TANGO Collect
Kilometre Charges for Heavy Goods Vehicles
The Swedish Approach

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Background TANGO Collect

- The European systems for charging heavy goods vehicles are currently undergoing a change towards distance based charging
- The Swedish transport policy
- Access to more sophisticated technology
  - cost for telematics is decreasing and the positioning and digital map functions are getting better
- Innovation potential connected?

The Swedish Transport Policy

- Future focus will be on achieving increased implementation of charges to contribute to development of a long-term sustainable transport system.

  1. Charges for financing infrastructure investments
  2. Charges as demand management tool
 3. Charges for internalisation of external effects

Swedish road characteristics

- Large road network
- State owned: 98 000 km
- Owned by local municipalities: 37 000 km
- Privately owned: 294 000 km
- Few roads of motorway standard
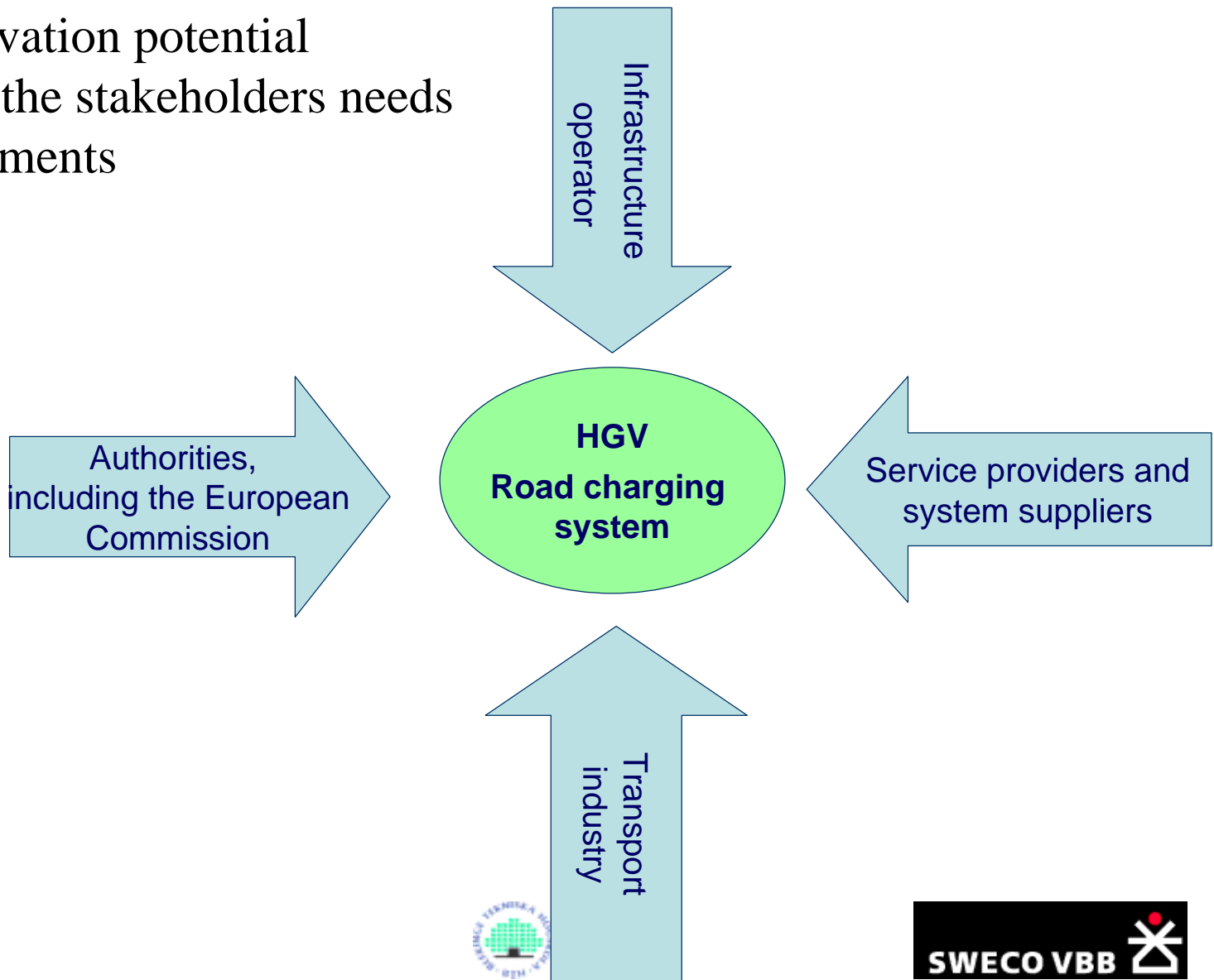- Many border crossings at remote places

