

Backcasting and Forecasting

–two empirical case studies

1. Sustainable initiatives in private companies *Examples from Ericsson*
2. Planning for a sustainable traffic system in Stockholm 2030

Anticipated company benefits

1. Monetary savings
2. Improved reputation (PR)
3. Promotion of products (e.g. IT-applications)

“In today’s global market, you would only do this for two reasons: to cut costs, or to improve your marketing advantage”

Rye (1999)

The case study in Nacka Strand

- Reduced work-related emissions
- Monetary savings
- Improved working conditions



Can IT increase the attractiveness for alternative means of communication?

- Car-sharing
- Ride-matching
- Commuting Boat
- Telecommuting
- Video and Tele Conferencing

Eco-efficient
Commuting Boat



Telecommuting



Video Conference
and Web-meeting



Ride-matching



Car-sharing



Price comparison car-sharing vs taxi

Nacka Strand - Kista (both ways)

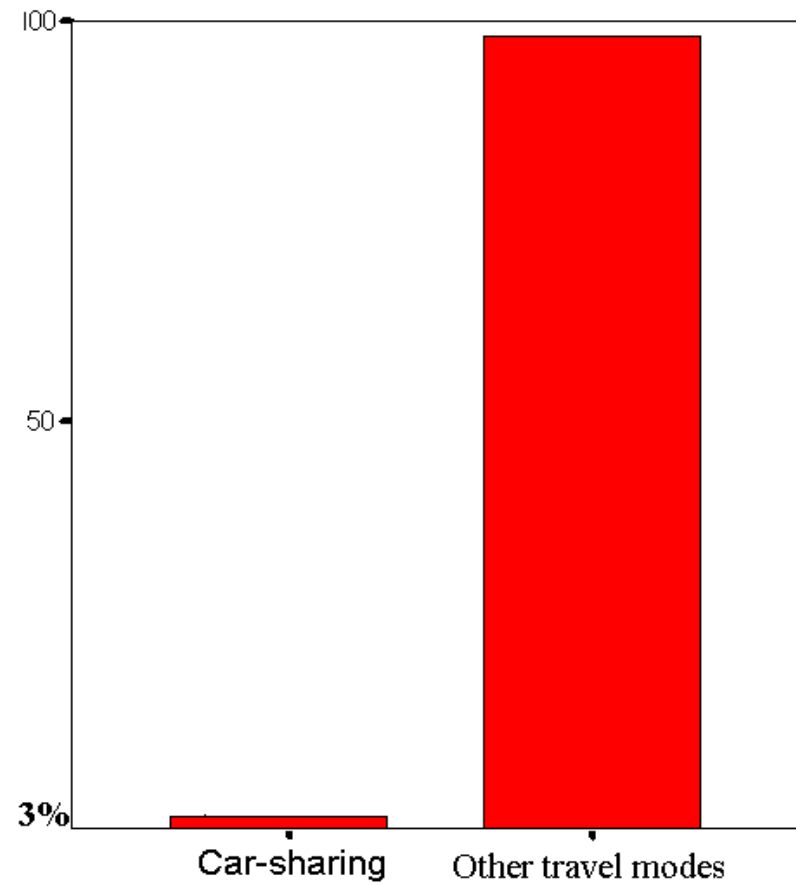
Car-sharing

- $80 \times 1:67 = 133:60$
- $6 \text{ h} \times 9:50 = 57:00$
- Total **190:60 SEK**

