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Socio-economic aspects in the FOT assessment

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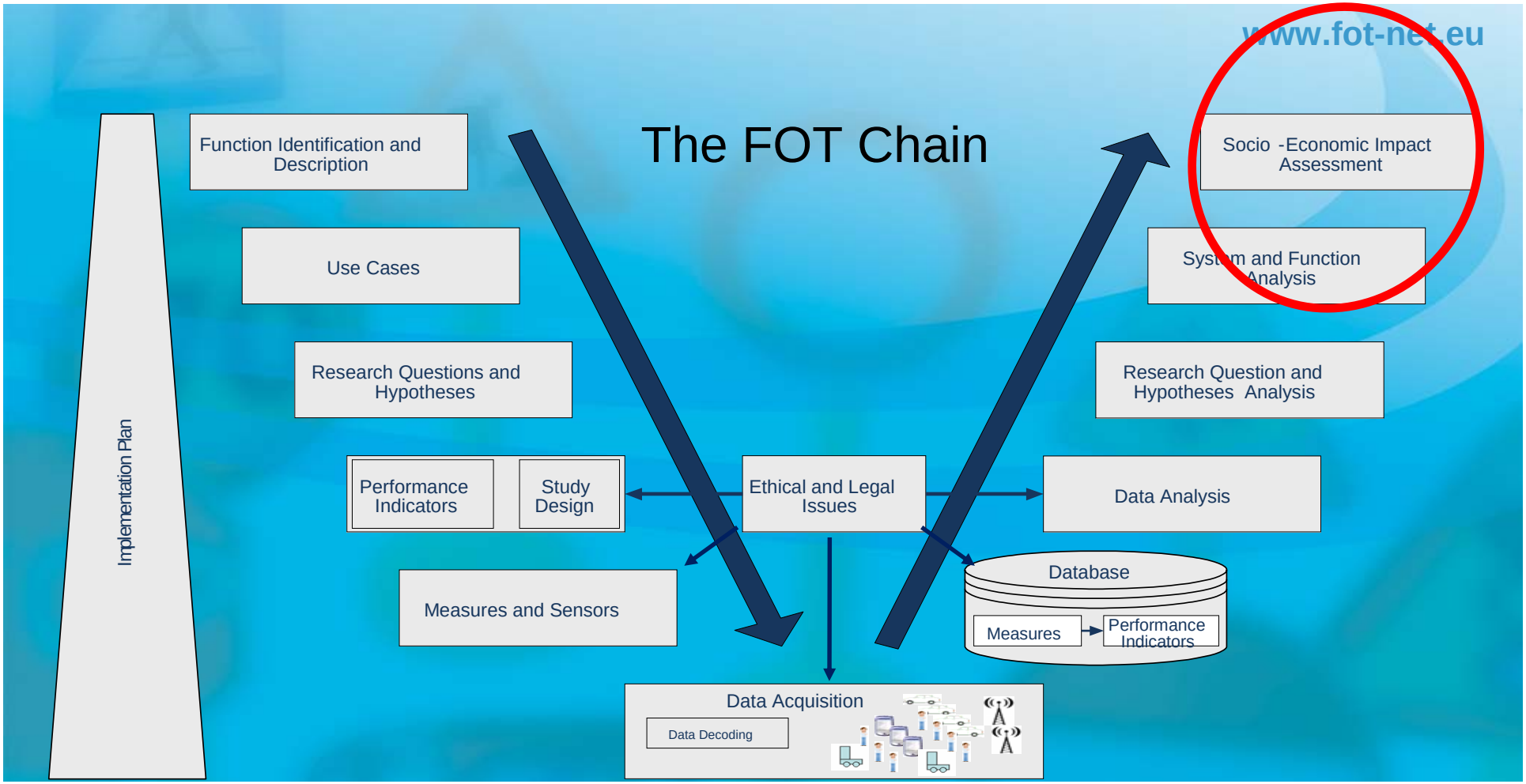
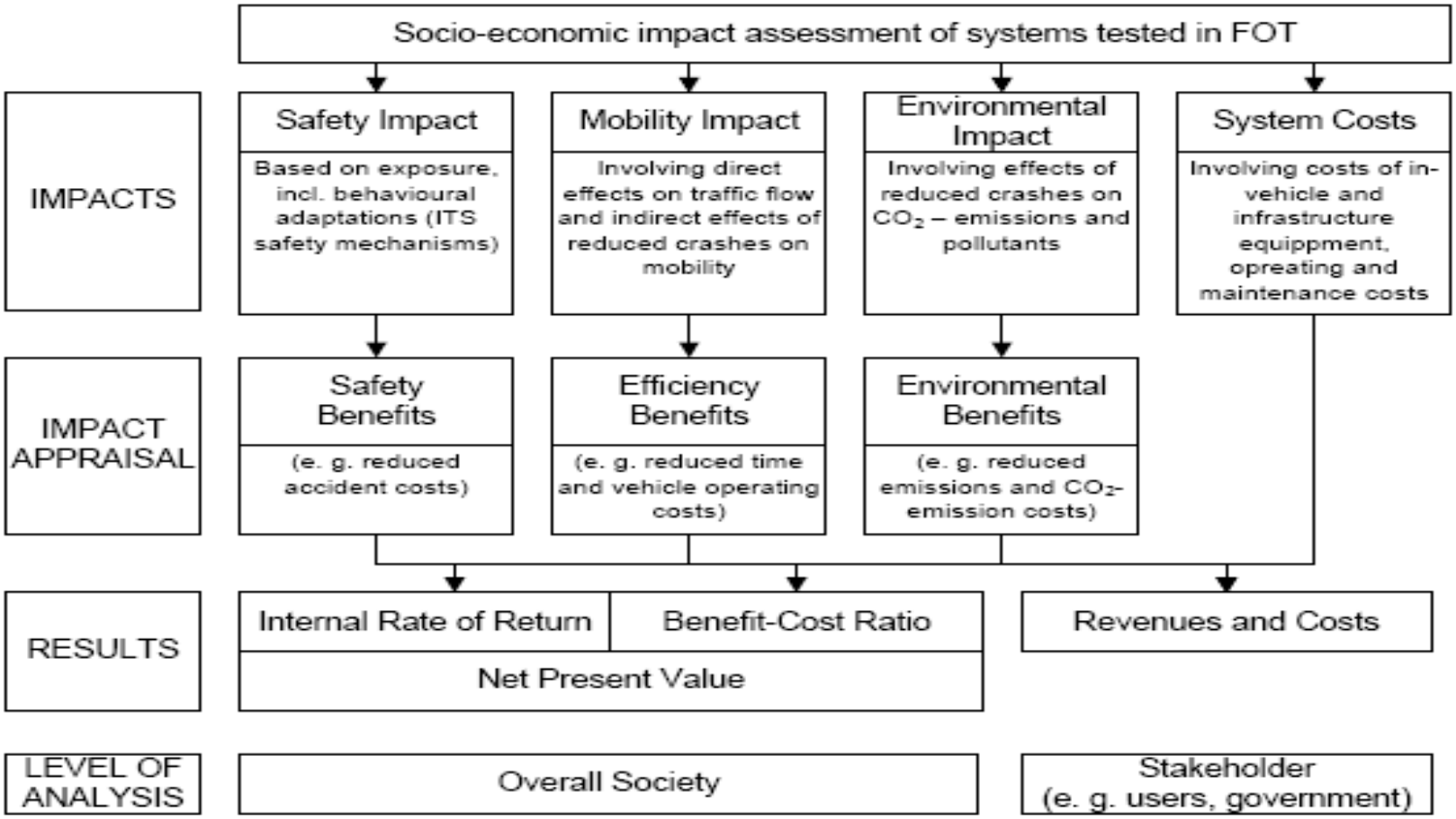
SEVENTH FRAMEWORK PROGRAMME