What is happening in Sweden right now?

- 1 existing project with tolling – The Öresund bridge ⬤ (yellow)

- 2 planned projects
  - The Svinesund bridge ⬤ (red)
  - Stockholm congestion charging ⬤ (red)

- Discussions on tolling for financing motorways ⬤ (blue)

- Progress Demonstration project ⬤ (green)

- 1 coming introduction HGV charging 2008
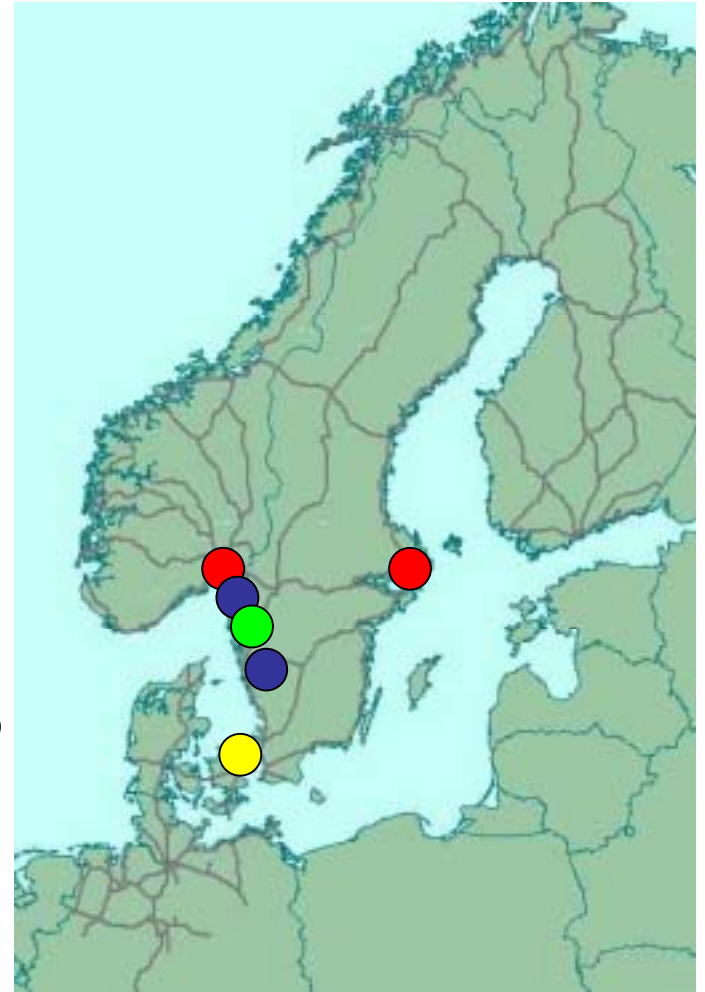
The view of Tango Collect: future distance based road charging system is not an isolated phenomenon
but an innovation potential
respecting the stakeholders needs and requirements

