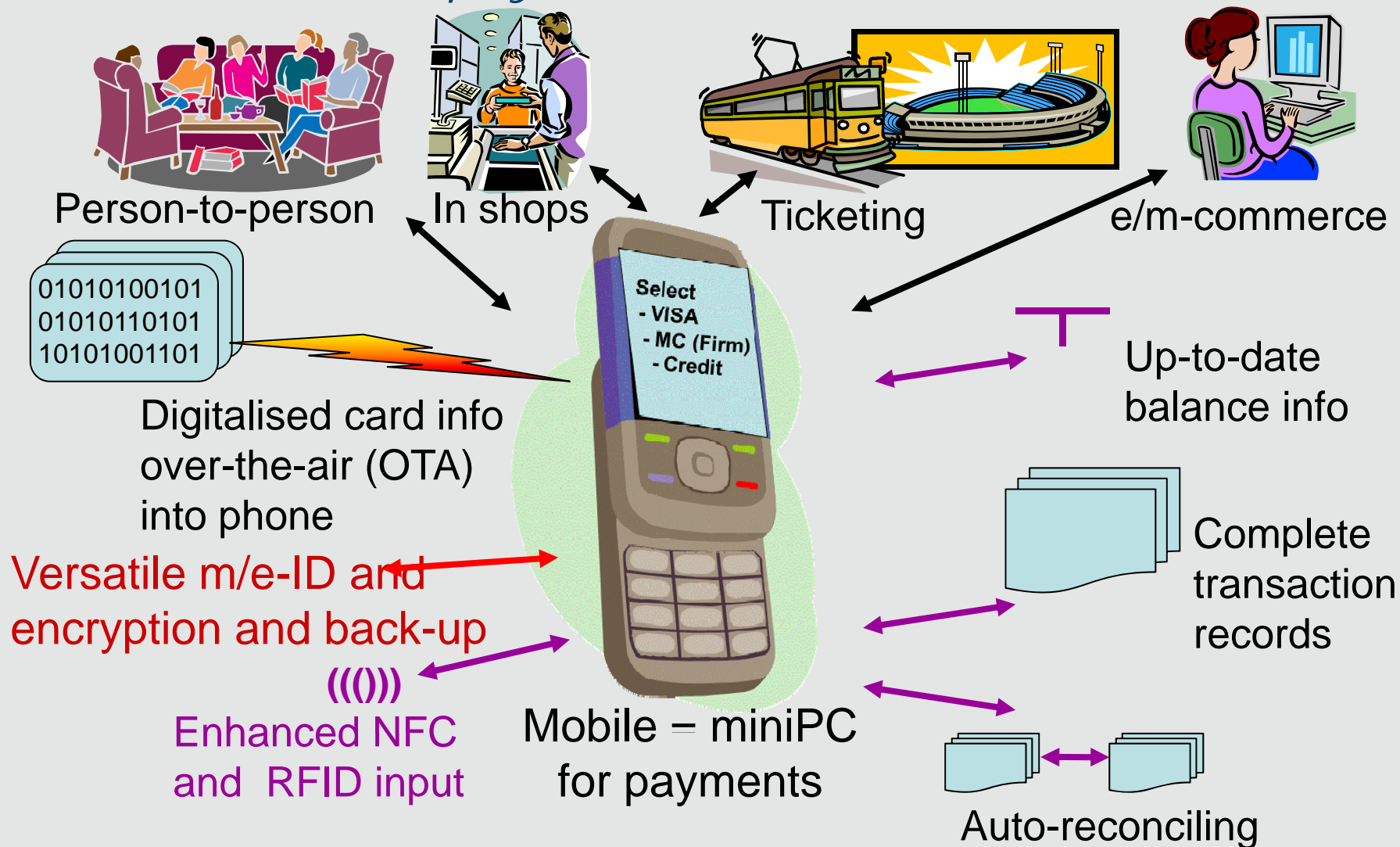
***Everyone will have a device for immediate
payment initiation and acceptance
anywhere and anytime***

"New" technology possibilities



***Possibility to produce
a new powerful payment instrument design
with improved efficiency***

Potential mobile phone and m-payment enhancements – the dominant payment instrument of the future?



Increased convenience, speed and security at lower costs

Future requirements for successful payment services

1. Simple user-interface ('show-balance', accept/make payment)
2. Continuous availability, here and now 24/7
3. Global addressing and reach (email and IBAN in parallel)
4. Simple real-time processing based on program libraries
5. Cost and charges at 'internet/email' level, extras only for value-added services
6. Open network structure (or monopoly provider)
7. Increased 'limitless' customer data content (open and encrypted)
8. Synergies via real-time linkages to other processes in other systems (ordering, ticketing, invoicing, etc)
9. Solid e-security and e-identification

**Same requirements
for all service providers**

Legacy systems need to be replaced by re-engineered modern technology, as everything else in the e-world

*In real-time all payment instruments
will become credit transfers
with payment details supplied by creditor
(what to pay where)
and accepted by the payer
(from where).*

***(Current instruments are results of old legacy developments
based on different technology development levels.)***

Main open issues

- ◆ How rapid globalisation?
- ◆ How rapid concentration?
- ◆ How rapid 'mobilisation'?
- ◆ How rapid business integration?
- ◆ How rapid 'synergisation'?

