Backcasting and mobility futures

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The Order of Things

Foucault (1966, p.235) asks:

"How is it that thought detaches itself from the squares it inhabited before – general grammar, natural history, wealth – and allows what less than twenty years before had been posited in the luminous space of understanding to topple down into error, into the realm of fantasy, into non-knowledge?“

Foucault, M. 1966. The Order of Things: An Archaeology of the Human Sciences

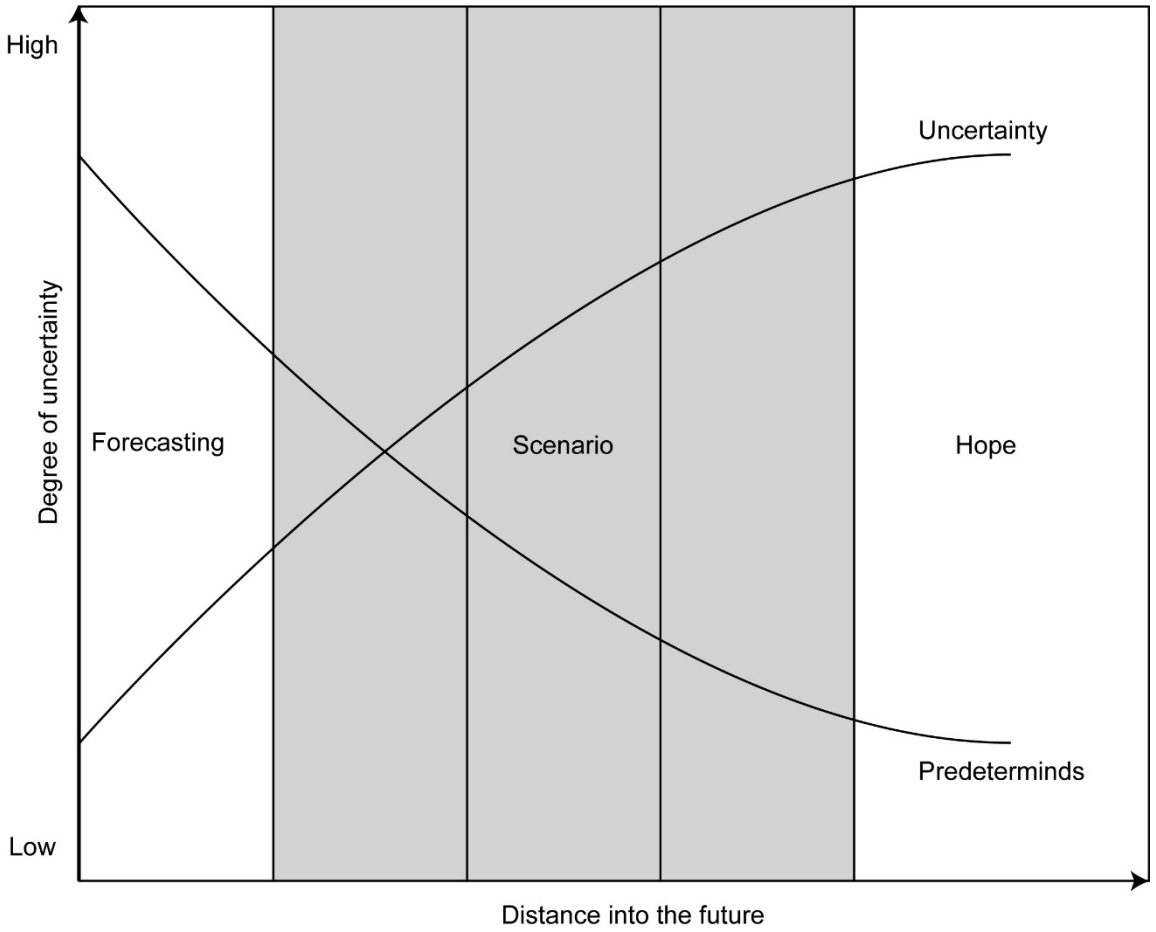
Basic argument: all periods of history have possessed certain underlying epistemological (knowledge) assumptions that determined what was acceptable – and over time these change.

