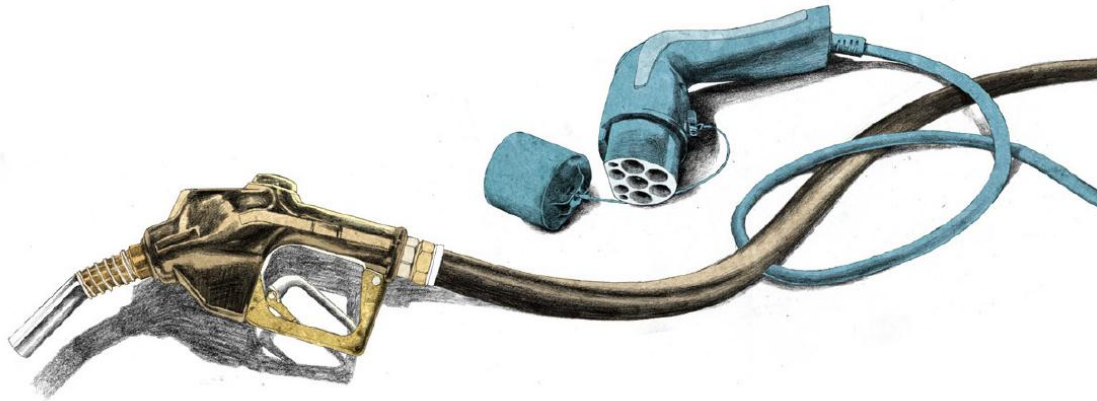


# Electromobility: a trigger for market success of carsharing?



Webinar - Our Future Mobility Now  
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Peter Kasten  
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Oeko-Institut is a leading European research and consultancy institute based in Germany which is working for a sustainable future.

- » founded in 1977, non-profit association
- » offices in Freiburg, Darmstadt and Berlin
- » more than 130 staff, including 85 researchers
- » more than 300 national and international projects per year
- » clients: European Union, ministries, industrial companies, non-governmental organisations
- » annual turnover: approx. 12 million Euro

- » OPTUM:
  - » user acceptance, market potential and environmental effects of electric mobility (BEV & PHEV) in Germany by 2030
- » Future Fleet:
  - » accompanying research on integration of EVs in SAP's company fleet
- » E-Mobility Berlin:
  - » accompanying research of the "Smart ed" fleet test in Berlin (in cooperation with Daimler Corp.)
- » OPTUM Resources:
  - » global impact of electric mobility on availability of rare resources and potential recycling strategies
- » LiBRi:
  - » development of recycling strategies for lithium-ion batteries

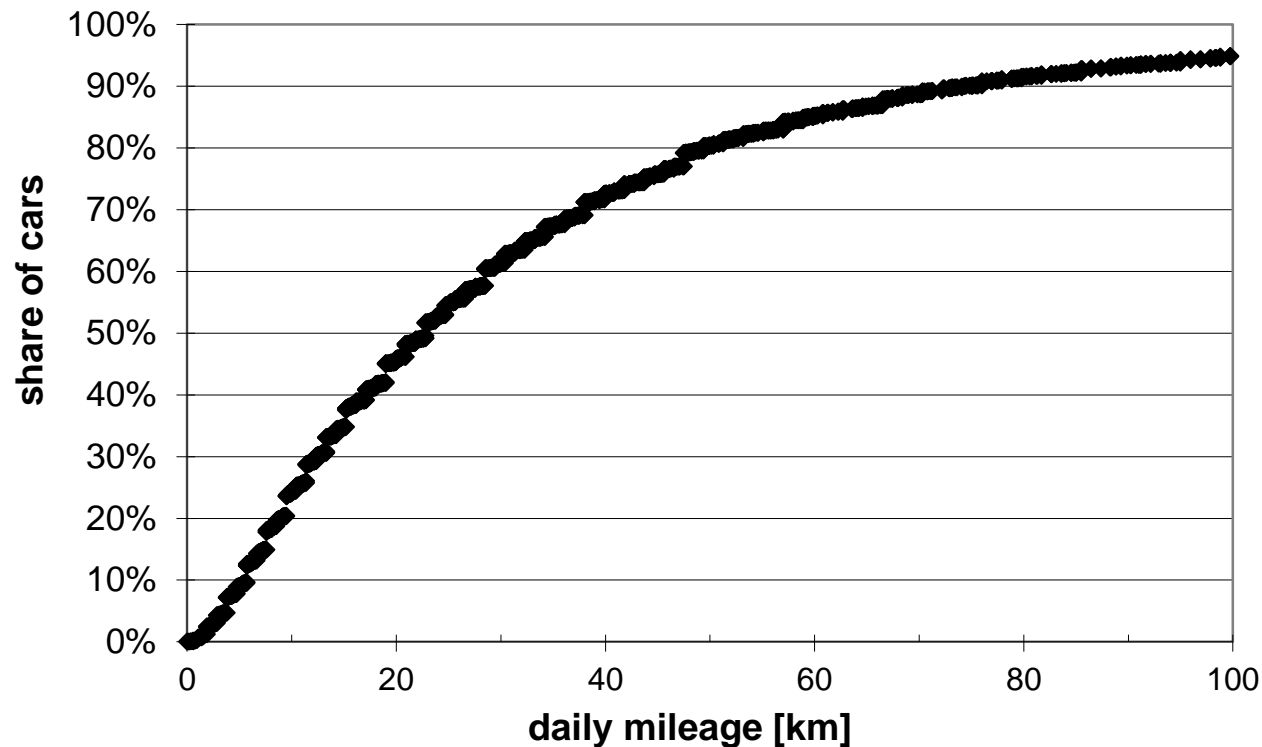
- » E-Mob 2050:
  - » research project (09/2011-09/2013) funded by BMU
- » main goals:
  - » long term market potential of electric and fuel cell vehicles in Germany until 2050
  - » impact of changes in mobility behaviour and of new mobility services on the market potential of EVs / FCVs
  - » consideration of long term development of the German power sector (with a high share of fluctuating renewable energy generation)
  - » modelling of the long term interaction of EV use and power generation

