



Webinar Introduction to FESTA

Impact Assessment and Socio–Economic Cost Benefit Analysis

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Based on FOT-Net Webinar in May 2016 by Pirkko Rämä (VTT, Finland)

CARTRE WP4 Webinar Introduction to FESTA
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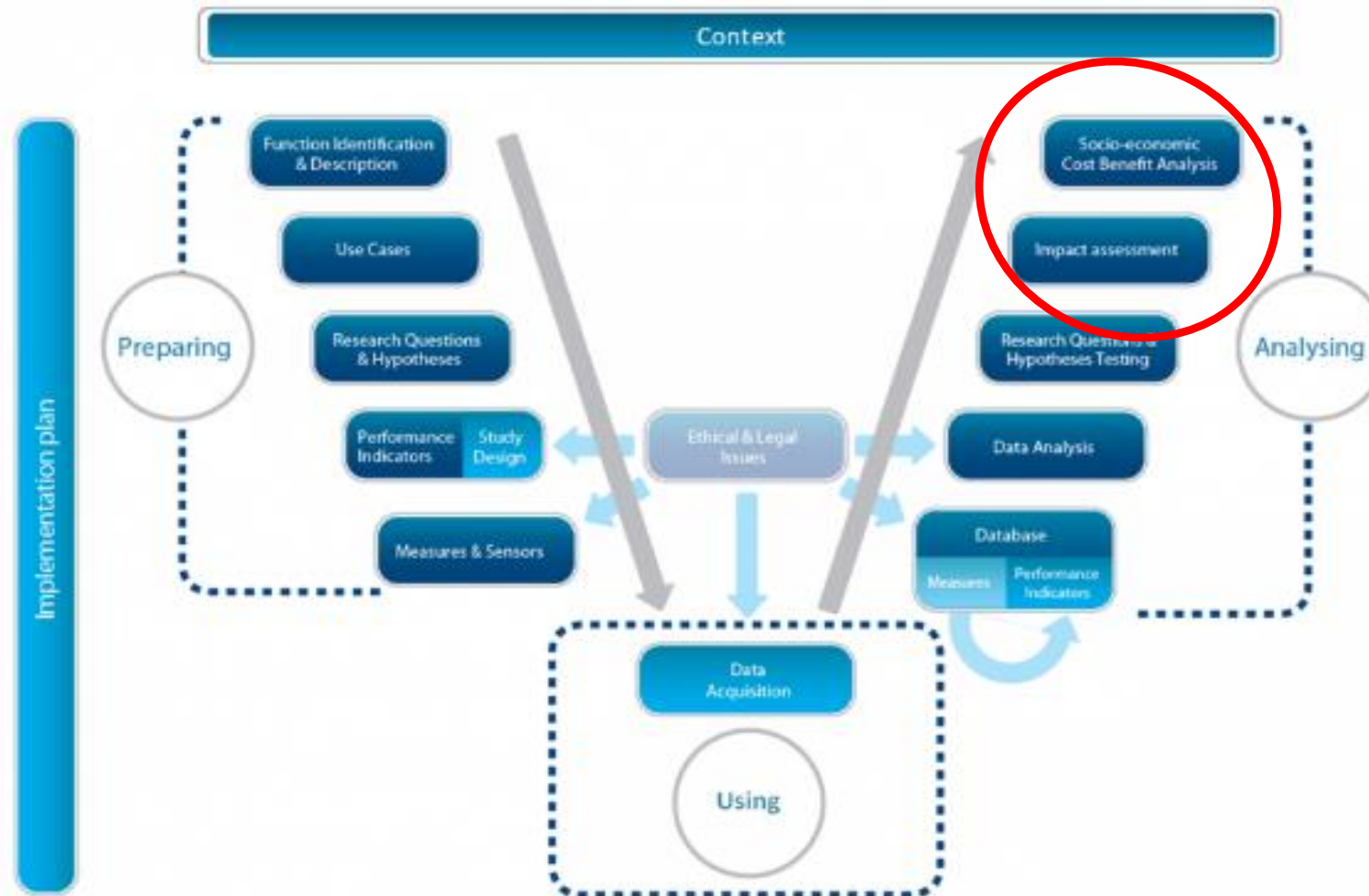
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Goals of the assessment

- Increase knowledge about impacts of ITS
- Provide the impact assessments in numerical estimates for cost benefit analysis
- Provide decision maker with information in concise format
- Provide information to stakeholders about potential business cases
- Enhance deployment of ITS
- Make suggestions for future work and develop methods and tools for evaluation

