Intermodal Terminal Eco-efficiency Calculator – ITEC

“CO2 Calculator for intermodal terminals”

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European Commission

EcoHubs

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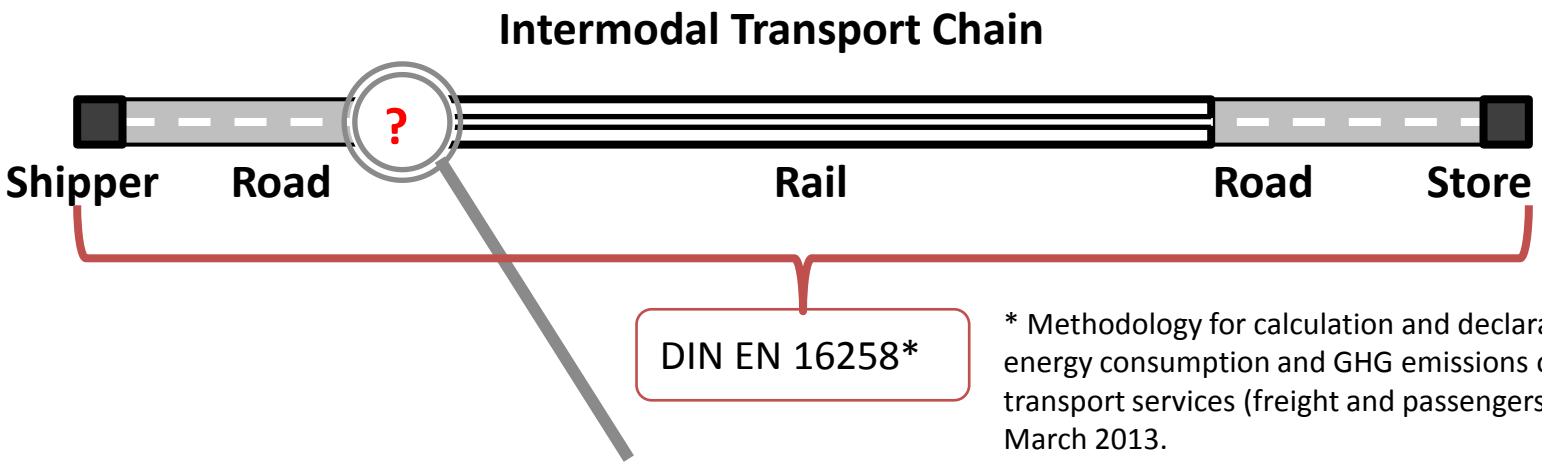
PE INTERNATIONAL

SUSTAINABILITY PERFORMANCE

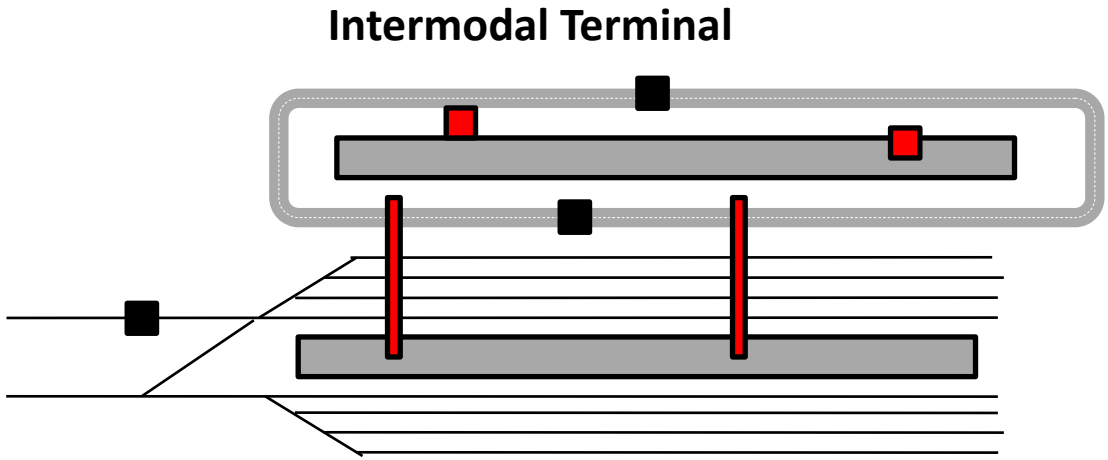
Main idea: **I**ntermodal **T**erminal **E**co-Efficiency **C**alculator (ITEC)

- To enable terminal operators to accurately calculate their current GHG emission performance;
- To identify where terminal “hot spots” are with regard to energy consumption and GHG emission
- To determine what impacts different measures in the context of a terminal have, either in an ex ante (scenario) or ex post (monitoring) perspective.

