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## Introduction to PROSPECT DMG

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## Strategy Development: Key messages

- Decision-making is increasingly complex
- There is a wide range of approaches to decision-making; none is "best"
- However, a formalised logical structure helps ensure that nothing is missed
- Clear objectives are the essential foundation
- Performance indicators and targets can help
- Integrated strategies are needed to overcome barriers
- Public participation helps throughout the process

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## What form might plans take?

- Guidance available from PROSPECTS
  - Procedures for Recommending Optimal Sustainable Planning of European City Transport Systems
  - Providing cities with guidance in generating optimal land use and transport strategies to meet the challenge of sustainability in their particular circumstances
  - Funded by EC DG Research

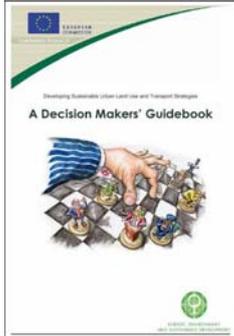
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## The Decision Makers' Guidebook



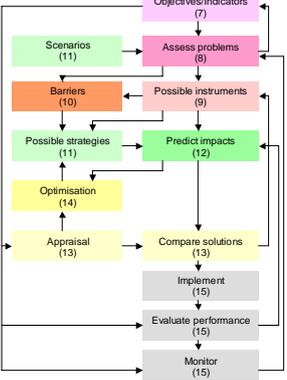
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## The logical structure



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## Clear objectives are essential

- Nationally specified or locally selected
- As contributors to the overarching goal of sustainability
- Specified as desired outcomes of the strategy, not elements of it
- The PROSPECTS list
  - Economic efficiency
  - Environment
  - Liveable streets
  - Safety and health
  - Equity and social inclusion
  - Economic growth
  - Intergenerational equity

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# ITS Performance indicators and targets can help or hinder

- Help to identify problems, suggest solutions, monitor performance, benchmark against others, allocate funding
- Input, outcome, process indicators
- But indicators need to be appropriate
  - Measuring outcome indicators related to all objectives
  - Not simply measuring actions taken or travel patterns achieved
- And TARGETS must be based on these outcome indicators, be realistic and mutually consistent
- PROSPECTS recommendation:
  - Formulate the strategy first
  - Then set targets which are consistent with it
  - As a means of monitoring progress

Possible Indicators		
Objective	Level 1	Level 2
Efficiency	Net present value	Time, money
Environment	Environmental costs	Emissions, noise
Liveable streets	-	Vulnerable user accidents
Safety	Accident costs	Accident numbers
Equity	Accessibility without a car	Losses and gains
Economic growth	Changes in GDP	-
Intergenerational equity	CO <sub>2</sub> costs	Fuel used

Setting Targets

```

graph TD
    Strategy --> Outcome_targets
    Outcome_targets --> Process_input_targets
  
```

# ITS The PROPOLIS indicators

Component	Theme	Indicator
Environmental	Air pollution	Greenhouse gases from transport and land use
		Acidifying gases from transport and land use
		Organic compounds from transport
	Consumption of natural resources	Consumption of mineral oil products, land use and transport
		Land coverage; consumption of construction materials
	Environmental quality	Indicator addressing microclimate; potential for biodiversity
		Quality of open space

# ITS The PROPOLIS indicators

Component	Theme	Indicator
Social	Health	Exposure to particulate matter from transport in the living environment
		Exposure to nitrogen dioxide from transport in the living environment
		Exposure to traffic noise; traffic deaths; traffic injuries
	Equity	Justice of distribution of economic benefits
		Justice to exposure to particulates
		Justice of exposure to nitrogen dioxides
		Justice of exposure to noise segregation
	Opportunities	Total time spent in traffic; level of service of PT and slow modes
		Vitality of city centre; vitality of surrounding region
		Accessibility to city centre; accessibility to services
		Accessibility to open space
		Employment effects

# ITS The PROPOLIS indicators

Component	Theme	Indicator
Economic indicators	Total net benefit from transport	Transport user benefits; transport operator benefits
		Resource costs; external costs; investment costs
	Total net benefit from land use	User benefits; operator benefits; resource costs; external costs; investment costs
		Regional economy and competitiveness

# ITS Scenarios and horizon years

- Need to plan for the future: how far ahead?
  - Far enough to reflect the impacts of policies
  - Not so far that prediction becomes too uncertain
- What will the future context be like?
  - Alternative scenarios give alternative futures
- What are the main attributes of scenarios?
  - Population growth
  - Economic growth
  - Land use distribution
  - Car ownership
  - Others?
- But some of these will be affected by the strategy!