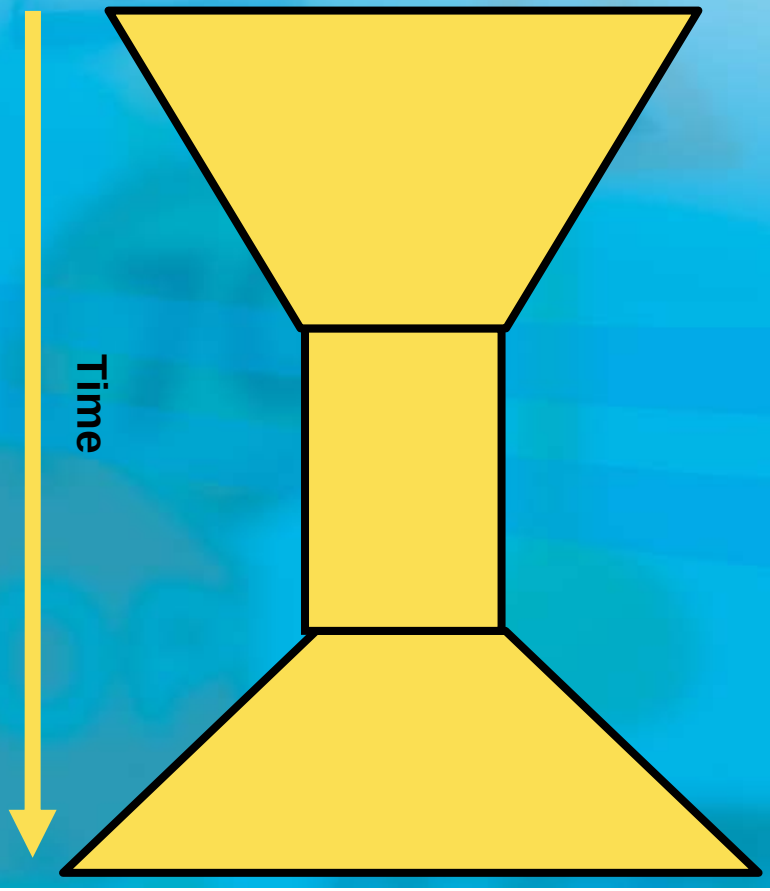
Planning: Position of Cost-Benefit Analysis (CBA) in the FESTA V



