

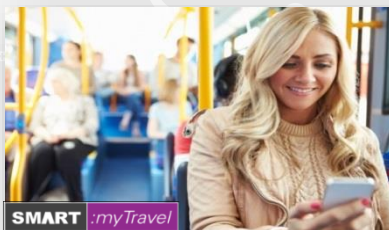


Ruter supplier conference Passenger Counting

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SMART...Smart Mobile Applications for Real-time and Ticketing

- Leading Nordic ITS supplier
- More than 20 years of success in the business
- HQ in Trondheim, offices in Oslo, Sweden, Finland, Denmark and Poland
- 102 employees



Strong position in the Nordics



How we count passengers

- **Ticket sales**
 - pros: already in place in most places
 - cons: precision. Requires approximations only
- **Door sensors counting**
 - stereoscopic camera or infrared
 - pros: precise counting
 - cons: expensive and only few suppliers of the sensor technology
- **Detection of Phones or Tags (BETA)**
 - Using iBeacons, WiFi and BlueTooth to detect passenger flows
 - pros: inexpensive, no need for expensive sensors
 - cons: depending on phones/tags. People without will not be counted



Ways to move forward #1

- Q: How should Ruter move forward in order to achieve a future model
 - Using the recommendation and interfaces suggested from ITxPT
 - Make exchange of data via standard interface the central element - not the platform itself.
 - FARA have already implemented an open, service oriented architecture with open interfaces and shared functionality for 2.200 vehicles in Helsinki (customer requirement)
- Q: What considerations are important to make regarding the acquisition of a future-oriented solution for passenger counting?
 - A: must not be dependent on existing installations, but can re-use data if they are made available in standard interfaces
- Q: What different solutions and delivery models for passenger counting should be considered, and which are preferred?
 - Sensors are the most precise, but points should be given for innovative solutions using existing phones

Ways to move forward #2

- Q: How can Ruter utilize counting data as a customer information element?
 - Capacity Management (Real-Time and historical) and avoid full buses before it happens
 - Availability checking and guaranteed seating
 - Compliance to schedule using optimized schedule planning based on passenger movement
- Q: What do you consider important that Ruter do, and how, in order to make it possible/interesting for you to participate in such a tender?
 - Use of standard interfaces
 - Award innovative solutions (maybe as alternative)



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