LOGISTIKIA
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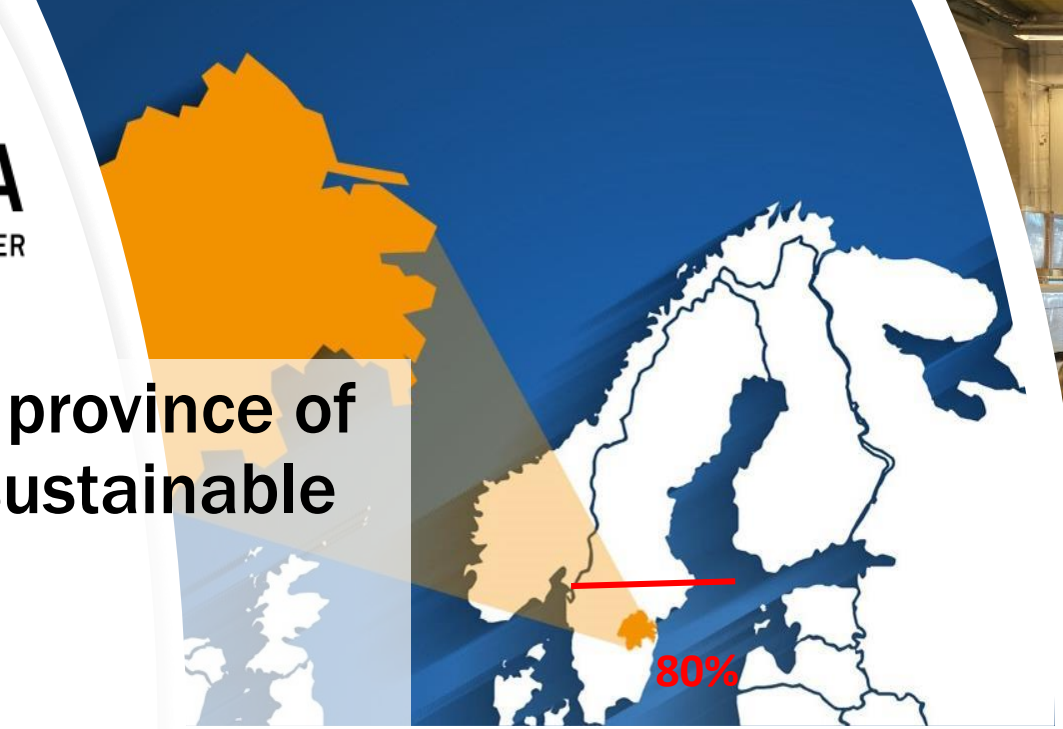
”Strengthening the province of Östergötland as a sustainable logistics region

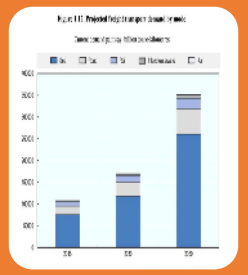


- Well positioned in northern Europe
- Long history of industry and trade
- Excellent infrastructure
- Forefront in biofuels
- Extensive logistics programmes & research
- Strong networks, intense cooperation

Cleantech ÖSTERGÖTLAND
LINKÖPINGS UNIVERSITET
Region Östergötland
Norrköpings Hamn
Linköpings kommun
NORRKÖPING
EUROPEISKA UNIONEN
Europeiska regionala utvecklingsfonden

