



ROYAL INSTITUTE
OF TECHNOLOGY

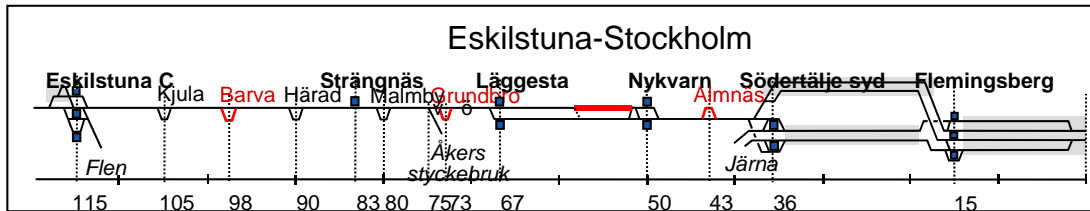
17th Nordic Seminar on Railway Technology

KTH Railway Group
Centre for Research and Education
in Railway Technology

Sebastian Stichel

Tammsvik, 3-4 October 2012

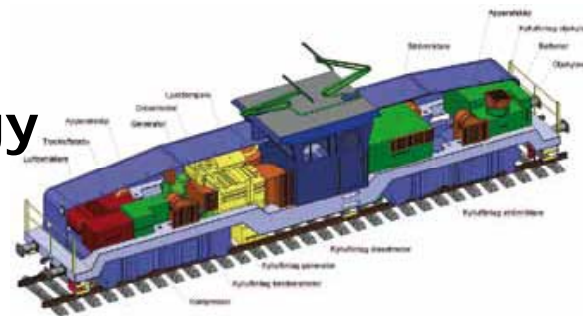
Traffic and Logistics



Machine design

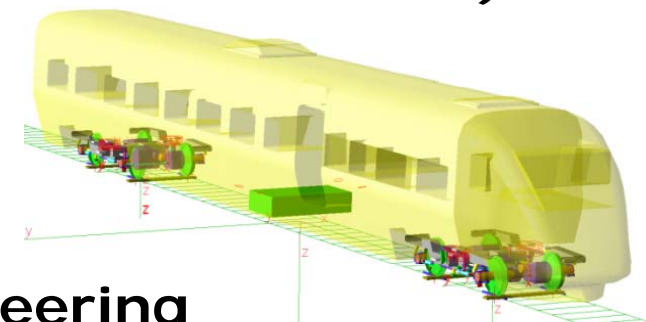


Electric Energy Conversion



Rail Vehicles

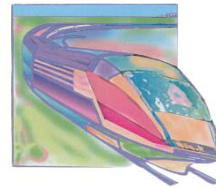
(Light and with good dynamic and acoustic comfort)



Cost effective bridges

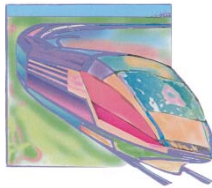


Structural Engineering and Bridges



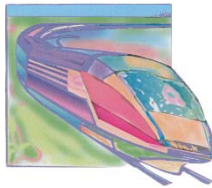
Undergraduate education

- SD2221 **Vehicle System Technology**, 8 credits
- SD2307 **Rail Vehicle Technology**, 7.5 credits
- SD2313 **Rail Vehicle Dynamics**, 8 credits
- AH2026 **Railway Traffic - Market and Planning**,
Basic Course, 7.5 credits
- AH2028 **Railway Traffic - Market and Planning**,
Advanced Course, 7.5 credits
- AH2029 **Railway Signalling System**, 7.5 credits
- AH2030 **Railway Signalling System – Reliability**, 7.5 credits
- AH2031 **Railway Signalling System - Project Planning**, 7.5 credits
- AH2032 **Train Traffic Simulation**, 7.5 credits
- AF2901 **Road and Railway Track Engineering**, 7.5 credits
- AH2906 **Operation and maintenance of Railways**, 7.5 credits
- EJ 2400 **Electric Traction**, 6 credits

