City of Vantaa
New Plans and Projects

**Smart Mobility for Better Cities Conference**
12 May, 2011

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Project Engineer
Marja-Vantaa project
City of Vantaa has been a forerunner in Finland in studying of new solutions for better mobility

**Automated People and Goods Mover (APGM):**
A feasibility study of APGM-system in Aviapolis area next to the Helsinki airport

**CityNetMobil:**
City of Vantaa has been a member in a reference group of CityNetMobil project. The objective has been to study use of electric driverless cybercars in public transportation (CityMobil and CityNetMobil projects funded by the EU)

CityMobil - Future Mobility Solutions Conference and a showcase of cybercars in May 2009 in Vantaa
Sustainable Marja-Vantaa
Promoting new traffic innovation

Showcase in Vantaa in May 2009
Showcase route in Tikkurila, Vantaa
The Main objectives of the showcase

The showcase focuses on

1. exploring how a new type of automated transport systems can be used in urban traffic,

2. arising common interest and debate in the Finnish media into new technological possibilities in urban transportation,

3. demonstrating to local inhabitants and specialists a new set of technological solutions applicable to public transportation.

4. asking passengers’ experiences of use of Cybercars by a questionnaire.

5. organising a CityMobil conference especially for Finnish traffic and city planning experts.

6. organising an CityMobil information meeting for local inhabitants

7. presenting fully automated Cybercars in operation

8. organising a safe route where to present Cybercars in action
Comments in questionnaire in Vantaa

Comments which arose in Vantaa in questionnaire:

- Does it work in winters? Winter circumstances
- Vehicles must have doors!
- Better seats, Safety belts, Vehicle with TV and radio
- The vehicle were too light, heavier vehicles needed
- Speed of the vehicle, now they were very slowly ones
- More space in the vehicle for shopping and luggage besides passengers
- How does it work in areas outside signal covariance as between high buildings?
- Fear of vehicle in function, as does it stop when wanted and go where you want if you change your mind.
- Privacy in cybercar to avoid unwanted passengers/ neighbours
- Availability any time of day
- Help service when the vehicle stop on the road
- Speed of calling services
- Helsinki regional ticketing system must be valid also in cybercars
- Fear or vandalism
- Voice control system
Open questions after the showcase

• How will the transportation system be developed in the future?
  (Public) transportation system in the future and sustainable development/climate strategy

• What kind of automated system (GRT, PRT, AAC) would complete existing public transportation?

• Are driverless electric cars technically possible in Finland?
  Technical possibilities and requirements of automated electric vehicles in Finnish weather circumstances

• Can we change our habits of travelling?

• How can we win different kind of barriers?
  Barriers in people’s mind
  Technical and environmental barriers
  Legal, economical and political barriers
Ongoing Syöksy-project

Name of the project: Electric Vehicles in Ring Rail Line feeder services and in other station area transport services (SYÖKSY)

Applicant:
- Helsinki Metropolia University of Applied Sciences (vehicle technology)

Other research partners in the project:
- Tampere University of Technology (transport system and land use planning)
- The Aalto University School of Science and Technology, Centre for Urban and Regional Studies (YTK) (social sciences, user aspect)

Budget 530 000 €

Funding programme: 60 % Tekes – the Finnish Funding Agency for Technology and Innovation, Sustainable community programme 2007-2012

Other major funding sources: City of Vantaa / Vantaa Innovation Institute Ltd, Helsinki Regional Transport Authority (HSL), Vantaa Energy Electricity Networks Ltd, Shopping Centre Jumbo, Itella Ltd, Hermia Ltd, Ensto Ltd, and European Batteries Ltd

Timetable of the project: April 2010 – October 2011
Goals of Syöksy project

To develop a modern sustainable transportation system for the Ring Rail Line feeder traffic and other short-distance trips in two development areas: Marja-Vantaa and Aviapolis area.

A modern sustainable transportation system
- which bases on electric or other vehicles with low-CO2 level
- which supports the traditional public transportation system and provides a realistic options for use of private cars in city traffic
- which promotes planning new type of transport services with infrastructure needed
Goals of Syöksy project

To develop a sustainable concept
- that acts in between traditional public transportation and private cars
- and which can be duplicated into all the Ring rail line station areas and other areas both locally and internationally.

- To test both charging technology and service applications in small-scale pilot projects
- To assess impacts of the different transport service concepts on traffic demand, travel habits, city structure, land use and location of activities.
Syöksy project
Three main focus areas

User-driven transport system planning

- Developing guidelines for user-driven transport system planning.
- Identifying user friendly transport system in pilot areas.

Transport system planning

- Most suitable public transport system in the future.
- Impacts on land use planning as on street planning.

Needed technology

- The needed vehicle technology and technical infrastructure.
- The business concepts supporting the system.
- Testing: Small-scale piloting and testing is done during the project.
Time perspectives of Syöksy project

The Project has two time perspectives:

- **Short term**: A solution which could be implemented by technology known today.

