Simple, Seamless Public Transport across the Nation, Dutch experience in Implementing the OV-chipkaart

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Contents of Presentation

- Transport Policy & Organisation of Public Transport
- History of Electronic Fares & Ticketing (OV-chipkaart)
- Milestones in Nationwide Implementation
- Main Features of Dutch OV-chipkaart
- Examples from Rotterdam & Amsterdam regions
- Recent Developments & Main Findings
- Future Prospect & Lessons learnt
Public Transport Smartcard
Public Transport Smartcard
Nota Mobiliteit 2004 - 2020

- Provide reliable door-to-door accessibility
- Increase the share of PT in personal mobility
- Enhance operating efficiency & improve services
- Increase fare-box cost recovery ratio
- Improve passenger satisfaction & safety
- Stimulate Public Private Partnership
- Facilitate technological innovations
Organisation of Public Transport

- Strategic transport & land use policy at the Ministry
- 19 Public Transport Authorities (PTA)
- 9 operating companies + Netherlands Railways (NS)
- PTA has the freedom of choice:
  
  Competitive tendering for concessions
  Carries financial responsibility
  Determine regional fares & level of service
  Network development by the operator or the PTA
Milestones in OV-chipkaart Project (1)

- 1998 Declaration of Intent by all operators, including NS
- 2003 Agreement by Trans Link Systems (TLS) & East-West
  - Netherlands Railways
  - GVB Amsterdam
  - RET Rotterdam
  - HTM The Hague
  - Connexxion
  - Accenture
  - Thales
  - Vialis
  - MTRC Hong Kong
  - Octopus Card Ltd.
- 12/2005 Roll-out in Rotterdam region (RET + Connexxion)
- 28-6-2006 GO/NO GO decision by Dutch Parliament
- 29-2-2008 Action Plan OV-chipkaart
Milestones in OV-chipkaart Project (2)

- 29-1-09 introduce exclusive use in RET metro
- 27-8-09 introduce exclusive use in GVB Amsterdam metro
- 12/09 application on NS discount pass (1.4 m, 90% of NS customer)
- 11-2-10 exclusive use on bus/tram/metro in Rotterdam region (SRR)
- 16-3-10 Student Pass with embedded PT smartcard (650,000 SOV)
- 3-6-10 exclusive on bus/tram/metro in Amsterdam region (ROA)
- 3-11-2011 *strippenkaart* withdrawal, OV-CK standard nationwide
- 1-1-2012 compulsory check-in & check-out e.g. SOV-chipkaart
Learning Process

- Learning from best practices in other cities (HK, Singapore, London)
- Tripperpas trials in Groningen municipality (2001-2003)
- Business case prepared by individual operators
- Social Cost-Benefit Analysis (OEI)
- Surveys of public acceptance, customer satisfaction & usage
- TNO report & contra-expertise by Royal Holloway, Univ of London
- Monitoring reports commissioned by PT Ambassador

*Commission Kist* (3/2010 report sent to Dutch Parliament)
Periodic surveys Public Transport Panel (33,000 members)
*Commission Meijdam* (6/2011 report with recommendations)
Features of Dutch OV-Chipkaart

- Commercial contract between PTAs/operators
- Responsibilities for implementation is delegated to PTA
- Front-offices are Service Points for the clients
  - Back-office clearance & revenue apportionment by TLS
- Proven contactless smartcard technology (Mifare)
  - Anonymous card
  - Personalised card (with photo)
  - Disposable tickets (not possible for re-use)
- Closed regime at metro & rail stations
- Check-in & Check-out procedure is required
- Signal & readings of transaction by the card reader
How OV-Chipkaart works? (1)

- Electronic purse (travel with positive cash balance or a product)
- Need for CI-CO for every transaction
- Extra charges for incomplete transaction (euro 4, 10, 20)
- Price of OV-CK 7.50 euros (special offers euro 1, 2.5, 5)
- Economic life of OV-CK is 5 years
- Throw-away paper OV-chipkaart (2012 price)
  - GVB: 1 hour 2.70; 1 hr+ bike 4.30; 1 day 7.50
  - RET: 1 hour 3.00; 2 hr 3.50; 2x 1 hr 6.00
- Base charges & km charges in 2012:
  - 83 euro cent (normal) & 55 euro cent (reduced)
  - 142 euro cent/km & 93 euro cent/km by GVB
  - 127 euro cent/km & 84 euro cent/km by RET)
How OV-Chipkaart works? (2)