## Why talking about sustainable mobility?

- » EU GHG emission target 2050: CO<sub>2</sub> emission reduction of more than 80 % compared to 1990 emissions
- » growing share of transport sector emissions: ~ 25 %
  - » high relevance of road traffic
- » no „easy“ options in the transport sector
- » CO<sub>2</sub> emission reduction measures:
  - » technology development
  - » alternative (less CO<sub>2</sub>-intensive) fuels
  - » change in mobility behaviour, need of new mobility offers

## How cars are used today?

- » ~ 50 % of car owners use it 3 times a week or less
- » average trip distance: ~ 15 km
- » average car usage time per day: ~ 1 h



## Market potential of electromobility

- » study: OPTUM – optimising the environmental benefit of electric vehicles
- » project partners: Oeko – Institut (lead), ISOE (user acceptance analysis)
- » stakeholder process: stakeholders from industry, consumer groups and NGOs
- » market scenario until 2030 derived from user acceptance survey (conjoint analysis) and today's car usage patterns (MiD 2008)

# Example: conjoint task


Wenn das Ihre einzigen Optionen sind, welches Fahrzeug wählen Sie?

Motor	Verbrennungsmotor	Plug-In-Hybrid	Elektromotor
Leistung	120 kW/ 165 PS	120 kW/ 165 PS	90 kW/ 120 PS
CO <sub>2</sub>	100 g/km	50 g/km	5 g/km
Anschaffungskosten	24.000 €	29.000 €	35.000 €
Kraftstoffkosten	12 €/100 km	8 €/100 km	4 €/100 km
Reichweite pro Ladung			200 km
Ladedauer			8 Stunden
Privilegien			Kostenfreie für Elektroautos reservierte Parkplätze in Innenstädten
	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

Mit Blick auf das, was Sie über den Automarkt wissen: Würden Sie dieses Fahrzeug, das Sie hier ausgesucht haben, tatsächlich kaufen?