- Perhaps this is what is happening in transport? Some quite fundamental changes are occuring (car usage is marginally declining, status becoming less of an issue, urban living and cycling undergoing a renaissance?)
- Perhaps our approaches in transport planning also need to change?

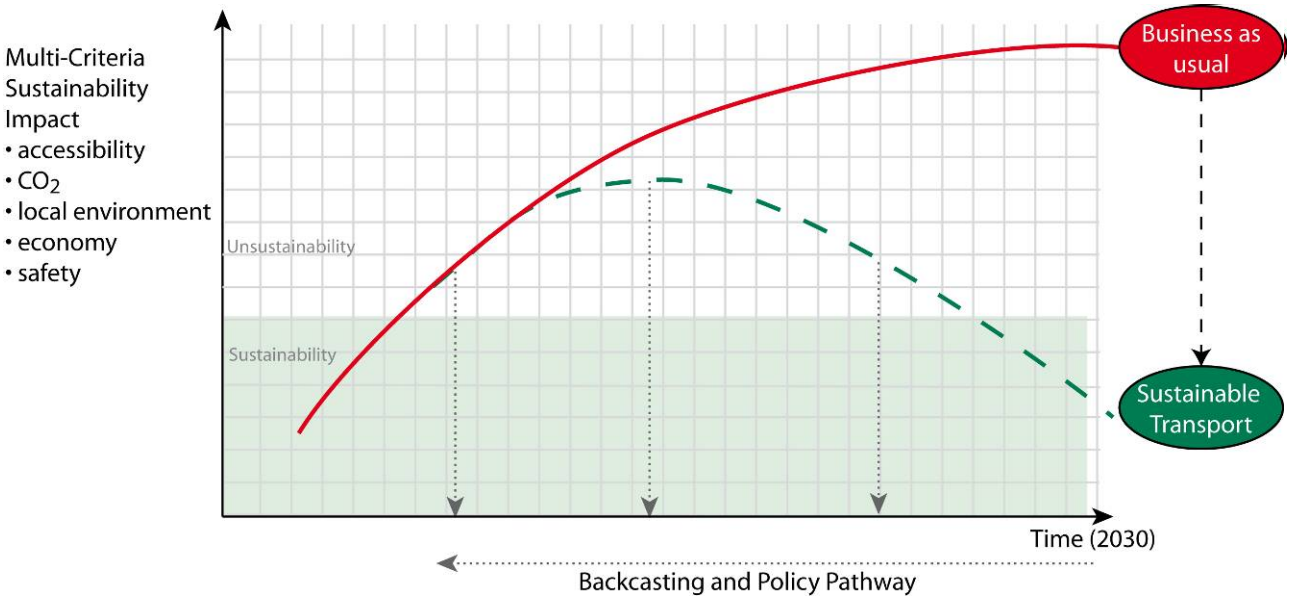
Scenario Analysis

Scenario analysis – useful in the long term when levels of uncertainty are high, predetermined factors low – and forecasting breaks down.