Infrastructure operator

Authorities, including the European Commission

HGV Road charging system

Service providers and system suppliers

Transport industry

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- **Traffic management**
  - Concentration of the heavy goods traffic to a main road network
  - Modal shift
- Improved security
  - Tracking of hazardous goods
  - emergency calls
  - Intelligent speed adaptation.
- **Information**
  - Infrastructure
  - Traffic situation
  - Navigation
- **Data collection**
  - Floating car data, collection of travel times for creation of a "reliability index".
  - Statistics to be used as planning support, i.e. number of trucks, type of goods, speed profiles, short/long trips
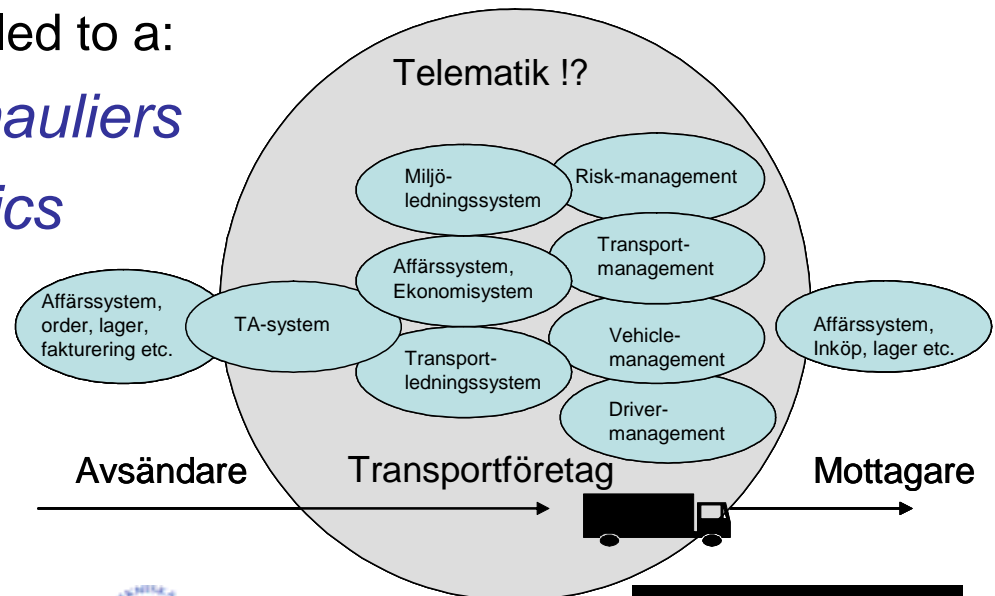
Swedish Road Administration

Main network for heavy goods vehicles

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The Swedish transport market – an overview

- Sweden about 74.000 trucks have a total weight above 3,5 ton
- 87% the transport work is carried out in Sweden
- sophisticated systems are used at the back office, while limited communication is performed with the individual trucks
- High amount of different IT systems available on the market
- Mainly closed system.
- Lack of standards has led to a:

low willingness among hauliers

to invest in telematics

Telematik !?

Miljö-ledningssystem

Risk-management

Affärssystem, Ekonomisystem

Transport-management

Affärssystem, order, lager, fakturering etc.

TA-system

Transport-ledningssystem

Vehicle-management

Affärssystem, Inköp, lager etc.

Driver-management

Avsändare

Transportföretag

Mottagare

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Hetrougenous market in respect of telematic usage and types of business

- Applications and services needs to be customized
- Easy to understand and use
- Open platforms that enables added value services. Examples of requested services:
  - *Traffic and weather information*
  - *Communication with the back-office, e.g. transport bookings*
  - *Navigation support based on real time traffic and infrastructure information*

"Give us technology that supports us – not control us"