- Ja  
 Nein

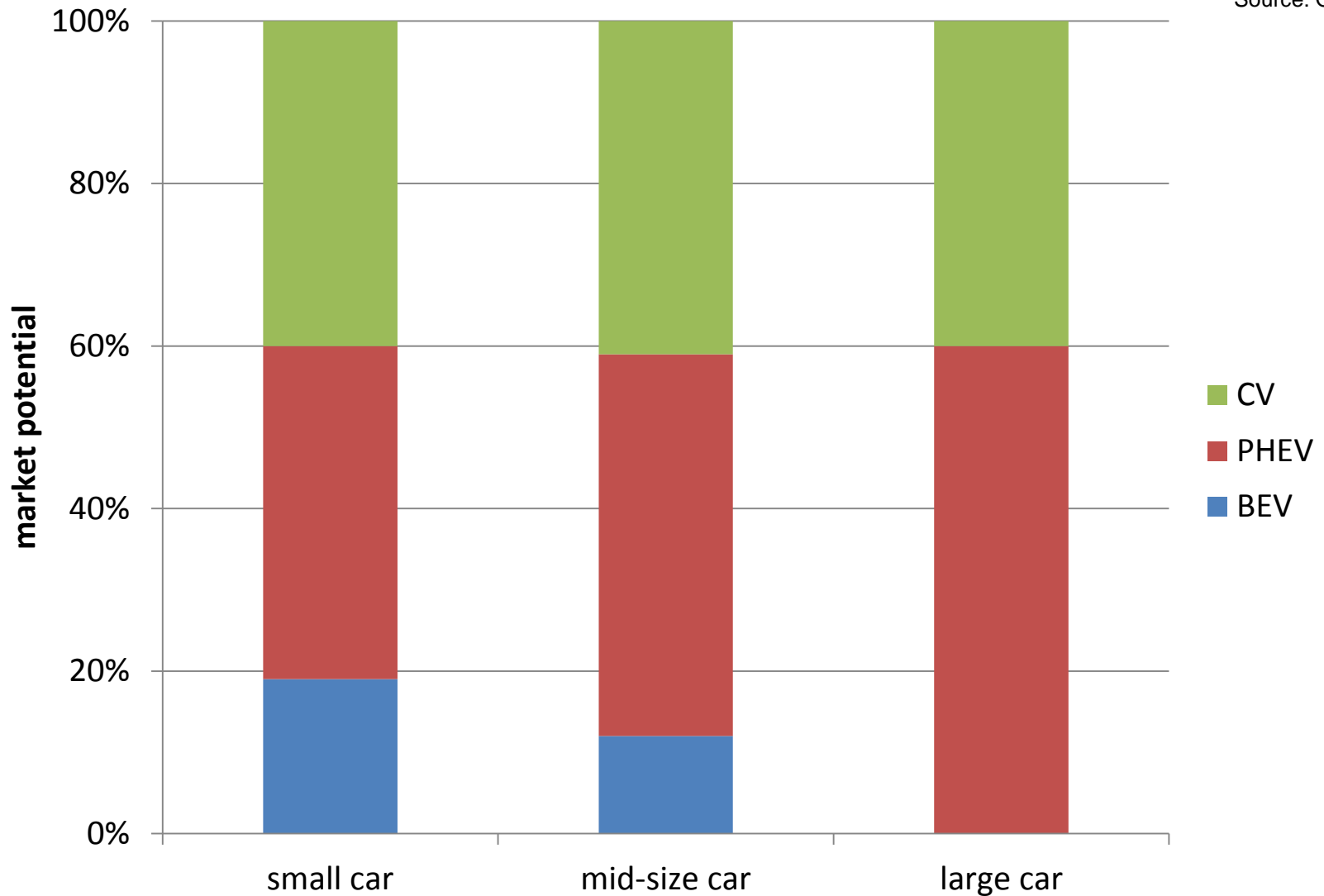
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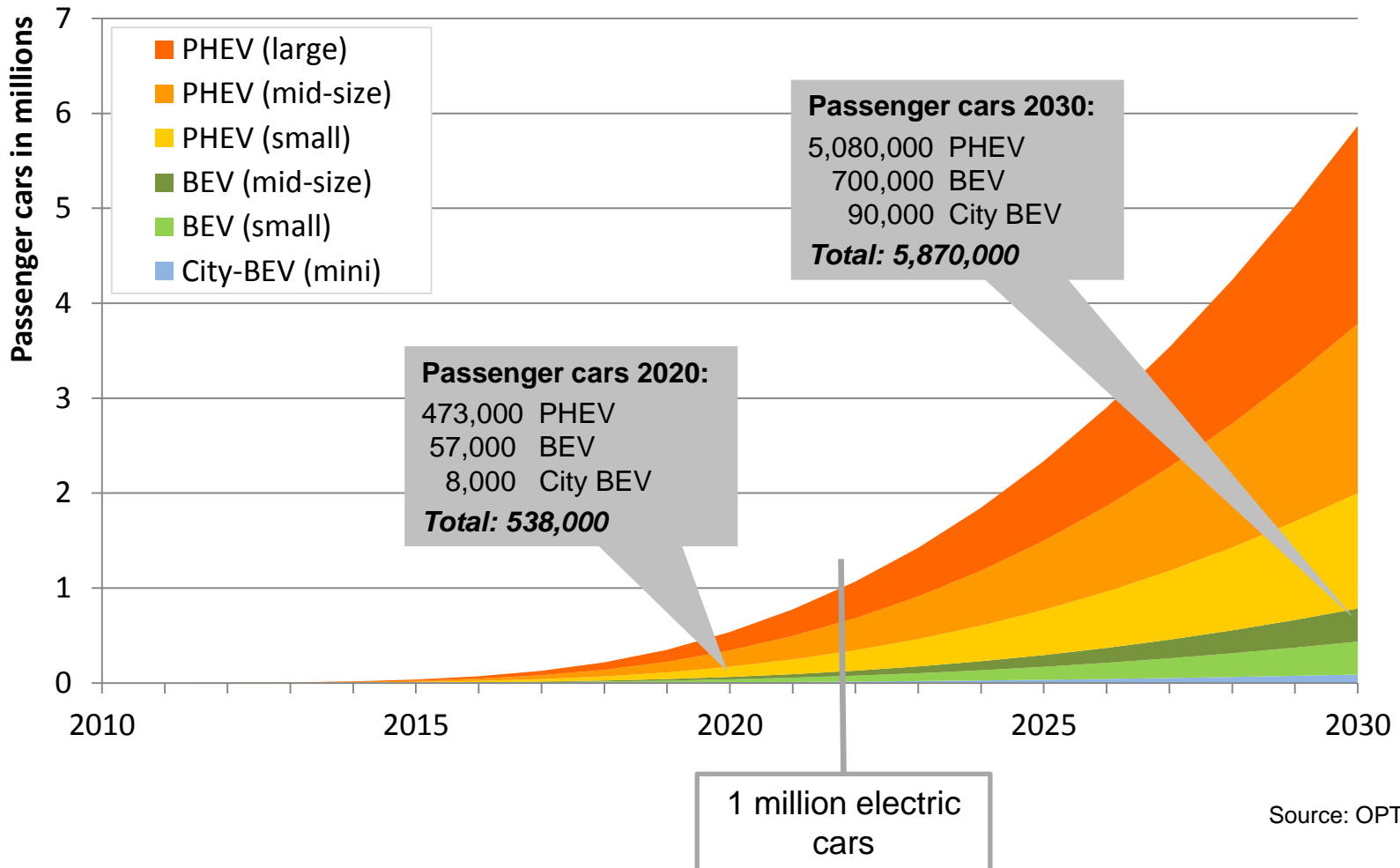
# Market simulation (conjoint analysis)