- 35 minutes for interchange between vehicles or companies
- Distribution at 8000 sale points (compared with 4500 strippenkaart)
- Automatic top-up on personalised card (contract with bank)
- Unique number per card to comply a “black-list” to combat fraud
- Apparatus to show records of the last 10 transactions
- Control is by roving team of inspectors with hand-held computers
- Reimbursements e.g. as consequences of system malfunctioning
- Claim forms available e.g. from driver, at service points, website
Organisational Features

- Open architecture & inter-operability between companies
- All OV-CK has a common logo & accepted nationwide
- Two main card & apparatus providers (East-West, ProData)
- Commercial contract between PTAs and operators
- Consultations with consumer organisations (ANWB, ROVER, LCO)
- Attention to details on access for the handicapped & disabled
- Guarantee of privacy & meeting CBP requirements (data protection)
- Rigorous tests of card security → Migration Plan to next generation
Dual Ticket Regime in Transitional Period

- Ministry is responsible for reimbursement of revenues from NVB
- Regional tickets RVB are the responsibilities of PTAs
- NVB fares revenue remain to be allocated & reimbursed via WROOV
- OV-CK revenues are processed & allocated by TLS
- Significant reductions in fraudulent travel (RET 12% → 1.69 %)
- Increase in passenger satisfaction (RET 6.9 → 7.1 in 2011)
- Drastic increase in fare revenues reported by municipalities
- SOV-CK is a commercial contract between operators & Education Min
- NS has its own implementation plan & financial responsibilities
9 Conditions prior to Compulsory Use

- Card use is demonstrated to be fully operational & stable
- Ticket distribution in the region is on course as agreed
- Proven & shown to be flexible in the transition for all passengers
- Student OV-CK are readily available to all SOV-holders
- Season tickets are embedded into the OV-CK
- Companion to handicapped passenger and people eligible to free travel will be issued with appropriate travel document
- Security & safety must be in order
- Fare for the average passenger in the service area must be revenue neutral in the first year of transition
Email address for further information

- [www.rijksoverheid.nl/onderwerpen/ov-chipkaart](http://www.rijksoverheid.nl/onderwerpen/ov-chipkaart) (Ministry I&M)
- [www.ov-chipkaart.nl](http://www.ov-chipkaart.nl) (main source, English)
- [www.ns.nl](http://www.ns.nl) (Netherlands Railways, English)
- [www.gvb.nl](http://www.gvb.nl) (Amsterdam Municipal Company, English)
- [www.ret.nl](http://www.ret.nl) (Rotterdam Electric Tram Company, English)
- [www.connexxion.nl](http://www.connexxion.nl) (urban & regional operator)
- [www.veolia.nl](http://www.veolia.nl) (urban & regional operator)
- [www.arriva.nl](http://www.arriva.nl) (Urban & regional operator)
- [www.9292ov.nl](http://www.9292ov.nl) (public transport travel information provider)
- [www.studentreisproduct.nl](http://www.studentreisproduct.nl) (student SOV card website)
- [www.translink.nl](http://www.translink.nl) (Trans Link Systems, company to oversee OV-CK)
Benefits attributed to Smartcard

- Offer ease & convenience to passengers
- Improve public safety & combat fraudulent travel
- Provide up-to-date management information
- Reduce operating costs & facilitate network optimization
- Enable market liberalisation
- Opportunities for fare differentiation
Main Research Results (2003)

- Travel time savings from ticket purchase
- Less molestation & harassment for personnel
- ‘Spin-off’ benefits for employers e.g. sick leave
- Increase revenues & reduce fraudulent travel
- Savings from the paper ticketing system
- Opportunities to rationalise network & services
- Possibilities for refinements & fare differentiation
SCBA Study Findings (2003)

- Total benefits exceed total project costs
  €420 - €1520 NPV million 7% discount rate
- Wide range of benefits to dif. stakeholders
- Evidence of economies of scale
- Heavy cost-outlays in the beginning phase
- Benefits accrue slowly but grow over time
- Investment profitable (plausible scenarios’)

