

# Did commercial transport models already reach adulthood?

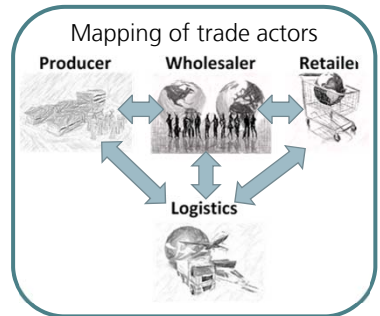
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## What is a model?

### Properties of Models (Stachowiak 1973)

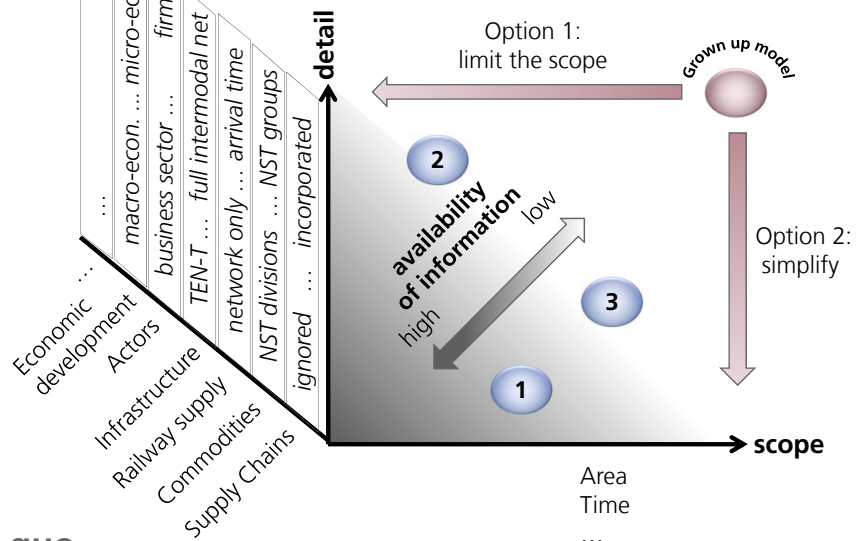
#### Mapping, Reduction, Pragmatics

A model is the mapping of some object, in our case the commercial traffic. It identifies and focuses on relevant properties (reduction) by leaving out some real-life properties, by using properties that have no equivalent in real-life, or by emphasizing specific properties (contrast). Every model serves a purpose (pragmatics).



## Challenges of maturation

- complexity of goods-flows between actors (interlinkage/networks)
- diversity of commodities handled per organisation
- dynamics of behavior and decisions
- increasing complexity of advanced modeling levels (scope vs. detail)
- identification of relevant external factors
- interface between supply chain management and transportation modeling
- availability of business data



## „Reality check“ (selected examples)

1

### VISEVA-W

(TU Dresden, Theorie der Verkehrsplanung)

- model for small scale areas (urban freight)
- based on tour-pattern
- Allows any combination of actors and vehicles
- covers trip generation and trip distribution

2

### InterLOG

(KIT, Dissertation Gernot Liedtke)

- model for large scale areas (Germany)
- rule-based freight transport simulation system
- covers trip generation and trip distribution

3

### GootSila

(DLR-Institut für Verkehrsforschung)

- model for large scale areas (Europe)
- commodity-flow based approached
- covers trip generation, trip distribution, modal split

## Status quo

- Currently no existing model provides comprehensive coverage of the complex dynamics and interconnections of the entire goods transportation system.
- Data for calibration and validation is scarce and the identification of relevant parameters is still under discussion.
- The reduction of properties is still discussed within the research community
- Commercial transport models still need further maturing before reaching adulthood.

## Towards a “grown-up” model – Opportunities & Risks

- The European Union follows a path towards standardization of statistical data which will improve comparability and support data fusion RISK: loss of detail.
- Gaps in available data have to be filled by empirical research which is expensive and time intensive; RISK: “short cuts” are taken by relying on small samples or by neglecting high complexity and diversity of structures, where huge differences can occur even within countries or industries
- Commercially available data can fill many gaps RISK: it is not always easily available, not standardised, often specific to business sectors or areas.
- Research on specific industries contributes to improvement of models. RISK: dynamics of economic developments with rapidly changing structures neglected

### Current empirical research topics at DLR to fill knowledge gaps

- Research on Logistics Hubs (DFG funded project in cooperation with TU Dortmund on structures of logistics hubs in Germany and their impact on transport demand)
- Research on retail (extensive surveys with retail experts and actors with comparison of structures in France and Germany) in cooperation with IFSTTAR

