Podcar Applications for Airports

How to improve level of service while lowering costs

Presented by:
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Outline

• Parking shuttles
• Shuttle consolidation
• Shuttle bus comparison
• In-concourse
• Terminal-to-concourse
• APM comparison
• Reinventing airports
Parking Shuttles

- Heathrow
- Greenville
- Denver
Heathrow International Airport

- Rave passenger reviews
- Replaced 70,000 annual bus trips
- Planned for expansion
Greenville-Spartanburg International Airport

- No present shuttle service
- Passengers walk up to 500 m
- Conceptual investigation of podcars & autonomous shuttle with Ingmar Andreasson
- New study to investigate 30-year life cycle with on-and off-airport expansions
Alternative 3

10 MPH ELEVATED
10 MPH AT GRADE
25 MPH ELEVATED
25 MPH AT GRADE
STATION
Denver International Airport
PRT - shuttle bus comparison

- Higher level of service
- Higher revenue
- Higher capital cost
- Same or lower operating cost
PRT - automated people mover comparison

- Shorter trip time
- Guaranteed seat
- One seat ride terminal to gate vicinity
- One third to one half the capital cost and space
- Same or lower operating cost
- Same capacity (may require double guideway)
Reinventing airports
On-board check-in
Remote security screening
Automated airport terminal

- Three-level terminal with integrated PRT
- PRT Guideway with aircraft boarding stations

Credit: T.Y. Lin
3-Level Integrated Terminal

Credit: T.Y. Lin
In-terminal PRT

- 3rd level: Airline clubs, high-end concessions, PRT
- 2nd level: Boarding (contact gates), concessions
- 1st level: Boarding (PRT) – not shown
PRT station at each aircraft

- Concourse with integrated PRT
- Aircraft boarding stations

Credit: T.Y. Lin
Aircraft boarding station for A380

Credit: T.Y.
Aircraft boarding station

- Links guideways to boarding bridges
- Covered (enclosed as required)
Aircraft boarding station
Optimization opportunities

25% Capital Cost Savings

30% Operating Cost Savings
Caveats

- Each airport application is different
- Detailed simulation and design is required
Conclusions

- Podcars are a good shuttle bus alternative
- Podcars could replace automated people movers in many instances
- Podcars could allow airport operations to be more efficient and cost effective