

Approaches to Measure Wider Economic Impacts of HSR and Experiences from Europe

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- o **EU Transeuropean Networks and Core Network Corridors**
- o **Conventional CBA and SCGEs**
- o **Wider Economic Impacts and Integrated Assessment**

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European Transport Policy: TEN-T and CNC: Some Details

- ▶ **10 network types (138/136 tsd km road/ rail)**
- ▶ **9 priority axes (core network corridors, CNC)**
- ▶ **34/51/16 tsd km road/rail/IWW**
- ▶ **11/34/3.5 tsd km projects road/rail/IWW**
- ▶ **Min 3 countries on a CNC**
- ▶ **Focus on efficient border crossings**
- ▶ **CO₂ reduction target: 60% until 2050**
- ▶ **Focus on rail and IWW (2/3 of investments)**
- ▶ **Interoperability, efficiency, equity, env. issues**
- ▶ **10 high level coordinators (CNC+ERTMS)**
- ▶ **Co-funding through a host of financial instruments (CEF, ERDF, EIB)**

Trans-European Networks for Transportation: Core Network Corridors



European High Speed Network and projection for the next decades



HSR Network Europe: Not only Success Stories



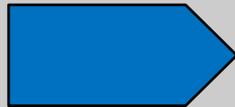
**EU HSR Network 2017: 9,076 km
(max. 250 km/h)**



