

# OPTIC

Optimal Policies for Transport in Combination



Expect the unexpected: qualitative and quantitative tools and methods to detect unintended effects of transport policies



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## The context

### Complexity of Transport System

Difficult to correctly and entirely anticipate effects of policies (and/or policy packages)

Uncertainties associated with policy impacts can become visible as unintended effects — in particular the case for long-term policies

Ex-ante assessment reduces but not fully avoids unintended effects

But: broad range of tools/methods available that help to identify (quantify) the blind spots

**Important to be aware of the pros and cons of the methods/tools !**

## Objectives

- Development of an inventory of tools and methods for the ex-ante detection and evaluation of unintended effects.
- Rise awareness for the potentials and limits of different tools and methods used for foresight activities in transport.
- Give orientation for when and where to integrate tools and methods along the policymaking process.

### Our focus: unintended effects

		Consequence dimension		
		A. Intentional	B. Non intentional	
			B1 Counter intentional	B2 Secondary
Knowledge dimension	W. 'Known'	<p>The consequences that decision makers intended with the intervention</p> <p>-----</p> <p><i>Average fuel consumption of new vehicles is reduced; less fuel is consumed</i></p>	<p>Counter-intentional effects that were anticipated at the time of decision</p> <p>-----</p> <p><i>Cars are driven longer and consume more fuel due to lower fuel cost/km (rebound effect); models may predict the effect</i></p>	<p>Secondary effects that were anticipated at the time of the decision</p> <p>-----</p> <p><i>Longer distances driven lead to increase in congestion; models may predict the effect</i></p>
	X. 'Unknown'	<p>Advantageous effects that are not known; serendipitous</p> <p>-----</p> <p><i>New cars inspire some people to 'green driving' lifestyles, saving additional energy</i></p>	<p>Counter-intentional effects not known at the time of decision</p> <p>-----</p> <p><i>Car manufacturers economically challenged by the standard abandon plans to develop ultralite cars</i></p>	<p>Secondary effects not known at the time of the decision</p> <p>-----</p> <p><i>Less public propensity to use alternative travel modes due to cheaper car travel, leading to line closures</i></p>

Typology of unintended effects to be used for the evaluation of tools and methods; Source: TSU Oxford, 2010

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## The Inventory



Methods and tools to identify, evaluate or quantify unintended effects – ex ante

Risk, uncertainties and unintended effects may not be fully avoided, but methods and tools exist to reduce them and give orientation.

For example, it can be differentiated between

a) computer-based models to produce quantitative forecasts and scenarios

b) techniques based on dialogue and discussion to produce/accumulate qualitative knowledge

**1st objective: provide the INVENTORY OF TOOLS**



## Categorisation of tools and methods and their characteristics

### Structurally open methods

- no fixed setting
- mainly explorative
- never purely quantitative, strongly shaped by qualitative elements
- in principle open to detect effects beyond the system boundaries

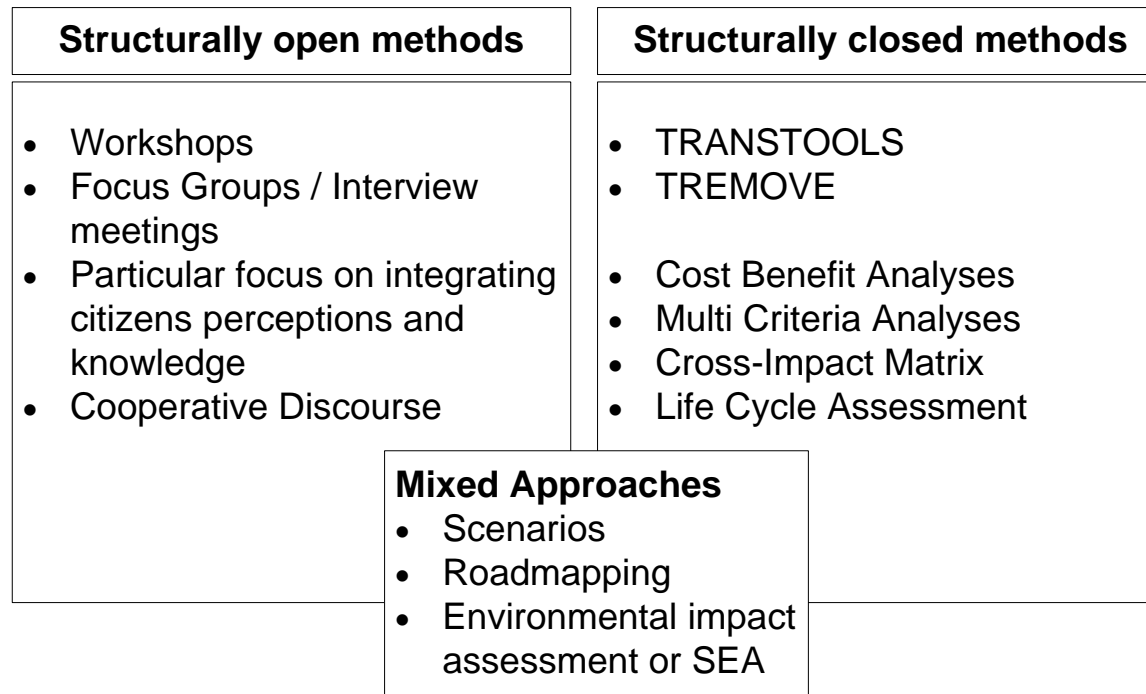
**Examples:** brainstorming, open space, expert workshops, explorative scenarios