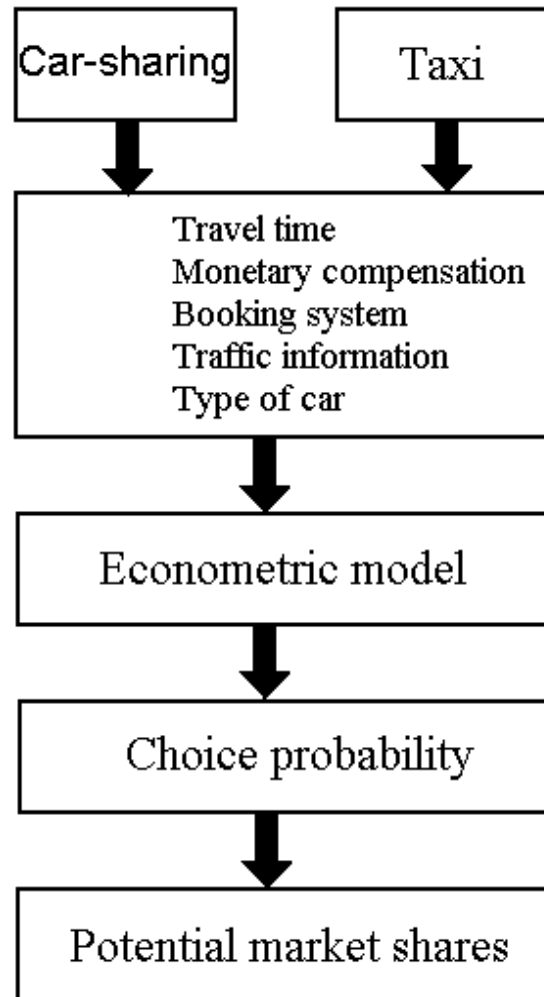
Taxi

- $2 \times 310:00$ (fast pris)
- Total **620:00 SEK**

The present situation



Modelling the choice probability between alternatives



Imagine your last local business trip...

Stated Preference question:

Which travel mode would you choose under the following conditions?

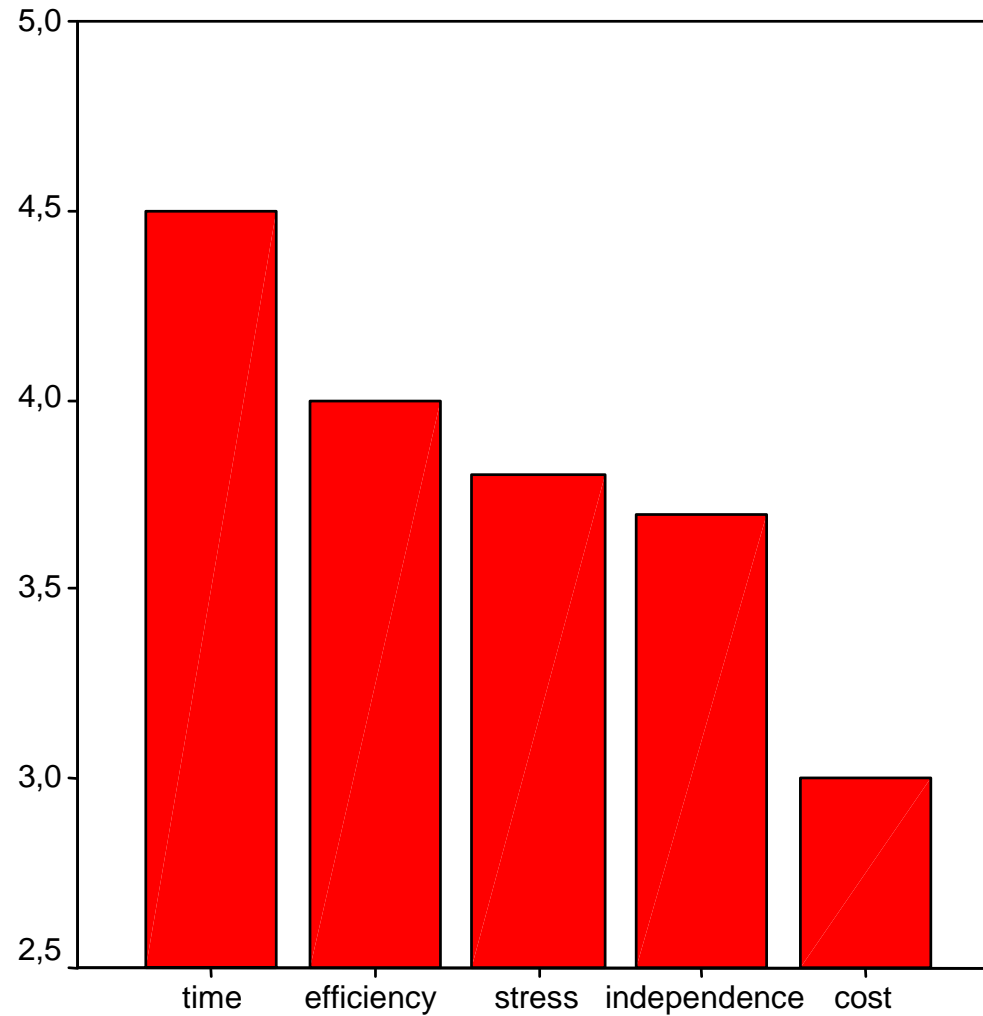
- The carpool is an **electric** vehicle.
 - The carpool is equipped with a **traffic information system**.
 - If you choose the carpool you receive a compensation of **50 SEK** (tax-free).
-
- I choose taxi
 - I choose car-sharing
 - Don't know