Under construction: 1,671 km

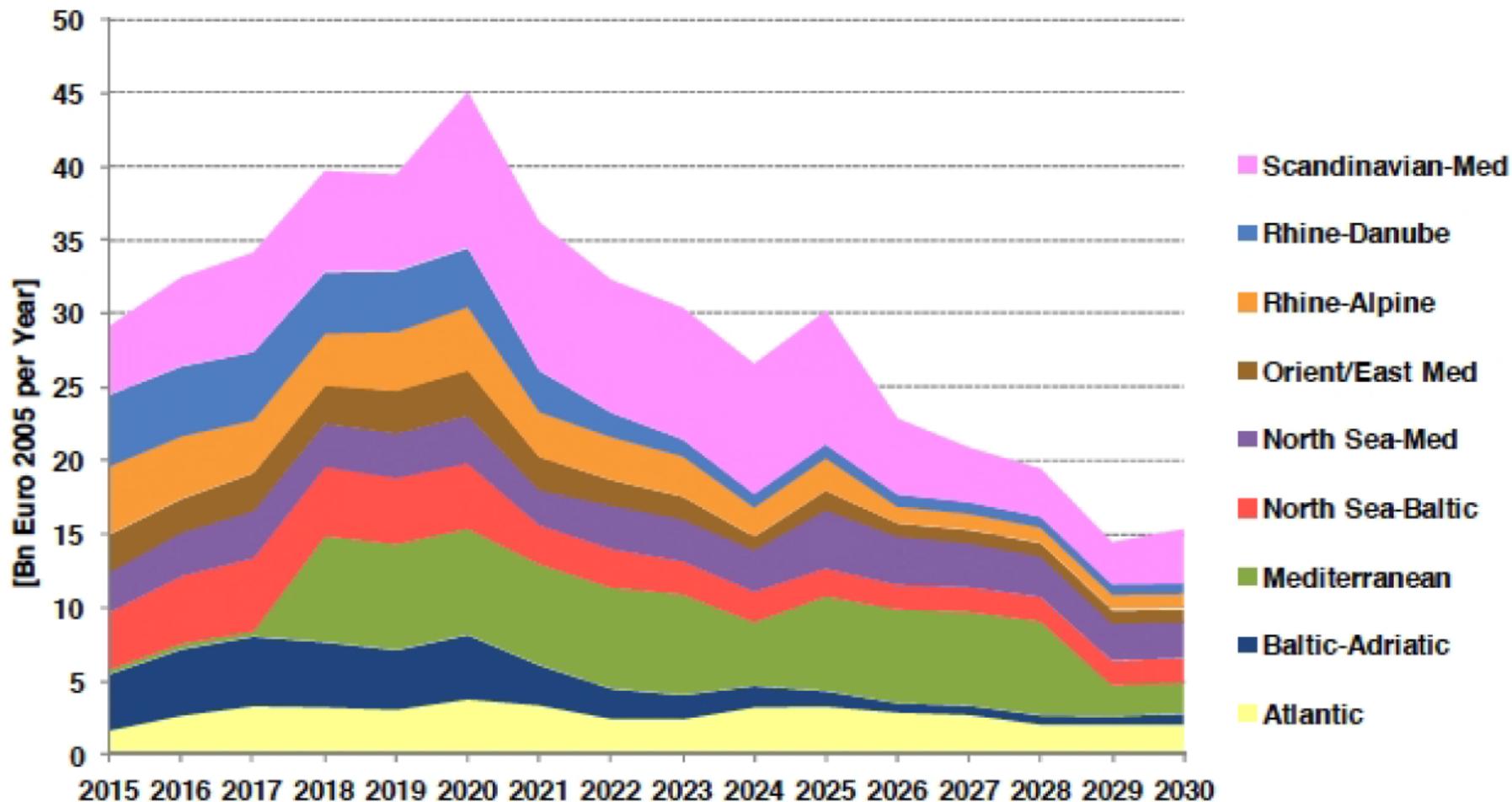


**Originally planned in 2010: 30,000 km by
2030; far from being achieved**



**Critical comments from scientists and
from auditors: