Modelling the transport cost

Jacob Kronbak
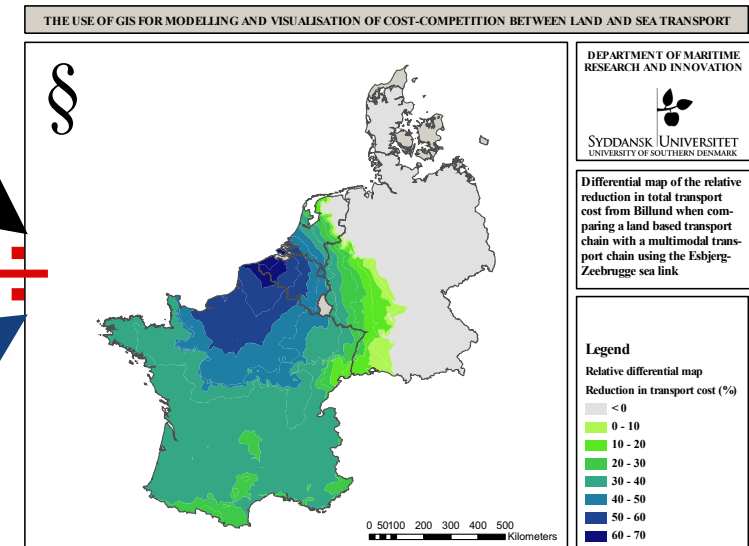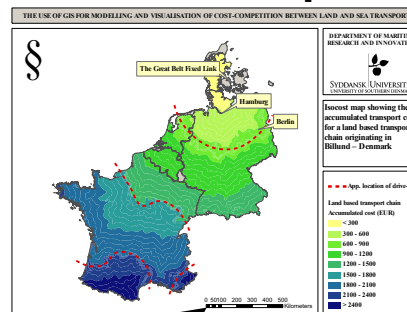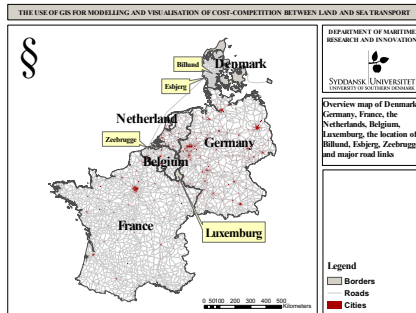
$$f(x+\Delta x)=\sum_{i=0}^{\infty}\frac{(\Delta x)^i}{i!}f^{(i)}(x)$$

DTU Management Engineering
Department of Management Engineering
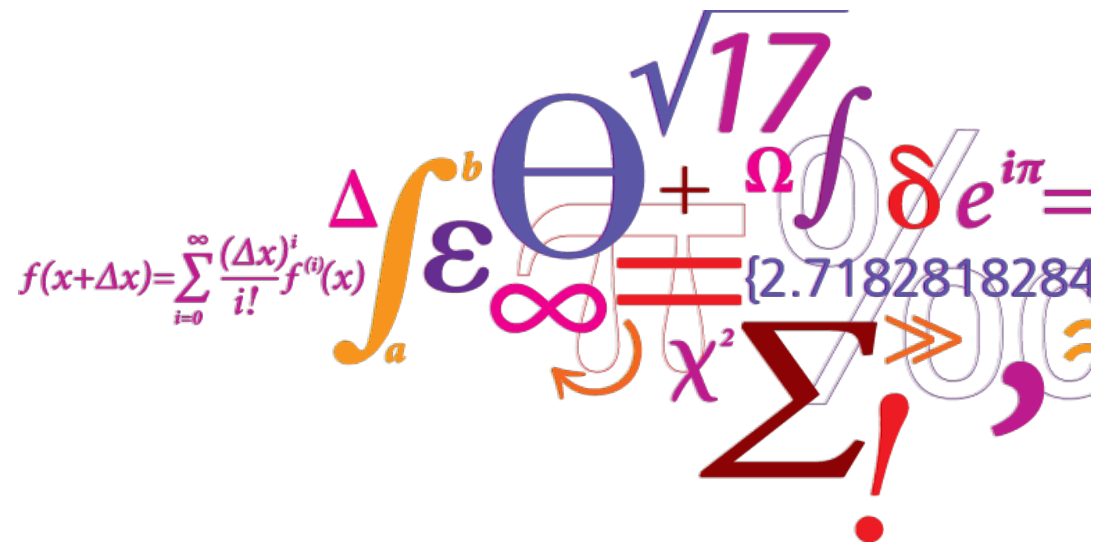
Modelling the transport cost