Probability prediction for choosing car-sharing

Electric vehicle	Compensation	Probability to accept
No	0	0,52
No	50	0,66
Yes	0	0,76
Yes	50	0,85

Traffic information	Compensation	Probability to accept
No	0	0,68
No	50	0,75
Yes	0	0,85
Yes	50	0,89

Telecommuting



Telecommuting and the ”flexible office”

“An office landscape, with no private work places. Employees use foldaway desktops, plug in the laptop to the Internet in a prepared connecting plug. Paper storage is arranged in a common bookcase”.

Please choose alternative A or B below:

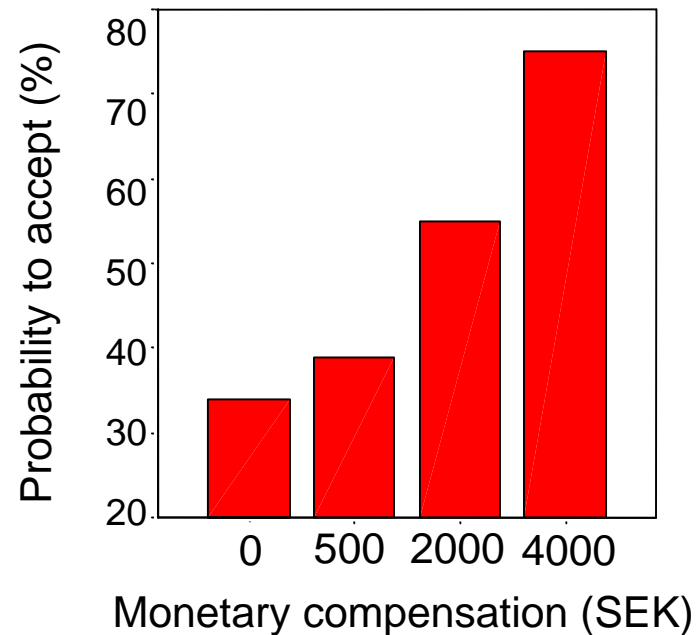
Alternative A

You receive a salary increase of X SEK per month and everyone at your department changes work place to flexible office rooms.

Alternative B

Everyone at your department keeps their present work places.

Probability to accept flexible office



Most optimal compensation rate = 500 SEK / month
Net saving = 460 000 SEK / month

Concluding remarks

- Employee attitudes are not the largest obstacle –more direct company policies and promotion would have an impact.
- Environmental benefits might go hand in hand with win-win situations where staff efficiencies might pay back both to the employees and the company.
- Companies play a vital role as "mini-structures" in the society, influencing the development of new alternatives.