no coherent plan; financial
results not satisfactory for several
projects**

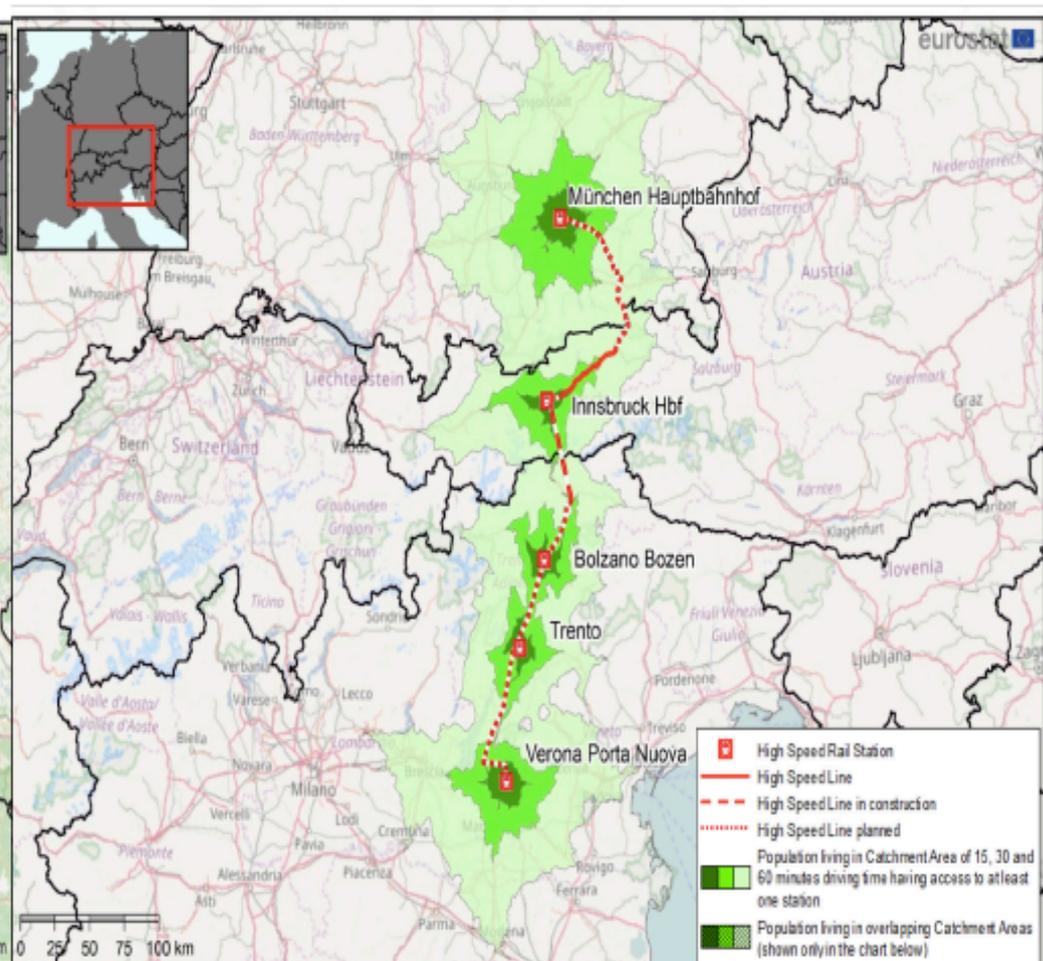
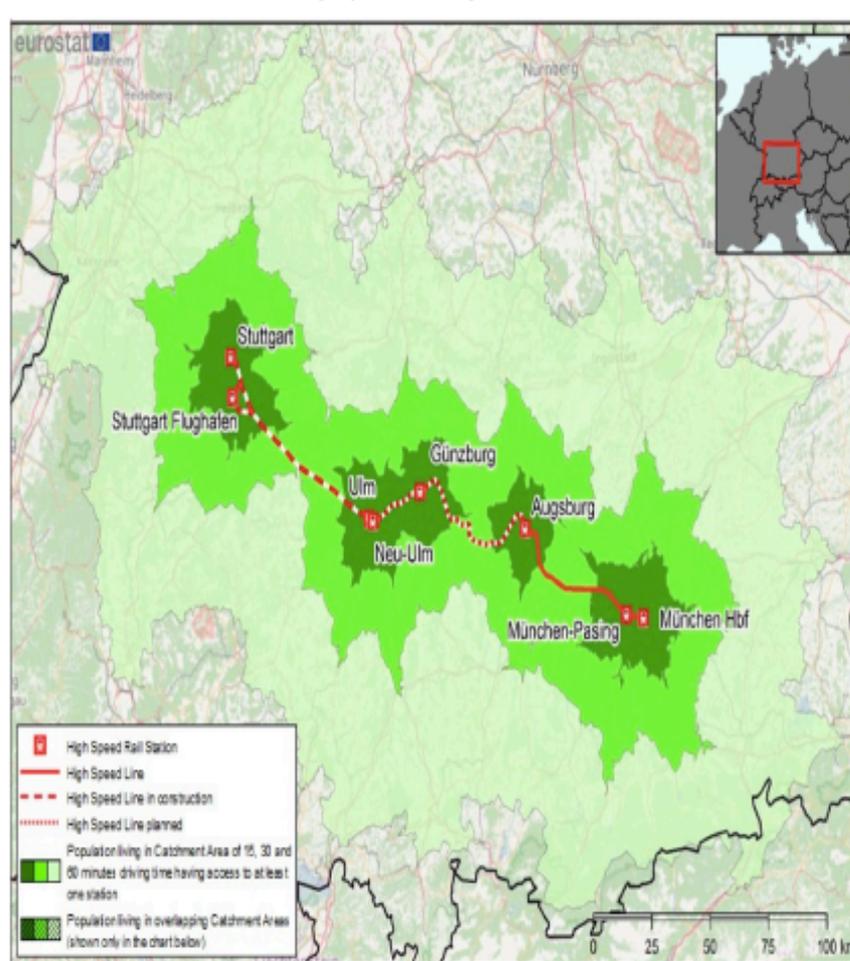
Annual TEN-T Investments per Corridor

