

Are Smart Cards “Out” and Mobile Phones “IN” for Mass Transit?

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Introduction: Mobile phone - the Aladin lamp?

The new fashion: Mobile Phone Ticket!

- ❖ So called advantages for mobile phone tickets:
 - No infrastructures (CheckIn Terminals, vending machines, deposit systems etc.)
 - No issuing and administration of new media like Smart Cards.
 - The “intelligent” customer uses his own paid devices and pays for using it!
- ❖ Why should mass transit today be based on Smart Cards?
- ❖ The new technology (mobile telphony) is available!
Cheap, easy, expandable, fantastic!
- ❖ But is that our reality?

Mobile Phones only for Mass Transit ?

Mobile phones – new technology?

- ❖ Mobile telephony started at 1946/47 by the US Bell Telephony Laboratories and Southwestern Bell -AT&T
- ❖ · 1948 Invention of the transistors 1948 (replacement of the vacuum tubes)
1969 Invention of the IC (integrated circuit) by Texas Instruments, the death of the tube radio.
1971 Intel introduced the first commercial microprocessor (model 4004 with 23 000 transistors)
1973 Motorola`s first patent on a cellular radio system
1975 NTT started already tests in Japan,
1978 tests got life in Sweden. Bahrain had the first commercial cellular telephone system.
- ❖ **In the end of the sixties every telecommunication company knew about cellular radio.**

Mobile phones – old car based technology

- ❖ **All of them were car phones - 100% growth per year.**
 - 1981 Nordic MobileTelephone System (first multinational mobile phone system in Denmark, Sweden, Finland, Norway)
- ❖ But the cellular phone of Germany did not work in Italy or in France -> the creation of one European wide digital mobile service
- 1982 GSM** (Global System for Mobile Communication) 26 European national phone companies started
- 1985 Mobile phone systems in UK, The German C-network, French radicom
- 2000, Italia RMTI/TMTS
- 1990 the digital US-standard IS-84 was published
- 1994 GSM already had 1.000 000 000 customers
- 1996 GSM mobile phone and handheld computer by Nokia.
- 2000 The Internet Protocol IP takes the lead and in the year 2000 Sharp introduced the camera phone
- ❖ **Today every citizen in Europe use at least one mobile phone!**

Mobile phones – today

- ❖ Most of modern citizens have and use one or more mobile phones!
- ❖ Most of mobile phone user can not live without this device any more . They feel “naked” without a mobile phone! There is already a mobile phone addiction!
- ❖ A modern “business man” can not work without the chance to be connected by the mobile phone at any place at any time. To be 150% available!?
- ❖ The first questions of a mobile phone conversation is: “Where are you?”
The answer in more than 30% is just a lie!

The modern El Dorado

- ❖ SMS communication has already changes the way to communicate and the form of writing - but it is a billion € business also in the next years?
- ❖ Personal individualism uses ring tones - and it is a billion € business (Americans are travelling to Mexico to buy a special “lady Ring tone” for 2,50\$) also in the next years?
- ❖ Mobile Phones with cameras have changed the photo industry, insurance companies now are offering special services, if via a mobile camera accident data are delivered directly to the insurance
- ❖ But the hot mobile phones business is coming to an end (coverage is done, SMS and ring tone business is limited, IP phoning is cheap)
- ❖ New applications must come: **m- ticketing!?**

Mobile Phone = mTicketing

What is mTicketing?

- ❖ Electronic payment
- ❖ Electronic billing
- ❖ Virtual ticketing depot
- ❖ Summary: mTicketing is one type of eTicketing.

Today there are different mTicketing solutions:

- ❖ SMS based - and succesful (see Helsinki)
- ❖ Slot based solutions - the mobile phone has a slot where you can introduce your smart card, the mobile phone is just a portemonnaie - and successful (see Japan)
- ❖ Near Field Communicaton (second contactless chip on the back side of your mobile phone) - successful?
- ❖ New developments like Ring& Ride (location based solutions) or the ProxSIM Card (dual interface SIM card)

Mobile Phone = mTicketing limits?

Constraints for mTicketing

- ❖ mTicketing is not a product for everybody (you can not ask the citizens please use your own mobile phone if you want to take a bus)
- ❖ mTicketing (mobile phones) is a fast changing merchandise including a fast virus attacked product (if a virus destroys or changes your season ticket who will be in charge for the ticket and for the mobile phone applications?)
- ❖ mTicketing does not include technically existing systems or other media
- ❖ mTicketing based on SMS is limited normally for single tickets
- ❖ mTicketing with NFC does not cover the new development (citizens are using more than one mobile phone or SIM card)

Dependencies

- ❖ Magnetic fields and health is still an issue
- ❖ mTicketing depends on the service of mobile phone operators (still no 100% guarantee of coverage)
- ❖ mTicketing depends on the device development (mobile phone, Java, etc.)
- ❖ mTicketing has to solve data protection /privacy issues
- ❖ **There is no law or regulation that citizens must have a mobile phone!**

Smart Cards only for Mass Transit?

