

Institute for Transport Studies

FACULTY OF ENVIRONMENT



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# Cost-Benefit Analysis in Transport – a UK Perspective

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ITS

# The Appraisal Process



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# The Appraisal Process (1)



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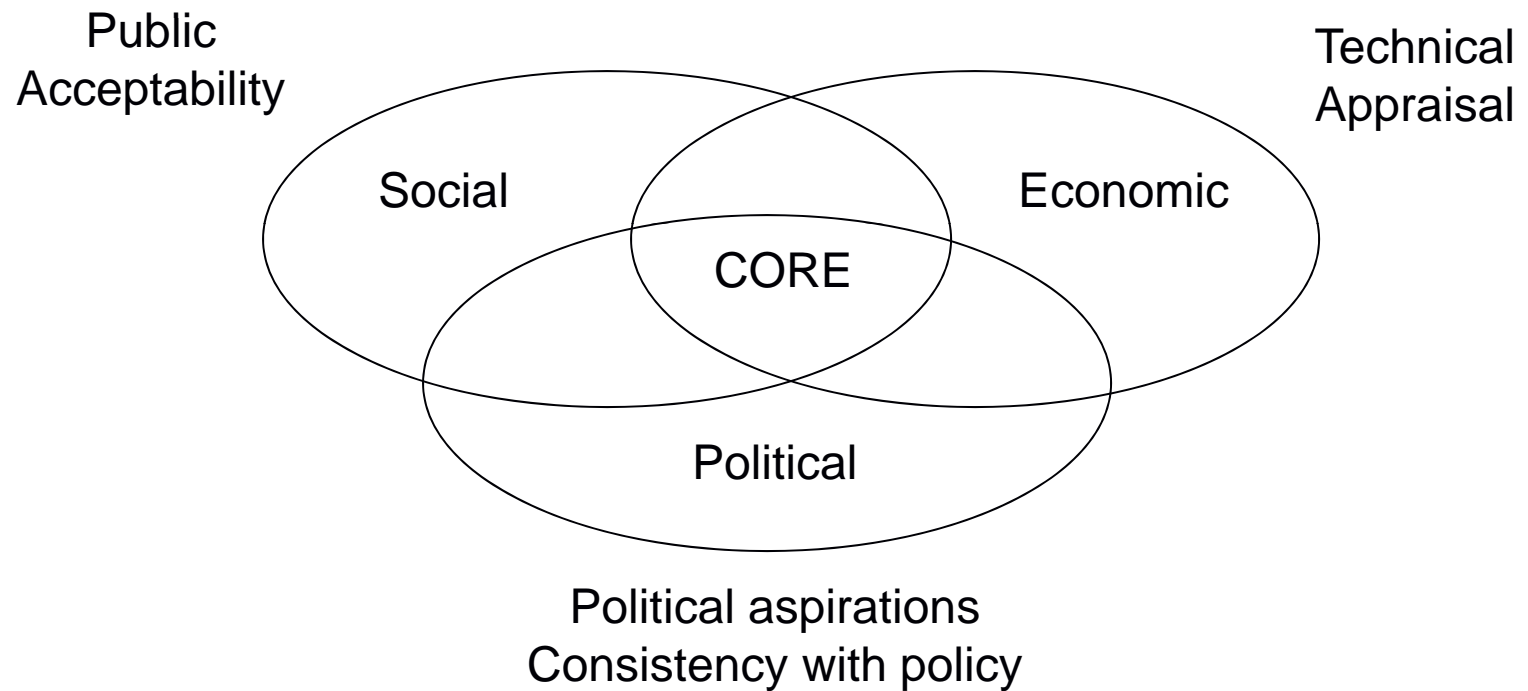
Transport appraisal is like a Russian doll

