

Bicycle and Public Transport against the Private Car? – Analyses considering competition and synergies between modes

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- Problem description: competition and synergies

- Modal use of multimodal persons
 - Measurability
 - Key figures and results
 - Persons
 - Fields of application
 - Situations

- Intermodality in the German Mobility Panel

- Interpretation and Conclusions: Competition and synergies



MeetBike:

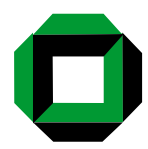
→ Considering synergies between bicycle and public transport

But:

What can happen, in the case of interventions to rise the demand in public transport?

“Cannibalisation” between the environmental-friendly modes?

- Competition for the same person groups?
- Competition for the same trip purposes?
- Competition within the same market segments ?



**Multimodal persons =
Individuals, who are not committed to one certain mode, but
are using variable modes**

Multimodale Personengruppen



RWTH Aachen
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Universität Karlsruhe
Institut für Verkehrswesen

In the focus: Relationship between private car and public transport

- Definition und quantification of multimodality
- Identification of groups with different levels of multimodality
- Definition of determinants of multimodal behavior

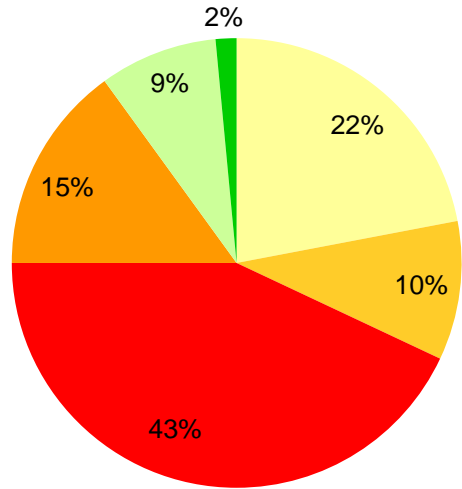
Here additionally: What role does the bicycle play?

- Relationship between the bicycle against the car or against public transport
- Relationship between the bicycle and public transport on the one side against the car on the other