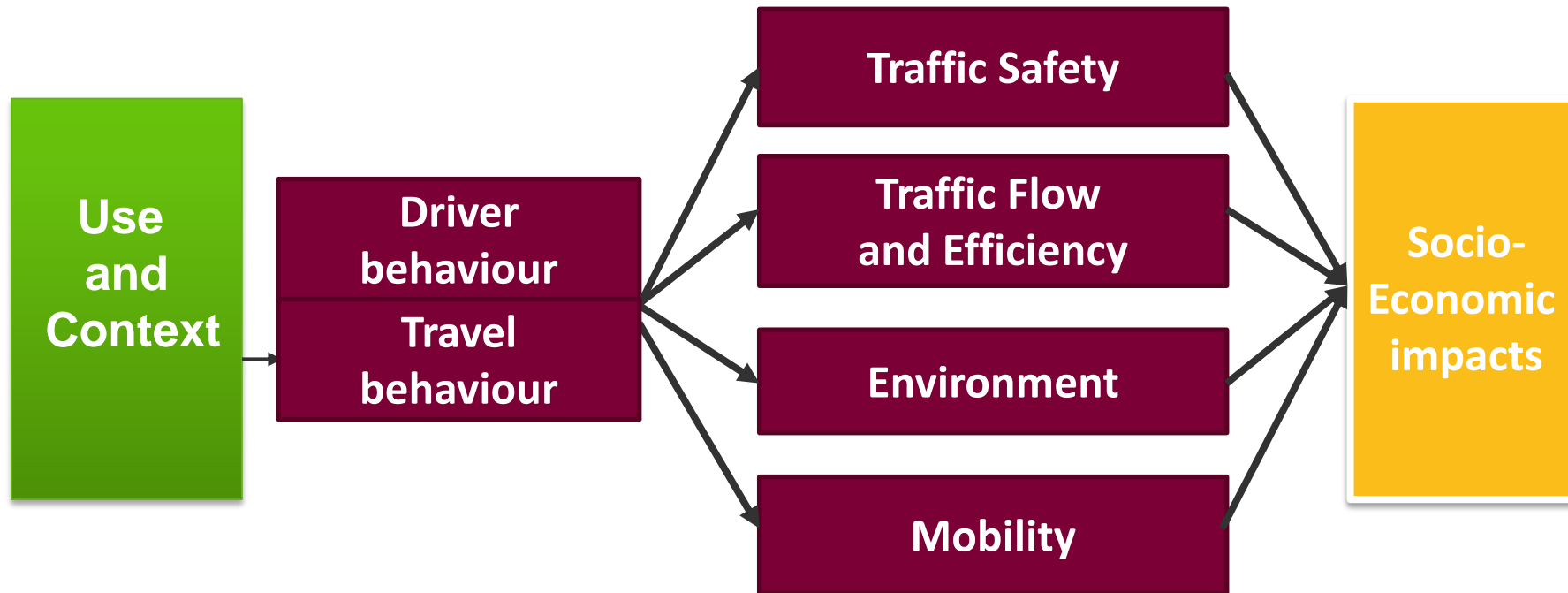
Impact Assessment and Socio-Economic Cost-Benefit Analysis in the FESTA V



Approach in impact assessment

- Previous phases in the FOT as starting point
 - Implementation of the functions in the test sites
 - Definition of the research hypotheses and data needs
 - Study design -> plan to collect data and organize data in the analysis
 - Several synchronized data sets
 - Quality checking of the data
- Driver reactions to ITS as focus
- Combination of methods to include the new results from field as part of a holistic expert assessment