### Structurally closed methods

- pre-defined setting
- mainly for analyses of specific situations
- more or less clear understanding of the relevant parameters and causal relationships represented by the linkages between these parameters
- mainly quantitative
- focus on effects inside the pre-defined system
- effects outside the system can not be detected

**Examples:** quantitative models, cost-benefit analyses, multi-criteria analyses

## Categorisation of tools and methods and their characteristics







## Pre-Conclusions

Numerous tools and methods are available to support the policymaking process.

Often purely quantitative tools are not sufficient to address (any) intended or unintended effect.

Policies in combination most likely require a multi-methods assessment.

**2nd objective: integrate ASSESSMENT APPROACHES IN POLICYMAKING**



## Identifying unintended effects // example ,charging infrastructure‘

- policy quantifiable with TRANSTOOLS → has a direct effect on costs
- changes in transport flows and modal shift are adequately addressed

### → ***But: what about the unintended effects?***

for instance, higher transport costs for users with lower (mobility) budgets → contradicts the objective of ensuring EU-wide mobility

- policymaker expects: tool/method that provide information on these effects

TRANSTOOLS not ready for this; structurally open methods are an option, e.g. interviews, surveys, focus groups

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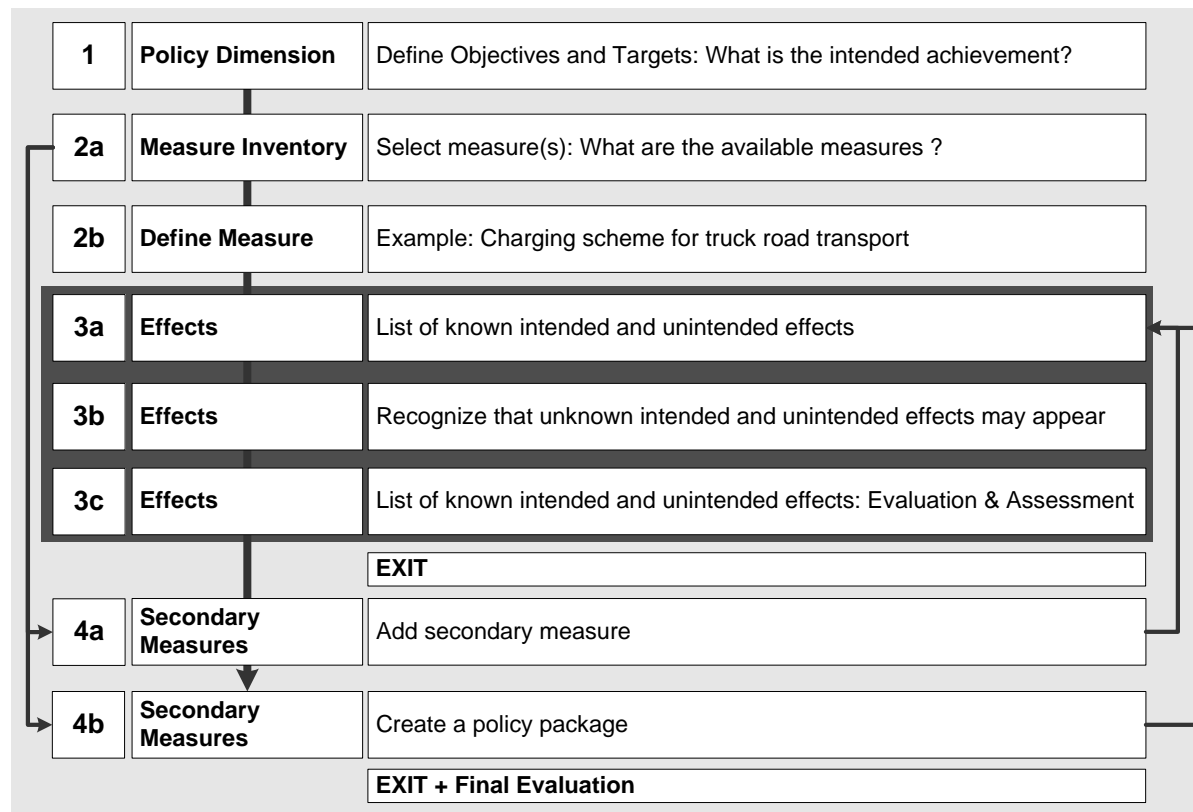
options: (a) improve the model, (b) identify alternative evaluation methods