Short -term developments are often over-estimated, while long-term developments are under-estimated and past payment developments have been slow.

New entrants face network barriers

- ◆ **Licensing/regulatory requirements** support legacy service providers (but regulations seem to become more liberal)
- ◆ **Infra/network participation rules** pose barriers (but openness requirements seem to become more 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)
- ◆ **Customers are reluctant** to move all or even a major part of their payments to new entrants (changing bank is a major undertaking)

Successful new entrants need to follow a business model

- With synergies and cross-subsidies from other business lines and (or)*
- Sufficiently high customer (integration) cost-savings to provide pricing possibilities at costs and*
- With a sufficient “own” network of interlinked customers*

*Technically a major improvement is feasible,
but there is a lack of a promoting business model*

- ◆ How to get legacy service providers and/or new entrants to invest?
- ◆ Legacy service providers face major business restructuring needs (new systems, new distribution network, new personnel needs) cutting costs and changing business models
- ◆ New entrants have challenges in building the network and processing platforms but also to acquire customer trust

***Late start up delays social benefits,
but which are the successful authority means
for development acceleration?***

Non-cash for non-banked?

- ◆ e/m-Payments beneficial also to non-banked
- ◆ A large part of world population is non-banked but only a smaller part without mobile phone access/ownership
- ◆ Expanded financial inclusion is beneficial to the whole economy
- ◆ The need for remote network payments grows in the whole society

***A new e/m-payments business/service model
could expand non-cash payment benefits***

***What kind of authority interventions
could speed up developments?***

*The old and known risks
from the paper and batch world
will be transferred to the e-world.*

*However, they will come in new digital shapes
of which little experience available.*

*Any system has its technical and operational
vulnerabilities.*

*Criminals are attracted by all kinds of money,
also its new digital e/m-forms.*

The importance of dependencies has grown rapidly

1. Consolidation
 - More central points with large impact
2. Specialisation
 - A small number of experts managing large world-wide systems
3. Automation
 - The capacity of manual back-ups are not sufficient
4. Integration
 - Everything affects everything, a small critical part can turn down big systems
5. Software-based infrastructure
 - There are seldom true back-up programs and databases, just copies of the production versions
6. Process control
 - Back-up process and testing only made for single and probable problems
7. Globalisation
 - Dependence on global actors and their supplies
8. Rapid technology developments
 - Back-up solutions are also out-dated rapidly

Quarterly economy and privatisation reduce back-up investments

Authority/oversight challenges

- ◆ Increased globalisation
 - How to oversee multinational and foreign service providers?
- ◆ Higher speed/shorter reaction times
 - Do we need real-time oversight?
- ◆ More consolidation
 - How to ensure competition and efficiency in mono/oligopolies?
- ◆ Deeper integration among participants
 - How to ensure integration works correctly in exceptional situations?
- ◆ Increased interdependence
 - How to control critical components and ensure effective back-ups?
- ◆ Larger risks of wider contagion
 - How to identify critical relationships and ensure proper risk controls?
- ◆ Greater complexity of markets and infrastructures
 - How to understand/test market reactions to exceptional situations and authority actions in those?

Need for in-depth studies, preparations and simulations

Understanding 'old' electronic risks

- ◆ High availability is essential as paper-based contingency measures cannot handle big volumes
- ◆ Rapid transmission of errors throughout the integrated system requiring automated correction routines
- ◆ Hardware, software and communication back-ups are necessary (software back-ups are seldom implemented)
- ◆ Dependence of key components and personnel
- ◆ Electronic terrorism and criminality
- ◆ Errors and attacks resulting in gradual destruction of back-ups and databases
- ◆ Customers' varying know-how of electronic security
- ◆ Personnel's trust in the 'system', system's trust in the personnel (need for electronic 'four eyes' implementation)

Old risks with a new appearance and requiring new tech (not necessarily high tech) know-how

Authority challenges/dilemmas in mobile payments

1) Global services vs national authorities

- Domestic systems disappear
- Dependence of foreign systems increase, authority mandates?
- Authority cooperation at embryonic level only, coordination body?

2) Synergic efficiency vs closed segmented industries

- Synergies via combining expanded data and processes
- Synergies via increased competition and by providing payments for non-banked, using other “account” networks than bank networks

3) Open service competition vs regulated industry stability

- Open competition often neglects externalities (systemic risks)
- Under-estimation of back-up needs and indirect losses
- Hidden and monopoly pricing disadvantages

4) Individual freedom vs enforced e-identification

- Anonymity and lack of audit trail provoke criminal usage
- Privacy needs to be respected, but e-identification is protective
- Regulatory bias/arbitrage results in distorted competition

Authorities need to ensure that past regulatory policies are maintained for new services but also recognize new needs and benefits and avoid inefficiencies

*The direction of developments
seem to be quite clear,*

*but the pace of developments
seem very blurry*

*except for being very slow
in the past.*

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+*