Implications of driver behaviour

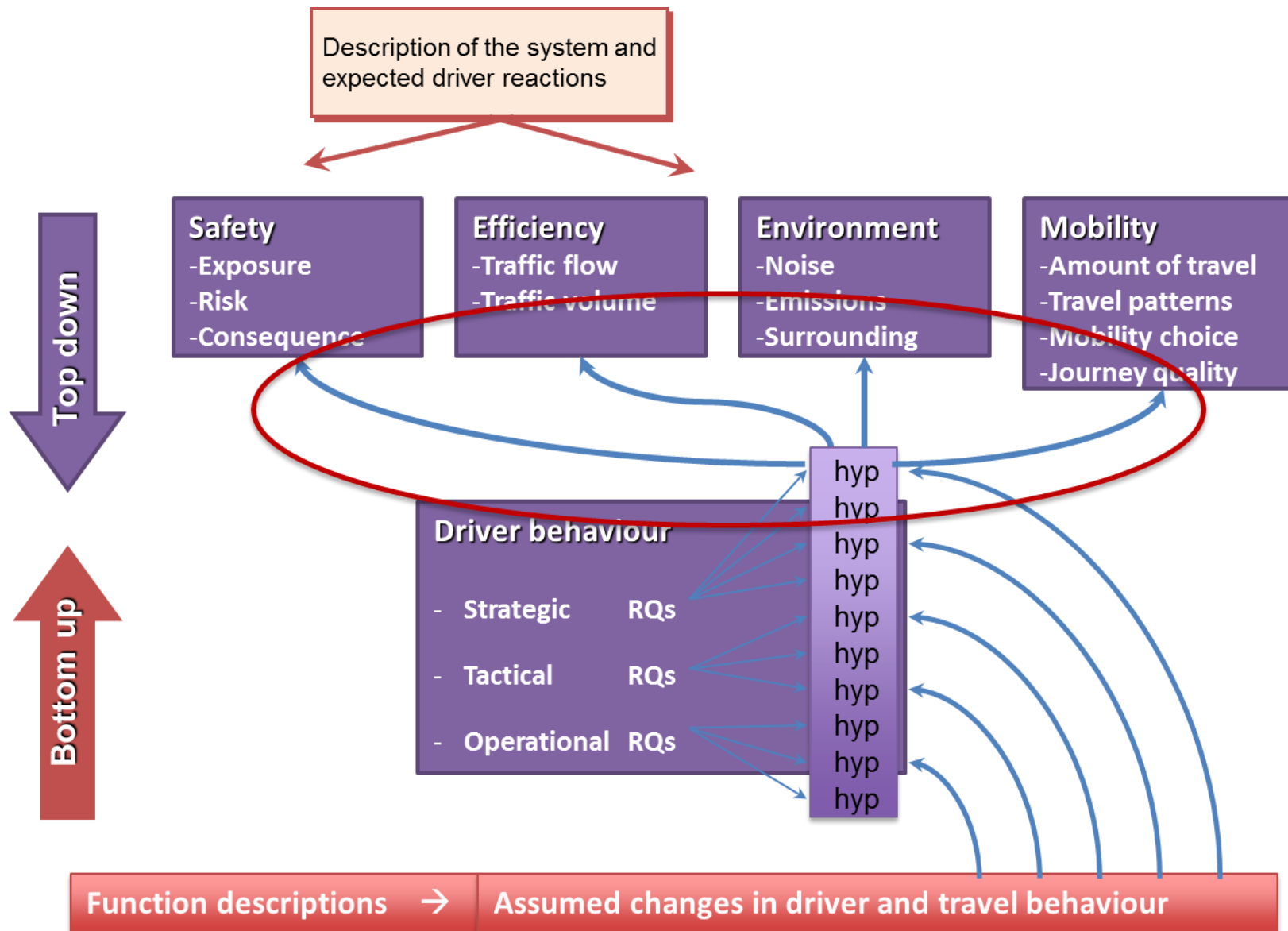


Source: Pirkko Rämä 2016

Driver behaviour

PI (Hypotheses)	RQ level 2	RQ level 1	RQ
Number of km's ...	Travel behavior	Strategic level	Driver behavior
Use of system ...	Intention to use		
Euros per month ...	Willingness to pay		
Speed Proximity Position ...	Driving behavior	Tactical level	
Focus on others Focus on road Workload ...	Focus of attention		
Fixations ...	Use of systems		
Steering frequency Braking force Frequencies	Steering wheel use	Operational level	
	Pedal use		
	Patterns of use		

Source: Pirkko
Rämä 2016



Source: Pirkko Rämä 2016

Benefit cost analysis (CBA)

- Summarises benefits and costs at a societal level
- Phases
 - Preparatory work
 - Measuring impacts (positive and negative)
 - Appraising impacts in a common monetary value
 - Confronting the discounted benefits with the costs
- CBA framework
 - Definition of baseline - cases to be compared
 - Geographical scope – uses general data to extrapolate the findings from country level to EU level (network, fleet, traffic data; network models; accident data and costs)
 - Costs to be expressed for a common base year (discount rate 3%)
 - Deployment scenario
 - Impact table

Results

- Safety benefit
- Other benefits
- Environmental benefits
- Revenue to operators, automotive OEMs, government
- Costs to operators, automotive OEMs, government
- Results
 - NPV Net Present Value sums up all discounted values of benefits and costs
 - BCR Benefit Cost Ratio total benefits / total costs – system profitability
 - Sensitive measure
- Public sector support expected
 - $BCR = NPV / Present\ Value$ (public sector support)



Stakeholder analysis

- Considers stakeholder-specific benefits, costs and financial analyses, accounts costs and benefits on the level of the individual stakeholder group
- User perspective and willingness to pay
- Financial analysis compares the internal rate of return (IRR) with the target rate
 - Specific stakeholders
 - Breakeven point in terms of market penetration or target price
 - Decisions to invest

Conclusions and lessons learned

- Impact assessment involved from the beginning
- Be systematic to cover all impacts
- Transparency in educated guesses made
 - Include sensitivity analyses
- Post- and pre-processing and synchronization of several data sets take time
- Anticipate – start the work even with missing some information
- Develop and use efficient tools in evaluation
- “the validity of any experimental test result depend on the experimental condition effects that were placed on the drivers” (NHTSA in FESTA Handbook)



Thank you!



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