Public transport ticketing system in City of Tallinn and Harju county

CIVITAS MIMOSA Study Tour 2014

Tiit Laiksoo, Tallinn Transport Department
Content of presentation

• Public transport in Tallinn anno 2012
• ID tickets and paper tickets
• Why we needed a new system?
• Target and challenges
• Complicated procurement procedure
• Terms of contract
• Advantages of the new system
• Results
Public transport in Tallinn, anno 2012

- 4 tram-lines, 8 trolleybus-lines, 55 bus-lines
- 570 vehicles
- 3 operators
- Number of boarding's: 106,5 M (2011)
Tickets: two different systems

1. ID-tickets, based on the Estonian electronic identity card (38 different types):

   - Hourly tickets (1 h, 2 h, 1 h 10-ticket booklet) – paying and validating by mobile phone;
   
   - Periodical tickets (1 d, 3 d, 10 d, 30 d, 90 d, joint-cards for Tallinn city and Viimsi district, joint cards with electric railway) – paying by money transfer to personal ticketing account.

2. Paper-based tickets (28 different types):

   - Single ticket (7 types) – validating by mechanical markers;
   
   - Hourly tickets (1 h, 2 h, 1 h 10-ticket booklet) and periodical cards (1 d, 3 d, 10 d, 30 d, 90 d, student cards, discount cards, joint cards with Harju county) – validating by electro-mechanical validators.
Paper-based tickets
ID-ticket

ID-ticketing system launched in 2004

Strengths:

• Need for personalised tickets - instead of verifying persons identity manually and issuing a separate personalised card, ID-card is used to do the check automatically
• Different pricing for residents
• Optimised distribution costs
• User friendly and flexible payment channels (internet, mobile phones, service desks)
• Online statistics and cash control

Weaknesses:

• No obligation for passengers to validate tickets
• Using inconvenient contact (Smart) cards
1) ID-card (personal code)

Person must possess and show its ID-card when buying or verifying a ticket.

2) Buy ticket (register ID-card)

€
e-bank

3) Validate ID-card

Person status checked from registries

EHIS  SKAIS  RR

Reporting and accounting

ID-ticket database
 Distribution channels of ID-ticket

- Active users of ID-ticket: 120,000
- ID-tickets sold (per month): 100,000
- ID-ticket percentage of Tallinn periodic tickets: 95.4%
- ID-ticket percentage of Tallinn overall tickets sold: 65.5%
Tallinn Card

• Tallinn Card is a culture tourism product, managed by Tallinn City Tourist Office & Convention Bureau

• Tallinn Card includes free entrance and discounts at nearly 100 tourist attractions, including free use of city transport

• Tallinn Card is available in 6-hour, 24-hour, 48-hour and 72-hour versions
Why we needed a new system?

• High operation cost of 2 different ticketing system
• No obligation for passengers to validate tickets = no feedback for route/network planning
• Using inconvenient contact (Smart) cards
Target and challenges

• Replacement of paper-based tickets and cards
• Based on contactless cards (RFID)
• Cross-using of different contactless cards and in the future NFC mobile-tickets
• Online ticketing system
• New contactless Tallinn Card
• Integration with Harju county
• Challenges for integration:
  • Commuter trains
  • Other cities and counties in Estonia
  • Neighbours: Helsinki (Finland), Riga (Latvia), Vilnius and Kaunas (Lithuania), St. Petersburg (Russia)
  • Other European regions
Complicated procurement procedure

• Procurement notice in TED – 12.05.2010
• High interest: 27 different companies from 13 countries
• 16.06.2010 – 12 applications, 8 were classified
• 3 rounds of Competitive dialogue with 5 consortiums
• Publishing the Call for tender – 17.02.2011
• 15.03 – 6 bids from 4 consortiums
• 21.04 – publishing the successful tender
• 2 appeals, 5 months at different levels of courts
• 06.10 - publishing the new successful tender
• 2 appeals
• 21.12.2011 – signing the Procurement contract
Terms of contract

• 9 months for implementation + 4 years of operating
• Cost of contract: 4,6 M €
• Number of involved vehicles: Tallinn 605, Harju county 95
• New on-board computers, printers and validators to every door in vehicles of Tallinn PT
• New ticketing machines with validators into all vehicles of Harju county
• 10 mobile validators into tourist vehicles and 45 stationary validators into tourist destinations
• 50 inspecting devices
• Using of contactless Mifare cards
Advantages of the system

• Real time information exchange between on-board computers and back-end system (ticketing and route/position info)
• Cross usage of different cards is possible (cards issued by another organisations: student cards, ISIC cards, transportation cards of other regions)
• Supports ticket sales over the internet and mobile phones
• Stand-by for the usage of NFC mobile phones and contactless bank-cards (Visa payWave / Mastercard PayPass) as for a periodic pass or one-time ticket payment

*Mifare contactless cards*
Contactless Tallinn card

1900 on-door validators in Tallinn

605 printers and plug-ins for on-board computers in Tallinn

95 ticketing machines in Harju county

50 inspecting devices
Support from CIVITAS

• Ticketing workshop in April 2010 in Tallinn: cases of City of Ljubljana (one city system) and TransLink system in Holland (one-4-all)
• Total budget of measure under CIVITAS MIMOSA project: €1 089 620
• Support from EU: €576 659 (53%)
Financial figures

- Cost of hardware and software: 1,65 M €
- Operating cost: 60,650 € monthly
- Cost of ID ticket + paper ticket: 138,750 € monthly
- Saving: 2.3 times
- Operating cost with investment: 94,700 € monthly
- Saving: 1.5 times
# Samples of data from ticketing system

(December 2014)

<table>
<thead>
<tr>
<th>Issued cards (incl. student and pupil cards)</th>
<th>600 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>these are personalised cards</td>
<td>396 000</td>
</tr>
<tr>
<td>are entitled to a free ride</td>
<td>377 000</td>
</tr>
<tr>
<td>incl. retired people 65+</td>
<td>73 000</td>
</tr>
</tbody>
</table>

Average using of public transport by card holders per month: 310 000
Total trips within one month (number of validations): 8 000 000

<table>
<thead>
<tr>
<th>Using frequency of tickets monthly</th>
<th>persons</th>
<th>rides</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free ride</td>
<td>252 253</td>
<td>7 142 635</td>
<td>28.32</td>
</tr>
<tr>
<td>30-day ticket</td>
<td>4 411</td>
<td>188 747</td>
<td>42.79</td>
</tr>
<tr>
<td>30-day discounted ticket</td>
<td>7 252</td>
<td>241 419</td>
<td>33.29</td>
</tr>
<tr>
<td>One hour ticket</td>
<td>20 519</td>
<td>93 772</td>
<td>4.57</td>
</tr>
<tr>
<td>One hour discounted ticket</td>
<td>7 009</td>
<td>39 531</td>
<td>5.64</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transfers during 3 hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>68%</td>
<td>not transfers</td>
</tr>
<tr>
<td>27%</td>
<td>one transfer</td>
</tr>
<tr>
<td>4%</td>
<td>two transfers</td>
</tr>
<tr>
<td>1%</td>
<td>more than two transfers</td>
</tr>
</tbody>
</table>
Thank you!

Tiit Laiksoo
Phone: +372 6404680
Mobile: +372 50 94654
tiit.laiksoo@tallinnlv.ee

www.tallinn.ee
www.civitas.eu