- New technology opens up for increased control

- Traffic safety is a priority

- Everyone should pay
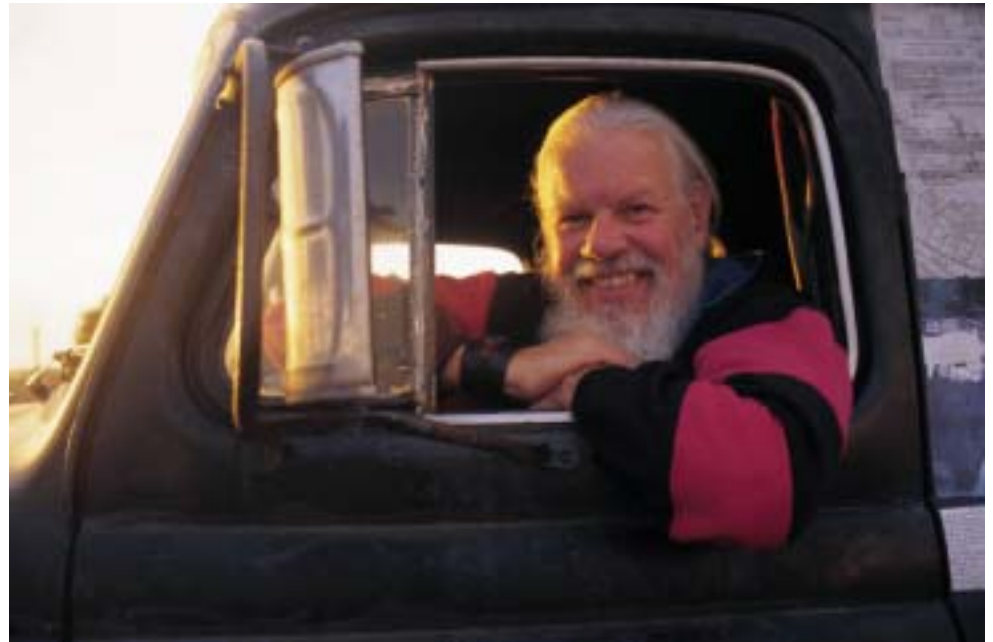
Service providers and system suppliers require win-win-win solutions

- Define how existing systems can contribute
- Ensure that new technology can replace old and that different generations of technology can exist in parallel.
- Go for open technology development, stepwise and with scalability
- Find a billing system that can handle small transactions
- Provide a functional system specification as soon as possible enabling development, production, testing and demonstration.

Summarising the stakeholders requirements

- Respect the view of the end-user – a system for distance based road charges for heavy goods vehicles should be easy to use, transparent, safe and protect the integrity of the users

- Open up for innovation and development by providing a functional system specification at an early stage.

- The system specification should be based on well defined interfaces to enable connections with other applications.

- Support commercially added value applications thus enabling larger acceptance by the end users.

Summarising the stakeholders requirements

- Support the authorities with regard to traffic management and other areas, i.e. improved traffic safety, tracking of hazardous goods, environment and capacity.

- Enable charging means that answers to different types of users, i.e. from low-tech to high-tech solutions.

- The system has to be interoperable with other electronic road tolling systems as well as with other Swedish charging systems (tolls for bridges, future congestion charges, etc).

# "The outline" for the system architecture
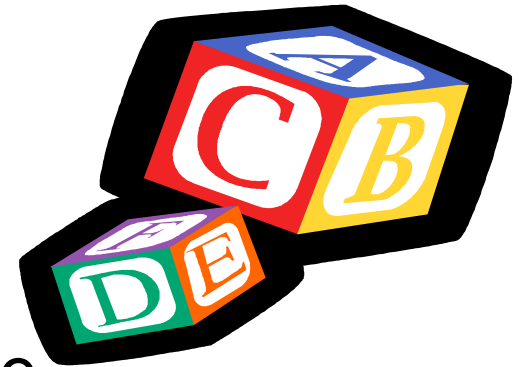
- Functional solution!
- Minimise functionality in the vehicle
- Allow several methods for declaration of route (OBU/ Terminal/ Internet)
- The same route shall always give the same fee!
- Integrity should be protected through using a trusted agent handling all authority contacts
- Allow for additional services (commercial / security / safety)

Recommendations!