Planning: Framework for socio-economic impact assessment



Planning: CBA Involvement in FOT – The sandglass pattern

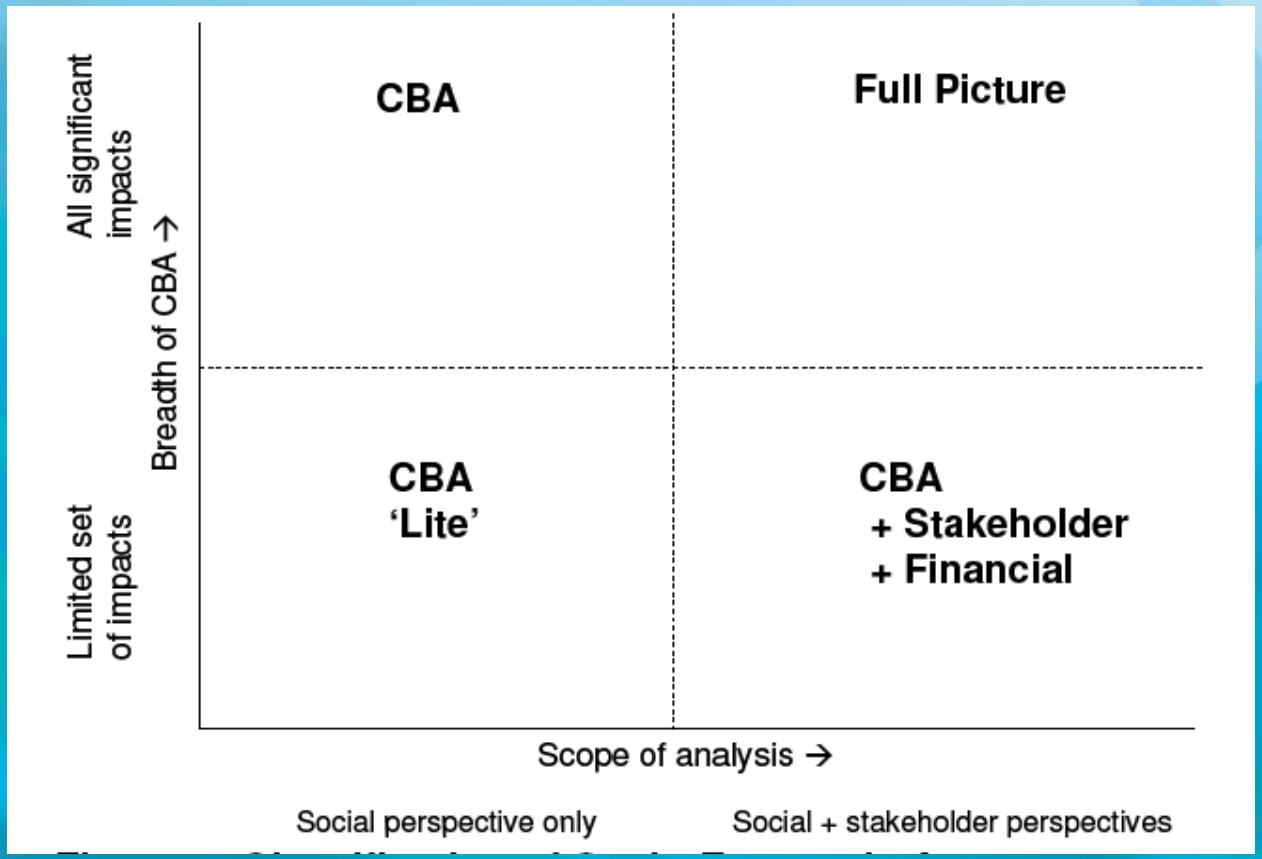


- Initial phase
- CBA is not a rookie's job
- Clarify scope of CBA
- Address CBA issues and discuss implications of choices (CBA design)
- On watch phase
- Particularly useful for exploring cost side
- Results phase
- Monetisation of impacts (benefits)
- Result: NPV or BCR
- Plausibility checks and sensitivity tests

Planning: Scope of CBA

Guiding principle:

Be economic in the assessment of FOT economics!



Planning: Issues to consider

- Relevant impacts (safety, mobility, environment…)
- Geographical scope ([sub-] national / EU level)
- Assessment of stand-alone functions or bundles of applications
- Lifecycle versus snapshot CBA
  - **Effects over entire assessment period**
  - **Assessment for one or several preselected target years**
- Selection of the reference year

