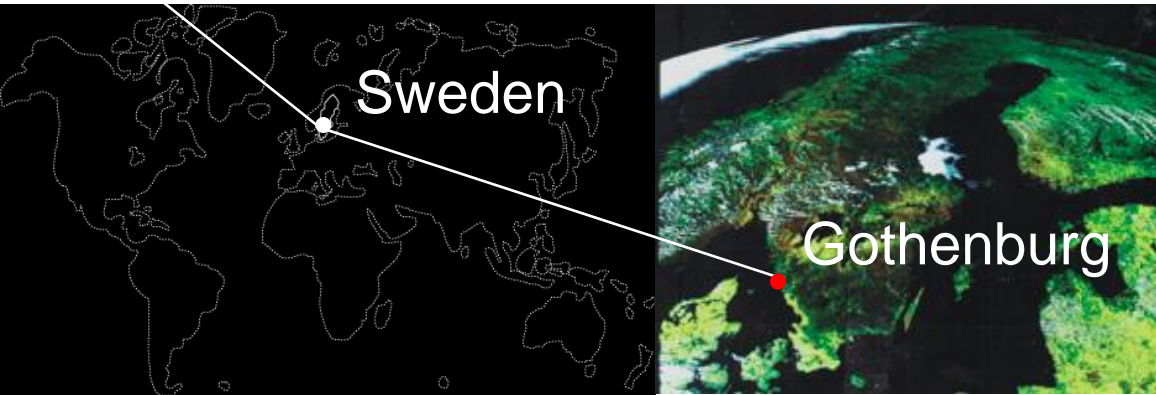




**CHALMERS**  
University of Technology





... situated on the beautiful  
west coast of Sweden  
... with two pleasant campuses  
in the centre of Gothenburg



Gothenburg,  
Sweden's second largest city,  
with 500 000 inhabitants...

...and Scandinavia's largest port for  
unitized freight!





# VISION & MISSION

## **VISION**

Chalmers – for a sustainable future

## **MISSION**

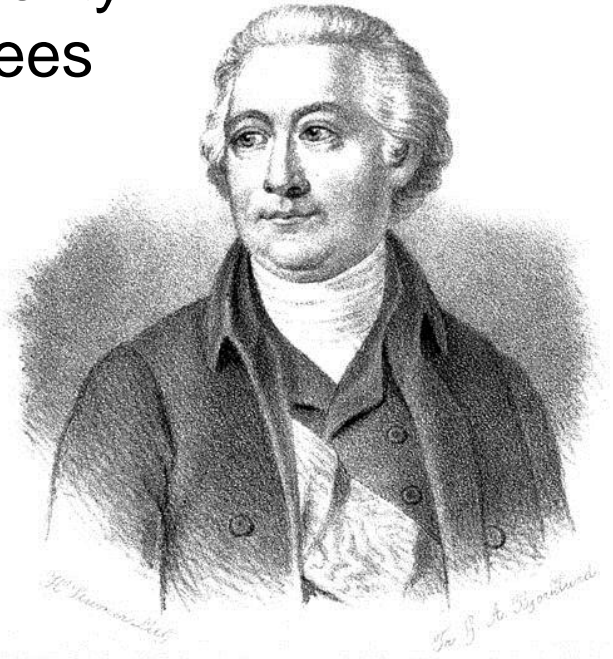
Through internationally acclaimed education and research combined with a professional innovation process, Chalmers' mission is to become one of the world's most attractive universities.

# History in brief

**1829** Chalmersska Slöjdeskolan is founded by the will of William Chalmers

**1937** Chalmers becomes a governmental university with the authority to award doctoral degrees

**1994** Chalmers becomes a private university, owned by a foundation



# Collaboration with Industry

– some examples

- Collaboration with industry – over 10 % of annual turnover
- Continuing professional development – MSEK 70 yearly
- 185 PhD students employed by industry
- More than 400 companies have started within the Chalmers Innovation System since 1998
- Three science parks on two campuses
- Four Vinnova Excellence centres
- Swedish Shipowner's Association – research and education in Shipping and Marine Technology (Lighthouse)
- SAFER – vehicle and safety centre
- SHC Swedish Hybrid Vehicle Centre
- Vattenfall AB – The Alliance for Global Sustainability (AGS)
- Volvo Group – research in vehicle electronics, vehicle safety and environmental issues

# Areas of advance

**Chalmers has eight areas of advance where the aim is to bring together research, education and innovation across departmental boundaries and to co-operate with bodies and organisations outside Chalmers.**

- Built Environment
- Energy
- Information and Communication Technology
- Life Science
- Materials Science
- Nanoscience and Nanotechnology
- Production
- Transportation

The eight key areas also have a firm foundation in the basic sciences. Sustainability, innovation and entrepreneurship are strong driving forces.