Position within the intermodal transport chain



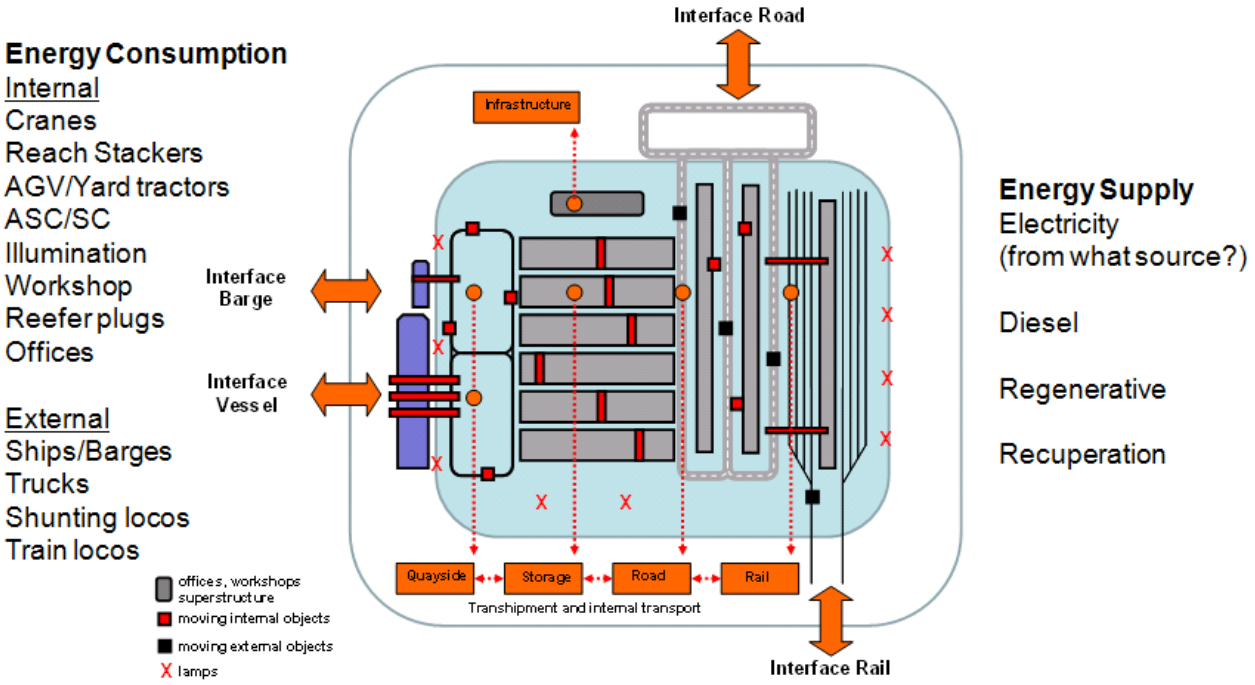
* Methodology for calculation and declaration of energy consumption and GHG emissions of transport services (freight and passengers), March 2013.



Warehouses & transhipment facilities not covered by the norm, yet.