Planning: Interaction – Selection of the Reference year

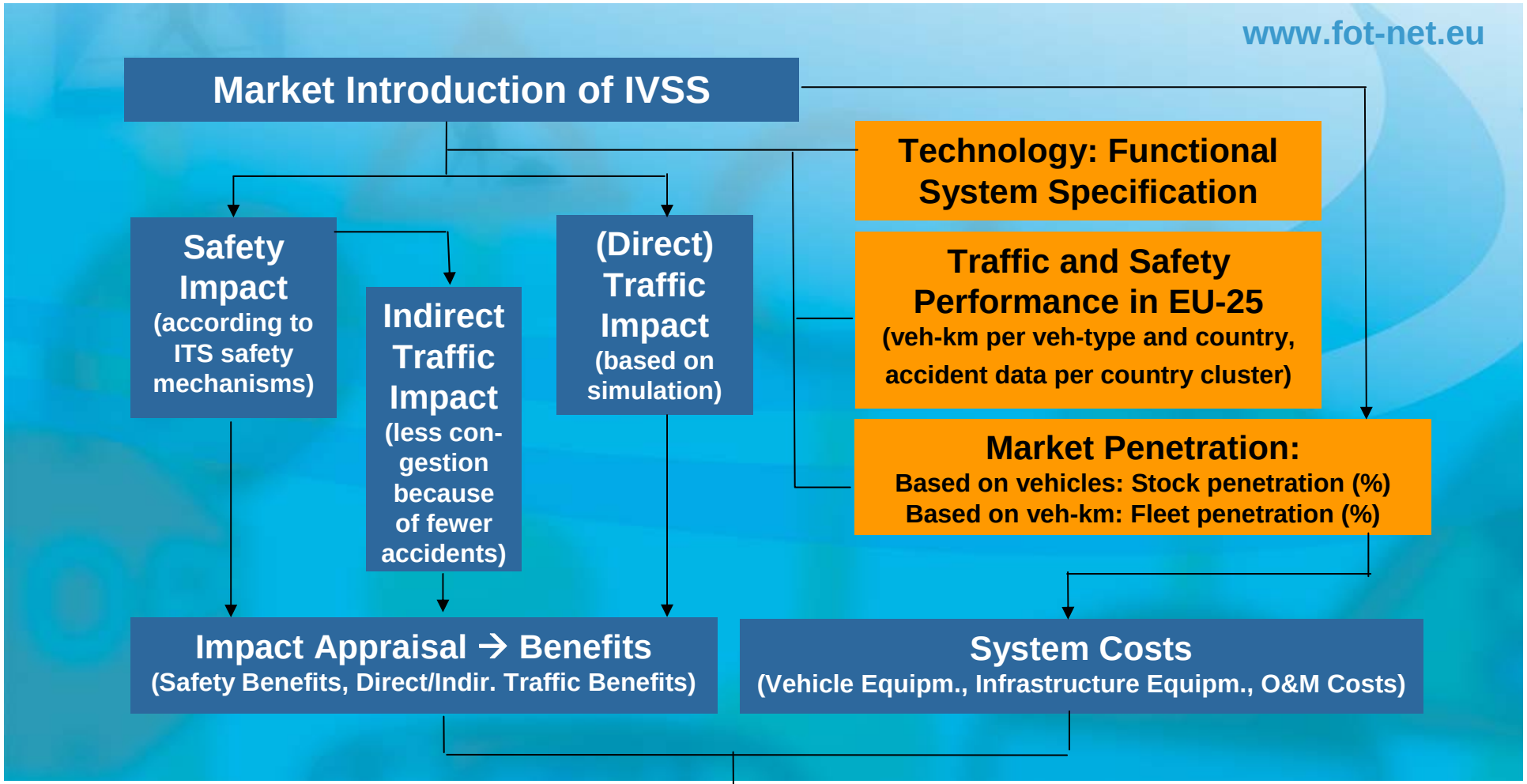
- Which aspects or criteria would you consider for the selection of a reference year?
- Suggestions:
  - **Maturity**
  - **Critical mass**
  - **Predictability (of background data)**
- Case: SAFESPOT IP, BLADE subproject

Planning: Selection of the reference year – The BLADE case

Proposed Reference Years / Decision Criteria	2015	2020	2025	Comment
Maturity of Applications	P	F	F	Maturity calls for a reference year in the long term because applications will gradually come to the market in the next decade and start the penetration process. Penetration will take considerable time, basically 15 – 20 years.
Critical mass	D	P	P	Because of performance thresholds it represents a risk to assess the applications under 2015 conditions. It is better to have a later reference year.
Predictability	P	P	D	Current forecasts of accident and traffic data look mostly forward to the year 2020. To go beyond it would require extra efforts and would introduce additional sources of inaccuracy to the evaluation.

Guide to evaluation: F…favourable, P…practical/possible, D…difficult

Process: The Use of Background Data in the CBA process



Process: Cost estimation – The BLADE case

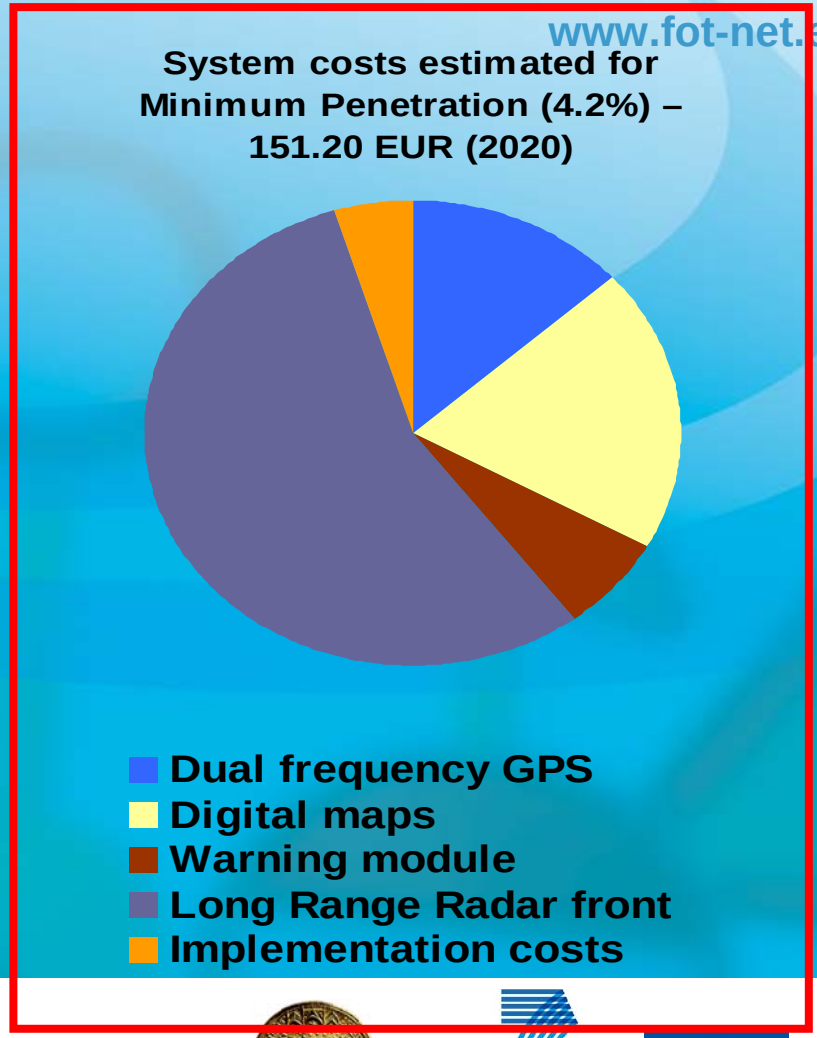
Process (simplified)