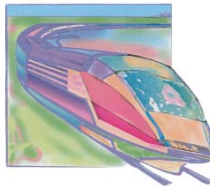
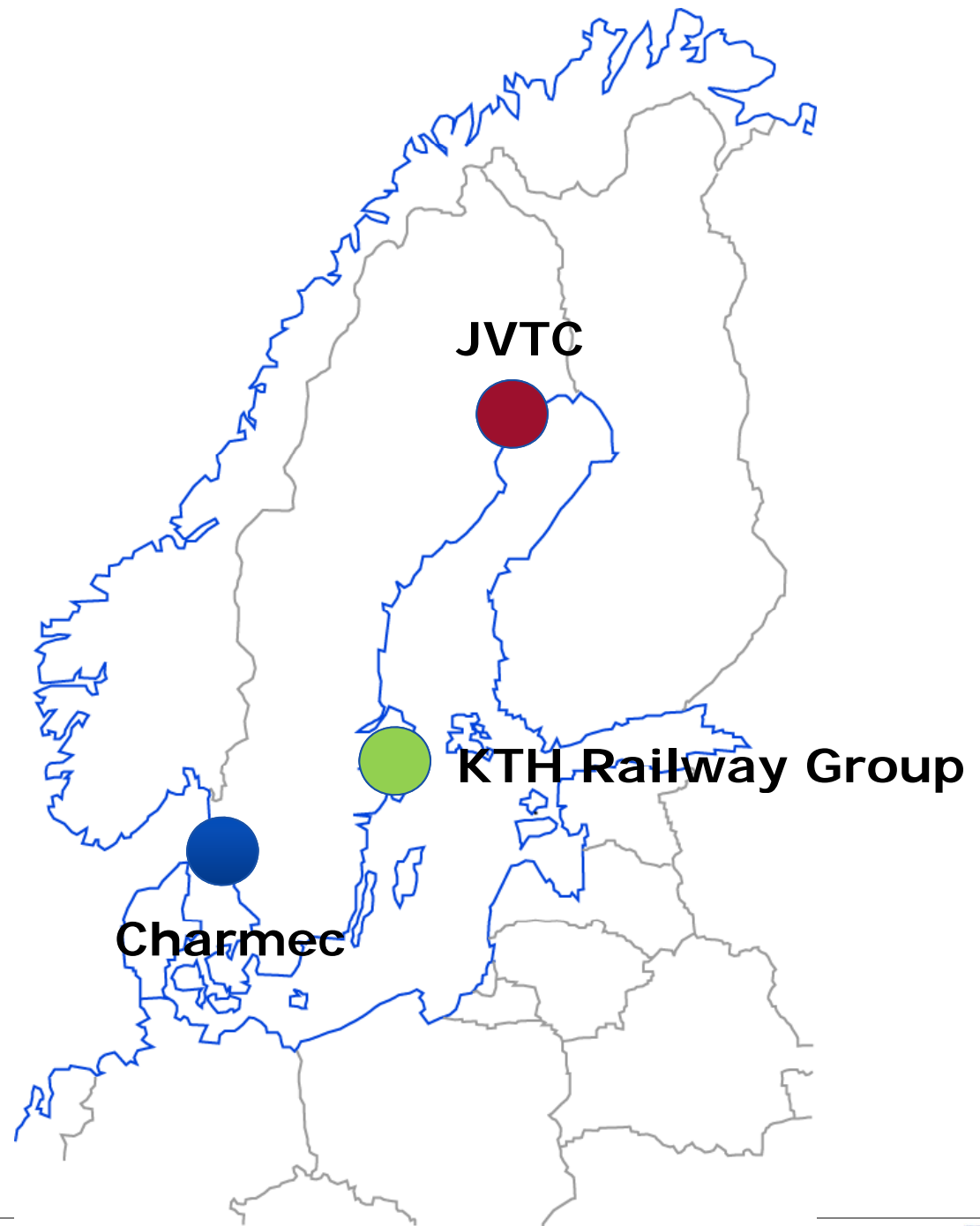


Courses for professional engineers

- Throughout the years about 1000 engineers at infrastructure managers, operators and industry have been trained.
- In average about 15 days of external training per year are arranged by KTH Railway Group.
- Spring 2012 course on “Spårfordon och Spårtrafiksystem” for more than 60 participants



Swedish railway research



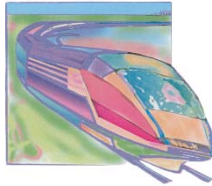
Ny teknik Nr 36, 2012

"Sverige har varit en ledande tågation och borde kunna bli det igen. Vi har framstående forskning i nära samverkan med företag och myndigheter. Projektet Gröna Tåget är ett gott exempel. Företag som Bombardier har världsledande utveckling i Sverige."

"Men teknik är oftast en del av ett större system ."

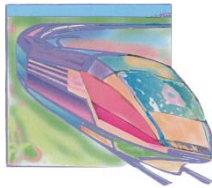


Mats Engström, editor in chief



Railway traffic – an integrated system

- Tilting trains to run fast on curvy lines
- Track friendly bogies to reduce track maintenance cost
- Active suspension to maintain comfort on non-perfect track
- Rail and wheel material have to fit together
- Condition-based maintenance to minimize system cost
- Intelligent operation to maximize capacity on existing infrastructure
- ...

