SmartRider Project
Mike Somerville-Brown
Project Director
CEIID Knowledge Network
November 2007
Presentation Overview

- **SmartRider** system overview – short video
- Project Concept
- Project Objectives
- Project Stages - Lessons Learnt

- Jan02/Oct02
- Nov02/Oct03
- Oct03/Feb05
- Mar04/Oct05
- Oct05/Apr07

- Concept
- Procurement
- Design
- Delivery
- Testing & Handover

- Project Achievements
- Summary
- Questions
• Current Ticketing System (MultiRider)
  – Needs upgrade
  – Existing system life expired
  – New technology more efficient
  – Smartcards offer improved user convenience

• SmartRider Project
  – Design, Build and Maintain a smartcard system for Perth buses, trains and ferry for up to 20 years
Card Technology - How a SmartRider works

Smartcard

- Plastic
- Chip: Mifare 1K card
- Aerial

Contactless Interface

- Information
- 4 cm Read Distance
- (ISO14443 Standard for Transit)

Reader
Project Objectives
1. Replace MultiRider system
2. Improve customer convenience
3. Reduce fare evasion

Challenges
– Avoid procurement problems of other cities
– Ensure smooth transition to new system
– Engage key stakeholders in project
– Increase prepaid customer usage to 70% of patrons
– deliver operational benefits with new system
– Meet tight project timelines
• Research Smartcards projects in other cities
  ▪ International – Hong Kong, Singapore, Belfast, Stockholm, Rome, Manchester, San Francisco
  ▪ National – Sydney, Brisbane, Melbourne
• Industry consultation
  ▪ Consult major suppliers pre-tender
  ▪ EOI process sought comments during tender phase
• Card & System Branding
  ▪ Establish card design and system name
  ▪ Test card branding during patron trial
### Lessons Learnt

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>SCORE</th>
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<tbody>
<tr>
<td>1. High level Steering Committee chaired by CEO and PTA Division Managers</td>
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<tr>
<td>2. Project team and regular progress meetings established including contractor</td>
<td>✔</td>
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<tr>
<td>3. Build and maintain relationship with Contractor</td>
<td>✔</td>
</tr>
<tr>
<td>4. Small team in relation to other cities – mix of staff and consultants</td>
<td>✔ / ☒</td>
</tr>
<tr>
<td>5. Cross divisional team – Operational and infrastructure delivery areas</td>
<td>✔ / ☒</td>
</tr>
<tr>
<td>6. Need to cope with team turnover</td>
<td>✔ / ☒</td>
</tr>
<tr>
<td>7. Reliance on input and support from large number of internal and external stakeholders</td>
<td>✔ / ☒</td>
</tr>
<tr>
<td>8. Difficulty maintaining project priority in relation to other projects</td>
<td>✔ / ☒</td>
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Timeline

- Jan 2002 – Commence concept design & business rules
- Mar 2002 – Industry Consultation
- Aug 2002 – Expressions of Interest
- Nov 2002 – Tenders Close; commence evaluation
- Jun 2003 – Preferred tenderer Downer EDI/Wayfarer
- Jul - Sept 2003 – Business Requirements Analysis
- Oct 2003 – Contract Award Downer EDI/Wayfarer
• Primary Contract
  • Design, Build and Operate a smartcard system
  • Install ticketing equipment on buses, rail, ferries, bus depots and retail outlets

• Infrastructure Contracts
  • Power and communication infrastructure design
  • Install power and communications at major rail stations (four separate contracts)
  • Install power and communications at minor stations (through USIP program)

• Technical Support
  • Business rules; smartcard systems, audit, contract management