# Northern Lead

Northern LEAD coordinates and supports logistics research at Chalmers University of Technology and University of Gothenburg in order to increase volume, quality and relevance of the research



# Tomorrow's logistics. We are finding the answers.

**More than 80 researchers**

**Research centre for sustainable  
logistics solutions**

**Five core research groups**

**Organises, facilitates, disseminates highly  
relevant logistic research**

**Collaboration between  
Chalmers and University of Gothenburg**

# Core areas

Business relationships and network  
Purchasing and supply networks  
Distribution structures and strategies  
Manufacturing planning and control  
Materials handling  
Intermodal transport  
Mathematical optimisation  
Transport and logistics services  
ICT/ITS



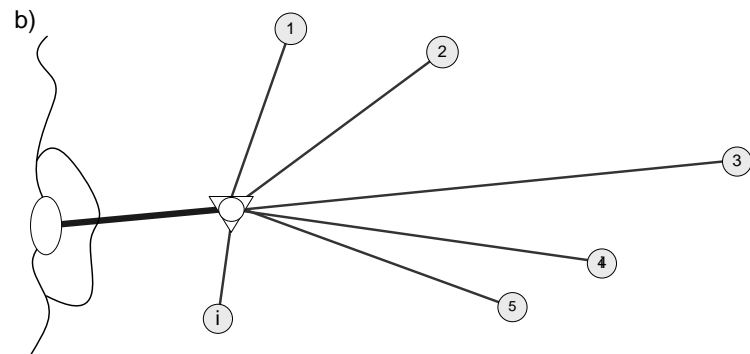
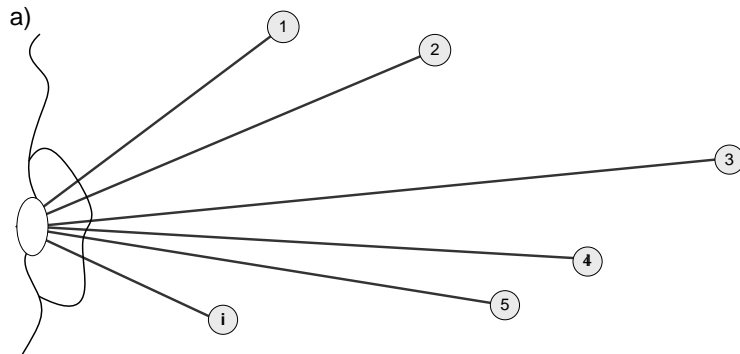
# Some research projects

- Dry port (EC-funding)
- Foliated Transportation Network (Industry)
- Segmented freight transports using ITS to create sustainable solutions (Swedish Traffic Administration)
- Efficient transport: Improving customer service, reducing the environmental impact using ICT (Swedish dept. of Energy)
- Roadmap - ITS-Council of the Swedish government