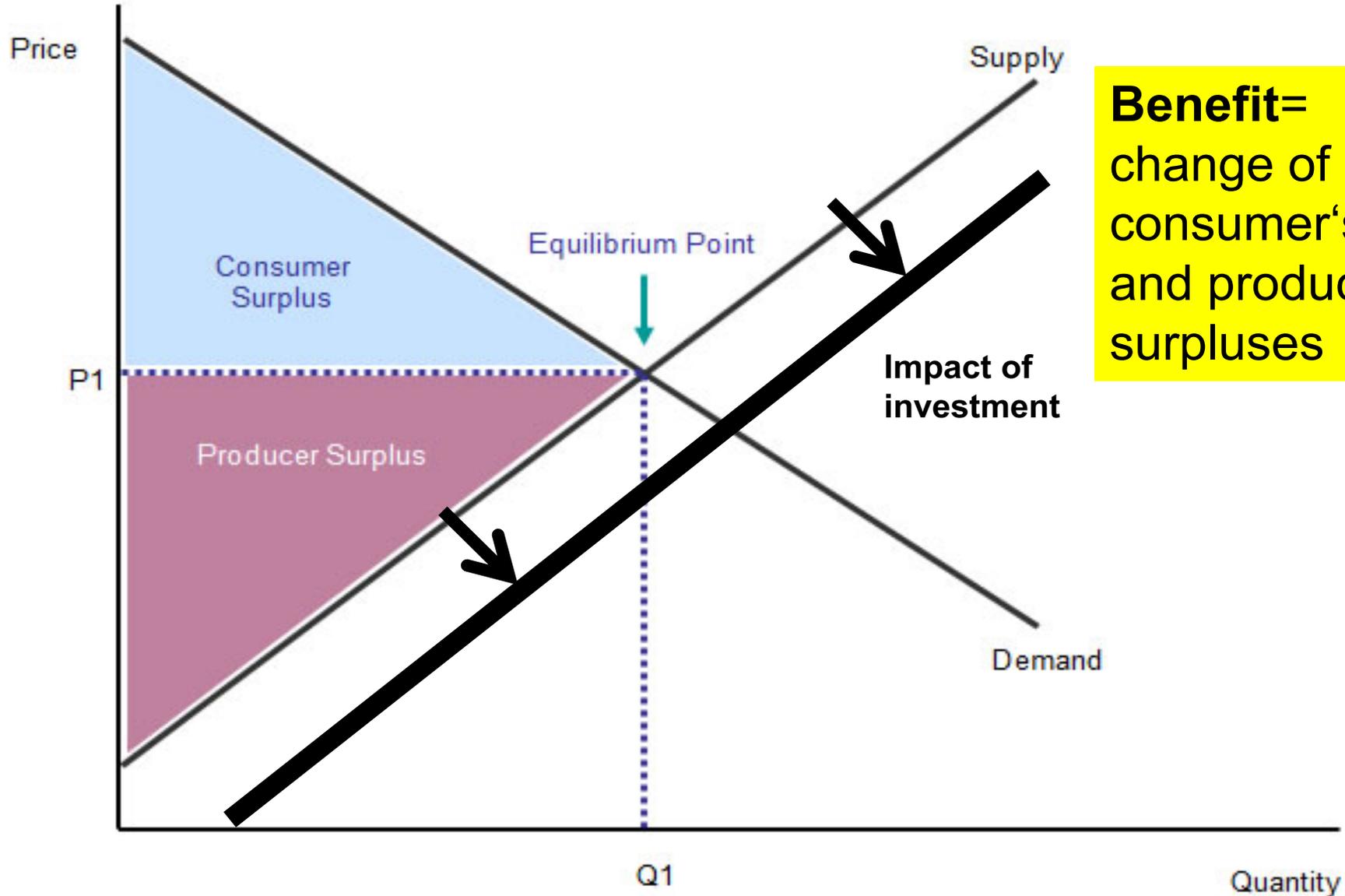


Importance of Accessibility: Catchment Areas of HSR Stations

High-Speed Line Stuttgart – Munich

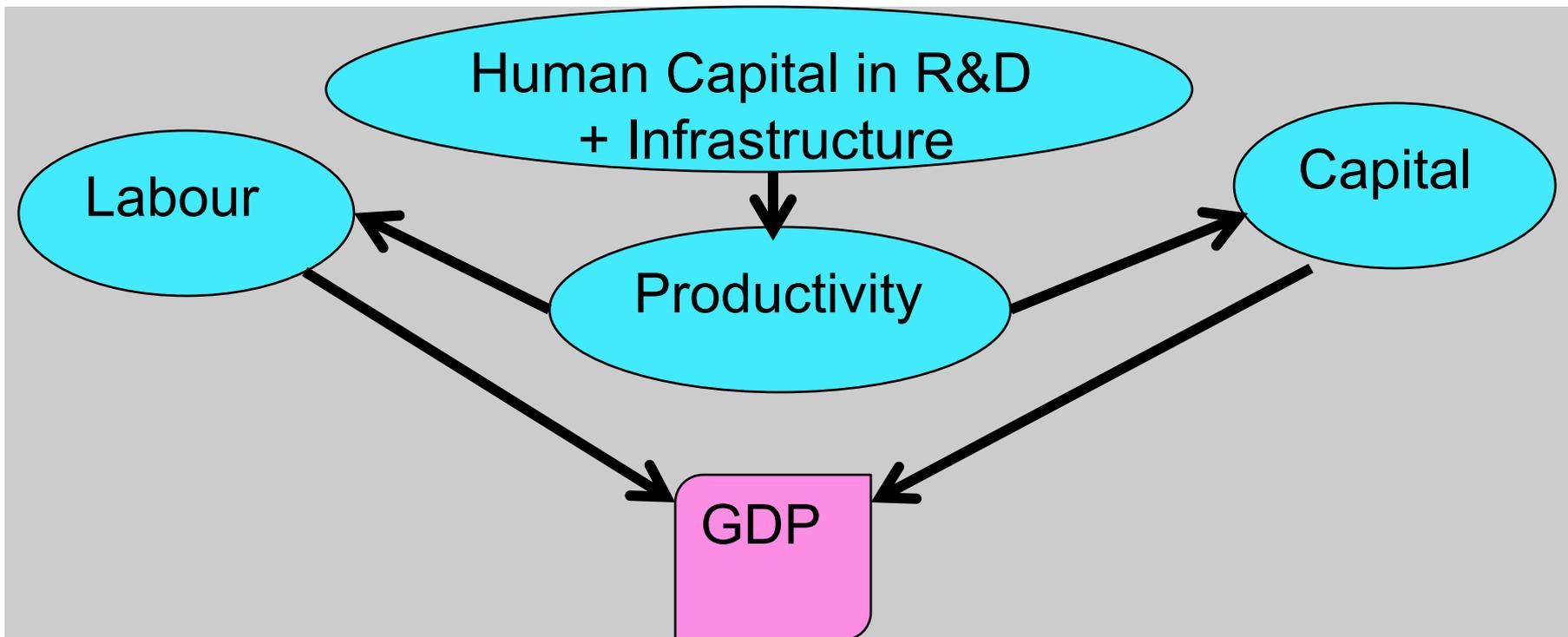
High-Speed Line Munich – Verona





Benefit=
change of