• Ancillary Contracts
  • Marketing and Promotion
  • Signage supply and installation
  • Banking Services & Fund Management
  • Supply, printing and distribution of Smartcards
  • PTA Building Security Access
  • PTA Car Park Vending Machines
<table>
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<th>Lessons Learnt</th>
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</table>
| 1. Probity in tender process  
  DTF chair Evaluation Committee; Probity Auditor and  
  “locked evaluation”                                                       | ✓     |
| 2. Business requirements phase **before** contract award  
  - Confirms Principal requirements & Contractor deliverables              | ✓     |
| 3. Customised Contract Agreement for design, delivery and  
  maintenance phases                                                       | ✓ / ✗ |
| 4. Use of KPIs for operational performance                                | ✓ / ✗ |
| 5. Management of multiple contracts  
  – “turnkey” vs specialisation  
  – interface issues and priorities  
  – Master schedule to be maintained by Principal                           | ✓ / ✗ |
| 6. Principal and Contractor team resources and turnover                    | ✗     |
Timeline

- Jul - Sept 2003 – **Business Requirements Analysis**
- Oct 2003 – Contract Award Downer EDI/Wayfarer
- May 2004 – **Patron Trial**
- Feb 2005 – **Factory Acceptance Test**
SmartRider Design

SmartRider Business rules

• Card types – standard or concession
• Smartcard stores value for fares not number of trips
• Maintains “Zone” fare system using GPS
• Stored value is reloaded as required
• Patrons Tag-on & Tag-off card for each leg of trip
  • Ensures correct fare payment
  • Provides better planning information
• System calculates and deducts correct fare from stored value
• Default fare to prevent “no tags” or “overriding”
• Multiple reload options including Bpay and direct debit
• Multi card use by Seniors, students, employers, etc
• Future
  • Migration path for expansion
  • Distance based fares
  • Small value transactions
This card is a security document and any loss must be reported to the Building Manager.
Stirling Area Patron Trial May 2004

- Limited trial on buses in Stirling area & trains to Perth Station
- 500 selected patrons & employees
- Limited customer information provided
- 79% of respondents were satisfied with the tag-on/off procedure; default fare; & system validators
Rail Stations Infrastructure

Fare Gates layout at major stations

- Single point access preferred
- Ensure safe and orderly passenger flows & operational efficiency
- Meet "crowd" circulation standards & Office of Rail Safety requirements
- Limited "as Constructed’ information for installation of new power and communication network
- Decisions for individual stations based on circulation studies and throughput trials
- Liaison with other projects including CCTV surveillance & signage
Innovations arising from:
- Customer Forum during Concept phase
- Customer patron trail – post survey
- Consultation with Operational staff

1. Multiple reload options
- Transperth Information Offices
- Retail network
- Internet/Phone using Bpay
- Direct debit
- Add value machines at major rail stations

2. Mobile Inspection Unit
- PDA unit – full functionality but requires daily communication link to BOSS
- Lite unit – enquiry functionality only; no communications required
### Lessons Learnt

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<tr>
<td>1.</td>
<td>Stakeholder consultation</td>
<td>✓ / ✗</td>
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<tr>
<td></td>
<td>– customers on key business rules including fare avoidance</td>
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<td></td>
<td>– Operational staff on equipment locations; equipment design</td>
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<tr>
<td></td>
<td>and functionality</td>
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<td>2.</td>
<td>Deliver “core” system <strong>before</strong> further enhancements</td>
<td>✓</td>
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<tr>
<td></td>
<td>– Special student fares</td>
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<td></td>
<td>– Building security access cards</td>
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<td></td>
<td>– Car park payment using SmartRider</td>
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<td>3.</td>
<td>Maintain focus on delivery of key technical specifications</td>
<td>✓ / ✗</td>
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<td>despite project delay</td>
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<td>4.</td>
<td>Phased Implementation allowed</td>
<td>✓</td>
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<td></td>
<td>– Proper focus on key customer groups</td>
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<tr>
<td></td>
<td>– Test system under increasing “load”</td>
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<td></td>
<td>– Management of operational staff capacity</td>
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Timeline