Societal perspective

Sustainable logistics must include green energy AND increased efficiency



Freight transports continue to grow fast

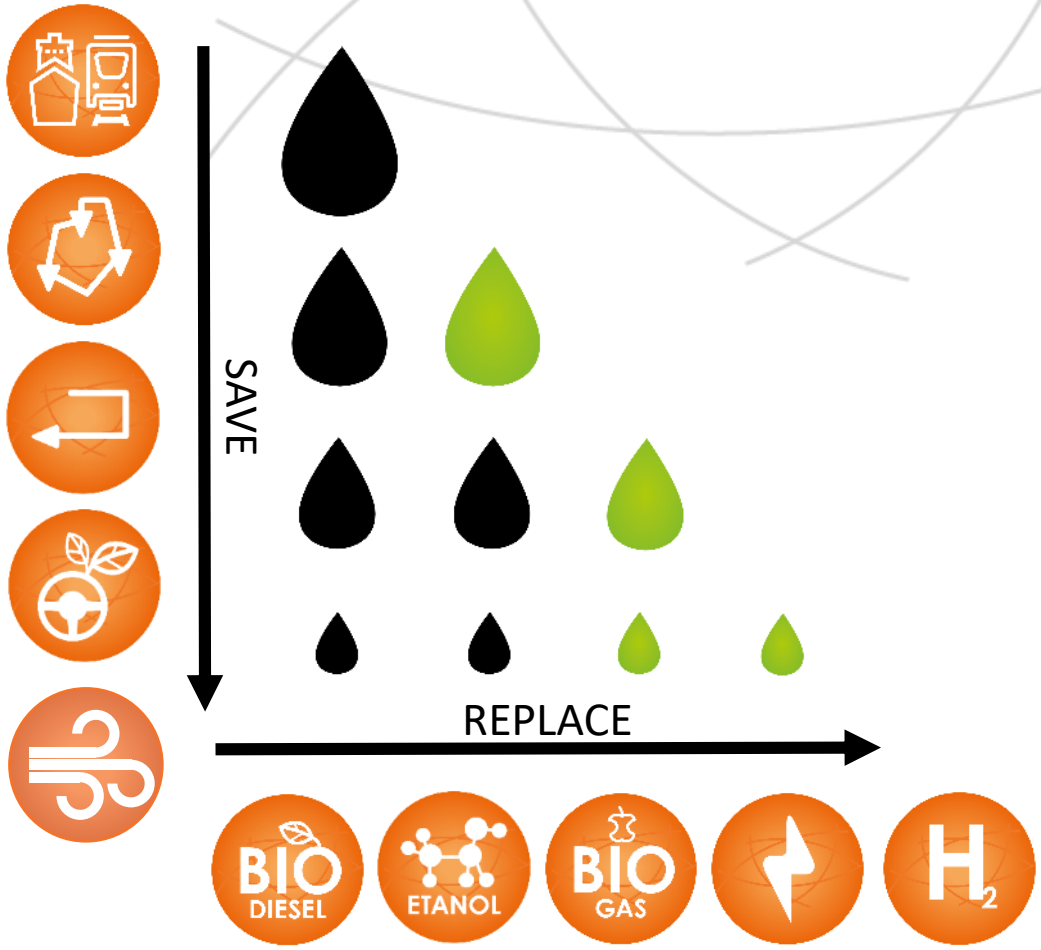
- OECD foresees tripled volumes from 2015 to 2050
- Heavy increase in last mile transport

Low efficiency in many log´s operations

- Lack of co-ordination and planning, transporting air, low backhaul rate, high returns etc
- ”Stressed logistics” when competing with leadtime
- Congestion and queing in cities and on highways

Decarbonizing logistics is going to cost

- Increased prize of biofules, vehicle investments, charging infrastructure
- Electricity and biofules are scarce resources



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Logistics perspective

It´s about **operations**, **efficiency** and **business**, not **vehicles** and **batteries**

To a transportation company electrification means introducing new complexity in a tight operation with many dependencies and needs

Slot-times


Service and uptime


Fleet utilisation

Driver break regulations


Routing


Filling rate

”Logistics systems”

- Specific vehicles, operational patterns, demands, frequency, load etc etc

Decades of intense construction in the region (infrastructure, industry, housing)

Well established forrest/paper/pulp industry with large inbound volumes from the region and distribution via road rail and sea

Last mile distribtion in growing cities

Large import of trade goods (to nearby distribution centers). Export of paper&pulp, wood, machinery