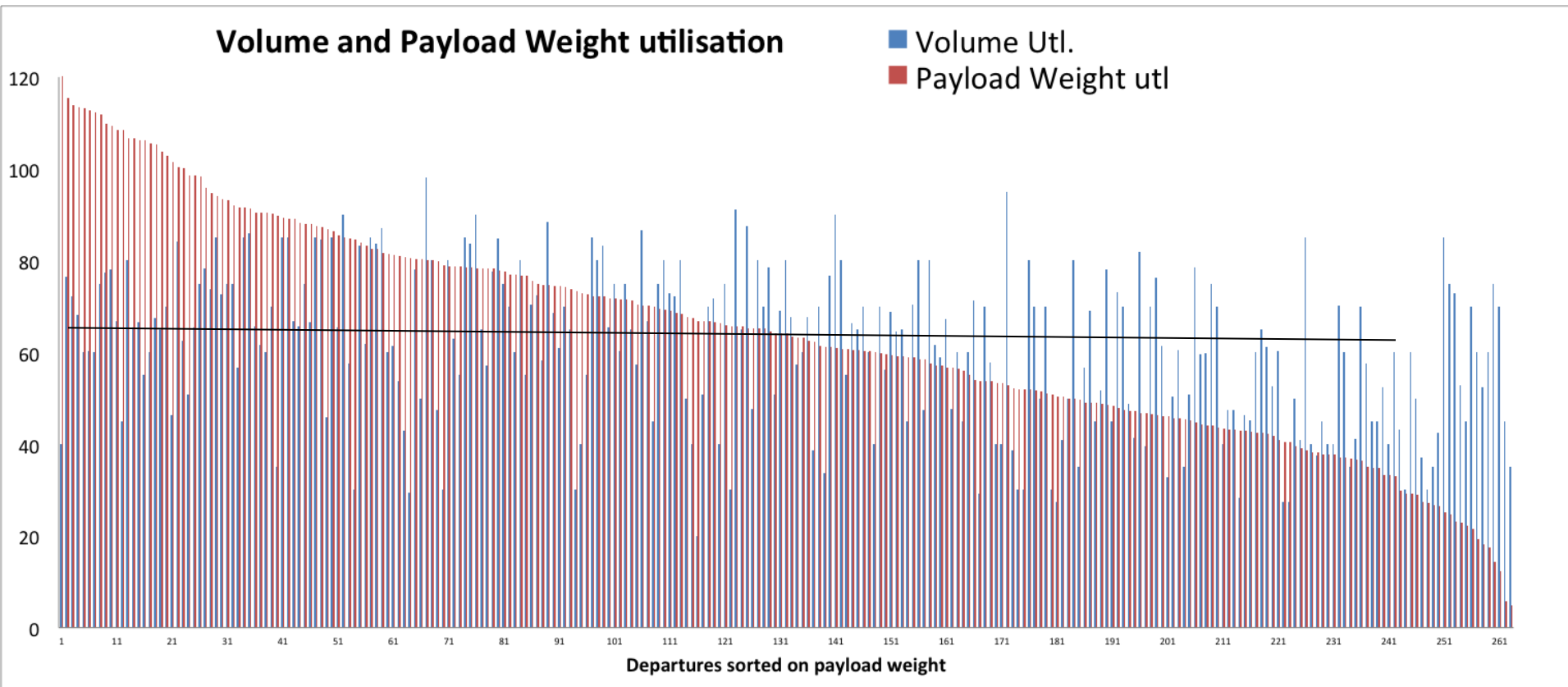
# The dry port concept

A dry port is an inland intermodal terminal directly connected to a seaport by rail, where customers can leave and/or collect their standardised units as if directly to the seaport

Services that are usually available at a seaport (customs clearance, maintenance of containers, forwarding, depot, etc.) should be available at a dry port as well.