Source: OPTUM



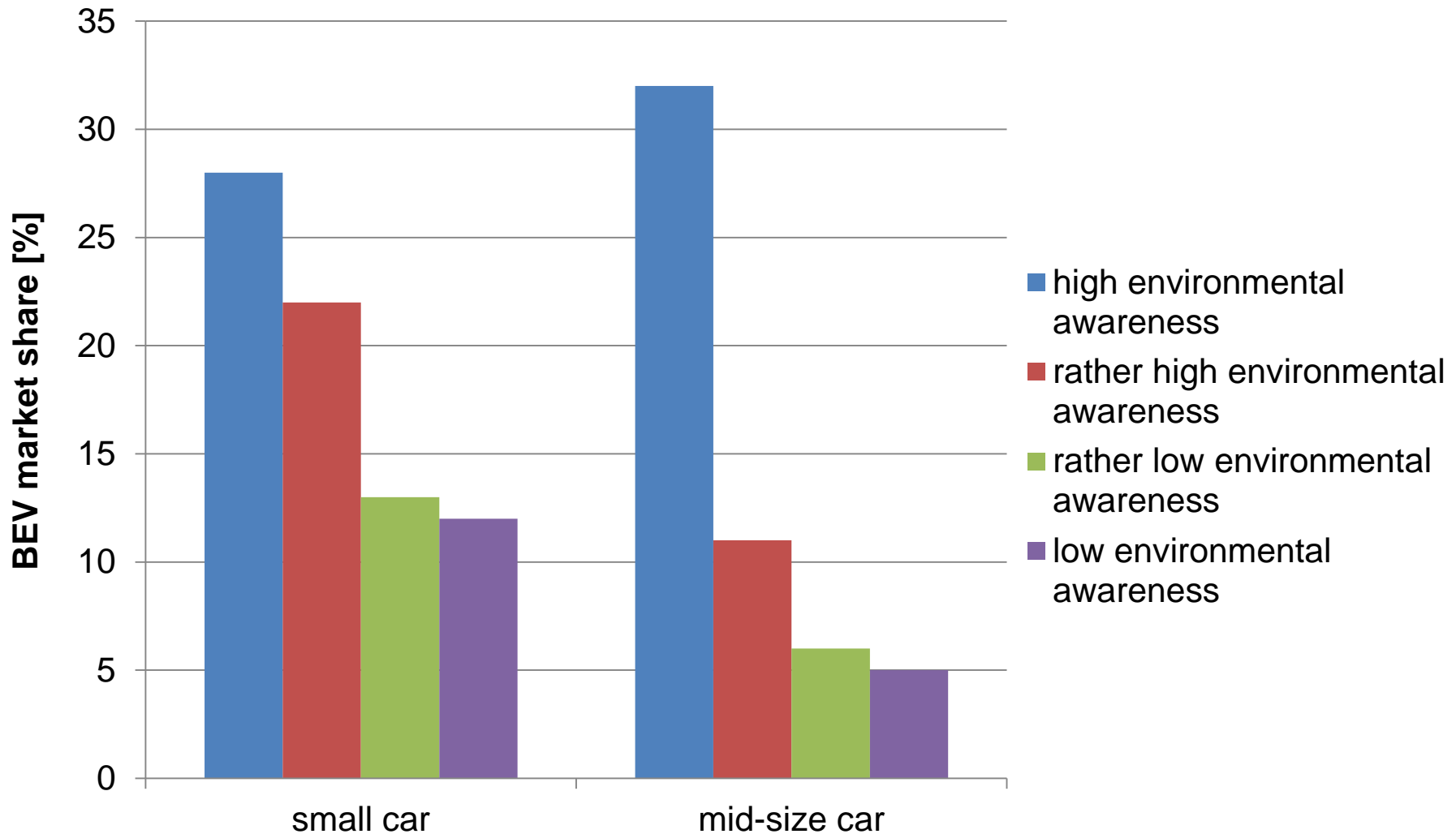
# EV market scenario

**German government targets:**  
 2020: 1 million electric vehicles  
