

Cost-benefit analysis

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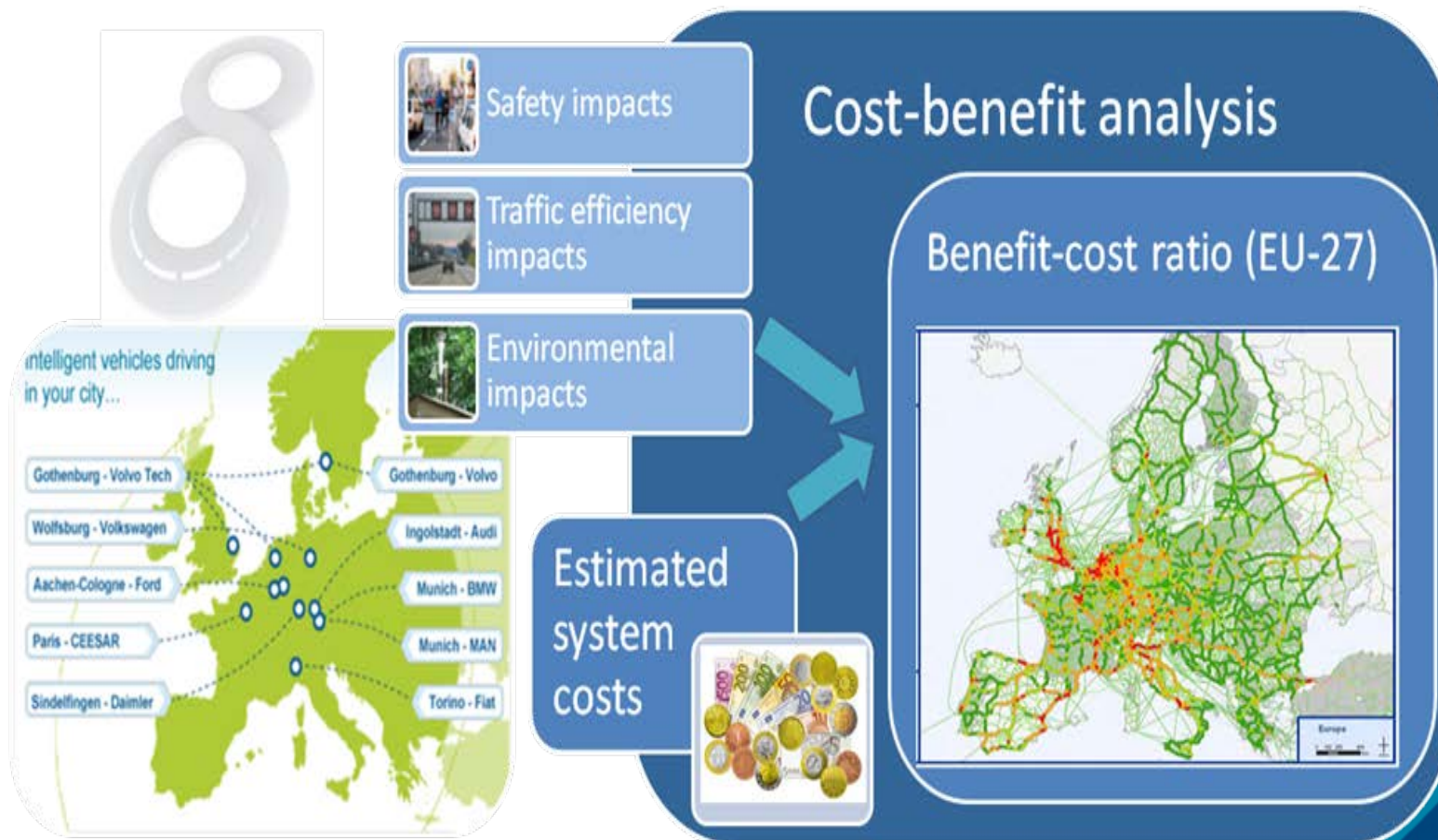


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Cost-benefit assessment design



Main assumptions introduced to the Cost-Benefit Analysis

Main items	Description, related assumptions, introduced data
Performance	Snapshot CBA
Target year	2010, EU-27
Market penetration	Various rates covering entire penetration range, i.e. 5% - 100%
Impacts in transport sector	<p>Based on measured effects of the Field Operational Test</p> <ul style="list-style-type: none"> • Safety impact • Traffic efficiency impact (direct, indirect, fuel consumption) • Environmental (CO2) impact
Cost-unit rates	<p>European average values derived from HEATCO and others</p> <p>e.g. Safety: 1.6 MEUR per fatality, 70,000 EUR per injury</p>
System costs (Cost prices)	<ul style="list-style-type: none"> • Net costs (i.e. without taxes) • Derived from market prices by applying FESTA rule of thumb • Involving economies of scale: unit costs dependent from penetration level

CBA performance restrictions

	Safety	Traffic efficiency	Environment	User acceptance	Up-scaling to EU-27 (Safety)	Cost-Benefit Analysis
ACC + FCW	✓	✓	✓	✓	✓	✓
LDW + IW	✓	n/a	n/a	✓	n/a	n/a
Navigation Systems	✓	✓	✓	✓	n/a	n/a
SRS	✓	✓	✓	✓	n/a	n/a
BLIS	✓	n/a	n/a	✓	n/a	n/a
FEA	n/a	n/a	✓	n/a	n/a	n/a
CSW	n/a	n/a	n/a	✓	n/a	n/a

Elements of restriction:

- Non-applicable and/or insignificant impacts
- Knowledge about driving and traffic patterns for upscaling

Input from Impact Assessment

ACC + FCW	Cars		Heavy Goods Vehicles	
	Lower bound	Upper bound	Lower bound	Upper bound
Reductions per year, EU-27				
Safety – No. of fatalities	42	88	7	19
Safety – No. of injured	5,610	9,555	160	410
No. of fatal accidents	42	88	7	19
No. of injury accidents	3,981	6,675	123	316
Time consumption (Mn h)	-5	-5	0	0
Fuel consumption (Mn l)	488	488	96	96
CO₂ emissions (Mn t)	1.20	1.20	0.22	0.22

Results of the Cost-Benefit Analysis

ACC + FCW	Cars		Heavy Goods Vehicles	
	Lower bound	Upper bound	Lower bound	Upper bound
in MEUR, EU-27, per year				
Safety	460	805	22	59
Traffic Efficiency	286	301	71	72
Environment	84	84	16	16
Total Benefits	830	1,190	109	147
Costs	1,624	1,624	28	28
Benefit-Cost Ratio	0.5	0.7	3.9	5.2

For interpretation keep in mind:

- Effects for full penetration
 - Mileage of HGV substantially higher than for cars
 - Usage rate about 50%
- Cost-benefit analysis

Sensitivity of the results

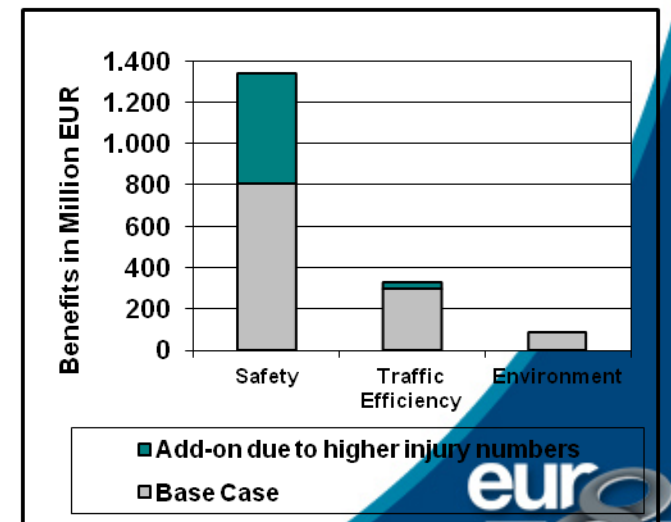
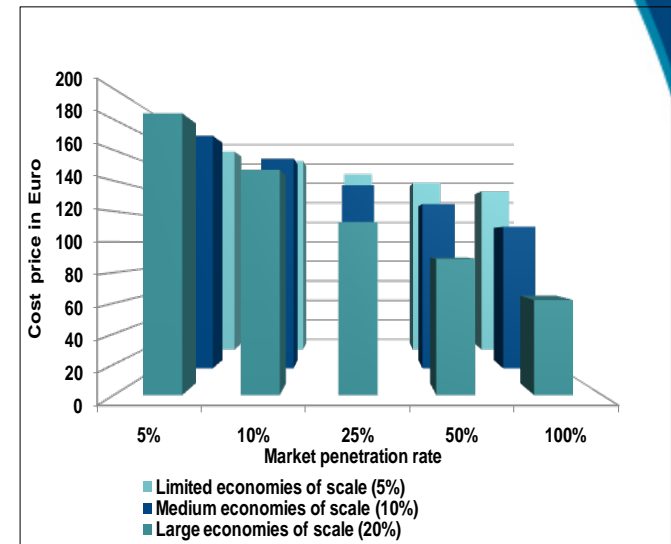
Sensitivity tests (Cars)

- Different penetration rates
- Unit costs (Economies of scale)
- Underreporting of injury accidents
- Higher cost-unit rates for fatalities
- Disregarding direct traffic impact

Results

- Unit costs most sensitive parameter
- Crucial magnitude of scale econom.
- Range of benefit-cost results spans from 0.5 to 1.3

Cost-benefit analysis



Potential add-on benefits due to avoiding Property Damage Only Claim

- Low impact events such as PDO claims* and minor PDO claims amount to significant economic losses for insurance industry and society as well
- TPL claims (PDO / Minor PDO) more frequent than casualties
- Costs per TPL claim lower than for casualties
- Potential add-on safety benefit for TPL claim estimated 50%
- Further add-on benefit due to MoD claim reduction expected
- First best estimate study on Allianz insurance claims: Avoidance/mitigation of approx. 500,000 PDO claims/year**

*: Third Party Liability (TPL) and Motor own Damage (MoD)

** : market penetration 100 %

Conclusions

Summary of results

- BCR for ACC+FCW good for HGV, rather weak for cars
- Conservative assessment (focused on measured impacts)
- Differences to ex-ante assessment studies can be explained by a bundle of factors (e.g. in-depth accident databases, usage rate)

Lessons learned

- CBA performed based on impacts proven in the field
- FESTA methodology was found to be applicable
- Performance restrictions in impact assessment limit applicability of the cost-benefit analysis

8 Functionalities, 28 Partners, 1000 Vehicles

1 Field Operational Test, 8 Functionalities

28 Partners, 1000 Vehicles, 1 Field Operational Test

8 Functionalities, 28 Partners, 1000 Vehicles

1 Field Operational Test, 8 Functionalities

28 Partners, 1000 Vehicles, 1 Field Operational Test

8 Functionalities, 28 Partners, 1000 Vehicles

1 Field Operational Test