# ITS Car ownership trends in China

Figure 5. Vehicle growth scenario China  
Source: Dongquan Ho, (2004)

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**Identifying problems**

- Identifying today's problems is not too difficult
  - Based on suitable outcome indicators
- But what will the problems be like in the future?
  - Use a predictive model
  - Assess what will happen
    - If no new policies are implemented
    - Under each scenario
  - Use the same outcome indicators to assess the problems
- Given these problems, what are the possible solutions?

```

graph TD
  Objectives --> Problems
  Problems --> Possible_Instruments[Possible Instruments]
  
```

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**Seeking solutions**

- An increasingly wide range of types of policy instrument
- But relatively little guidance on which to consider
- So many cities fail to innovate
- Two sources of guidance
  - The KonSULT knowledgebase
  - New methods for option generation
- An integrated approach, using a package of measures, will be more successful

```

graph TD
  Sources_of_ideas[Sources of ideas] --> Problems
  Sources_of_ideas --> Policy_Guidebook[Policy Guidebook]
  Problems --> Possible_Instruments[Possible Instruments]
  Policy_Guidebook --> Possible_Instruments
  
```

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**KonSULT**  
([www.konsult.leeds.ac.uk](http://www.konsult.leeds.ac.uk))

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**The range of policy instruments**

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**Integrated strategies**

- No one solution to urban transport problems
- So make use of the full range of policy instruments available
  - And the potential for each to reinforce one another
- But note that the interaction between policy instruments may be complex

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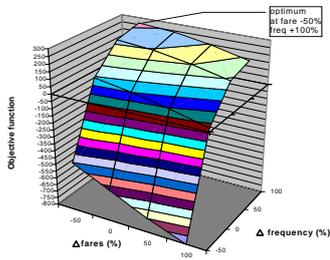
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**Key elements of strategy**

- There are 4 key elements in strategy
  - Reducing needs to travel
  - Reducing car uses
  - Improving public transport
  - Improving road network
- Which one we are using most in Thailand?

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# ITS The effect of different levels of fares and frequencies on benefits

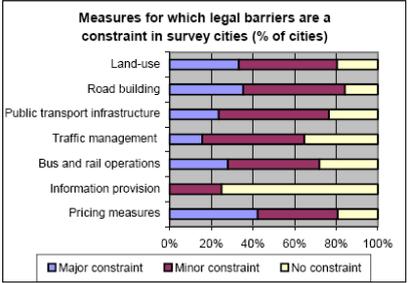


# ITS Consider possible barriers

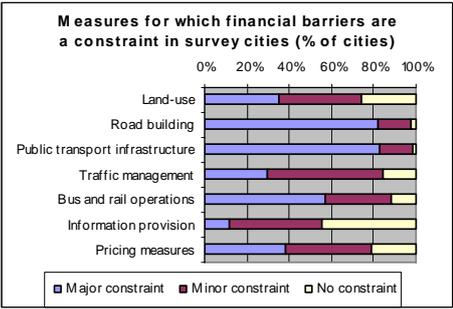
- The barriers can be grouped into four categories:
- Legal and institutional
  - Financial
  - Political and cultural aspects
  - Practicality and Technology



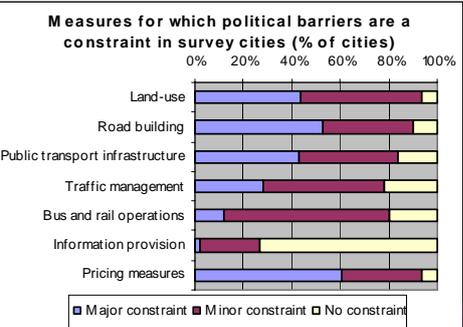
# ITS Legal barrier



# ITS Financial barrier



# ITS Political barrier



# ITS Practical and technological barriers

- For land use and infrastructure these may well include land acquisition.
- For management and pricing, enforcement and administration are key issues.
- For infrastructure, management and information systems, engineering design and availability of technology may limit progress.
- Generally, lack of key skills and expertise can be a significant barrier to progress.