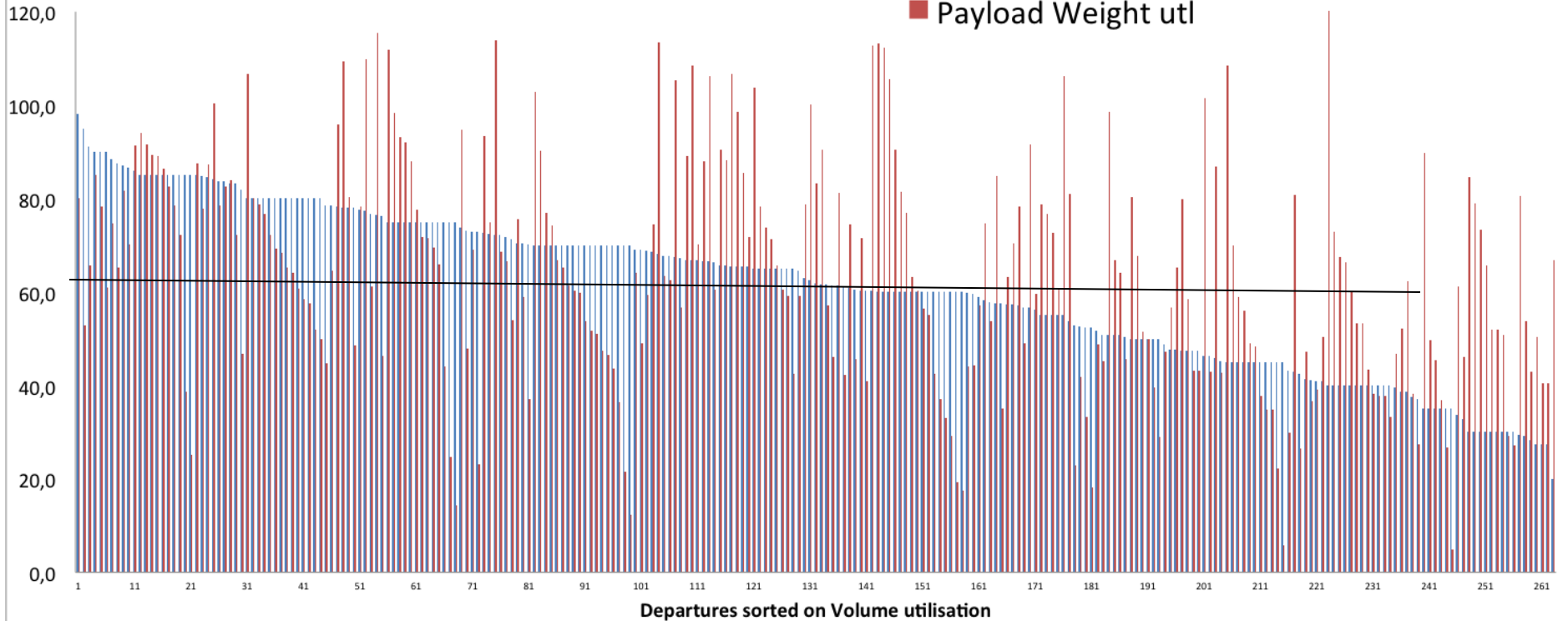
# 264 departures



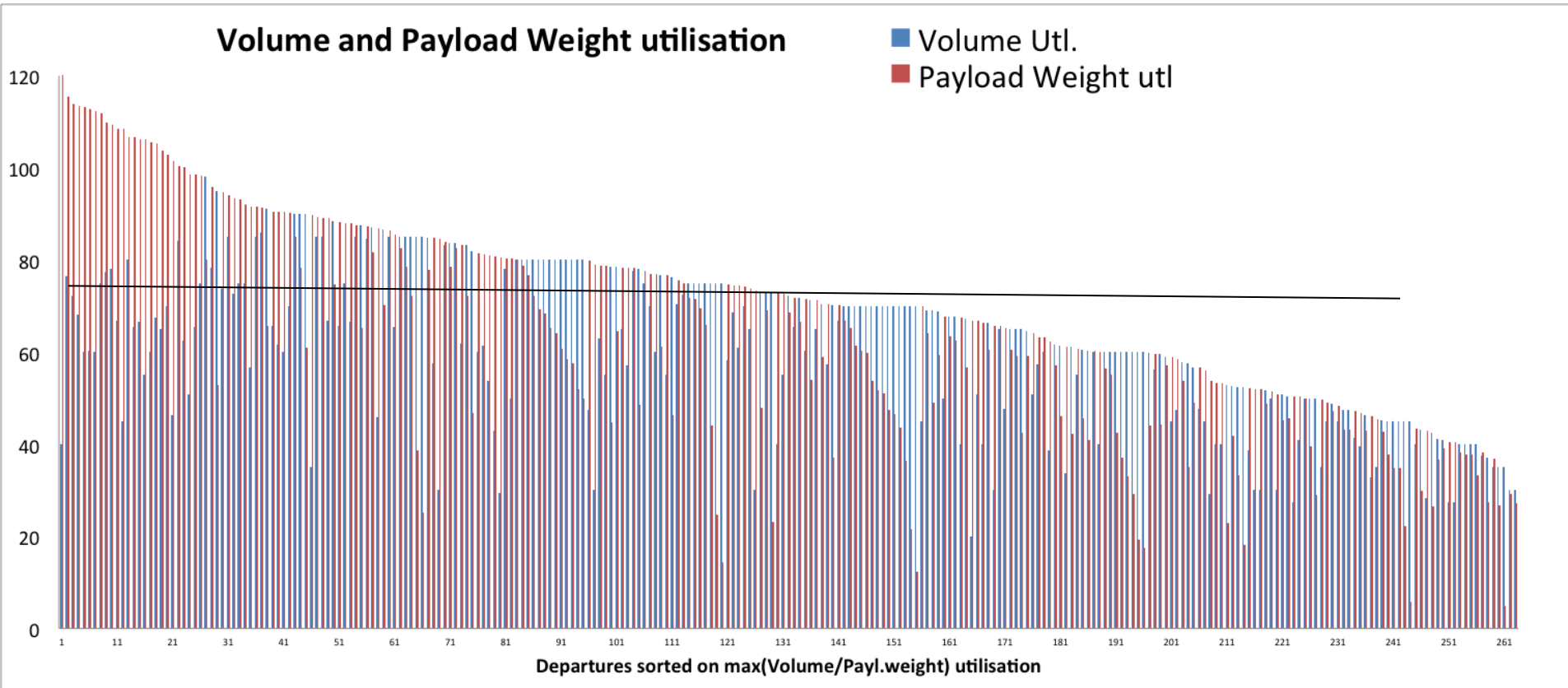
# 264 departures

**Volume and Payload Weight utilisation**

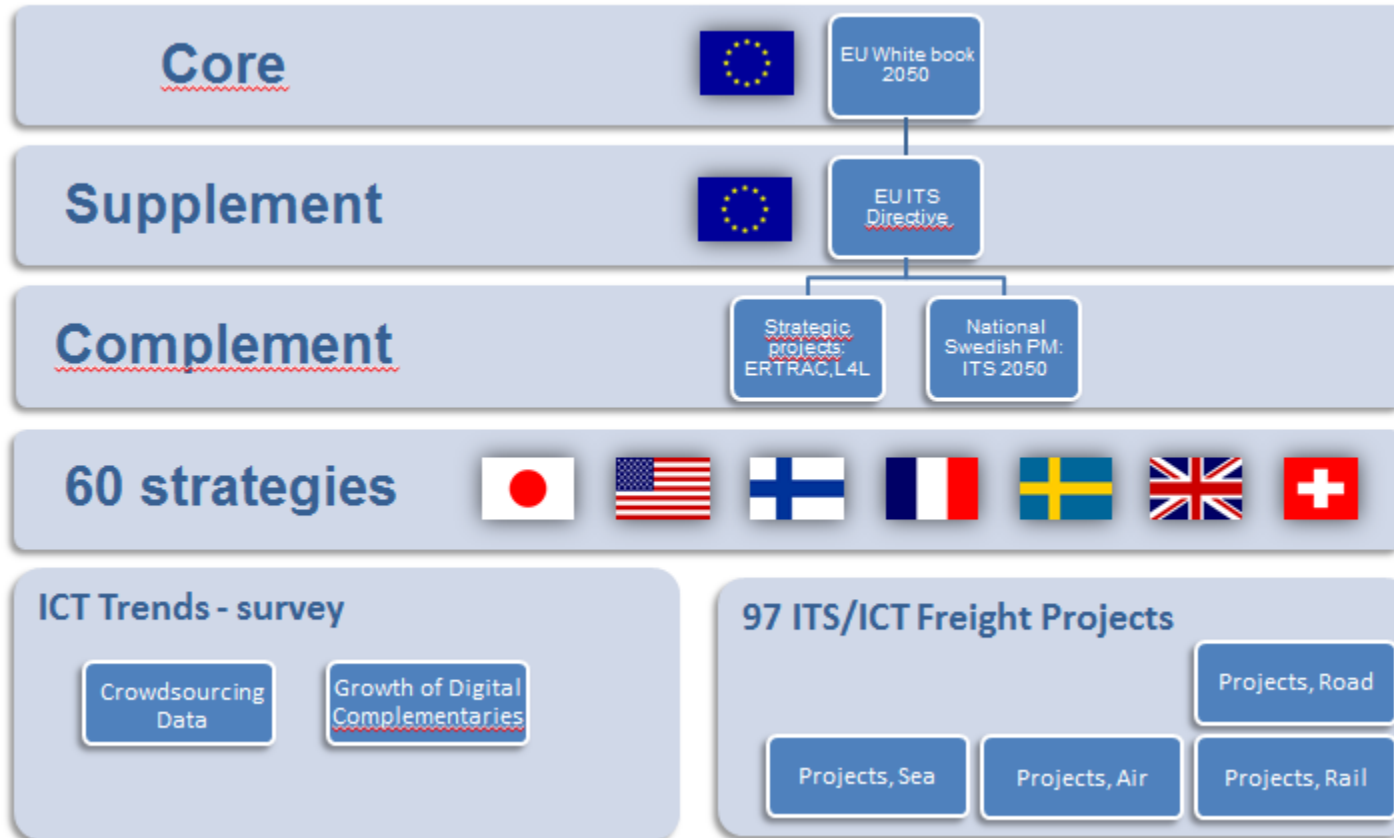
■ Volume Utl.  
■ Payload Weight utl



# Sorted on Payload weight and volume depending on maximum utl. $f_{\max}(\text{vol}, \text{weight})$



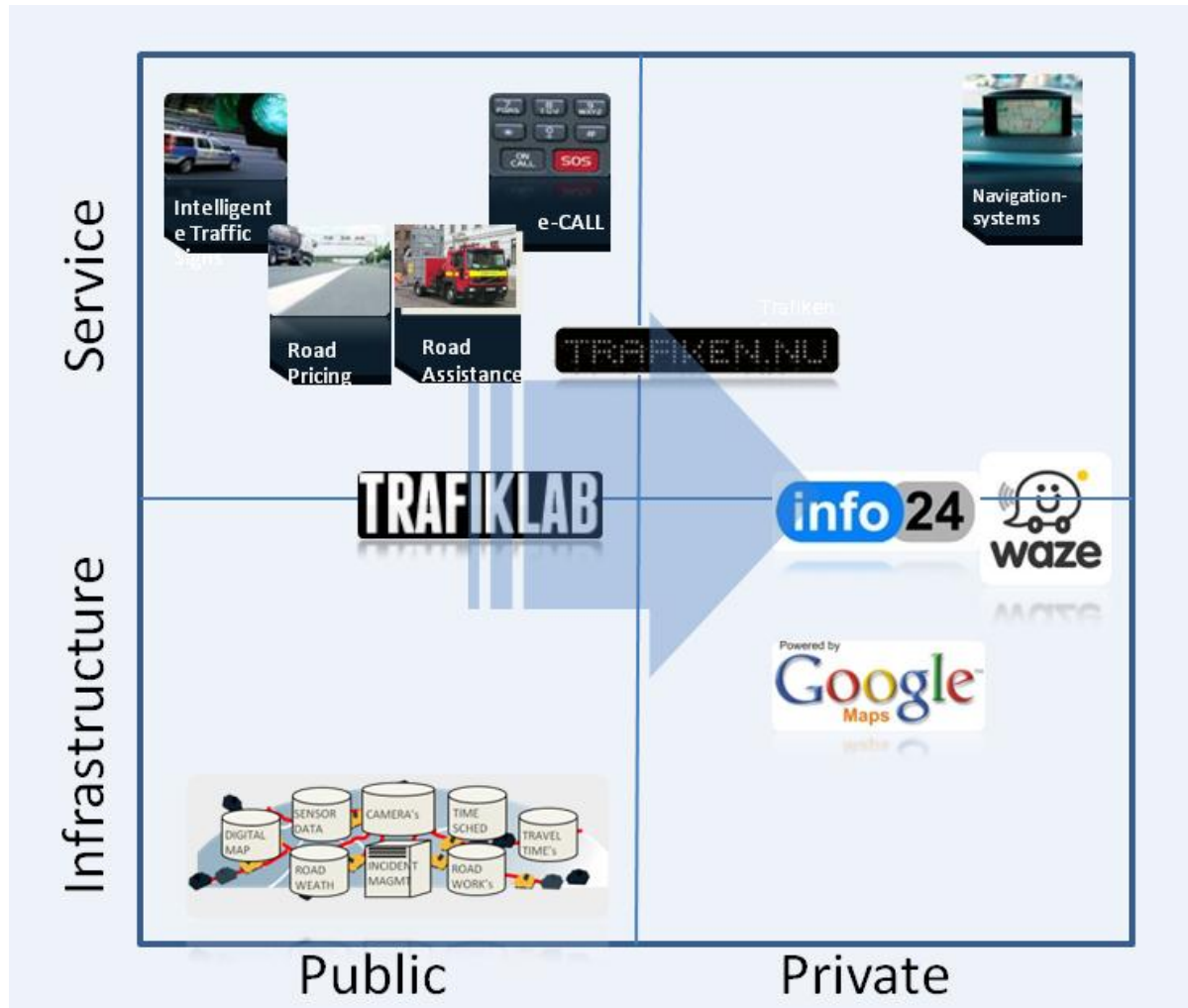
# ITS Freight Roadmap - Scope



*ITS Freight Roadmap of the Swedish ITS Council –  
Henrik Sternberg & Magnus Andersson (2012)*