Smart Cards = eTicketing

- ❖ Smart Cards were developed since 1969 - using the the new technology IC world. Smart cards are **younger and newer than** mobile phones!
- ❖ Contact based Smart Cards had difficulties to be used in Mass Transit - but they were successful in banking and health care and for access solutions.
- ❖ Contactless Smart Cards starting only 16 years ago did their way!
World wide!
No - not in all countries, not in all Mass Transit urban areas.

Reasons why contactless Smart Cards are successful in France, Italy, Spain, Brasil, Moscow, London, Hong Kong, Seoul, Japan, China, Australia

- ❖ Smart Cards are a product for everybody (children, business men, elderly persons)
- ❖ Smart Cards use a well known technology (Smart Cards, terminals, communication, back office solution are available and a clear risk calculation can be done)
- ❖ Smart Cards are offering new tariff products, cooperation, expansion...
- ❖ Smart Cards are offering also integration of new media like mobile phones
- ❖ Smart Cards are offering cooperation and new marketing solutions
- ❖ Smart Cards **are cheap**, enable controlling and privacy.

Smart Cards are standard!

Today

- ❖ Smart Card (contactless) prices moving - down.
- ❖ International standards are already given. Completely new modifications are not necessary.
- ❖ Banking! Credit cards are using contactless chip technology
- ❖ Smart Cards are accepted; citizens are used to them
- ❖ Smart Card infrastructure is future oriented

Some comments

- ❖ In some countries Smart Cards are seen as “old fashioned”, costly and mobile eTicketing is the new hype.
- ❖ The reasons are their old fashioned political and decision structure, which prevents to install a simple Smart Card based solution in time (sometimes “discussing” started 12 years ago). New funny hurdles are created like “we want a national standard”, “we want high security”.
- ❖ And now “we are going to look for the new technology” (the mobile phone!)
- ❖ We have a new “**Aladins lamp**”!?

Mobile phones or Smart cards for Mass Transit ?

Mobile phones and Smart Cards: Economy

It's the conomy

- ❖ Smart Card eTicketing system are the base
- ❖ An eTicketing-system based on contactless Smart Cards covers all needs of customers, transport operators and transport authorities.
- ❖ Financing the investment:
transport authorities still have to pay today for old fashioned mechanical paper based fraudulent systems.
Only one criteria: False paper based monthly tickets are 0% today? Or even 15%?
False paper based single tickets are 10% today? Or even 30%?
- ❖ Smart Cards solve this issue - m-Ticketing not.

Mobile phone ticketing

- ❖ Do not cover the ticket tasks for **all Mass Transit** customers - there must be always an alternative - and this is a simple and easy k.o for the smart **Aladin's lamp** to exchange Smart Cards completely and trying to do eTicketing just only with some lamps (mobile phones)

Mobile phones and Smart Cards: Why not?

Install a Smart Card based eTicketing system

- ❖ Easy, cheap and the standard; using cheap reloadable memory cards for multiple tickets and microprocessor card for season tickets
- ❖ Build and create the CheckIn infrastructure for Smart Cards (may be later usable as CheckOut), the back office and deposit solution, the Smart Card issuing processes

Mobile phones and eTicketing - yes!

- ❖ Mobile phones are offering electronic payment
Why not use the payment functionality only for the eTicketing? You pay or reload you smart card via the mobile phone!
- ❖ Mobile phones and special distribution products. Use a SMS mTicketing solution just for single tickets. Especially in areas with a poor vending machine infrastructure it makes sense.
- ❖ Expand the Smart Card CheckIn terminals with just only a scanner so that an automatic and secure prove of the mTicket can be done even for railways companies.
- ❖ Use the coming up ProxSIM technology, which includes no change of the Smart Card eTicketing system but expansion to mobile phones til the Ring&Ride option.

Mobile phones "in" and Smart Cards "Out"?

- ❖ **The wrong question is "mobile phones in and Smart cards out"?**
- ❖ **Mobile phones and Smart Cards can be part of one eTicketing system.**
- ❖ mTicketing solutions without Smart card based solutions do not reducing costs and not path the way for modern mobility.
- ❖ It is necessary to create a simple basic system like in Porto or like here in Florence.
- ❖ Of course capital cities like London, Paris, Madrid and Rome must be seen different - sometimes volume changes also content but they should use similar technology
- ❖ mTicketing is an add on for Smart Card based eTicketing systems.
- ❖ If the ProxSIM will be available so easily the existing Smart Card infrastructure (terminals) til the location based solution can be used.
- ❖ Smart Cards are necessary and the base of eTicketing.
- ❖ Mobile phones and mTicketing (SMS based, ProxSIM, Ring&Ride) can support a Smart Card base eTicketing solution of today!

Thank you very much for your attention

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