



Ministry of Infrastructure and the
Environment

Dutch Value of Time Study

Methods, obstacles and study
progress

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Context

- Cost-benefit analysis (CBA)
- Important benefits infrastructure projects
 - Travel time savings
 - Improved travel time reliability
- Literature study (2004)
 - Main conclusion: Reliability is of substantial importance and should not be neglected in CBAs
- International expert meeting (2004)
 - Common definition of reliability that fits well in CBA framework
 - Standard deviation of travel time distribution
 - Provisional values of reliability that can be used in CBA
 - New empirical research needed to replace these provisional values
 - SP survey methodology set up in international cooperation



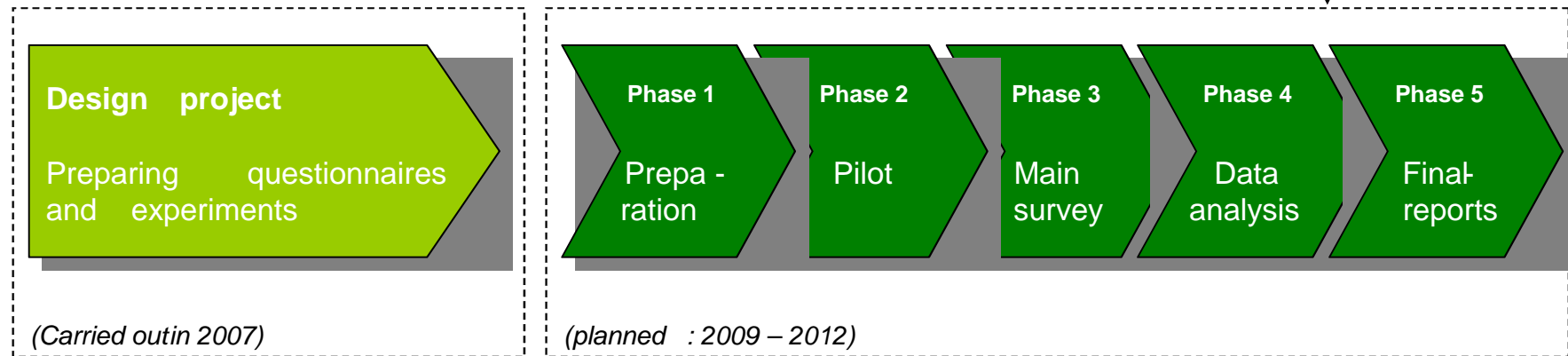
Stated Preference survey

- Measuring the value to society of travel time benefits and travel time reliability benefits
- Four SP surveys
 - Car
 - Bus, tram, metro, high-speed train, air travel
 - Freight transport by road, rail, inland waterways, sea, air
 - Recreational navigation
- Values meant to be used in official Dutch guidelines for CBA



Set-up of the project

Current status





SP structure

- Two alternatives
 - Trip A
 - Transport A
 - Trip B
 - Transport B
- Four attributes
 - Travel time
 - Travel costs
 - Reliability
 - Arrival time



Presentation reliability attribute

- Eight formats tested
- Through 30 face-to-face interviews
- Which format was understood best?
- Special attention to the effect of education level



Presentation reliability attribute

Best format (better than "bars" or "clockface" presentation)

Trip A

Usual travel time:
40 min

You have an equal chance of
the following five travel times:

35 min
40 min
40 min
40 min
45 min

Costs:
€ 3,80

Trip B

Usual travel time:
41 min

You have an equal chance of
the following five travel times:

30 min
35 min
45 min
45 min
50 min

Costs:
€ 2,80



Three SP experiments

- The experiments
- Experiment 1 is the same as the “Value of Time studies” in 1988 and 1997

Attribute	Experiment 1	Experiment 2a	Experiment 2b
Travel time	X	X	X
Travel cost	X	X	X
Reliability		X	X
Arrival time		X	



SP experiment 2A

Travel time, costs, reliability and arrival time

Trip A

Departure time:
08:05 h

You have an equal chance of the following five travel times and therefore of arriving at any of the following times:

Travel time	→	Arrival time
55 min	→	09:00
65 min	→	09:10
65 min	→	09:10
95 min	→	09:40
145 min	→	10:30

Usual travel time: **65 min**
Costs: **€ 2,30**

Trip B

Departure time:
08:05 h

You have an equal chance of the following five travel times and therefore of arriving at any of the following times:

Travel time	→	Arrival time
50 min	→	08:55
60 min	→	09:05
60 min	→	09:05
90 min	→	09:35
140 min	→	10:25

Usual travel time: **60 min**
Costs: **€ 7,80**



Main survey

- Passenger transport
 - Internet survey
 - Within on-line panel: 5,700 interviews (finished)
 - Outside on-line panel: 1,400 interviews (finished)
- Freight transport
 - CAPI (computer assisted personal interviews)
 - 800 interviews (finished)
- Results available summer of 2012
 - VoTs and VoRs to be used in official Dutch CBAs



Also needed: volumes

- Empirical research using Dutch highway travel time data
 - Strong relationship between mean and standard deviation of travel times
 - Other explanatory variables (time varying as well as invariant) are significant but hardly improve predictive power
- However, **traffic management measures** can have effects on travel time variability and mean travel time that differ considerably in direction and size
 - Insight in the effects on variability is lacking
 - Miscalculation of benefits and costs
- Traffic forecasting tools need to be improved to provide estimates of changes in standard deviations and numbers of trips on links
 - Research into behavioral responses of travelers/ shippers/ carriers is needed