Towards a new generation of land use transport interaction models. A viewpoint

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http://geoservice.pbl.nl/website/flexviewer_embedded/flexviewer/index.html?config=cfg/NL/MXD/CLO_NL0063_1.xml

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Outline

- **Conclusions**
- **Introduction**
- **Underpinnings of conclusion**

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1. Conclusion:

1. Needed: next generation of LUTI models, for trends like:
- peak car
- decline (population, shops, services, …)
- the impact of ICT on activity patterns and travel
- cycling trends and policies
- (and maybe more)

2. Lack of empirical evidence: what-if – change parameters

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2. Introduction

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Common in trends raising need for a new generation of LUTI models:

- **Not more residential, commercial, work areas, but adaptations within current system (EU, Japan, some areas USA, ….)**
- **Linked to many changing policy questions (redevelopment, social exclusion, stop PT services)**
- **Asymmetry in effects: growth versus decline (sunk costs, behavioural aspects)**

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However:

- **Future of trends: uncertain**
- **Lack in empirical research: dynamics trends, and their wider impacts on the land use and transport system**

Therefore:
<u>What-if</u>

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Also needed:

- **wider set of accessibility indicators**
  - **potential accessibility (incl ICT?)**
  - **possibilities for activity patterns**
  - **Desaggregations (groups of people, areas: fairness)**
  - **Logsum: valuation**
- **interactions between key actors in the transport and land use system (serious gaming)**
- **dynamic visualisations**

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Much also relevant for conventional transport models

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3. Underpinnings: trends

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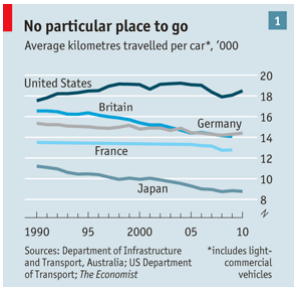
<u>Peak car:</u>

- **Not only Crisis**
- **Parameters homogeneous groups of people probably not stable**
- **Trends uncertain**

(e.g. Special Issue Transport Reviews, 2013, Goodwin and van Dender, eds.)

<u>LUTI</u>: less impact of roads on land use? What-if: parameters



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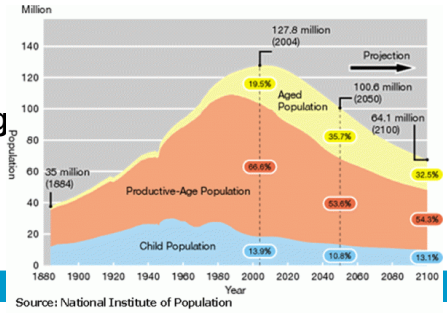
Demography
Less growth, decline, regional heterogeneity

Example national: Japan. Regional variation: France (social exclusion)

LUTI: from growth to decline
Sunk costs
Behaviour: not symmetric (e.g. Dargay, 2001; air transport demand – fuel+income: Wadud, 2014)



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ICTs impact on activity patterns (working, changing shopping behaviour, e-learning)

- **Substitution, complementarity, fragmentation**
- **Results in past applicalbe for future, in case of 'much better ICT'?**
- **Maybe dichotomy: social activites – proximity, other modes than car; utilitarian trips: more substitution ICT**

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- **Less traditional shops? Inner city dynamics? ‘Shops’ for information, advise, ‘seeing and feeling’. Buying: online. Then: no need to transport goods – less car use? Less impact of car accessibility on locations of shops?**
- **<u>LUTI:</u> too uncertain? What-if at best …**

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<u>Electric mobility</u>

- **E-bikes, E-cars**
- **Range (bikes: +, cars -)**
- **Mode choice / substitution**
- **Generation**
- **Policies (e.g. restrictions)**

<u>LUTI</u>: area specific?