System specification
Component spreadsheets
Initial estimation of unit costs based on publicly available information

Cost estimation Working Group
Consisting of SAFESPOT partners
Refinement of initial estimations

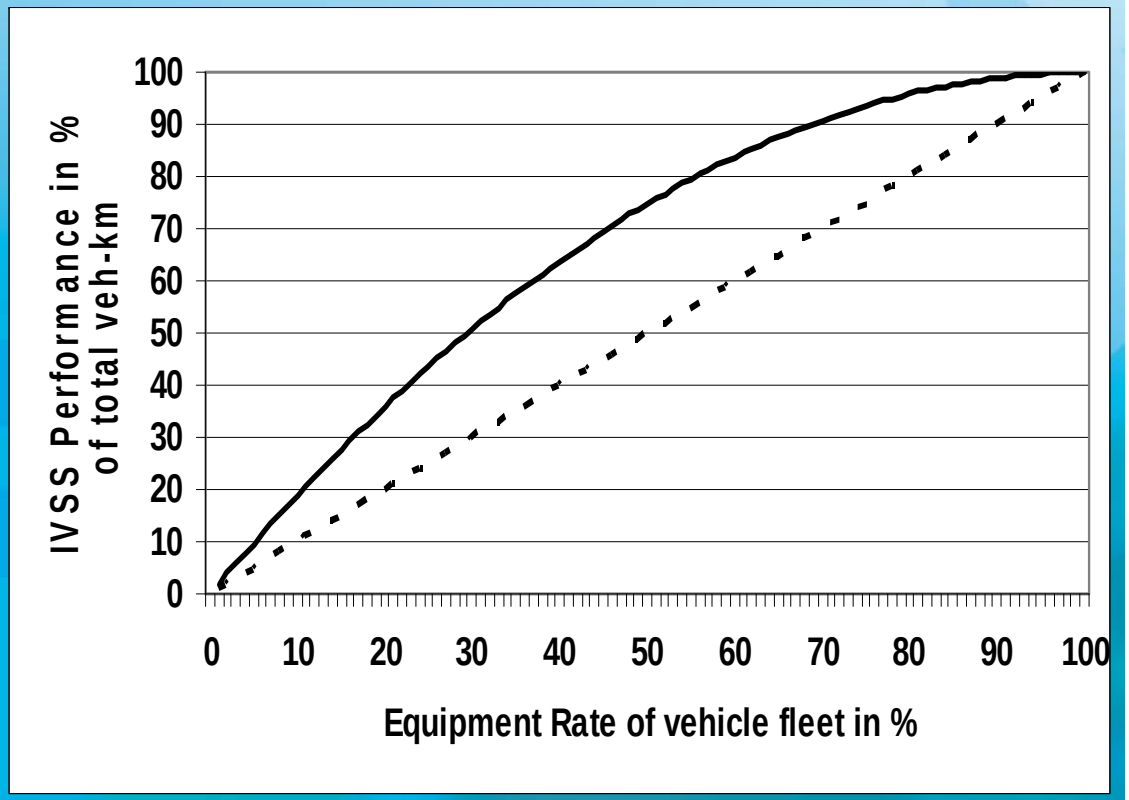
Cost estimation Workshop
Bandwidth of market penetration (4-11%) based on business and service models
Agreed estimation of costs per component considering min-max-penetration

Calculation of economies of scale
Regression analysis
Scale economies: 16%
Verified with findings from US DOT sources



Process: Market penetration

- Mileage per year is different between users
- Systems will be bought by those with the highest annual mileage
- Young vehicles are used more frequently than old vehicles