 2030: 6 million electric vehicles



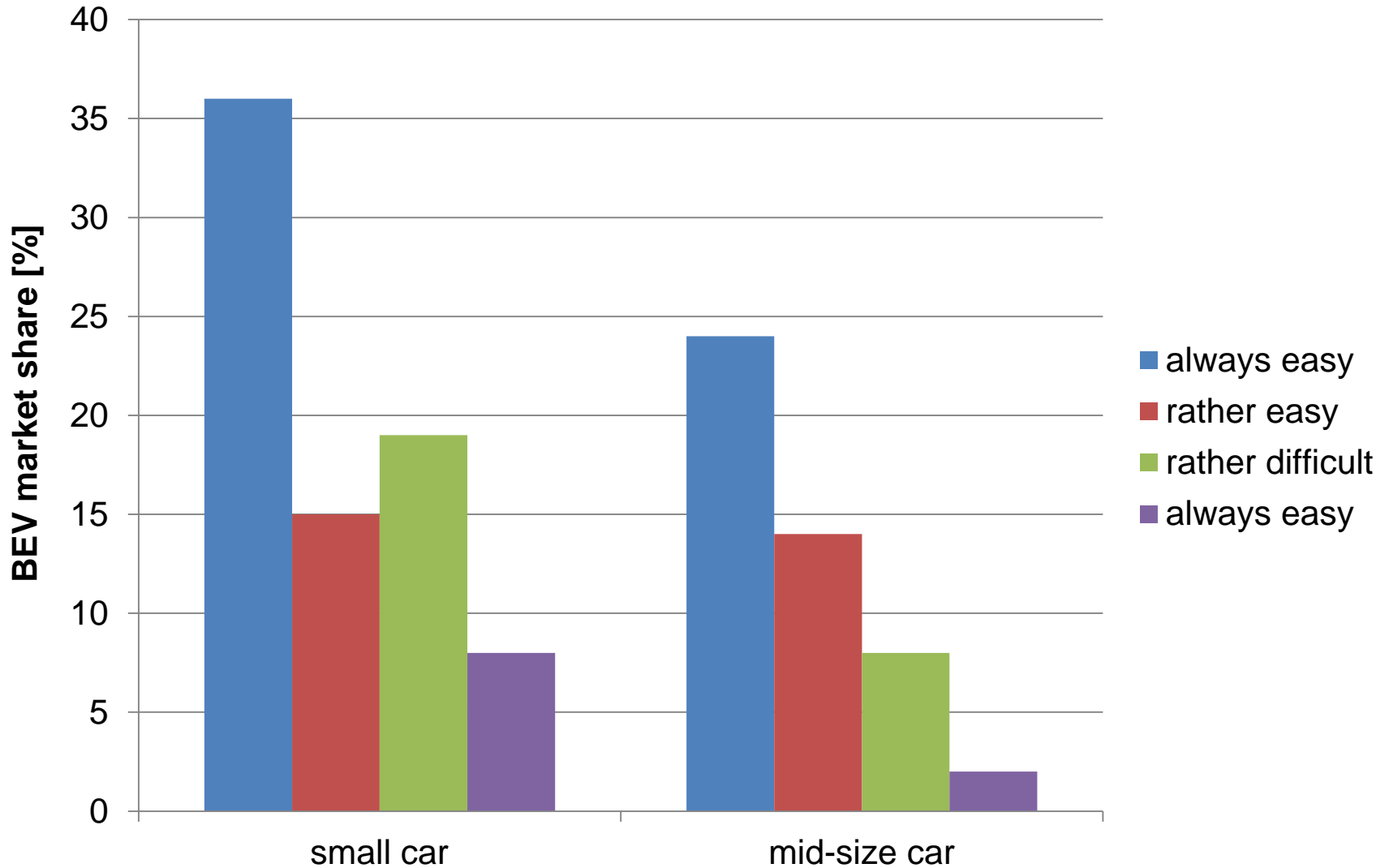
# User acceptance & environmental awareness