And/or, when we wish to break current trends – say environmental or social?**



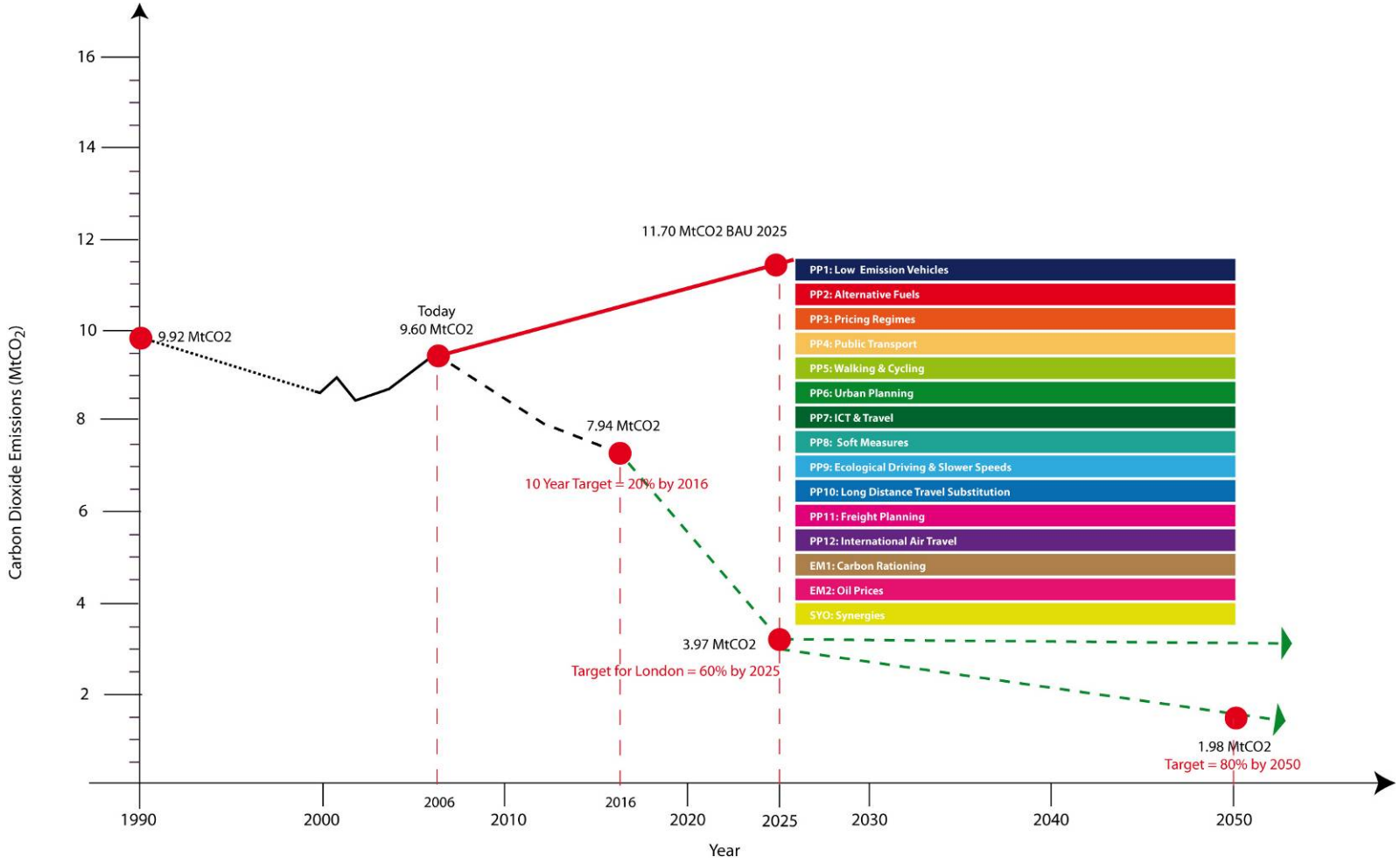
Scenarios and Backcasting



- Baseline and projection
- Alternative scenario(s) of the future
- Policy measures and packages available
- Appraisal, costing, optimum pathways

Hickman, R., & Banister, D. 2014. Transport, Climate Change and the City. Abingdon: Routledge.

London: Contributions to the Preferred Scenario



Hickman, R. and Banister, D. 2010. Transport and climate change: simulating the options for carbon reduction in London. Transport Policy, 17(2): 110-125.

Backcasting

The major distinguishing characteristic is: “a concern, not with what futures are likely to happen, but with how desirable futures can be attained. It is thus explicitly normative, involving working backwards from a particular desirable end-point to the present in order to determine the physical suitability of that future and what policy measures would be required to reach that point.”

Robinson, J. (1990) Futures under glass: A recipe for people who hate to predict. Futures, 22(8): 820-842.

Comparing Forecasting and Backcasting?

Viewpoint	Forecasting	Backcasting
1. Philosophical views	causality; determinism; context of justification	context of discovery; achievement of goals
2. Perspective	dominant trends; likely futures; possible marginal adjustments; how to adapt to trends	societal problem in need of solution; desirable futures; scope for human choice; strategic decisions
3. Approach	extrapolate trends into the future; sensitivity analysis	define interesting futures; analyse consequences, and conditions for these futures to materialise
4. Methods	econometric models; various mathematical algorithms and models	partial & conditional extrapolations; develop preferred future scenarios; participatory backcast pathways

Amended from Dreborg, K. H. 1996. Essence of backcasting. Futures, 28, 813-828.