Process: Cluster based approach for safety performance

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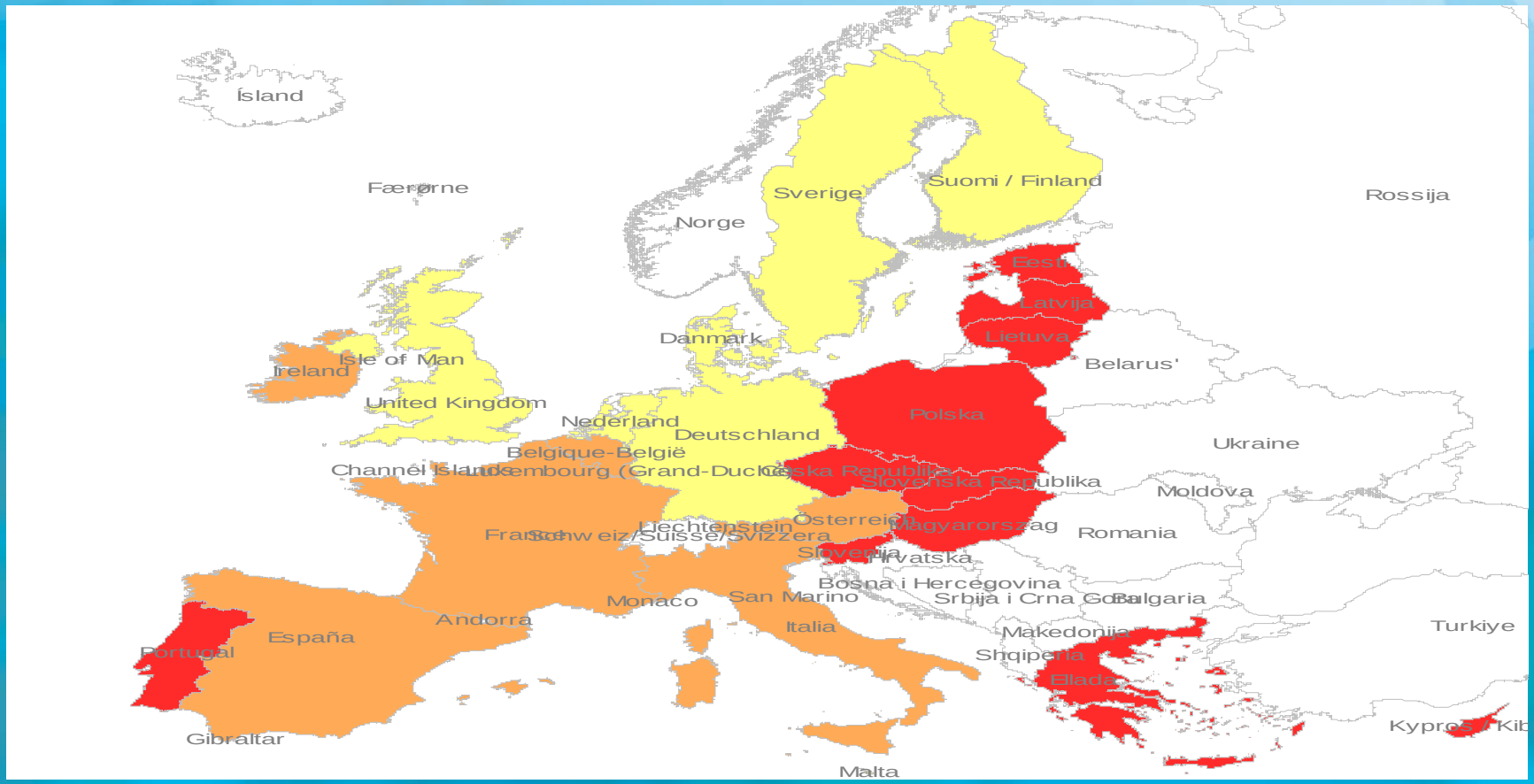

Process: Impact appraisal

- Cost unit rates for each impact
  - **Safety impact (EUR per fatality, injury)**
  - **Mobility impact (EUR per h, EUR per l)**
  - **Environmental impact (EUR per t CO2, NOx-eq.)**
- This step makes use from pure evaluation studies which aim at putting cost unit rates in place
- Issues and choices
  - **Damage costs versus willingness to pay**
  - **European average versus country specific values**
- Appraisal offers some room for shaping the results

Results: Benefit-cost ratios – The eIMPACT case

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Systems	2010		2020	
	Low	High	Low	High
Electronic Stability Control	4.4	4.3	3.0	2.8
Lane Keeping Support	2.7	2.7	1.9	1.9
Driver Drowsiness Monitoring	2.5	2.9	1.7	2.1
Speed Alert	2.2	2.0	1.9	1.7

Results: Discussion

- Only a results table does not say much
- Work is not over when the results are ready
- Series of checks necessary
  - **Acceptability to policy and stakeholders**
  - **More disaggregated information needed**
- Particular aspects
  - **Composition of impacts**
  - **Decreasing BCR's**
  - **Sensitivity tests**
  - **Broader stakeholder analysis**