- Oct 2003 – Contract Award
- Jan 2004 – Start stations **power and communications infrastructure**
- Mar - Apr 2004 – Install **patron trial** equipment on buses and two train stations
- Jan 2005 – Complete all **bus** equipment and depots
- Oct 2005 – Complete all **rail** station equipment, barriers and signage
- Oct 2005 – All SmartRider equipment **fully operational**
- Apr 2007 – Decommission MultiRider ticketing system
**SmartRider Delivery**

**Infrastructure, Ticketing Machines & Related Equipment**

**Buses, Ferries, Depots and Retail Network**
- Install communications link at Depots
- Install driver console, validators, GPS and link to Multirider equipment on buses

**Major Rail Stations**
- Install power & communications – separate contractor
- Rail station fare gates, smartcard validators and related equipment
- CCTV surveillance – USIP program
- Gantry signs
- Attendant Booth & Monitoring equipment

**Minor Rail Stations**
- Install power & communications - USIP project
- Procure & install platform processor post - separate contract
- smartcard validators and related equipment
- Signage
Operational Staff Duties redefined

- Transit Guards with Mobile unit
  - Check passengers tagged on
  - Surveillance of ticketing equipment
  - Answer customer queries on system
  - Special Events or as required tag cards on or off

Passenger Ticket Attendants at Fare Gated Stations

- Manual gate & check Cash (paper) tickets
- Supervise fare gates and gate status as required
- Supervise passengers tagged on or tagged off
- Assist passengers who cannot tag on/off
- Answer customer queries on system
- Supervise Add Value Machines (AVM)
- Respond to system faults & emergencies
Operational Plan

• Documentation
  • Policy Notes
  • Technical Notes
  • Final Design documents
  • Operations Manual

• Training
  • Bus drivers
  • Transperth & TransWA staff
  • Transit Guards & Passenger Ticket Attendants
  • Customer Comment Line staff
  • Retail Network staff
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<td>✓ / ×</td>
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<tr>
<td>– Interface issues</td>
<td></td>
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<tr>
<td>– Competing priorities with other PTA projects</td>
<td></td>
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<tr>
<td>2. System specification and standards</td>
<td>✓ / ×</td>
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<tr>
<td>– UK/Europe standards different to Aust – especially electrical</td>
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<tr>
<td>3. Maintain focus on delivery of key technical specifications despite project delay</td>
<td>✓ / ×</td>
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<td>4. Phased Implementation allowed</td>
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<td>– Management of operational staff capacity</td>
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<tr>
<td>5. Insist on Operational Staff input earlier</td>
<td>×</td>
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<tr>
<td>6. Management of multiple contracts – interface issues and priorities</td>
<td>✓ / ×</td>
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Timeline

- Feb 2005 – Factory Acceptance Test
- May 2005 - Factory Acceptance Re-test
- Aug - Sept 2005 – **Site Acceptance Test**
- July - Sept 2005 – **Staff Training**
- Oct 2005 – Control Group Trial commences
- **Oct 05 - Dec 06 – Phased Implementation**
  - Oct 2005 – 2000 participants
  - Jan 2006 – expand to 7000 participants
  - May 2006 – Seniors commence
  - July 2006 – Students commence
- **Apr - May 2006 – Engineering Review**
- **Jan 2007 – Expand SmartRider to public**
  - MultiRider sales cease
  - Dual running of SmartRider and MultiRider
- **Apr 2007 – Decommission MultiRider system**
Phased Implementation – Customer Information

I'm the shape of things to come.

I'm on board now...

...and I'm outta here April 8.

Transperth's new, fast and efficient ticketing system, SmartRider, is replacing MultiRider. From April 8 2007, MultiRider can no longer be used on Transperth trains, buses or ferries. Passengers are encouraged to purchase a SmartRider, available from all Transperth InfoCentres and Retail Sales Outlets. Passengers will remain able to use their MultiRider card until the value is added to a SmartRider Simple Ways MultiRider Transfer Value. From April 8, SmartRider can be added to a MultiRider Transfer Value from all Transperth InfoCentres and on the Transperth website. The only place where you can get on board today is at the Transperth website, or your local Transperth InfoCentre.