## **Guiding principles for the integration of assessment approaches**

**Example: Truck Toll in the EU**

### Example: Truck Toll // The policy packaging perspective



### Guiding principles – identify intended and unintended effects

<b>3b. Effects</b>	List of known intended and unintended effects: Evaluation & Assessment
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	INTENDED	UNINTENDED
Less Truck Congestion	X	
Increase in Freight Rail Transport	X	
Less Truck Emissions	X	
Increase in Rail Noise		X
Increase in Truck Flows on Secondary Roads		X
Toll Revenues	X	
General Decrease in Demand for Trucks		X
Higher Demand for new Trucks	X	
Increased export of old Trucks to Non-Member-States		X
Increase in Private Car Flows		X
Increase in Demand for Regional Products	X	
More Air Transport within the EU		X
High Costs for Charging Technology		X
Export of Charging Technology	X	
Improved Congestion Management	X	
...	...	...

CTC\* = Core Typology Categories (see Table 1)

Assessment\*\*: TT = TransTools, TM = Tremove, SO = mainly structural open methods

WA = known, intentional

WB1 = known, unintended, counter-intentional

WB2 = known, unintended, secondary

#### CRITICAL PATHS

- assignment to one of the assessment categories can be wrong due to missing knowledge or functionalities or ambiguity of the measure is not given

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	X. 'Unknown'	Advantageous effects that are not known; serendipitous ----- New cars inspire some people to 'green driving' lifestyles, saving additional energy	Counter-intentional effects not known at the time of decision ----- Car manufacturers economically challenged by the standard abandon plans to develop ultralite cars	Secondary effects not known at the time of the decision ----- Less public propensity to use alternative travel modes due to cheaper car travel, leading to line closures

### Guiding principles – create a policy package

4b. Secondary Measures		Create a policy package		
Primary Measure (1)	Secondary Measure (2)	+ Secondary Measure (3)	SMTypes	Assessment
<div style="border: 1px solid red; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div> Truck Toll on EU Highways	Truck Toll on Secondary Roads	+	Rail Noise Mitigation	EP(2), AP(3) → TT(1), TT(2), SO(3)
	Truck Toll on Secondary Roads	+	Truck Scrappage Scheme	EP(2), AP(3) → TT(1), TT(2), TM(3)
	Investment in Highways Infrastructure (e.g. truck parking facilities)	+	Technology: Funding of Research Projects	EP(2), FP(3) → TT(1), SO(2), SO(3)
	...		...	...

**CRITICAL PATHS**

- the more measures considered, the more likely that mixed assessment methods are necessary which may increase the uncertainty about potential combined measure impacts
- the estimation of inter-measure action gets uncertain with more measures combined, especially when more structural-open measures are applied
- secondary measures may create further known and unknown unintended effects



## Conclusions and recommendations

Dedicate at an early stage resources on a qualitative approach to identify intended and unintended effects. Get back to this evaluation with each additional measure of the policy package.

Assess first the principal measure in isolation, then conduct the combined assessment of the package.

Define whether structurally open or structurally closed methods are adequate for the assessment (or a combination of both). This allows to get a notion of the resources needed (for e.g. model runs, stakeholder and expert consultations).

Most likely, models can support ex-ante assessment, but need to be embedded systematically in a broader framework, including structurally open methods.



## Summing up

Use structurally open methods in an explorative phase at the beginning; simple pre-structured approaches (e.g. CBA) can be applied to exclude unrealistic options at an early stage; stakeholder as well as the wider public should be involved

Use structurally closed methods in the middle of the planning process where quantifications are the main task (work dominated by experts and the application of analytical models)

Use again structurally open to the end, discursive methods for the interpretation of the results; potentially affected groups should be involved



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**Thank you for the attention.**

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