Results: Composition of impacts

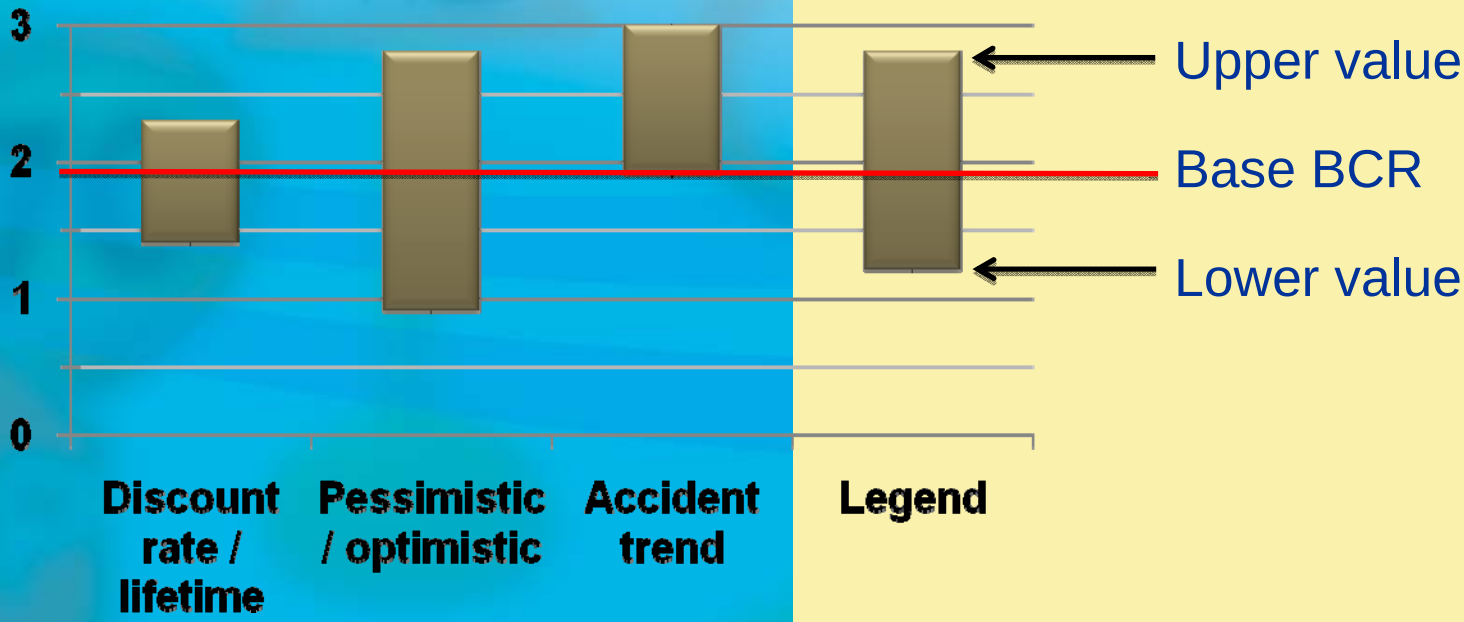
Example: Speed Alert – Scenario 2020 low

	Valued effects (in Mill. Euro per year)	
Benefits	Safety Impact	2,897.2
	Indirect Traffic Impact	66.0
	Direct Traffic Impact	48.0
	Total	**3,011.2**
Costs	System Costs	1,619.8
	Total	**1,619.8**
Benefit-Cost Ratio		**1.9**