Intermodal
Digital network

Map of transport costs
Road transport

Visualisation of cost savings by using intermodal transport

Chose origin

User specified costs

Map of transport costs
Intermodal transport

The digital network

- Transport cost calculated for 1 trailer
- Driving cost on each road link (incl. Maut)
- Toll on fixed links (Great Belt, Øresundsbron)
- Fare on Eurotunnel
- Fares on sea links

- Initial test calculations for 3 RO/RO routes (ON/OFF):
  - Dover – Calais
  - Gothenburg – Ghent
  - Kiel - Klaipeda
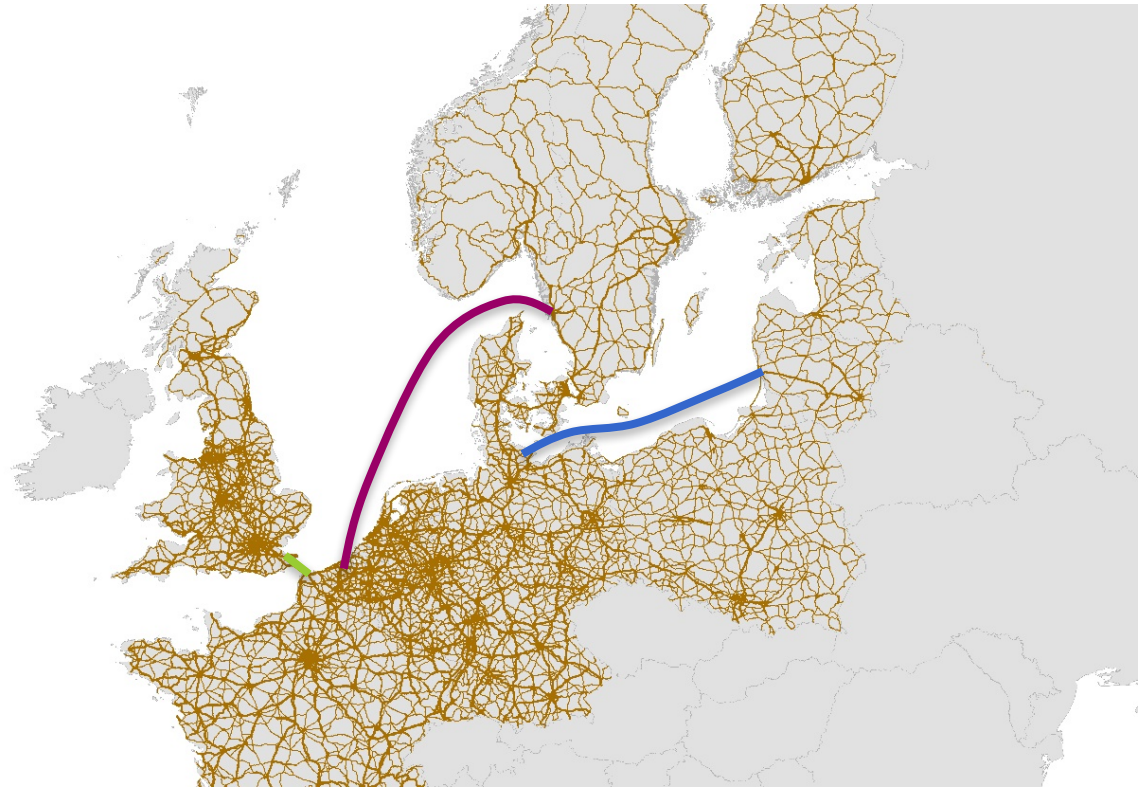
Dover - Calais

- Origin: **Brussels**
- No change due to price competition with Eurotunnel (25 EUR)

Legend
DIFF
0.000000

Gothenburg - Ghent

- Origin: **Gothenburg**
- Competitive boarder in western part of Germany
- Substantial savings
  - Shortcut
  - Fixed link toll