Forecasting

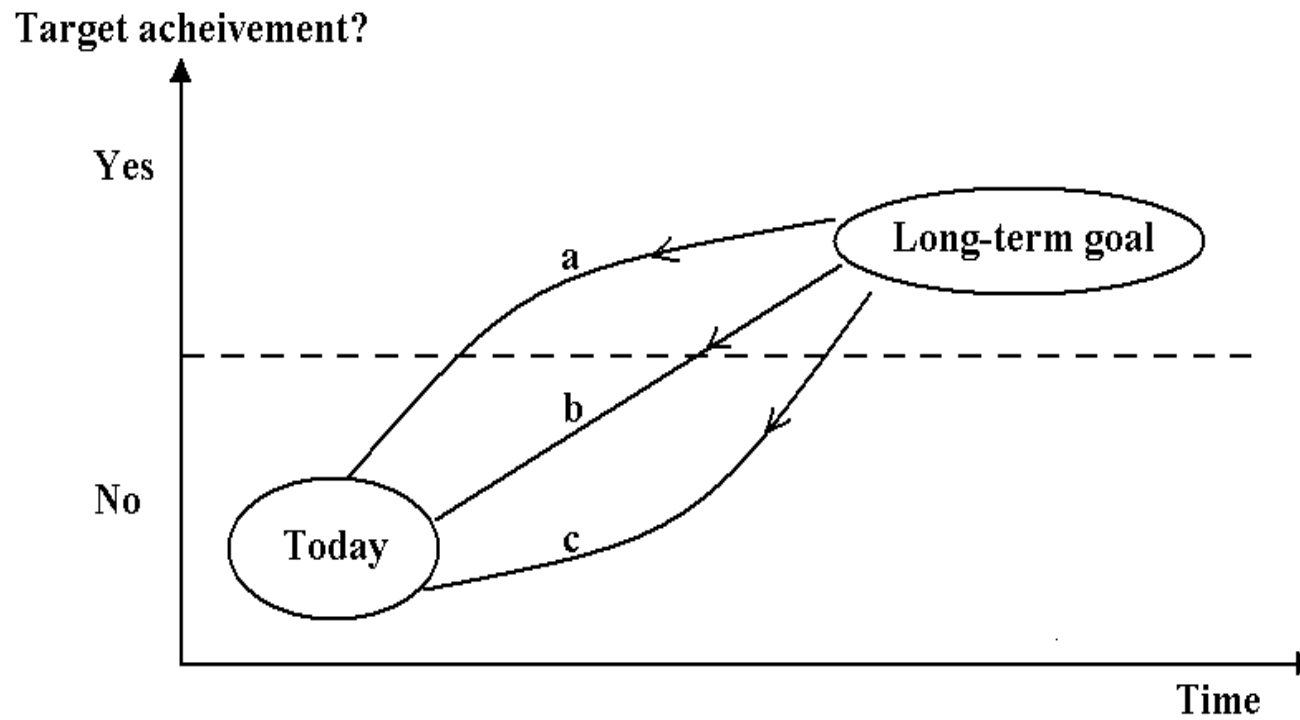
”Forecast means to make statements regarding the future, based on explicit or implicit assumptions from the present situation and observed trends.”

Backcasting

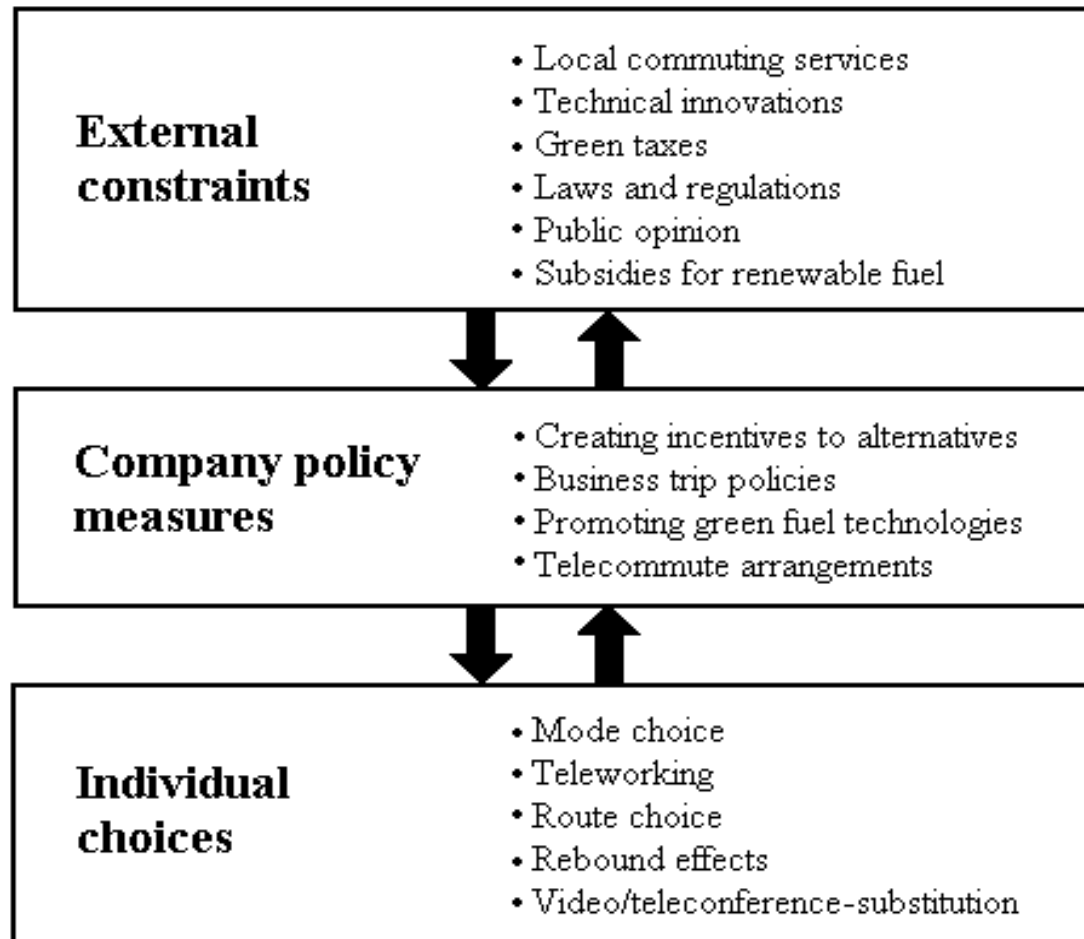
A backcasting methodology means to use future objectives –independent of current constraints and difficulties –as the perspective of planning, where after the following questions are posed: ”what shall we do today to get there, and what measures may lead into blind alleys and should be avoided?”