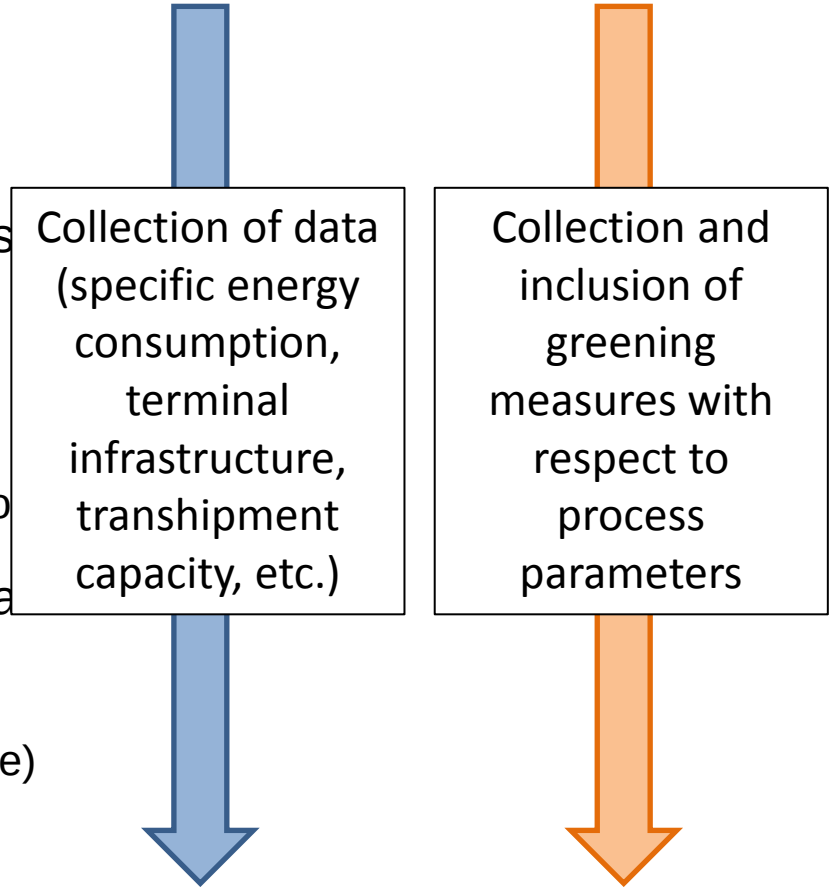
Functional specification

- ITEC refers to the terminal as <u>functional entity</u>
  - considering all energy/GHG relevant processes and facilities,
  - regardless the recipients of the energy bills.