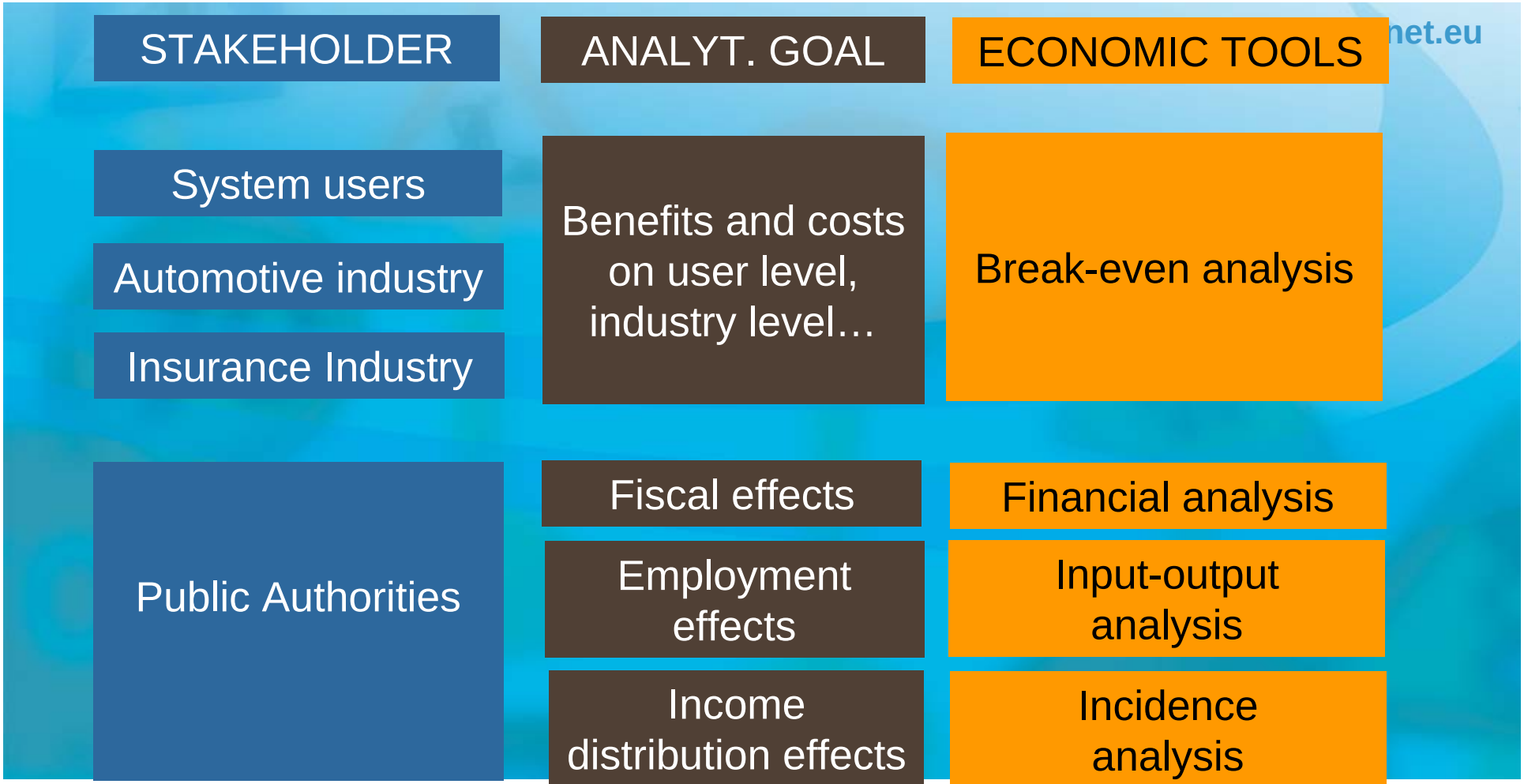
Results: Addressing decreasing BCR

Systems	2010		2020	
	Low	High	Low	High
Electronic Stability Control	4.4	4.3	4.6	4.4
Lane Keeping Support	2.7	2.7	3.0	3.1
Driver Drowsiness Monitoring	2.5	2.9	2.8	3.5
Speed Alert	2.2	2.0	3.0	2.8

Results – Sensitivity Tests

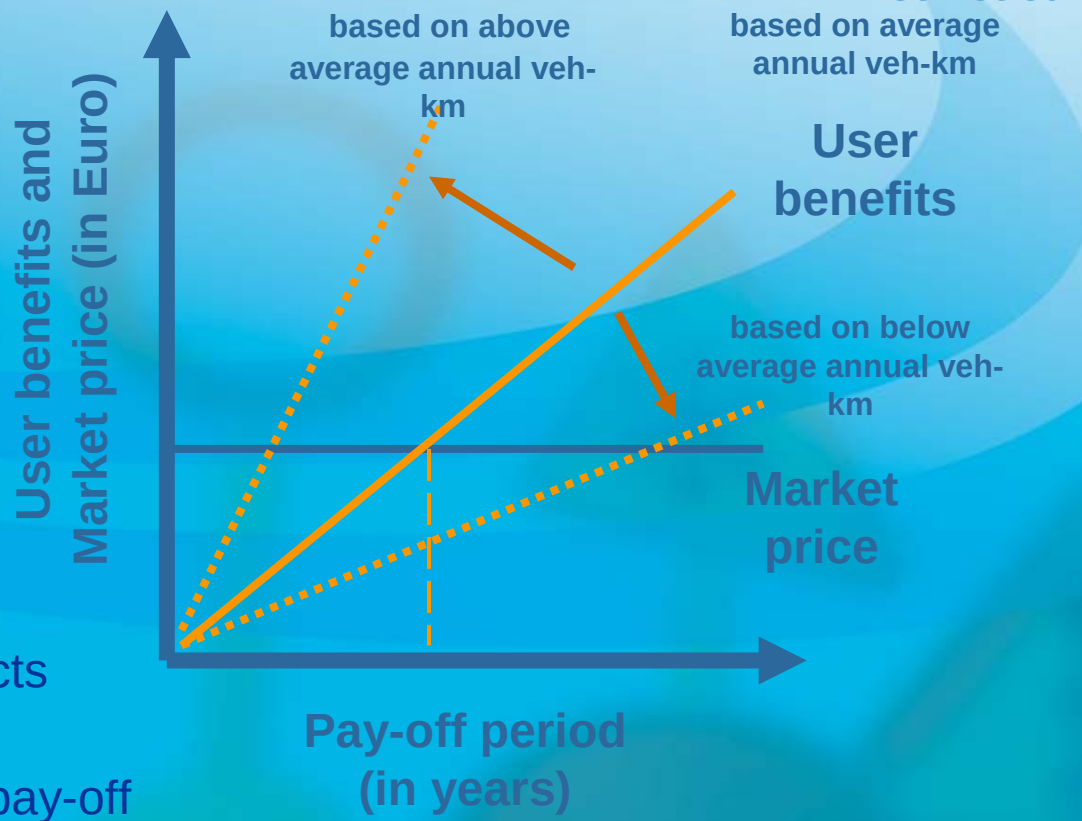


Perspectives: Stakeholder analysis toolbox



Perspectives: Break-even-analysis as example for stakeholder anal.

- Segmentation of user groups according to vehicle mileage
- Market prices instead of cost prices
- Safety impacts appraisal with willingness-to-pay values
- Environmental benefits not relevant in private pay-off considerations
- Relevance of comfort aspects – if applicable –
- Result can be provided as pay-off period, threshold for annual vehicle kilometers…



Thank you for your attention!

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More information or want to cooperate?

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