(Robinson 1982)

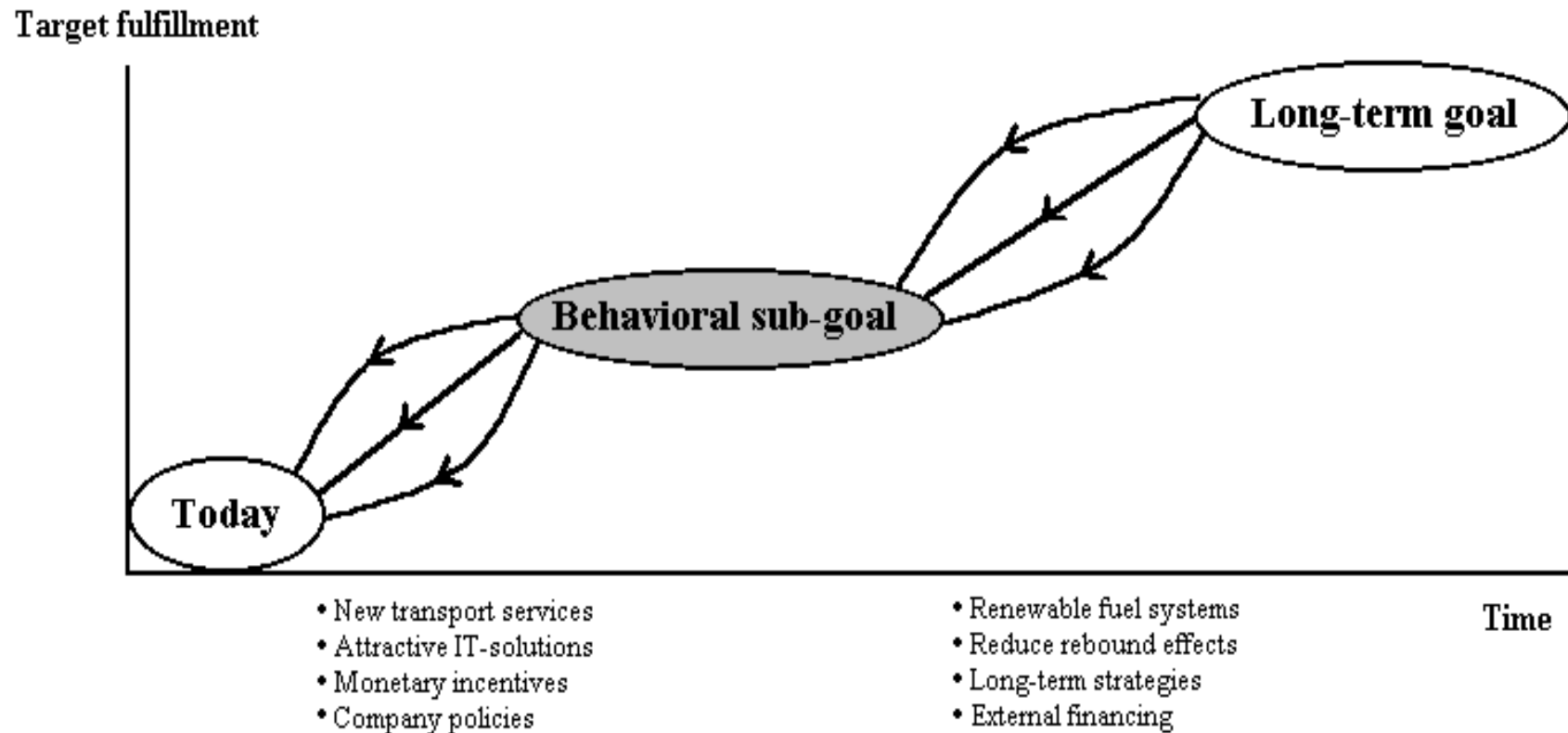
The backcasting perspective



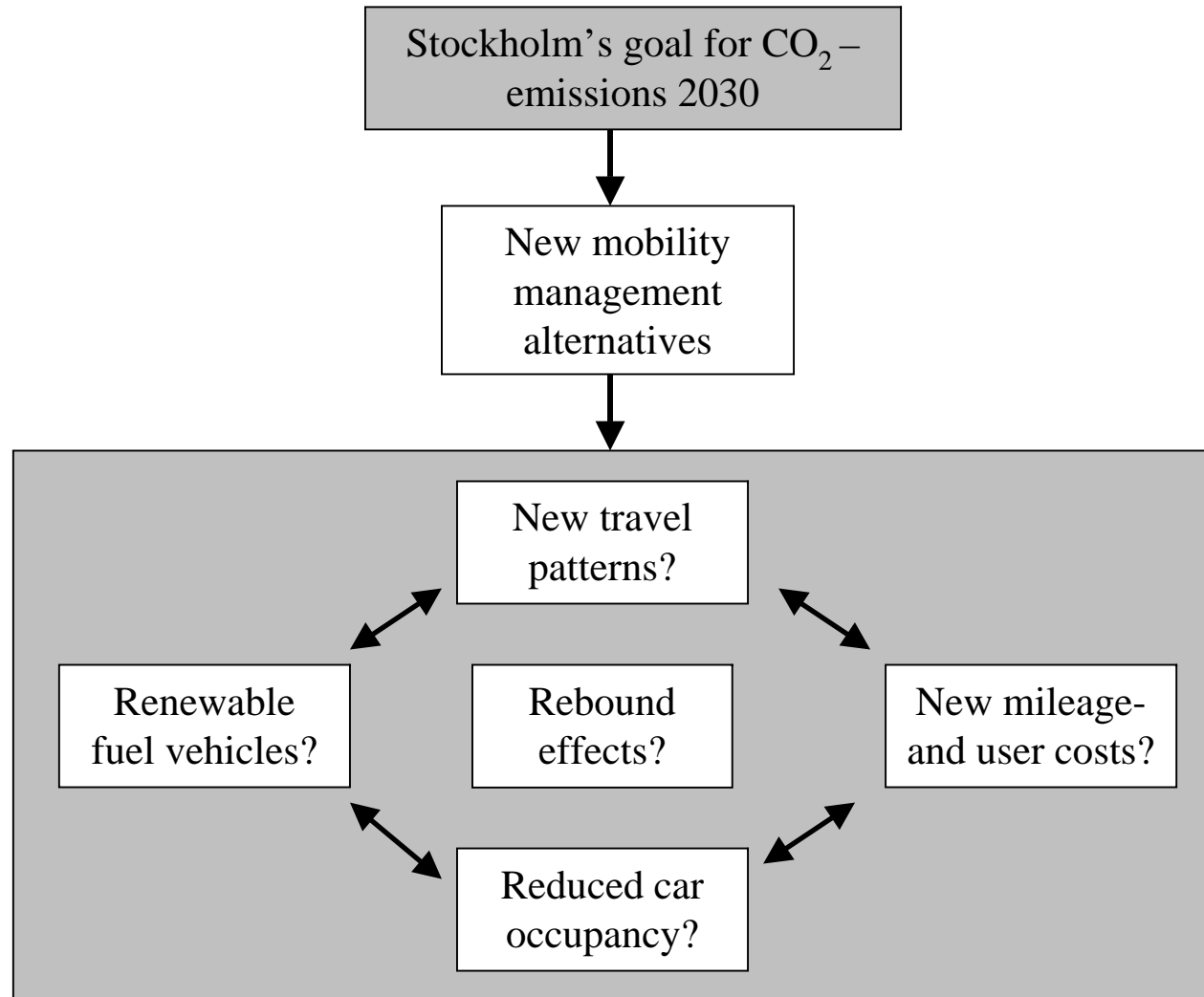
Interrelationship between factors



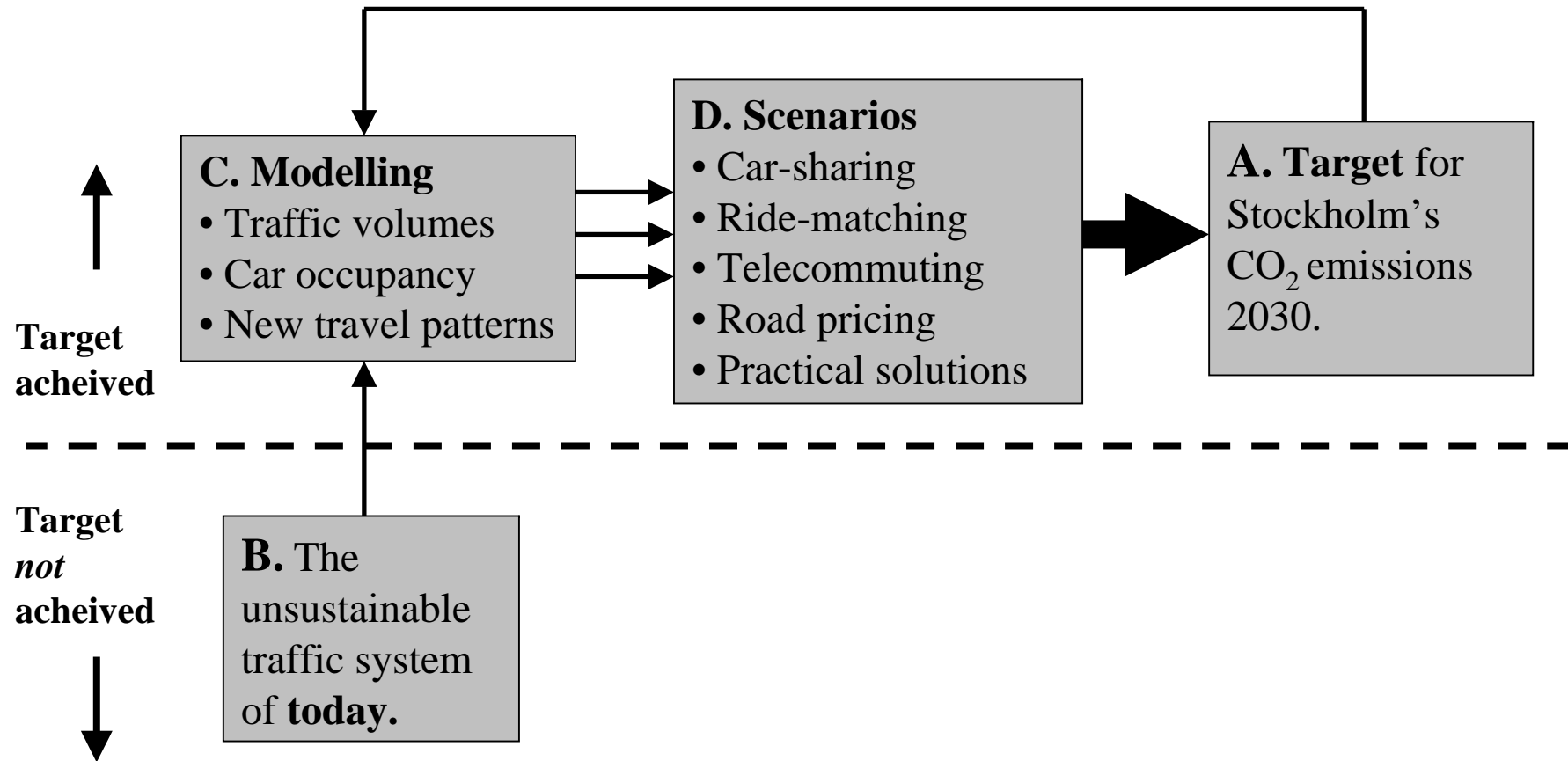
Behavioural modeling as a tool in the backcasting framework



Effects from new mobility management at a larger perspective



Backcasting framework



Group discussion

- 1.** Compare backcasting and forecasting –in what situations is one of the two approaches more advisable than the other?

- 2.** Name one situation in which backcasting would be appropriate in the context of complex planning and explain briefly each of the three steps:
 - I. the long-term backcasting goal in you specific case
 - II. the situation of today
 - III. the feasible paths between the goal and today

- 3.** What would you regard as the main benefits from implementing forecasting into a backcasting framework? Would it be applicable in your concrete example?