consumer's
and producer's
surpluses

- **New economic geography (Krugman, Venables)**
- **Bröcker: SCGE for EU, only 2 sectors**
- **Graham; 2006: Simplification, standardization**
- **overemphasizing agglomeration impacts**
- **macro-econometric, system dynamics +
Extended Input-Output Analysis more
appropriate**



$$\dot{A} = \frac{dA}{dt} = \delta * H_A * A$$

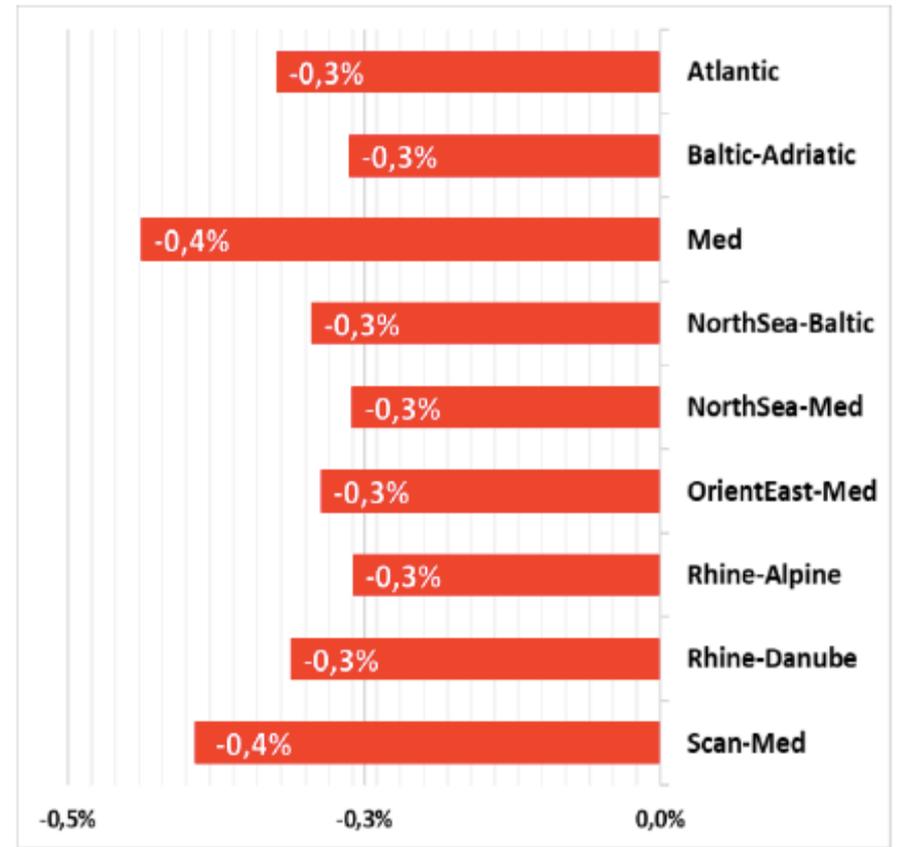
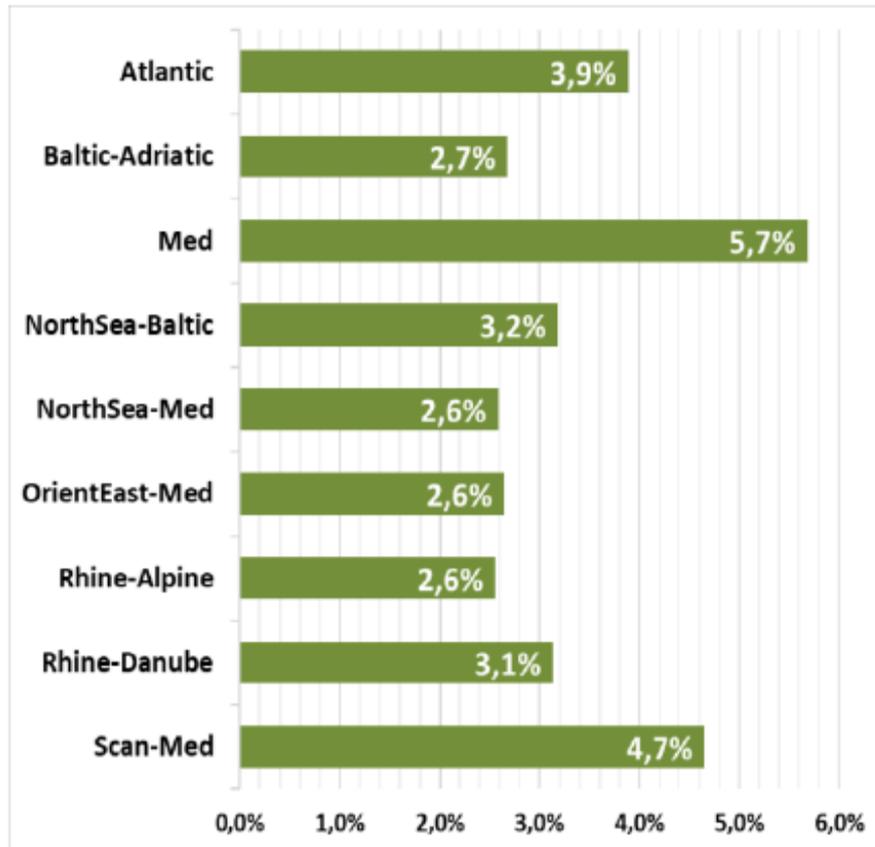
A: tech. knowledge