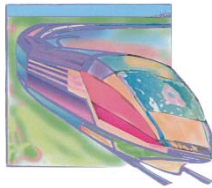


Ostlänken – Ny teknik again

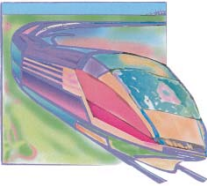
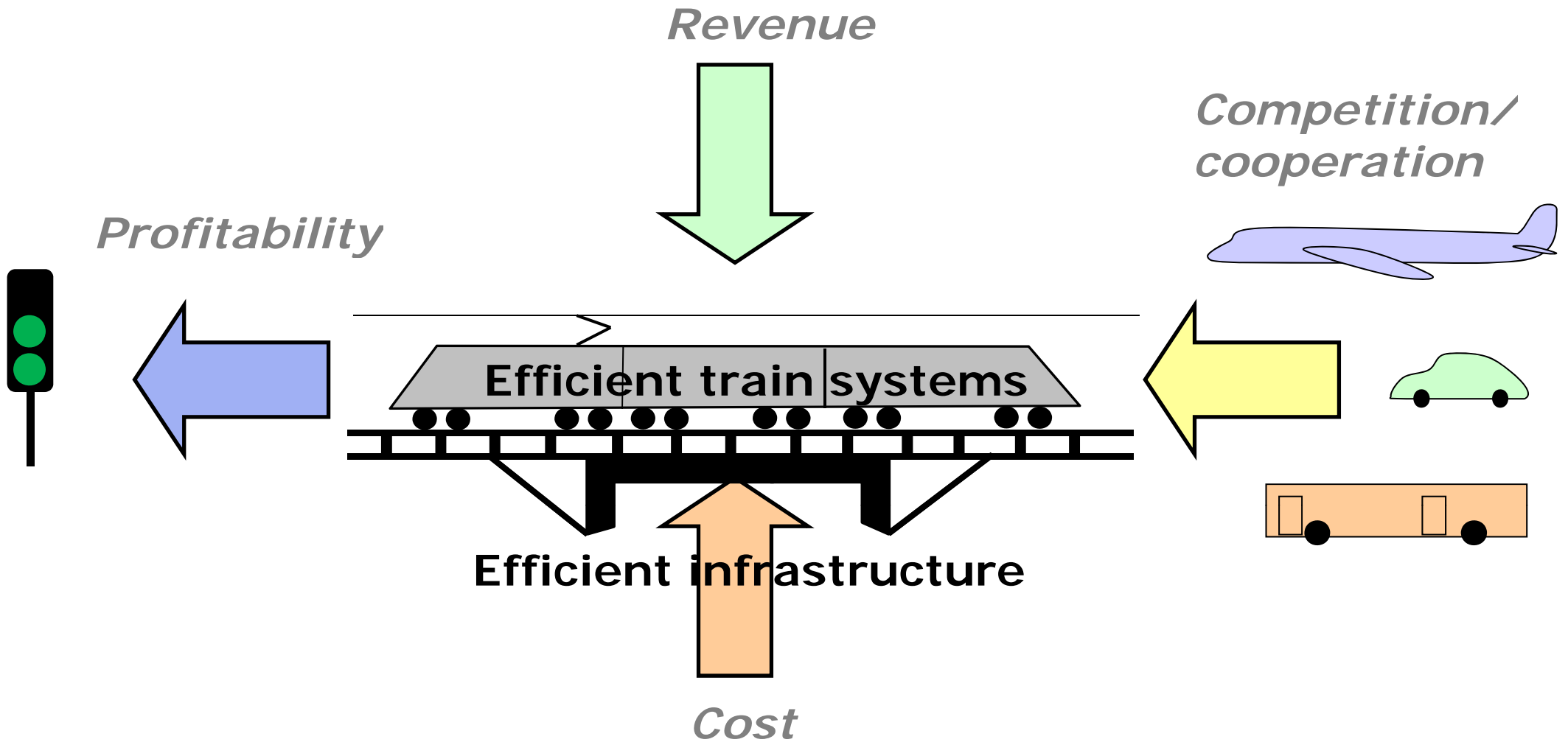
”Regeringen har beslutat att satsa 30 miljarder kronor på bygget av Ostlänken, som blir Sveriges största bygge. Beslutet är att bygga för 250 kilometer i timmen. Men enligt Trafikverket finns möjligheten att planera för högre hastigheter när bygget är i gång.”



Ny teknik Nr 36, 2012



System approach



Example - Efficient freight traffic