Agricultural region with peak transportation demand in spring and fall

Energy and waste, residual products

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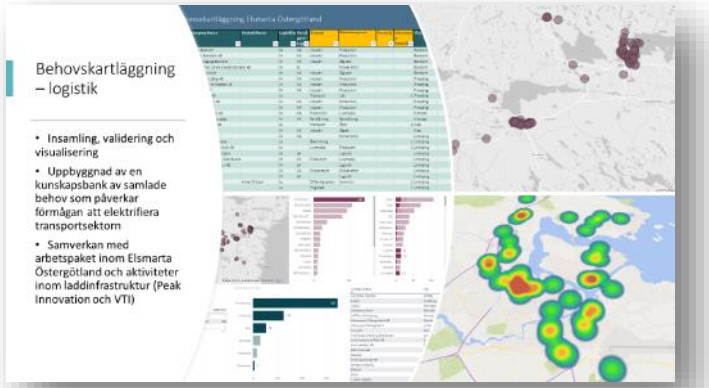
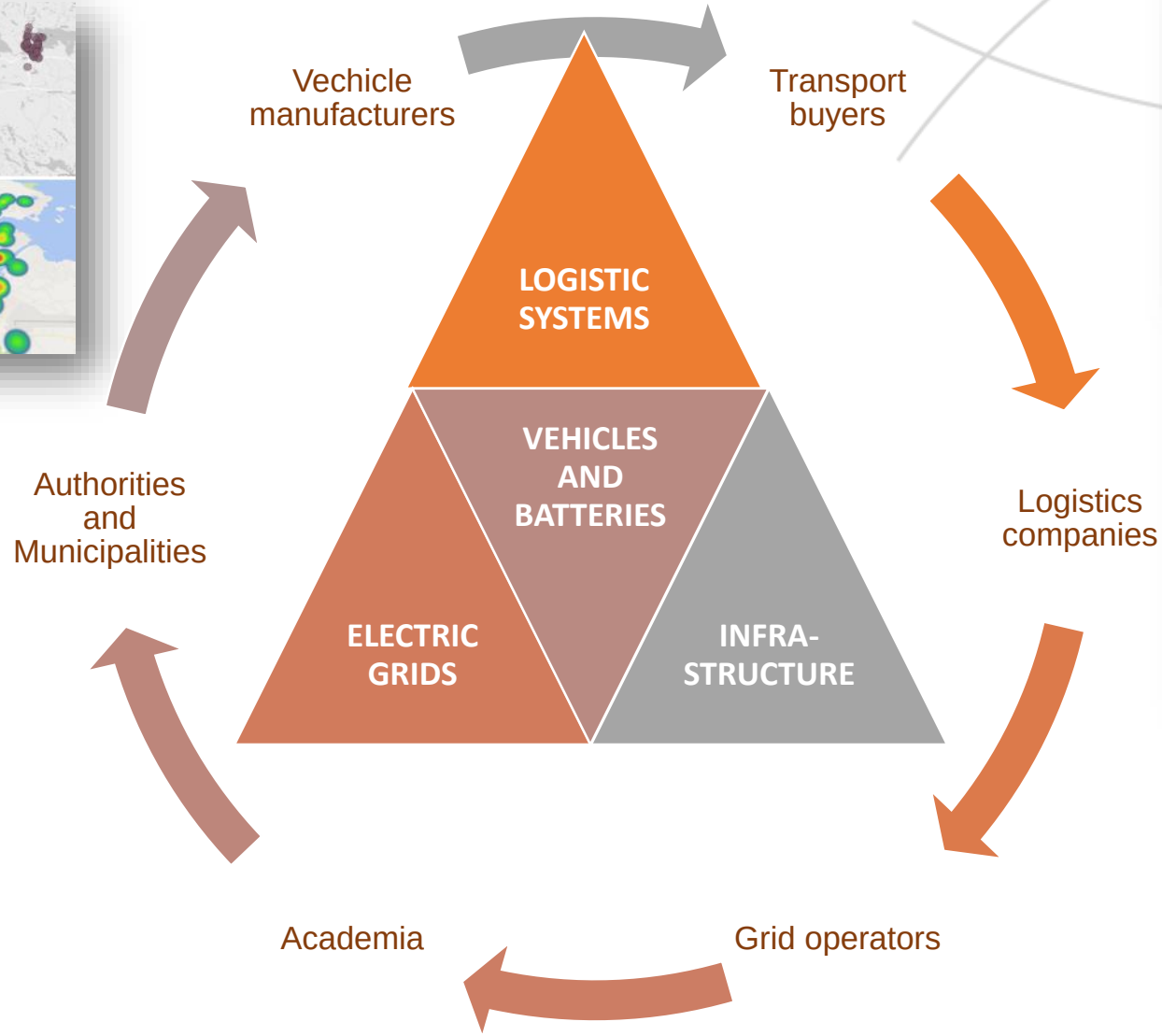
”Functional organisation”, not technique, may be our biggest challenge