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Revival bicycle

Los Angeles, New York, Davis, Boulder, Paris, Lille, Germany, …. (Pucher and Bueler, 2012)

- **Proximity**
- **Quality of urban environment**
- **Indirect effect: policies – reallocation of space**

LUTI: short distances, slow modes/cycling

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Policy relevance

- **Redevelopment urban areas – interaction LU-T**
- **Implications of population decline. Market or interventions? Which interventions?**
- **Equity – social exclusion**
- **Infrastructure policies: are extensions 'no regret'?**
- **Closures of PT (lines, stations / stops). Interventions or not? Which?**

- **Interaction between questions / topics**

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Summary of implications for LUTI models

- **What-if calculations**
- **Accessibility indicators / how to model accessibility for which research or policy question?**
- **The role of key actors**
- **Combining LUTI and Expert Judgement**
- **Output, visualization**

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Thank you!

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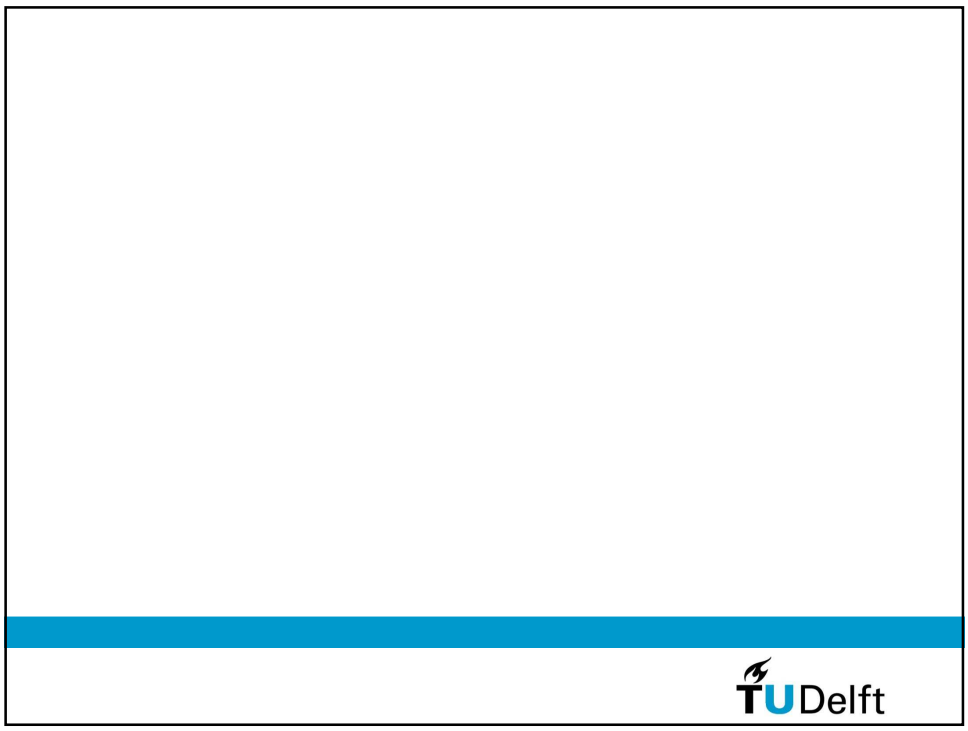
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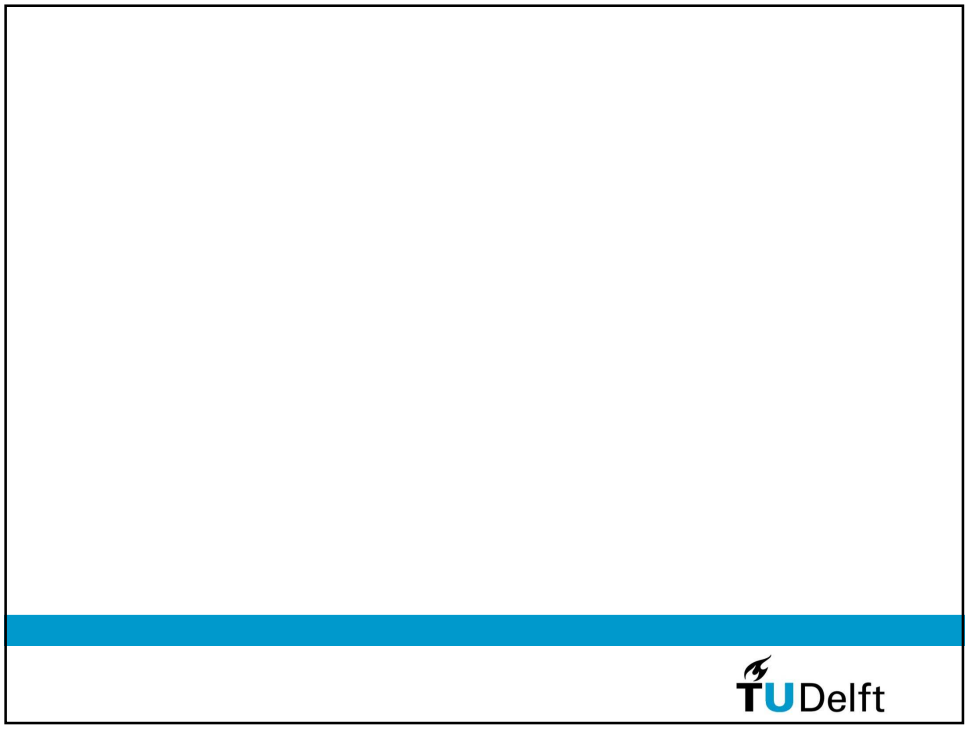
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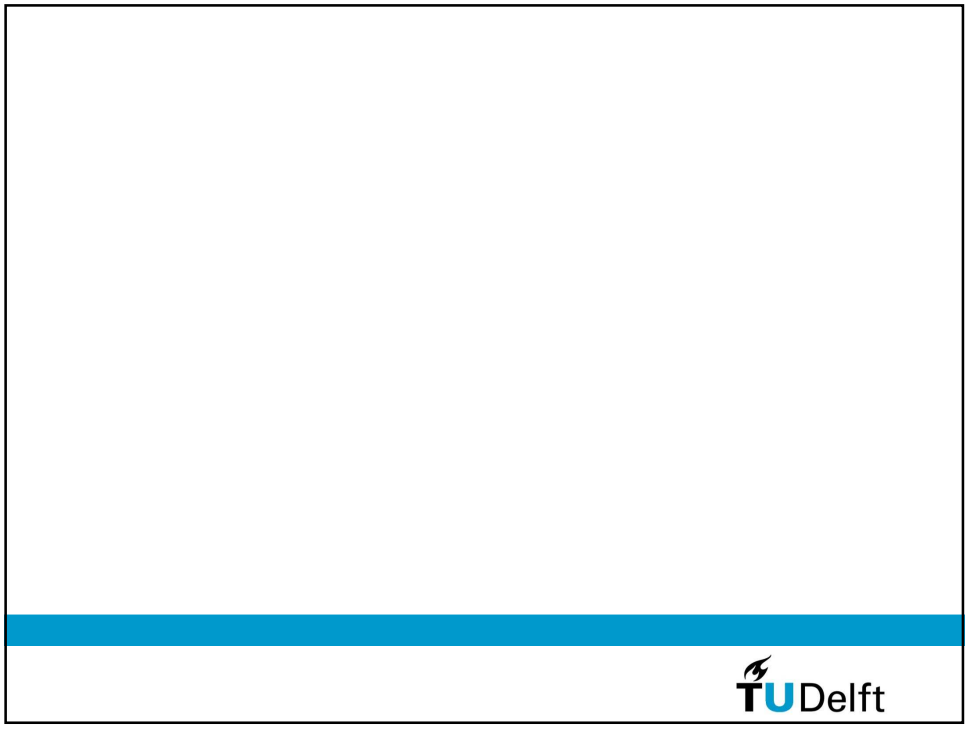
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