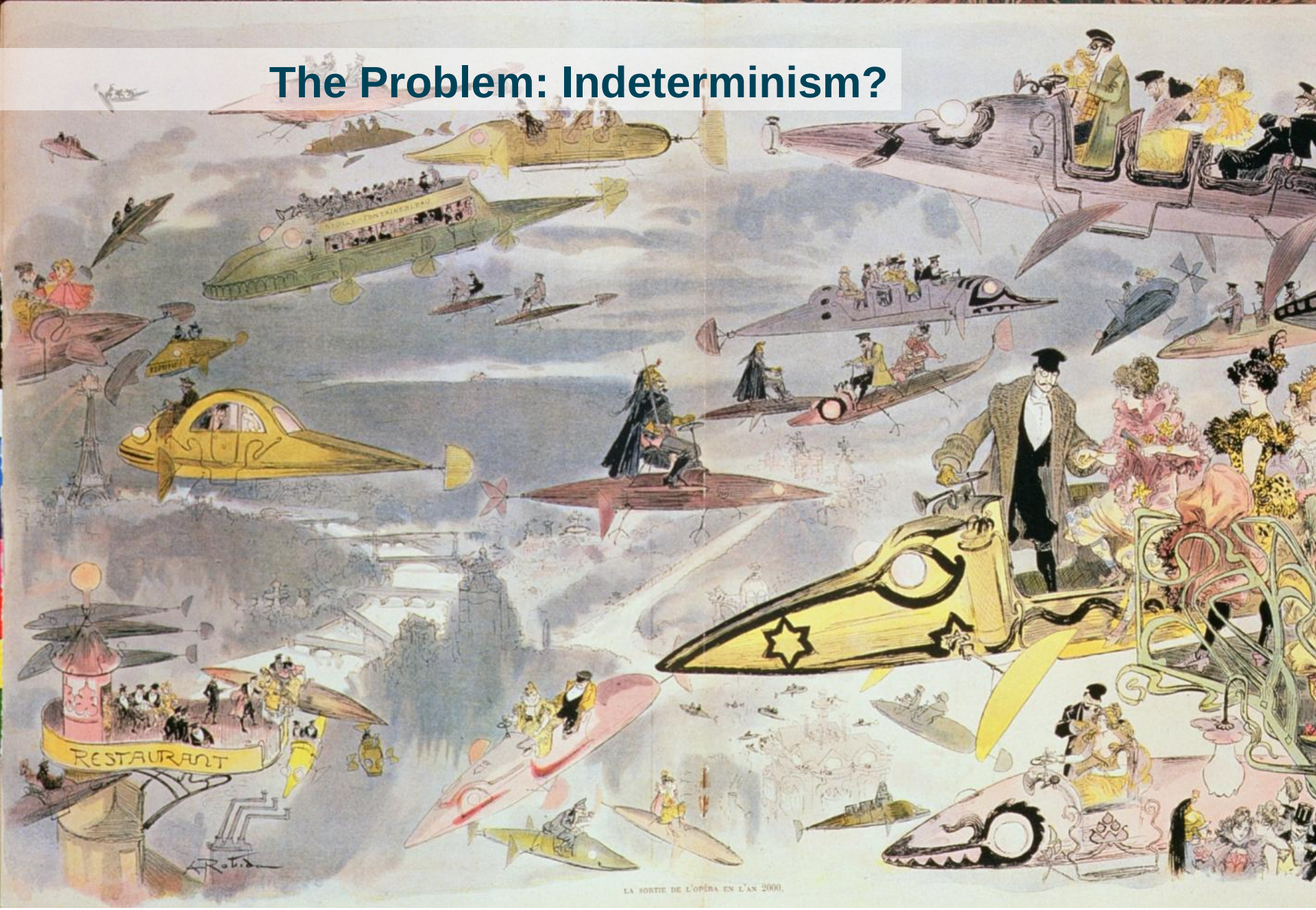
When to Use Backcasting?

Backcasting should considered when the subject to be studied concerns a major societal problem that needs to be solved.