Driving a regional dialogue with a systems approach



Logistics tools and analysis
Regional logistics mapping
Research




DEBATT
Batteribyte smart alternativ till sladd

Pilot project initiatives,
Seminars, meetings
Knowledge transfer
Discussions and debate

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HALMSTAD UNIVERSITY

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LINKÖPINGS UNIVERSITET

East Sweden Battery Swapping Initiative to establish the 1st Battery swapping system for heavy trucks in Sweden and in Europe

Background

Electrification of heavy trucks is taking place at high speed and offers a particularly complex change process, where many actors and systems are affected. Great focus is put on battery capacity and specifications of the first BEVs (Battery Electric Vehicles) that are now introduced to the market. At the same time the expansion of charging infrastructure is a high priority issue. Electric roads may in the long run be part of the decarbonizing solution, but in the near future fast charging and depot charging via cable, comes out as the dominating solution, facing a problematic fit with the needs of business driven transport and logistic operators.

For energy producers and grid operators, it is likely that the growth of high speed charging infrastructure for heavy trucks will offer major challenges in electricity supply, limited grid capacity, and load balancing, especially as charging behaviour might cause severe demand peaks throughout the hours of the day.

From a logistics and transportation perspective, the charging process, in combination with limitations in operational range, is a major difficulty in introducing BEV. In daily operations transport companies deal with a complex equation of fleet utilization, delivery schedules and planning of driver's schedules. With BEV, new limitations in operational range and downtime for charging, will add further complexity and challenges in efficiency of operations. Since profit margins in transportation are fragile, the more expensive electric vehicles, calls for a higher utilisation. The challenges with charging, rather indicates the opposite effect will arise.

DEBATT

Debatt | Högre utbildning

Sluta att under-finansiera högskolan

Replik | Sjukvård

Bekymmersamt förslag från Timbro

Batteribyte smart alternativ till sladd

Vi oroas av ett alltför ensidigt fokus på sladdladdning och elvägar när godstransporter elektrifieras. I flera länder växer batteribytesteknik snabbt och den bör testas även i Sverige, skriver flera debattörer.

Konceptet växer också inom andra områden som båtar, motorcyklar, skogs- och entreprenadmaskiner.

”We are worried that a single focus on cord-charging and electric highways will result in that the transport industry will not adopt the new solutions since they are too expensive and do not fully meet business needs…”

“Specifically, a group of 15 organisations have agreed to set out for a commercially oriented pilot project to establish and operate battery swapping stations in the region to start with, and expand to cover south of Sweden in a second step. The parties represent all organizations with highly set climate goals and consider the solution with BS as a potentially important enabler to reach those goals under commercially acceptable conditions.”

…

“Together the parties represent major parts of the established logistics eco-system – Large transport buyers, carriers, energy producers and grid-operators, in combination with strong support from academic research, province and local authorities and a regional network that includes both companies, municipalities and Region Östergötland local government”

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