Source: OPTUM



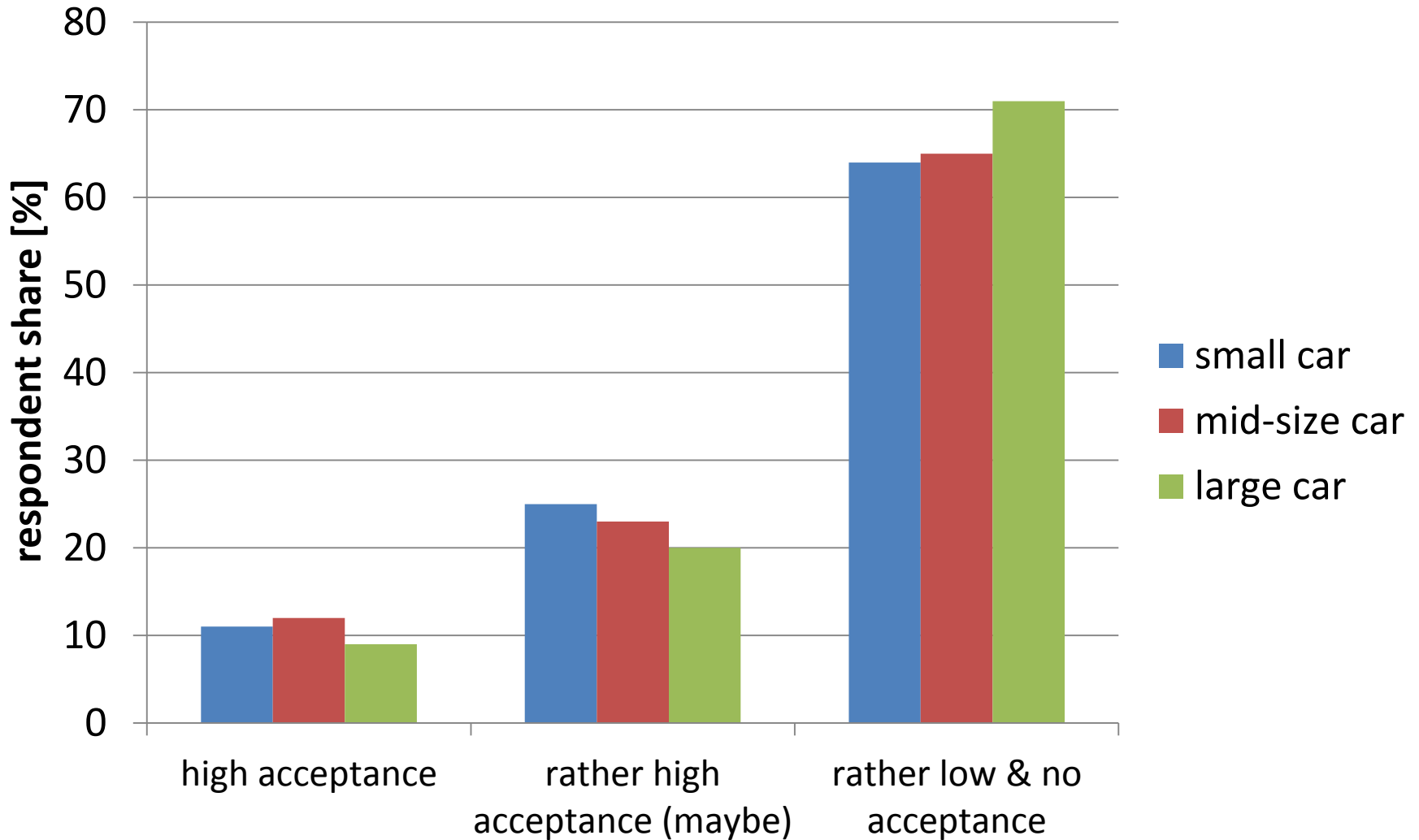
# user acceptance & access to public transport