- when the problem to be studied is complex, affecting many sectors and levels of society
- when there is a need for major change, i.e. when marginal changes within the prevailing order will not be sufficient
- when dominant trends are part of the problem – these trends are often the cornerstones of forecasts
- when the time horizon is long enough to allow considerable scope for deliberate choice

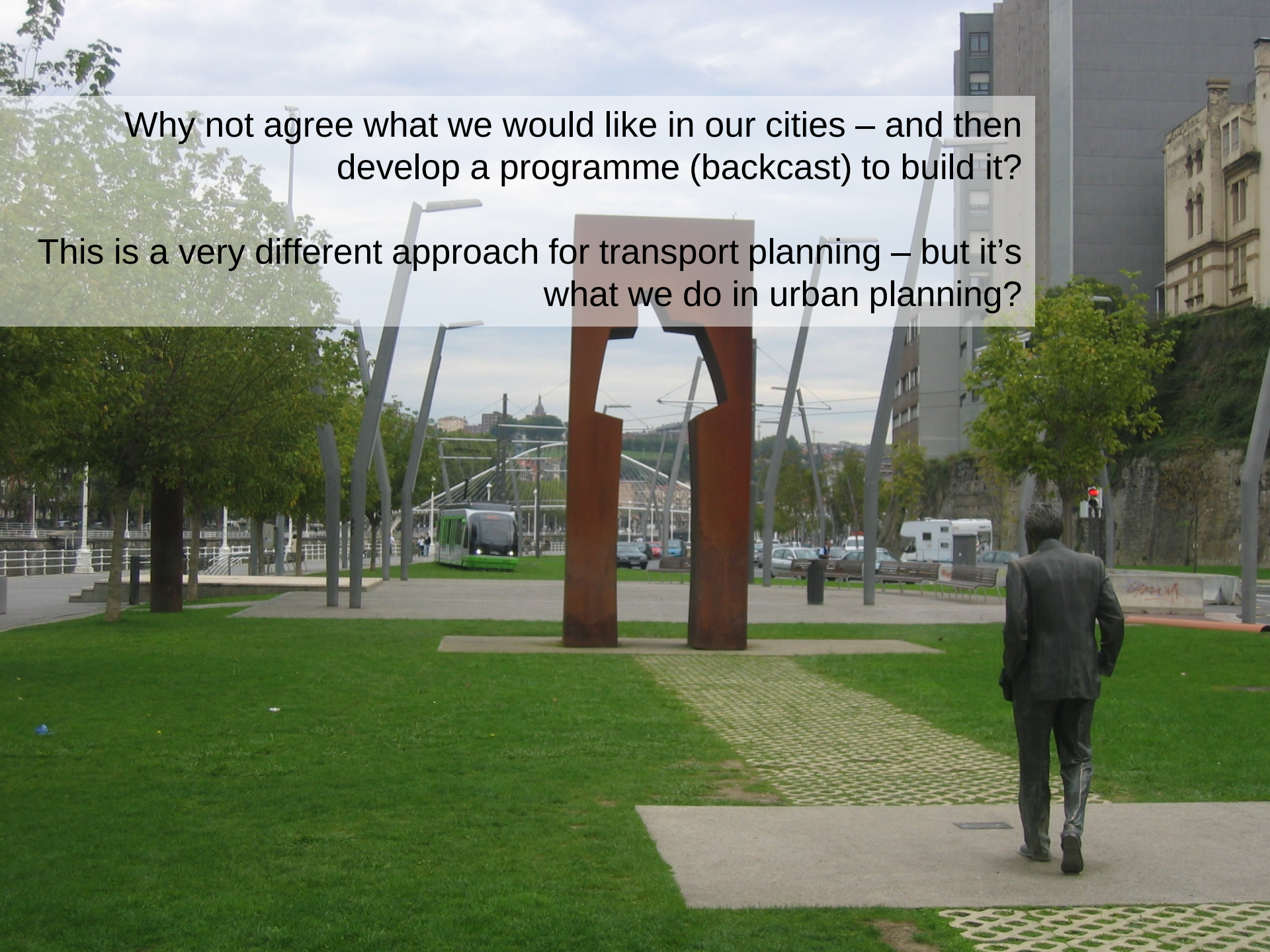
Dreborg, K. H. 1996. Essence of backcasting. Futures, 28, 813-828.