Got a question? SmartRider has got an answer!

Type your question here:
Phased Implementation – Jan 2007 onwards

Weekly patronage exceed 1 million transactions on 27 October 2007
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<tr>
<td>- Allow adequate time for retest &amp; between testing phases</td>
<td>✔️ / ✗</td>
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<tr>
<td>- Customer usage &amp; acceptance is ultimate test</td>
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<td><strong>2. Phased Implementation</strong></td>
<td>✔️</td>
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<tr>
<td>- allow proper focus on key customer groups</td>
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<tr>
<td>- manage staff capacity</td>
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<td>- Early marketing involvement</td>
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<td><strong>3. More and earlier attention to interfaces with:</strong></td>
<td>✗</td>
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<tr>
<td>- Finance/Banking</td>
<td></td>
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<tr>
<td>- Related Infrastructure works eg CCTV, IT systems</td>
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<td><strong>4. Earlier involvement of PTA operational staff including Sales Offices</strong></td>
<td>✔️ / ✗</td>
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<tr>
<td><strong>5. Maintain focus on delivery of key technical specifications</strong></td>
<td>✔️</td>
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Transport card plan axed

Focus on myki basics, says minister

By STEPHEN MORTIMAN

A plan for Victoria’s new smartcard ticketing system to double as a cash card has been shelved after Government assurances.

VicTransLink managing director Lynne Gooden said the myki ticketing system would be embedded into all transport systems in the state.

"Our priority is to get the new ticketing system up and running," she said. "Obviously there may be commercial opportunities for the card based on similar systems overseas." 

Hong Kong’s Octopus card remains on trial.

Melbourne Project

Age Newspaper

29 Sept 07

Brisbane Project

Sunday Mail

17 Sept 07

Out of order

EXCLUSIVE

By DARRELL GILES

Troubled public transport scheme dealt another blow

"We make no apologies for setting high standards during the trial. We have not been able to achieve the aims of our customers."

"More than 2000 smartcard readers eventually will be installed on 360 buses and four

Australian Financial Review

NSW, Vic, Qld Projects

6 Nov 2007

Cards still aren’t tickety-boo

Roel LeMay

Out of order technology is absolutely 100 per cent to our satisfaction before we go live.

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**SmartRider Achievements**

- **Australia's first fully integrated**, intermodal (bus, train, ferry) contactless **smartcard system**
- **Australia's first tag on/off system**
- **High Acceptance by customers**
  - 65% usage nearing target of 70%
  - High satisfaction in Annual Customer surveys
- **Add Value using mainstream banking EFT channels**
  - Autoload
  - Bpay
- **Card status enquiries on Internet**
- **Strategic relationships** with:
  - Schools, Seniors, Universities to activate customer groups
  - Seniors Volunteers, and PTA staff to assist early customers
- **Multipurpose card**
  - Students – ID & library card
  - Seniors - entitlement card
  - PTA – ID & building access
  - PTA – Park n Ride payments
System Equipment

- 1080 buses
  - 1080 driver consoles and GPS units
  - 2200 on bus validators
- 22 bus depots with radio LAN systems
- 70 rail stations
  - 130 platform validators
  - 90 automatic gate arrays
  - 12 enquiry devices
- 30 add value machines
- 110 PDA inspection units
- 500 Lite Inspection units
- 30 PCs for Monitoring System
- 3 System servers
- PTA Test Centre
- 4 Transperth Information Offices
- 50 Retail Outlets
- 600,000 cards distributed
Summary

- Budget
- Timeline exceeded
- High level support essential inc Minister
- Sufficient research and planning with customers, industry and stakeholders
- Stick to “core” functionality
- Implement enhancements that add value
- Staged Rollout
- Testing program
- Engage Operational staff earlier
- Contractor relationships
- Project team turnover

Concept Procurement Design Delivery Testing & Handover
SmartRider Project

Close