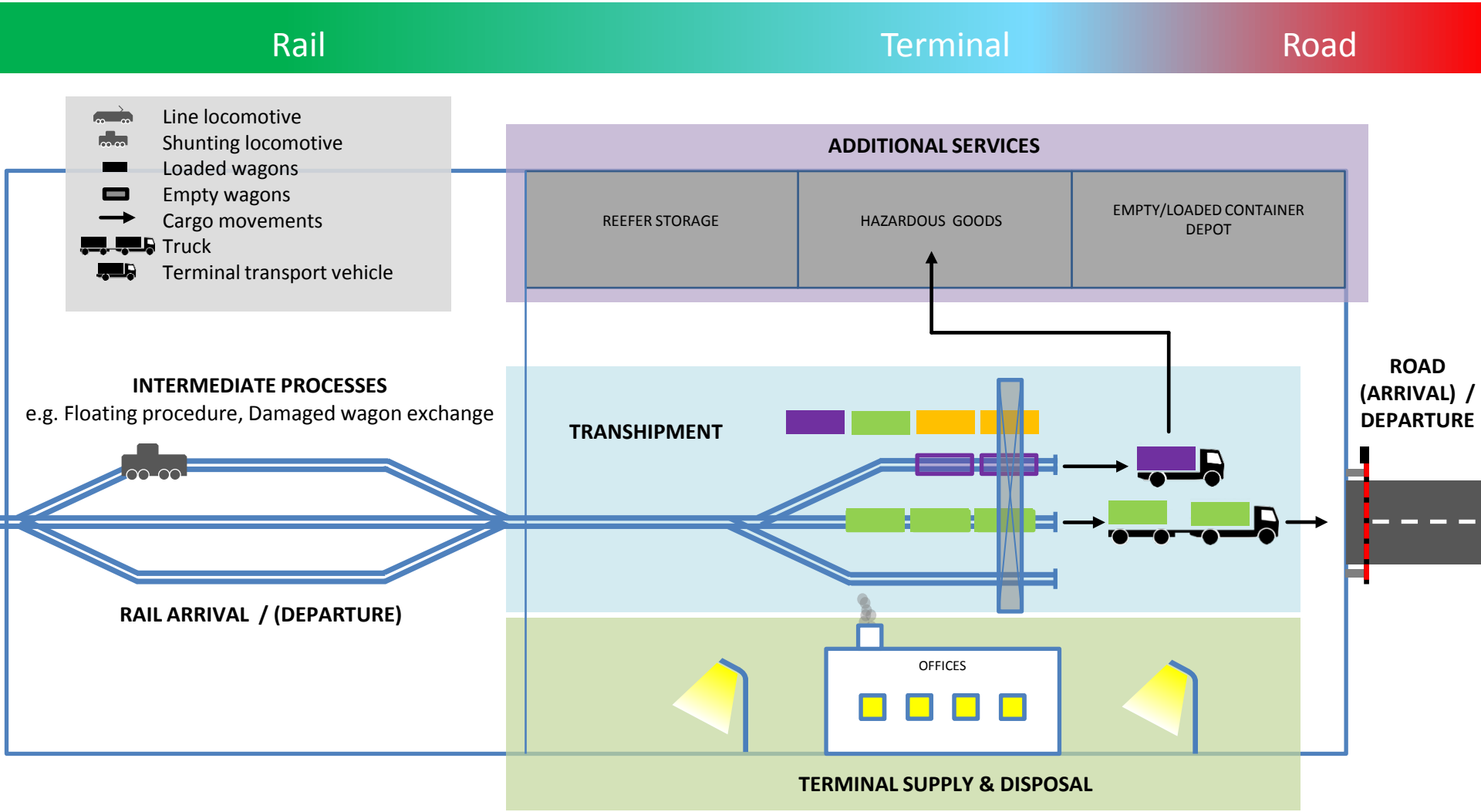


Methodical approach

1. Capture of actual terminal processes, as far as relevant for energy/GHG calculation
2. “Translation” into model processes
   - Considering interdependencies between infrastructure, operation and technique
   - Defining main parameters of energy consumption/GHG emissio
3. Transfer of model processes into a calculation tool
   - Basis: GaBi software of PE (adapting existing, proven software)
   - Including relevant standards, life-cycle approach, comparison of scenarios