The Problem: Indeterminism?



Leaving the Opera in the Year 2000, Albert Robida (1848-1926)

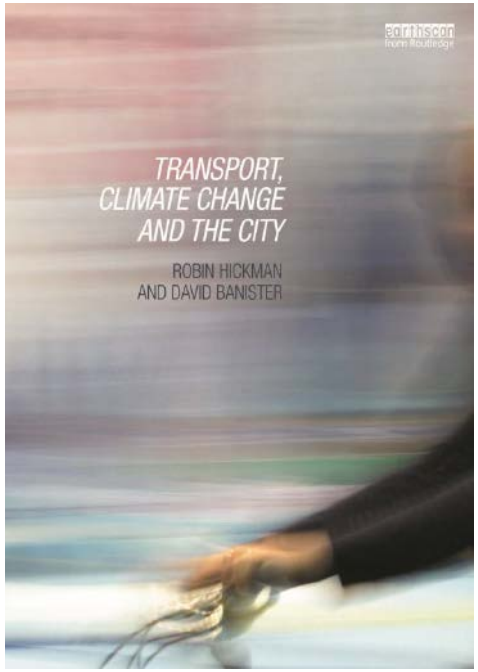
Forecasting – Predicting and Providing?



Why not agree what we would like in our cities – and then develop a programme (backcast) to build it?

This is a very different approach for transport planning – but it's what we do in urban planning?

Key Reading



ÅKERMAN, J. & HÖJER, M. 2006. How much transport can the climate stand? Sweden on a sustainable path in 2050. Energy Policy, 34, 1944-1957.

BANISTER, D., STEAD, D., STEEN, P. ÅKERMAN, J., DREBORG, K., NIJKAMP, P.AND SCHLEICHER-TAPPESER, R. 2000. European Transport Policy and Sustainable Mobility. London: Spon.

DREBORG, K. H. 1996. Essence of backcasting. Futures, 28, 813-828.

FOUCAULT, M. 1966. The Order of Things: An Archaeology of the Human Sciences, London, Routledge 2002.

GEURS, K., VAN WEE, B. 2004. Backcasting as a Tool for Sustainable Transport Policy Making: The Environmentally Sustainable Transport Study in the Netherlands. European Journal of Transport Infrastructure Research, 4, 47-69.

HICKMAN, R., & BANISTER, D. 2014. Transport, Climate Change and the City. Abingdon: Routledge.

HICKMAN, R. AND BANISTER, D. 2010. Transport and climate change: simulating the options for carbon reduction in London. Transport Policy, 17(2): 110-125.

HICKMAN, R. & BANISTER, D. 2007. Looking over the horizon: transport and reduced CO2 emissions in the UK by 2030. Transport Policy, 14, 377-387.

HICKMAN, R., SAXENA, S., BANISTER, D. AND ASHIRU, O. 2012. Examining transport futures with scenario analysis and MCA. Transportation Research A, 46, 560-575.

ROBINSON, J. 1990. Futures under glass: A recipe for people who hate to predict. Futures, 22(8): 820-842.

SCHWARTZ, P. 1996. The Art of the Long View: Paths to Strategic Insight for Yourself and Your Company. New York: Doubleday.

TIGHT, M., TIMMS, P., BANISTER, D., ET AL. 2011. Visions for a walking and cycling focussed urban transport system. Journal of Transport Geography, 19, 1580-1589.

VAN DER HEIJDEN, K. 1996. Scenarios: The Art of Strategic Conversation. Chichester: Wiley (2nd Edition).

Scenario Generation

Elements	Modules		
Starting point of scenario development	**Explorative Scenarios** Development out of present	**Anticipative Scenarios** Development out of future	
Methods of scenario development	**Anticipative Scenarios** Step-by-step building of data	**Deductive Method** Framework plus data	**Incremental Method** Official future is starting point
Approach of scenario development	**Model-based Scenarios** Computer-based models, using algorithms	**Intuitive Scenarios** No usage of algorithms Qualitative methods	
Mode of scenario development	**Generative mode** Iterative process	**Adaptive mode** Linear process	

Frommelt, 2008; Van der Heijden, 1996