1. Continue building the stakeholders´ network!
2. Get the technology to work! Establish a test site!
3. Communication, communication, communication! Discussions, articles, seminars etc…
4. Sweden should take an active role in the expert committy for EFC so the Swedish charecteristics are taken into account!
5. Team up with other countries having the same prerequisites for reaching robust and interoperable solutions.
6. Take the integrity aspects into account when searching solutions!

The way forward is a national arena on HGV Road Charging

- A discussion forum and contact node for national and international actors.
- Stakeholders involved can meet and interact, thereby facilitating the process to a full-scale implementation.
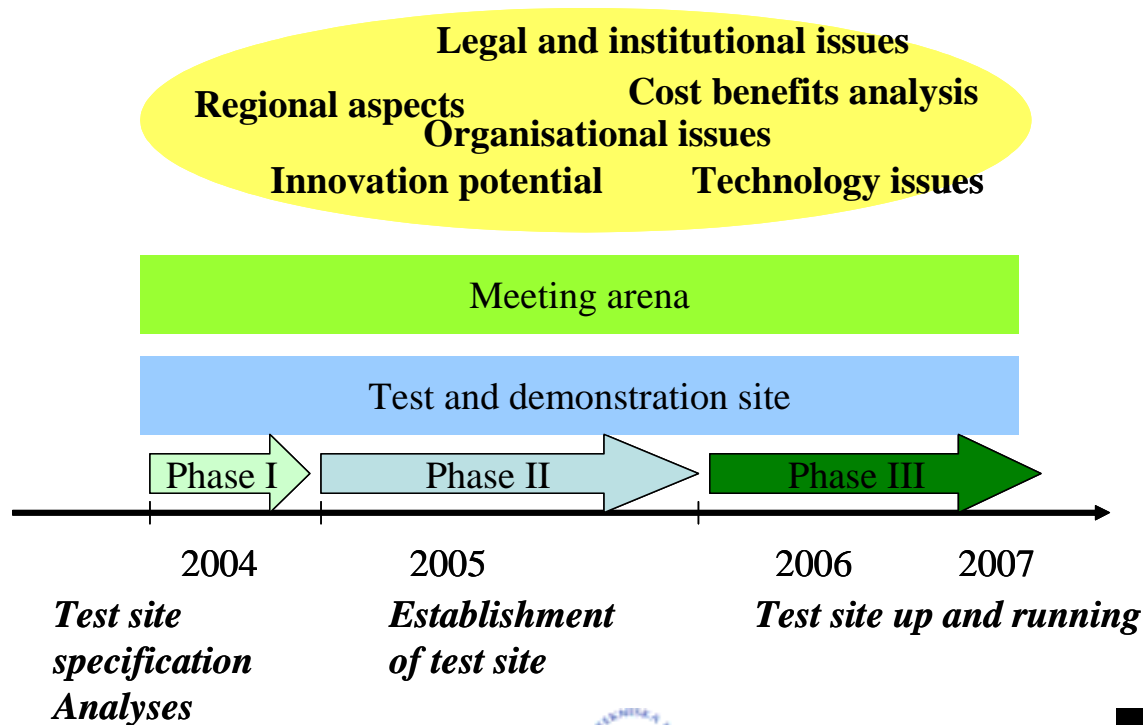
Next tasks for the arena

- Provide a functional system specification including enforcement issues.
- Provide required building blocks, e.g. price list, digital road network
- Suggest solutions for the institutional and organisational framework
- Investigate innovation potential, value chain and business models
- Provide a test and demonstration site

Conclusions

- Swedish transport policy reflects EU principles

- Swedish road network characteristics demands suitable solutions

- Strong belief in simple technical and administrative solutions, preferably off the shelf technology

- Sweden active in European groups on development, implementation, standardisation, Interoperability, etc

- Sweden creates a national arena on HGV Road Charging

- You are all welcome to participate!