ITEC – Captured processes



Model implementation in GaBi

GaBi is the most widely used product sustainability solution on the planet

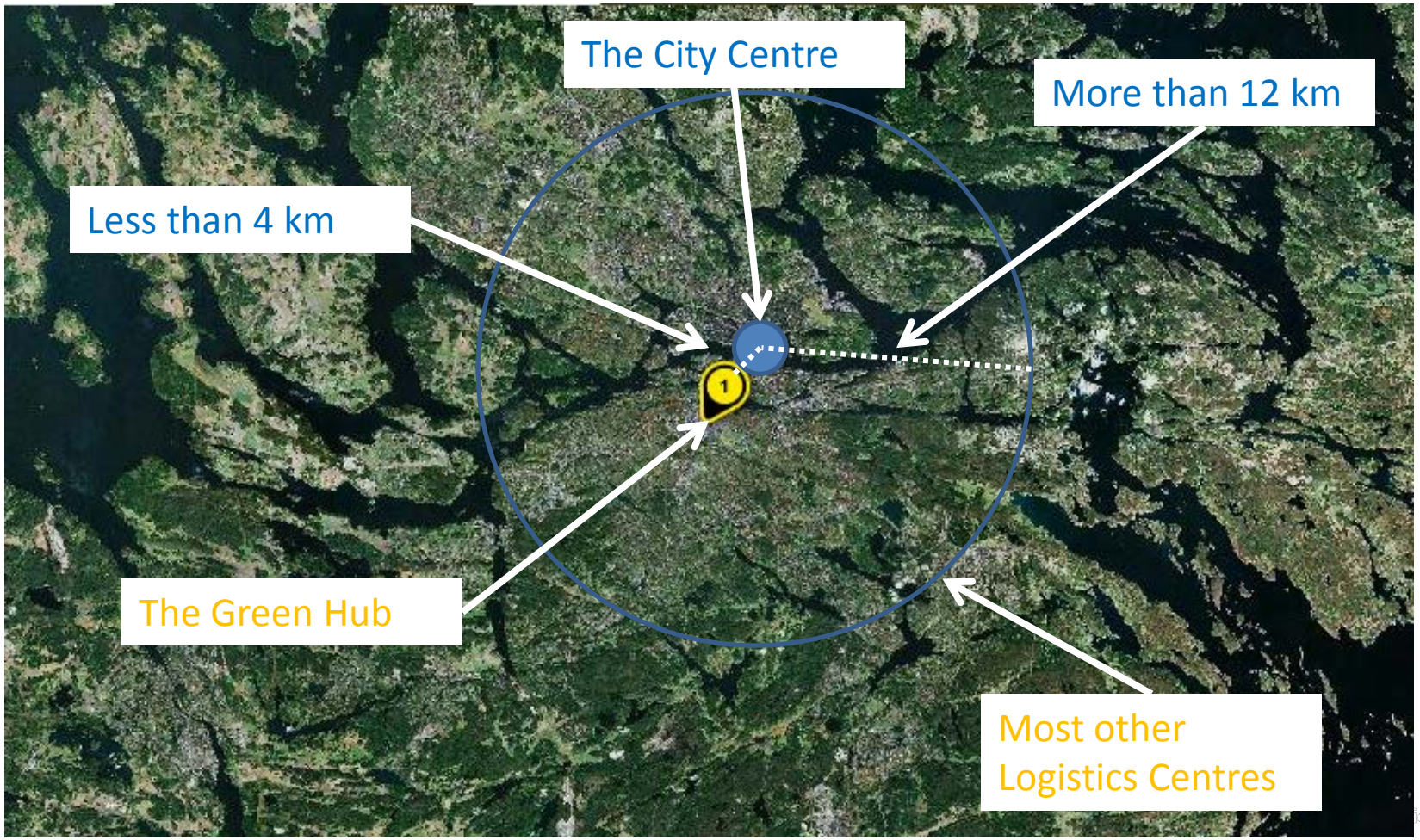
- Helps businesses achieve **optimal product sustainabilty performance:**
  - Environmental
  - Social
  - Economic
- GaBi is a modelling, reporting & diagnostic software tool that drives product sustainability performance during design, planning and production.
- Powerful LCA tools and databases for product and process sustainability