- Origin: **Ghent**
- Competitive border in southern part of Sweden
- Savings going to Skåne

Legend
Gothenburg - Gent: From Gothenburg
DIFF
- -650 - -600
- -599 - -500
- -499 - -400
- -399 - -300
- -299 - -200
- -199 - -100
- -99 - 0

Legend
Gothenburg - Gent: From Gent
DIFF
- -600 - -500
- -499 - -400
- -399 - -300
- -299 - -200
- -199 - -100
- -99 - 0

Kiel - Klaipeda

- Origin: **Kiel**
- Competitive in the Baltic states
  - Parallel competing routes
  - Kaliningrad

- Origin: **Klaipeda**
- Competitive in northwestern Europe
  - "As the crow flies" to southern Europe
  - Other routes to Sweden and Norway (Karlshamn – Klaipeda)

Legend
Kiel - Klaipeda: From KIEL
DIFF
- -350 - -300
- -299 - -250
- -249 - -200
- -199 - -150
- -149 - -100
- -99 - -50
- -49 - 0

Legend
Kiel - Klaipeda: From KLAIPEDA
DIFF
- -350 - -300
- -299 - -250
- -249 - -200
- -199 - -150
- -149 - -100
- -99 - -50
- -49 - 0
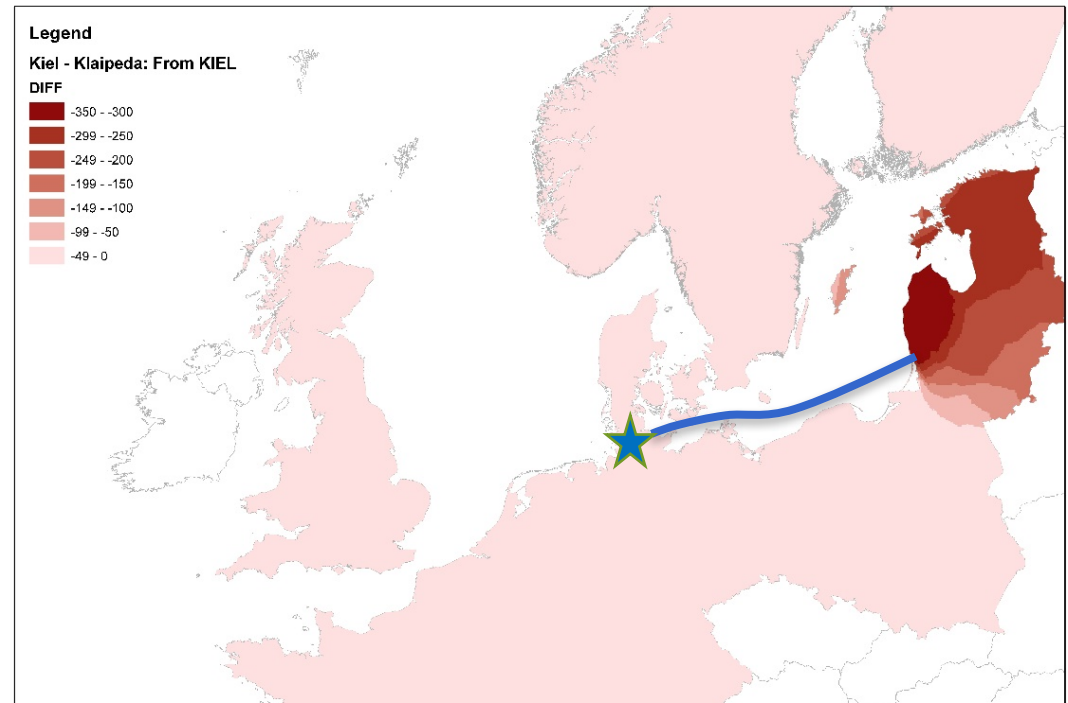
Next steps

Network
- Inclusion of major competing sea-routes

Calculations
- Major cities in the SECA area – including cities in the hinterland

Maps
- Identification of modal decision points
- Estimates of changes in catchment areas

Thank you for your attention

DTU Management Engineering, Technical University of Denmark