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Rijkswaterstaat
Hier komt de titel

10 december 2008
COST BENEFIT ANALYSIS

Integral economic OEI impact the Netherlands

- exploitation cost paper based system
- exploitation cost chip based system
- current transaction processing and card management
- chip transaction processing and card management
- reduction time to buy tickets
- molest reduction
- revenue impact fraud reduction
- cost impact fraud reduction
- cost impact tariff differentiation peak
- cost impact tariff differentiation off peak
- valuationextra mobility
- cost impact extra mobility
- efficiency improvement
- environment
- OEI balance
Conclusions (2003)

- Window of opportunity: ‘win-win’ situation
- Successful migration → nationwide usage
- Co-ordinated efforts by all parties concerned
- Close partnership between PTA & operators
  - Willingness to introduce smartcard
  - Readiness to optimize network & services
  - Effective communication to staff + passengers
  - Imaginative & effective marketing
### Analysis of Distributional Impact

#### NPV in Million Euro

<table>
<thead>
<tr>
<th>Actors</th>
<th>Minimum</th>
<th>Maximum</th>
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<tbody>
<tr>
<td>Public transport operators</td>
<td>380</td>
<td>870</td>
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<tr>
<td>Passengers</td>
<td>260</td>
<td>390</td>
</tr>
<tr>
<td>Employers of passengers</td>
<td>20</td>
<td>30</td>
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<tr>
<td>Central Services Units</td>
<td>-410</td>
<td>-210</td>
</tr>
<tr>
<td>Concession granting authorities</td>
<td>50</td>
<td>300</td>
</tr>
<tr>
<td>Central government</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Other business sectors (indirect effects)</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Other social partners (external effects)</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

**Total (The Netherlands)**                  | 420     | 1520    |
# Effects of Variations in the Migration Period

<table>
<thead>
<tr>
<th>Type of effects</th>
<th>2 years</th>
<th>3 years</th>
<th>4 years</th>
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</thead>
<tbody>
<tr>
<td>Operating costs (existing policy)</td>
<td>1430</td>
<td>1430</td>
<td>1430</td>
</tr>
<tr>
<td>Operating costs (new policy)</td>
<td>-1850</td>
<td>-1870</td>
<td>-1900</td>
</tr>
<tr>
<td>Administrative costs (existing)</td>
<td>300</td>
<td>300</td>
<td>300</td>
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<tr>
<td>Administrative costs (new)</td>
<td>-460</td>
<td>-460</td>
<td>-460</td>
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<tr>
<td>Reduction in ticket purchase time</td>
<td>580</td>
<td>560</td>
<td>540</td>
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<tr>
<td>Reduction in molestation</td>
<td>110</td>
<td>110</td>
<td>100</td>
</tr>
<tr>
<td>Extra revenue (reduced fraud)</td>
<td>260</td>
<td>250</td>
<td>240</td>
</tr>
<tr>
<td>Costs of fraudulent travel</td>
<td>180</td>
<td>170</td>
<td>170</td>
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<tr>
<td>Saving in costs (fare differentiation)</td>
<td>340</td>
<td>330</td>
<td>320</td>
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<tr>
<td>Interest from chip card</td>
<td></td>
<td></td>
<td>10</td>
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<tr>
<td>Increase in mobility</td>
<td>300</td>
<td>290</td>
<td>280</td>
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<tr>
<td>Extra costs (traffic growth)</td>
<td>-240</td>
<td>-230</td>
<td>-220</td>
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<tr>
<td>Efficiency gains</td>
<td>150</td>
<td>140</td>
<td>140</td>
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<tr>
<td>Environmental effects</td>
<td>20</td>
<td>20</td>
<td>20</td>
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<tr>
<td><strong>Total effects</strong> (The Netherlands)</td>
<td>1120</td>
<td>1050</td>
<td>960</td>
</tr>
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</table>
Lessons Learnt: ‘Best practices’

- Unambiguous policy goals & objectives
- Evaluate the merits of available options
- Specification to suit local conditions
- Seek commitment from stakeholders
- Monitor progress & review results
- Appraise performance & regular reporting