Vision: The Green Hub

Source: Demonstration Partner: Jernhusen

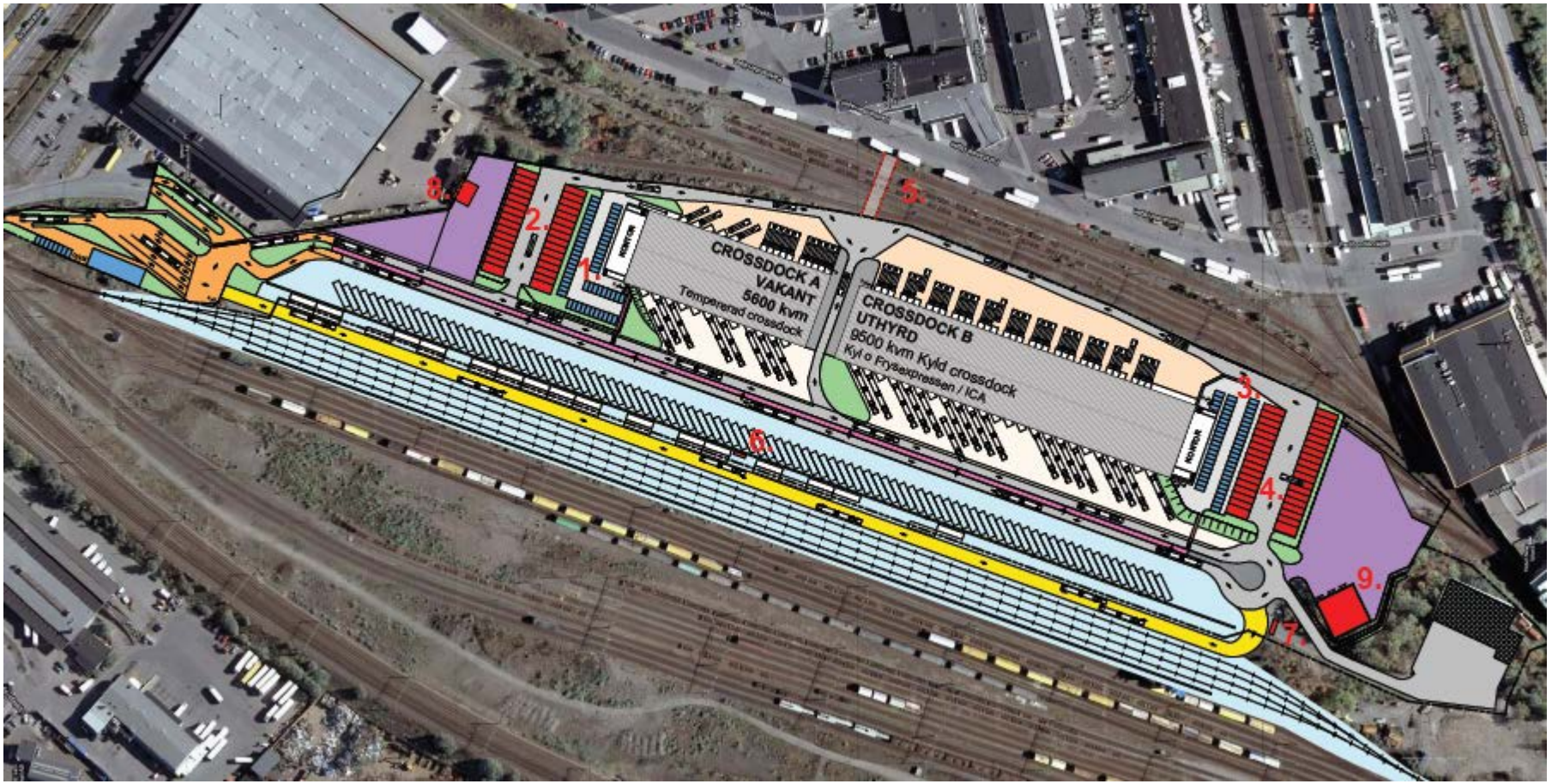
Photo by Christof Ricke

Use case:Stockholm



Source: Demonstration Partner: Jernhusen

Stockholm-Arsta: Planning 2012



Source: Demonstration Partner: Jernhusen

Stockholm-Arsta: Opening 5/2014

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Main advantages for users (1)

- Functional terminal approach closes the knowledge gap to line oriented CO_2 calculators and standards (e.g. CEN 16258);
- ITEC can be used ad hoc (no data interfaces needed, no requirements concerning dedicated IT terminal systems or data exchange formats);
- Very detailed capturing of all energy relevant processes possible (800 ITEC parameters might be modified on demand);
- In case of missing terminal specific parameters, experience figures and model calculations are available

  → Missing terminal specific data does not prevent ITEC applicability;

  → Quick, rough estimation with experience figures possible;

Main advantages for users (2)

- Single “greening” measures can be implemented (e.g. replacement of transhipment facilities, modified rail/road infrastructure, new road check-in or wagon repair procedure);
- Not only total carbon footprint/”greening” effect, but detailed results:
  - → Identification of “hot spots” (e.g. by processes or mode);
  - → Explanation of different specific energy consumptions of terminals;
  - → Evaluation of greening impact of (single) measures or measure bundles;
- Use of proven GaBi software in line with standards (e.g. CEN 16258) and respective methodical basics
  - 1st priority: use of exact, measured data,
  - next priorities: use of average data or analogy methods

Main advantages for users (3)

- Result documentation (Word/PDF) automatically generated;
- Visualisation of parameter modifications (scenarios) on the spot;
- Consideration of (country/terminal) specific energy mix;
- Desktop and web application available;
- Standardised template for data gathering (energy consumers and their specific consumption);
- Operational procedures can be clarified with terminal operator via video/telephone conference, using standardised check-list (ca. 2 h);

ITEC Development Partners

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Planning Intermodal Terminals
Train Monitoring Tools
Software Development