# ICT/ITS Trends





*”Toppapp! Waze slår både Trafikverkets (uselt inaktuella) TMC och kartleverantörernas glesa uppdateringar.”  
(Google play, User: Bildrullen, 2012-08-*

your lanscape at a glance

zone overview

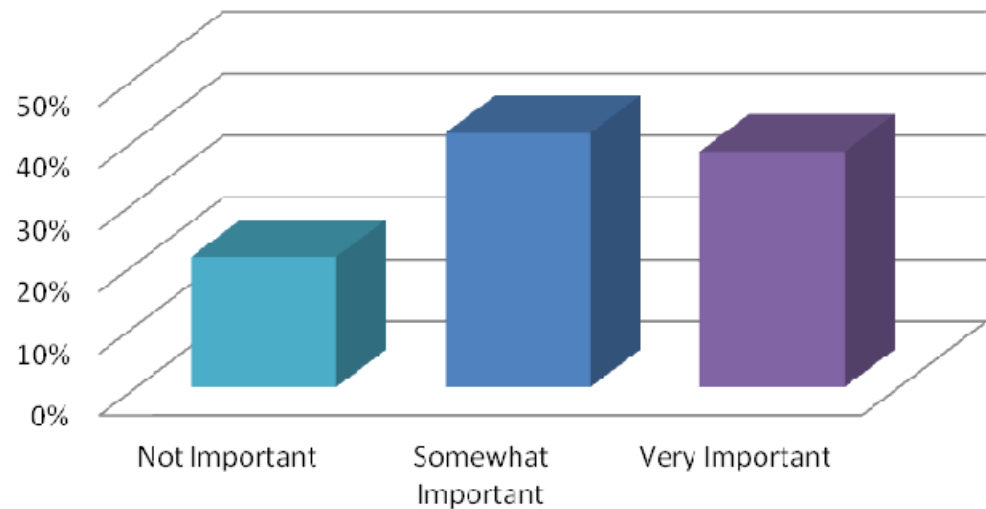
# "Big data"

home » development




```
@ development
databases(13)
-----
131_bmw_mdb(23)
131_crap_mdb(7)
131_fernand_mdb(0)
131_reality_mdb(12)
```

## Importance of Big Data



Eyefortransport, "Truck IT Report", 2012

<p>working with the Carbon Trust</p> 	<p>The carbon footprint for this product is 2.0g CO<sub>2</sub> per sheet and we have committed to reduce this.</p>
	<p>By comparison the carbon footprint of Tesco recycled toilet roll is 1.3g CO<sub>2</sub> which is lower because less energy is used during the manufacturing process.</p>



**Additional Information**

 85% recycled cardboard

working with the Carbon Trust

The carbon footprint of this product is 750g per wash and we have committed to reduce this

By comparison the footprint of Tesco Super Concentrated washing liquid is 600g per wash

Help to reduce this footprint. Washing at 30°C rather than 40°C saves 160g CO<sub>2</sub> per wash.

**750g CO<sub>2</sub>**  
Compared to normal liquid  
**600g**  
per wash

# What is a carbon footprint?



- Consensus on the importance of this
  - Industry
  - Stakeholder groups: ERTRAC, L4L + and more
  - Academic e.g., Wolf & Seuring (2010), Martinsen & Björklund (2010), Piecyk (2010) and McKinnon (2011)



**FREIGHT**

- Strong consensus (EU/industry)
- "ITS Green corridors"
- Semantic focus
- Enabling using state-of-the-art ITS technologies



Sternberg, Nyquist och Nilsson, 2012

# CHALMERS

for a sustainable future