Source: OPTUM



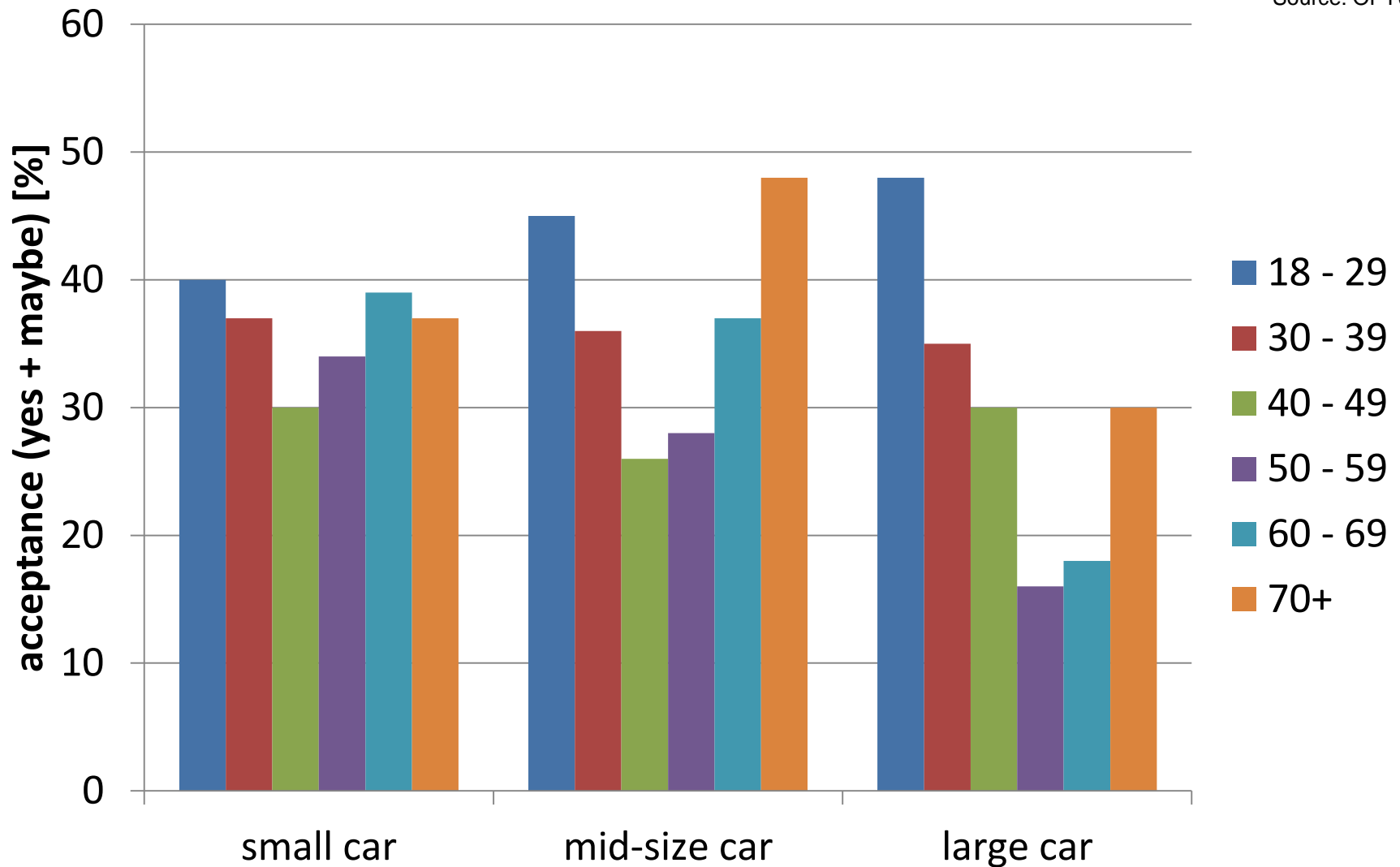
# intermodal mobility concepts without car ownership I