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SUSTAINABILITY PERFORMANCE

„Sustainability“ Experts
Energy Process Analysis
Software Development

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Intermodal Terminals Processes
User Requirements from AGORA
Software Testing

ITEC Use Cases

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Jernhusen

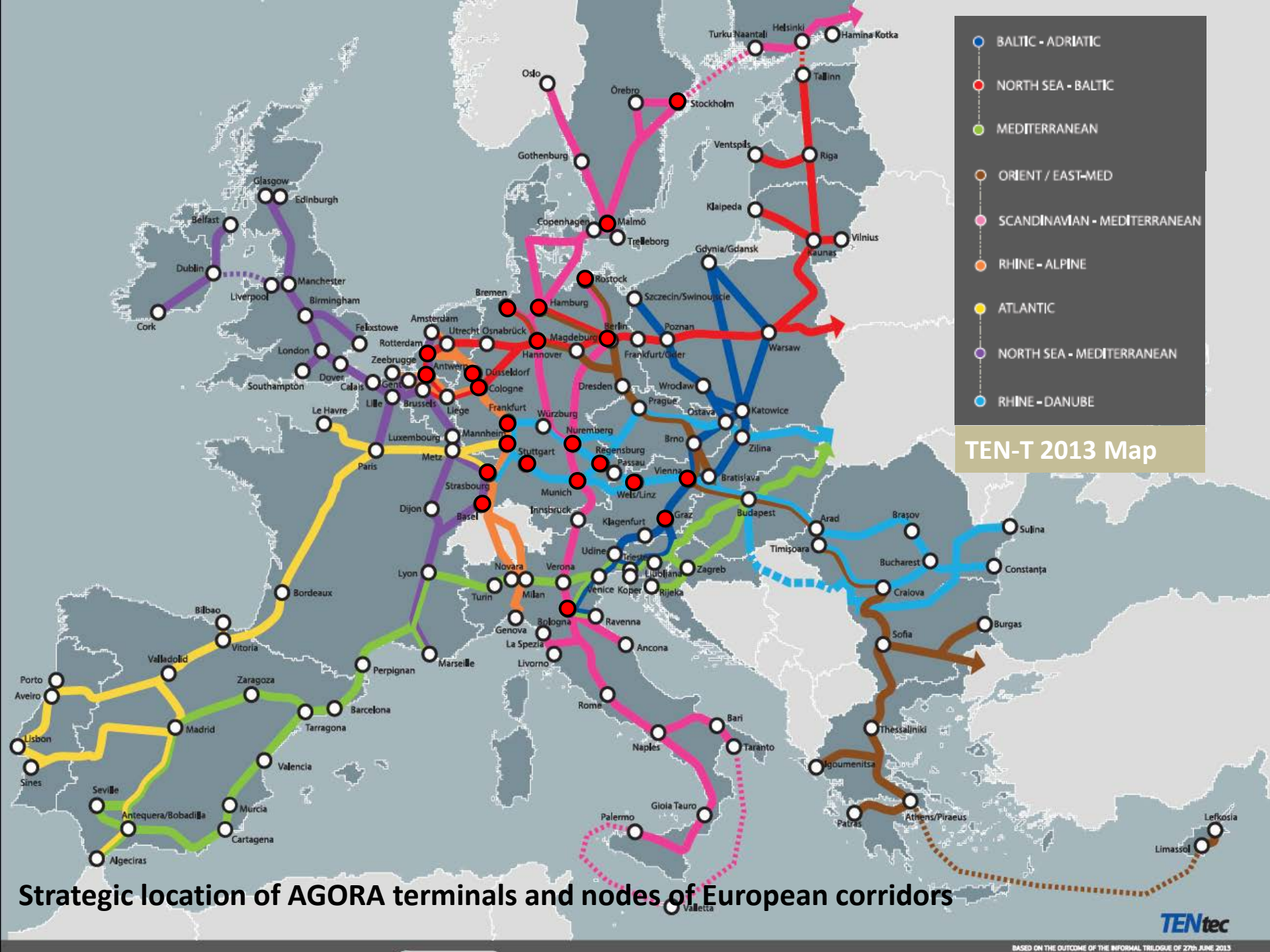
Neuss Trimodal

IFB
member of Logistics

combinant
combined terminal antwerp

ADRIA
KOMBI

INTERPORTO
BOLOGNA



Strategic location of AGORA terminals and nodes of European corridors

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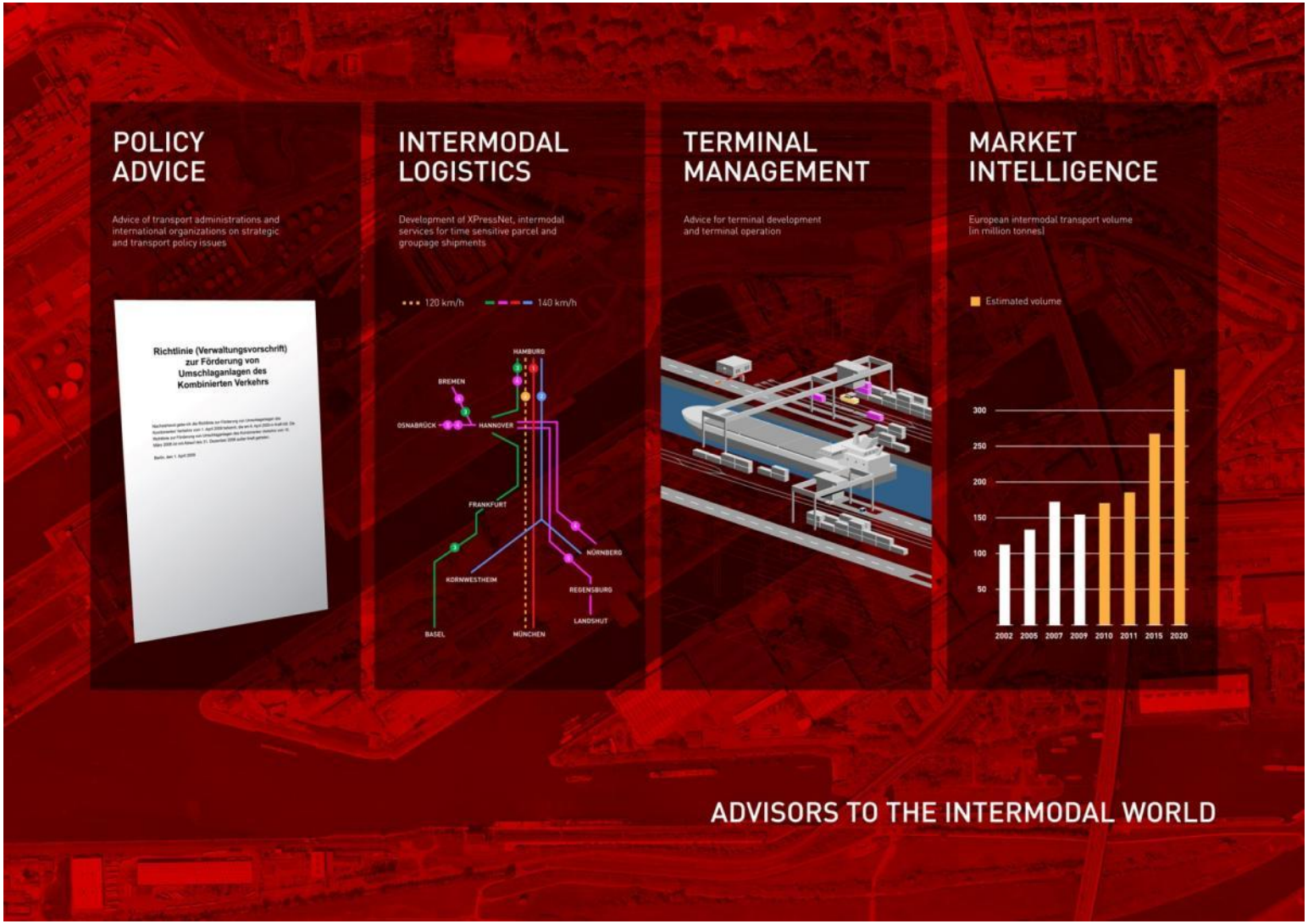

Thank you for your attention

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