- **Long term**: A vision for the future (2030-2040) solutions, which may help you to understand in what kind of solutions you must be prepared in planning of new residential and working place areas.
Research objective

- Study and develop user-driven approach on public transport concepts

Benefits of the user-driven approach

- Support implementation of usable solutions
- Reduce the resistance for new technologies
- Promote the adoption of new sustainable lifestyle

For the users this means:

- possibility to participate and affect planning
- convenience and comfort services
- appropriateness (new product / service meets the user need better than previous applications)

Material

- Survey on commuters visions and anticipation
- Inhabitant workshop for developing transport concepts
<table>
<thead>
<tr>
<th>Developed service concepts</th>
<th>Call-a-bus Service</th>
<th>Shared electric vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pros</strong></td>
<td></td>
<td></td>
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<tr>
<td>• Tackling the private car use (e.g. from shop to home)</td>
<td></td>
<td>• Tackling the second car</td>
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<tr>
<td>• Call a bus for children’s leisure travel, would be safe and easy solution for ‘taximamas’</td>
<td></td>
<td>• Possibility to use environmentally friendly car without having to invest on it.</td>
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<tr>
<td>• Lower maintenance cost</td>
<td></td>
<td>• Lower maintenance cost</td>
</tr>
<tr>
<td><strong>Cons</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Need for anticipation and time management</td>
<td></td>
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<tr>
<td>• Mischief of the vehicle</td>
<td></td>
<td>• Sharing is socially demanding (possible contradictions on the level of tidiness etc.)</td>
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<tr>
<td>➢ New services should be integrated in present city structure, and also to existing services like internet based journey planner in order to be easy to use.</td>
<td></td>
<td>➢ In order to overcome the private car dependency, new car sharing services should be flexible (e.g. easy to reserve) and cheap.</td>
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</tbody>
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Tampere University of Technology

Service models

1. Car sharing
   - customer segmentation
   - car leasing, ownership and management models
   - location of parking

2. Transportation call on demand
   - operating principles
     - demand guided bus transportation
     - demand guided car traffic
     - passengers can pre-book a transportation from home to f.ex. railway station or shopping centre
   - customer segmentation
   - organizational models

3. Service routes
   - a service model of combination of regular bus transportation with timetables and demand guided transportation
   - a travel chain with an access free of obstacles
   - customer segmentation (elderly, the disabled, children, clients with large shopping bags)
   - organizational models
   - bus concept

4. Possible other service models
   - electric bicycles
Charging technologies, charging of EVs and effects of the charging on the quality of electricity in the facilities

- Reactive power may increase and harmonic waves worsen electricity quality when the amount of EVs to be charged at the same time is increasing

Piloting of EVs at the use of employees of the science and technology park Vantaa Technopolis and at the use of local residents of Vantaa Pakkala

- Analyzing work is ongoing
- Environmental friendly shared car could be a part of companies policy and the only car of the family if public transport is well organized and the environment supports walking and cycling
Testing of hybrid bus on the local route from Tikkurila, Vantaa to the airport

- Remarkable reduction in noise level, fuel consumption much lower and less CO\textsubscript{2} emission when comparing to the diesel engine buses
- Good passenger response

**Perceived noise level when the hybrid bus was leaving a bus stop**

- no opinion
- much noisier
- noisier
- no change
- quieter
- much quieter
Show room interviews at Shopping Centre Jumbo
- Over 60% of car owners are considering to buy an EV not earlier than 2020
- 25% might pay no extra and 50% not more than 5000 € extra for an EV
- In every day run the EV range of 100 – 150 km is enough

On going studies:
- PPP in public transport in Aviapolis
- Park and ride for cars and bicycles at Ring Rail stations
- Logistics cooperation of the stores in Jumbo
- Payment of charging at public places and car parks
- Logistics survey in Aviapolis
Ring Rail Line connects local urban rail to the main rail through the airport

Length 18 km
In tunnel 8,1 km

- 2-track passenger line
- part of traffic network system
- railway to the airport
- in 30 min from Helsinki to airport
- change to long-distance trains in Tikkurila
Pilot areas of Syöksy project
Marja-Vantaa - a new large development area in the city of Vantaa
Aviapolis – next to the Helsinki airport
Promoting Car Sharing

Helsinki Region Transport has launched in April a three-year-project to promote Car Sharing system in Helsinki Region. City of Vantaa is involved in the project.

Four themes of the Car Sharing project:

1. **Parking**: Parking allocation, pricing and permits. Marking, guiding, road signs, monitoring of parking places. Assessment of new parking places for shared cars

2. **Public organisations**: How to promote public organisation to use car sharing system instead of permanent car rental, when the use of rental car is occasional? Procurement procedures and so on.

3. **Land use planning and building**: Parking policy, guiding of developers, sustainable construction

4. **Information and marketing**: E-services, connection with other services, information and advice, and later a marketing campaign
Are driverless cybercars already in use in Finland?

A driverless car was running in Helsinki.

"Both of them says that he is driving this car."

Former Prime minister

Minister of Finance