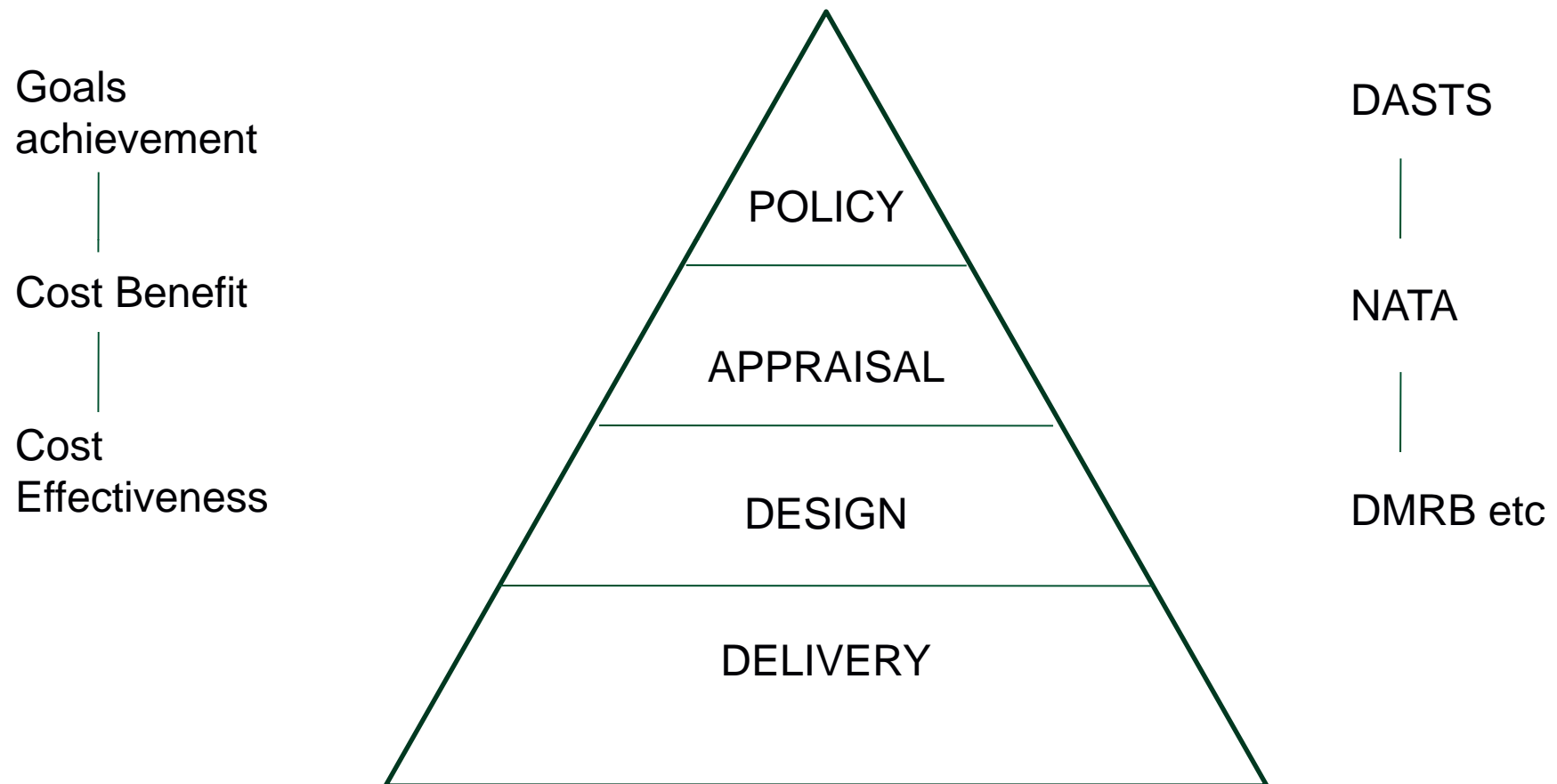
- The overall decision-making process
- Within that process, the technical appraisal
- The form of the technical appraisal – in the UK this is the framework approach (NATA)
- The framework is cost-benefit analysis plus non-monetised impact assessment

# Transport Appraisal – State of the Art



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# The Appraisal Process (2)



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- So, CBA happens within an overall cultural context
- The context is determined by politics, history, geography, the legal system, the stage of economic development
- In the UK context, CBA can be viewed as setting the rules of engagement of the planning system both at national and local level
- The appraisal rulebook is the WebTAG (Transport Appraisal Guidance)

# Impacts by stakeholder of a transport project



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Stakeholder group	Impacts (changes in)
Transport Users	Time Reliability Fares/costs Journey quality Perceived accident costs Option Value
Transport operators/ Infrastructure providers	Revenues Operating costs Capital costs
Non-users	External accident costs Environmental impact
Rest of economy outside transport	Agglomeration Competitiveness Labour markets
Government	Subsidies Taxes Charges Grants



- What decisions is CBA required for? Large/small; capital/current; commercial/social; project/policy
- Is the philosophy commercial plus user benefits and externalities (Sugden/Harberger)? Or is it social appraisal of projects (Pearce/Nash)?
- In the UK we use standard values for non-working time and for safety benefits derived from WTP studies
- CBA is a neo-classical comparative static analytical framework. Is this OK?



# Some Critiques of UK Transport Appraisal



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- Appraisal inadequately aligned to policy or inconsistent with policy
- Policy analysis weak relative to project appraisal
- Appraisal is not very agile – the new problems are reliability, resilience, sustainability, security. Conventional modelling and appraisal does not handle these well
- Inadequate appraisal treatment of induced behaviours – land use change, employment and economic activity impacts



- Values of business travel time savings – is the cost saving approach still tenable?
- Values of time savings are assessed not to vary with journey length – is this defensible?
- Are we sure the values from stated **preference** are “per driver” or “per car”?
- Is the appraisal treatment of fuel taxation correct?
- What is the right definition of the benefit: cost ratio – i.e. what exactly is the constrained resource?



- The biggest questions concern the adequacy of transport appraisal for assessing the impact on the total economy
- British approach following Mohring and others has been until 1999 to rely on perfect competition paradigm – transport benefits are a good proxy for total system benefits
- Following SACTRA (1999) and later work, sources of additional wider economic impacts due to market imperfections have been incorporated in appraisal



- Agglomeration economies – increasing returns to economic mass/density arising from labour market pooling, knowledge spillovers, and other economies external to the firm
- Reductions in deadweight losses due to spatial market imperfections – induced increment in output \* price/marginal cost mark-up
- Similar tax wedge effects due to induced increases in employment



- In current economic conditions (post-credit crunch; significant unemployment; tight public finances), there is a view that the only thing that matters is the impact on GDP, or Gross Value Added.
- Strong desire to incorporate land development and employment effects in city regional appraisal
- Strong desire for appraisal comparison across sectors at local and regional level
- Possible power shift from central to local in terms of funding



- The impact of transport improvements on accessibility and productive potential at area level
  - *Comment: how to model realisation of potential?*
- The relationship between accessibility, real wages and employment at area level
  - *Comment: how to handle employment displacement from other areas versus net generation?*
- The further relationship to agglomeration in the city region
  - *Comment: problematic issues of causality and confounding*

# Concluding Thoughts on Transport CBA



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- A body of coherent knowledge and practice has been built up and codified
- There is a strong link to modelling and design but a weaker link to policy and strategy
- The economic crisis creates policy imperatives which CBA struggles to address
- In any case, policy dimensions such as reliability, resilience and security pose challenges for appraisal going forward