H_A : human capital

δ : productivity of H_A in R&D

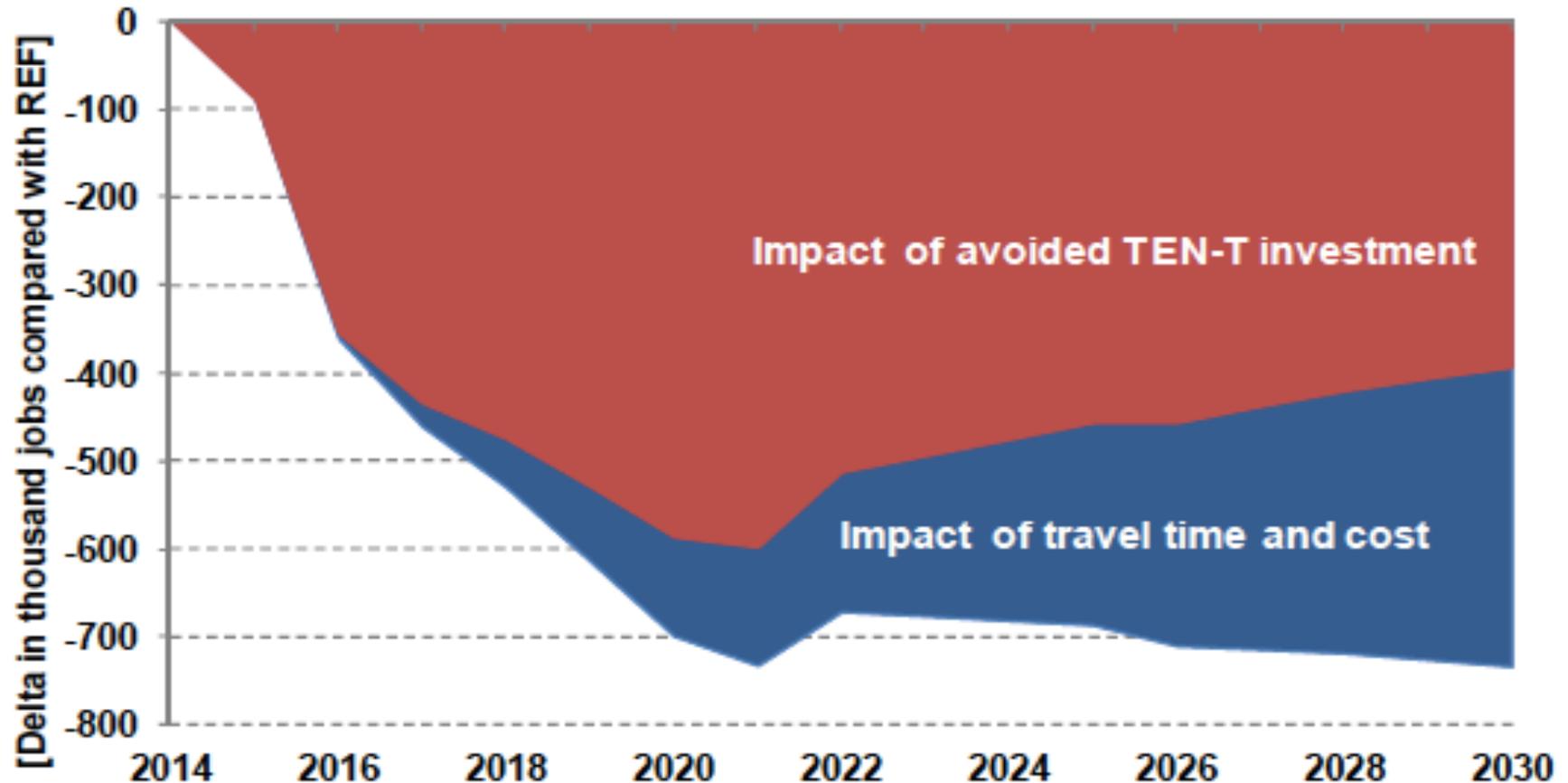
Pass. Transport

Rail left; Road right; in%

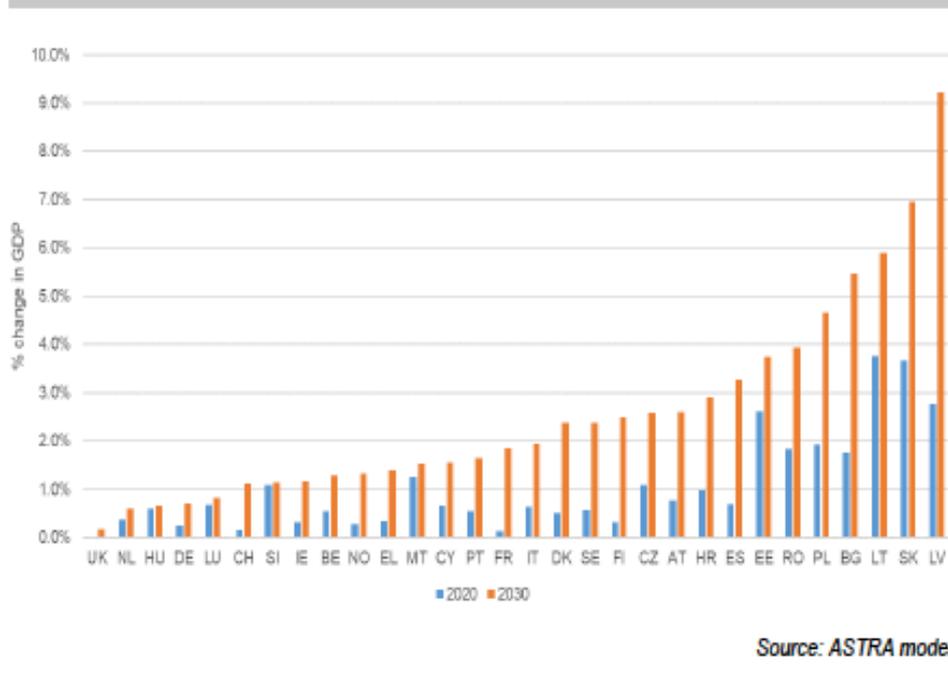


Source: ASTRA model

Investment and transport time/cost impact on employment in EU27

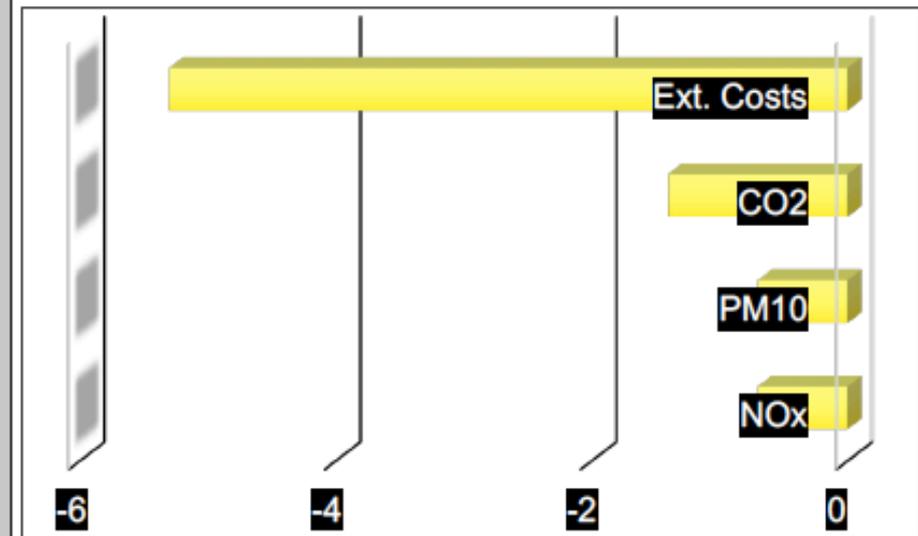


% Change GDP

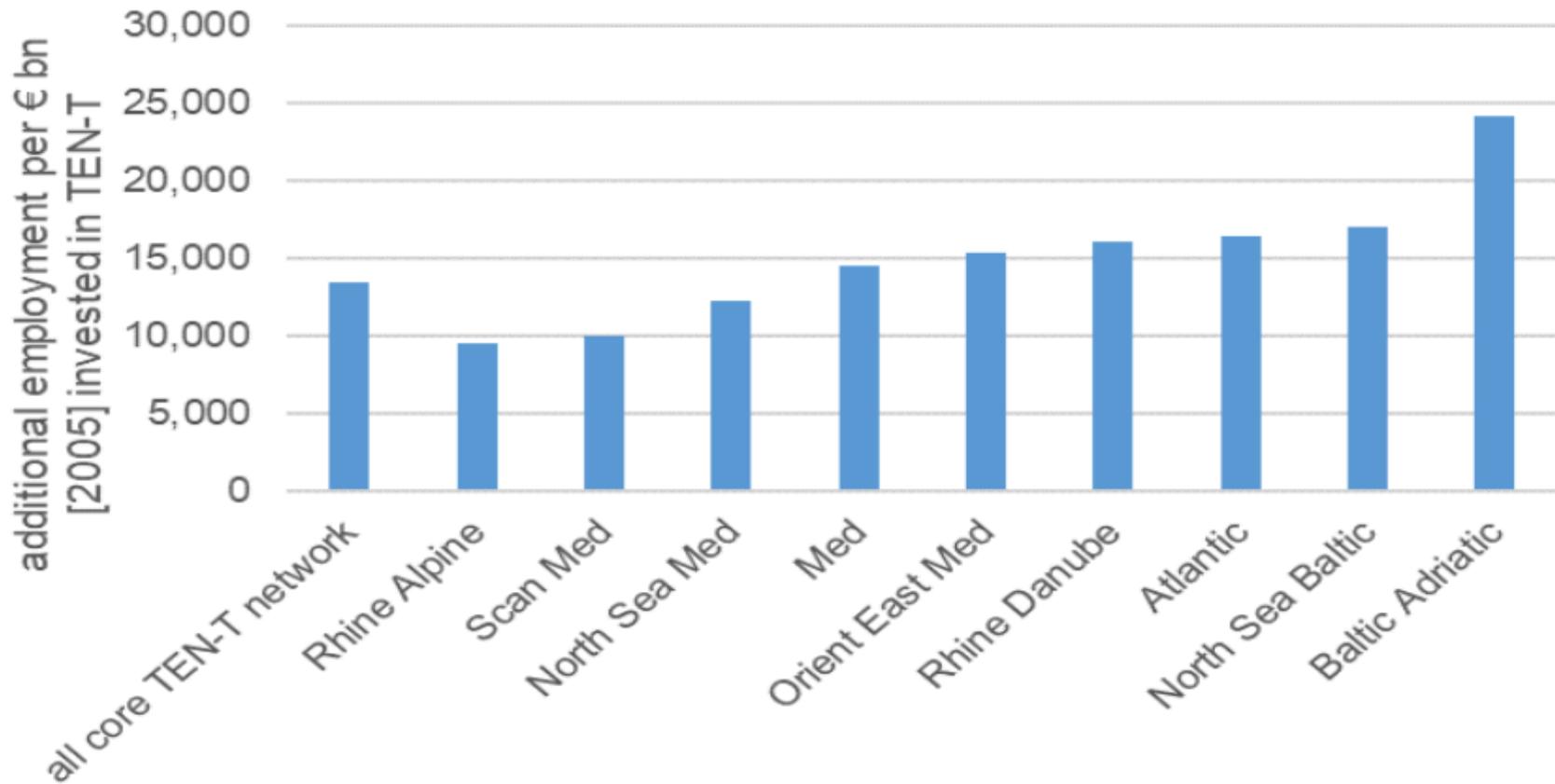


% Change Env. Indic.

% Change vs Basic Scenario



Employment Impacts of CNC Investments



Source: ASTRA model

- **WEI relevant** for large projects and infrastructure investment programmes; CBA not sufficient
- Education, transport and communication infrastructures (4th IR) open **options** for future growth
- Integration of WEI, endogenous growth impacts, spatial equity balance and energy/environment in IAMs necessary for **holistic assessment**
- To avoid planning&investment failures:
Check alternatives and opportunity costs!