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**Ways of achieving integration**

- Two principles
  - Achieving synergy or complementarity
    - Benefits greater than the sum of the parts
    - Benefits greater than any instrument on its own
  - Overcoming barriers
    - Finance, political acceptability, unfair impacts
- So combine instruments in four ways:
  - Instruments which reinforce each other's benefits
  - Instruments which overcome financial barriers
  - Instruments which overcome political barriers
  - Instruments which compensate losers

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**The integration matrix**

Source: PROSPECTS

These instruments	Contribute to these instruments in the ways shown					
	Land use	Infrastructure	Management	Information	Attitudes	Pricing
Land use						●
Infrastructure	●●	●	●			●
Management	●●	●●●			●	●●●
Information	●	●●	●●●			●●●
Attitudes	●●	●●	●●			●
Pricing	●●		●●●	●●	●	

Key: ● Benefits reinforced  
● Political barriers reduced  
● Financial barriers reduced  
● Compensation for losers

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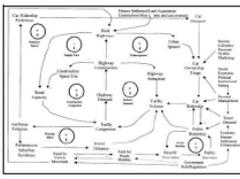
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**Predicting impacts, appraisal and optimisation**

- Use the same predictive model to test suitable combinations of policy instruments
  - Ideally against different scenarios
- Appraise, at least against performance indicators, possibly using an appraisal method
- Look for ways of improving the strategy
  - Test others; choose the best, most robust
- Optimisation can streamline this process




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**Effective integrated strategies**

- Public transport speed, service and fare improvements contribute well
  - But can encourage longer distance travel
- Pricing of car use achieves significant benefits
  - But land use impacts need careful assessment
- Alternative land use policies have little impact alone
  - But can support public transport and pricing measures
- Regulating traffic speeds reduces accidents
  - But cannot alone reduce pollution, congestion
- Infrastructure schemes can provide benefits
  - But only if designed to be consistent with the overall strategy

Source: PROPOLIS

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**Effective integrated strategies**

- A combination of public transport and car use pricing measures achieves the greatest benefits in terms of all aspects of sustainability
  - Particularly when combined with development focused on centres and public transport corridors
  - And the combination helps overcome financial and political barriers
- Potential benefits of such strategies
  - CO<sub>2</sub> emissions reduced by 15% to 20%
  - Accidents reduced by 8% to 17%
  - Economic benefits €1000 to €3000 per capita

Source: PROPOLIS

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**Optimal integrated strategies**

- Optimal strategies typically involve
  - Substantial reductions in fares area-wide
  - Increases in frequency within urban area
  - Peak period city centre cordon charges
  - Low cost increases in road capacity
- Optimal strategies typically cost more
  - But strategies with no net financial outlay can be achieved for only 15% lower benefit
  - With economic benefits €4000 to €6000 per capita

Source: Optimal Strategies

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## Recommendations for Asia

- Publicise the costs of pollution, accidents, congestion
- Develop pro-public transport policies
- Ensure that car use is not subsidised
- Emphasise the role of non-motorised modes
- Adopt a timetable for cleaner vehicles, fuels
- Develop sustainable land use plans

Source: Lohani, 2005



## Implementation

- All good plans need good implementation
- Pitfall for many cases in developing countries
- Lack of skills/experiences and direct responsible organisation
- Sequence of implementation is also important (should be considered during the strategy formulation)



## Monitoring and Evaluation

- We should know the actual impact/result of each policy or strategy
- Monitoring the indicators set and also other related issues (public participation should help)
- Evaluate the performances against the plan
- No news is Good news!!! But bad news helps improving the future