Source: OPTUM



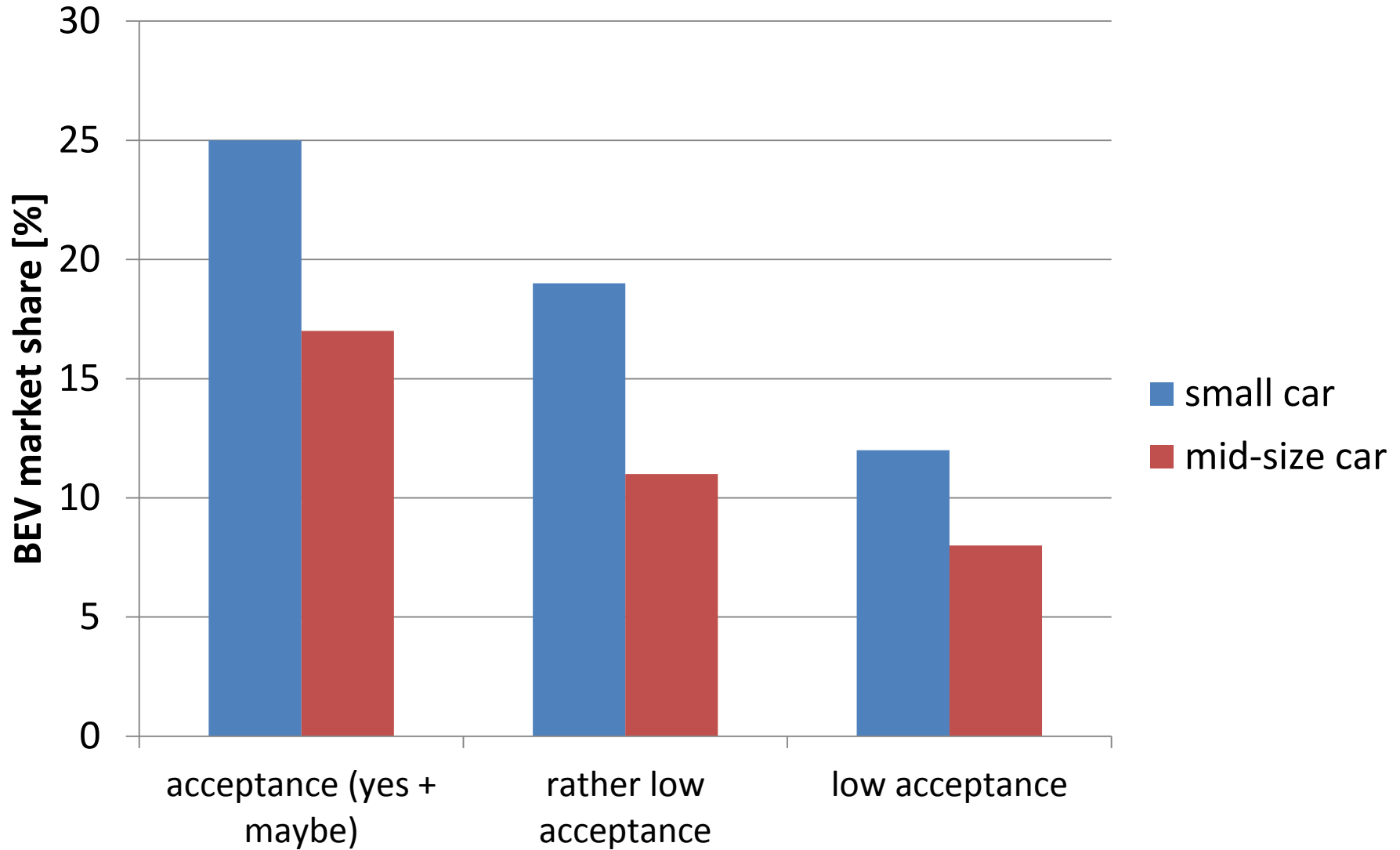
# intermodal mobility concepts without car ownership & age

Source: OPTUM



# user acceptance & intermodal mobility concept

Source: OPTUM



## Electromobility & carsharing

- » market scenario: domination of PHEVs due to range restrictions of BEVs
- » development of BEV market: intermodal mobility concept (incl. carsharing)
- » increased acceptance for BEVs when
  - » high environmental awareness
  - » easy access to public transport
  - » positive attitude toward intermodal mobility concept
- » benefit of low operating costs is intensified due to carsharing

The future market success of BEVs requires strong link to other mobility options. At the same time, electromobility might be the starting point for the development and stronger acceptance of intermodal mobility concepts incl. carsharing.



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