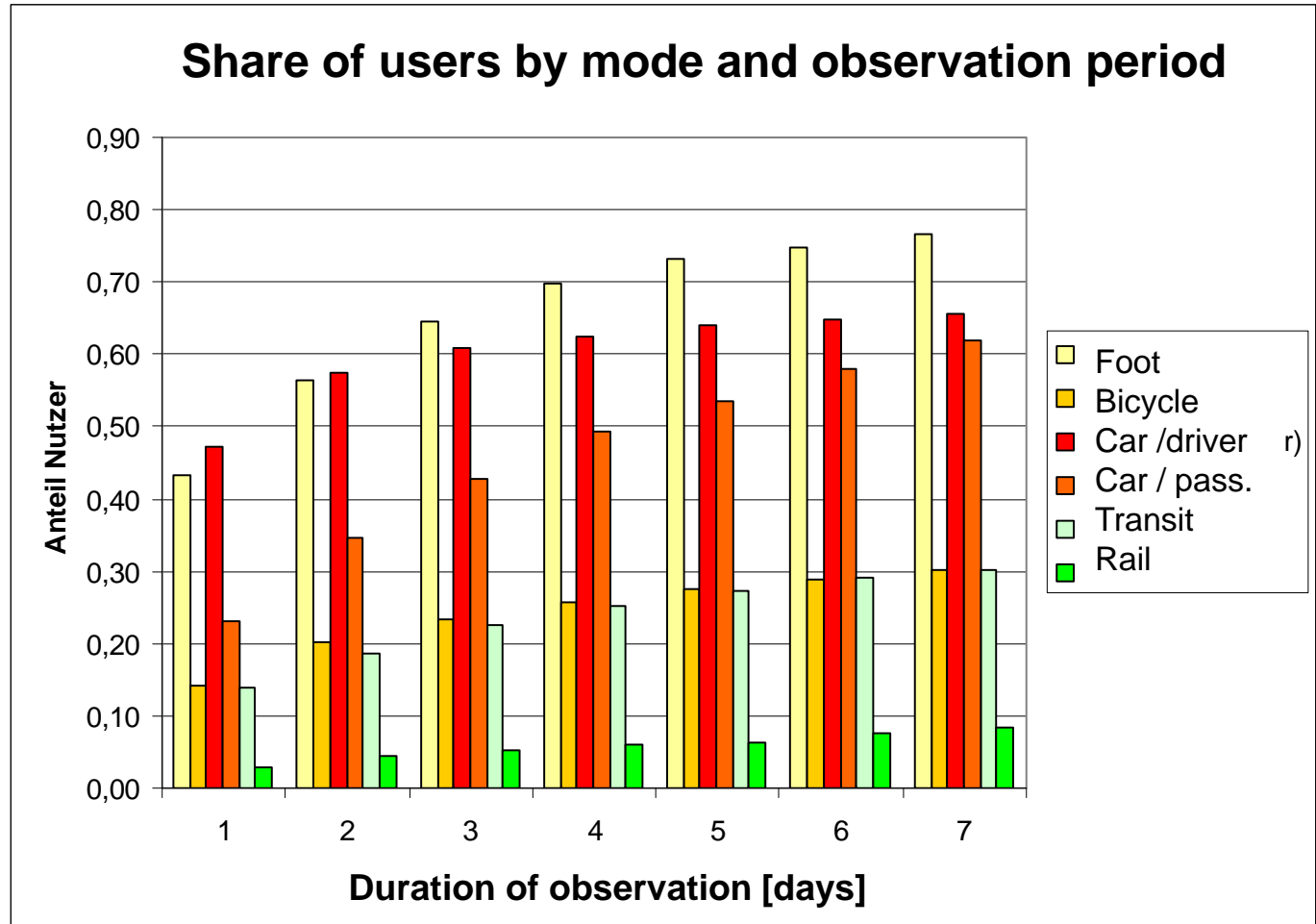


Modal Split (Trips) –

Clientele of modes (Individuals)



- Foot
- Bicycle
- Car as driver
- Car as passenger
- Transit
- Rail





Which parts of the population are getting in touch with which modes and how intensive is the mode use?

Private car as driver:

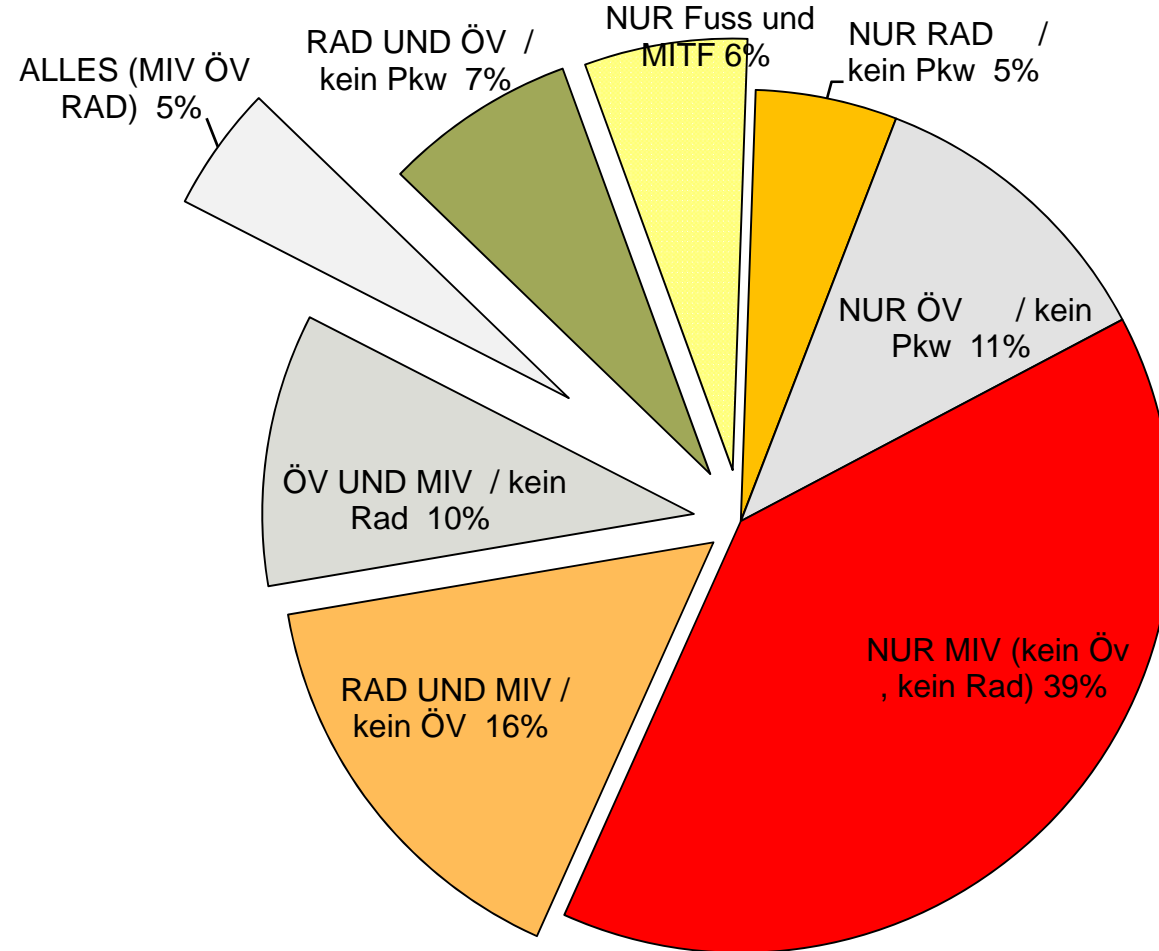
- ~ 2/3 of the population uses the car as driver for
- ~ 2/3 of all trips

Public Transport:

- ~ 1/3 of the population uses public transport for
- ~ 1/3 of all trips

Bicycle:

- ~ 1/3 of the population uses the bicycle for
- ~ 1/3 of all trips



Monomodality and multimodality

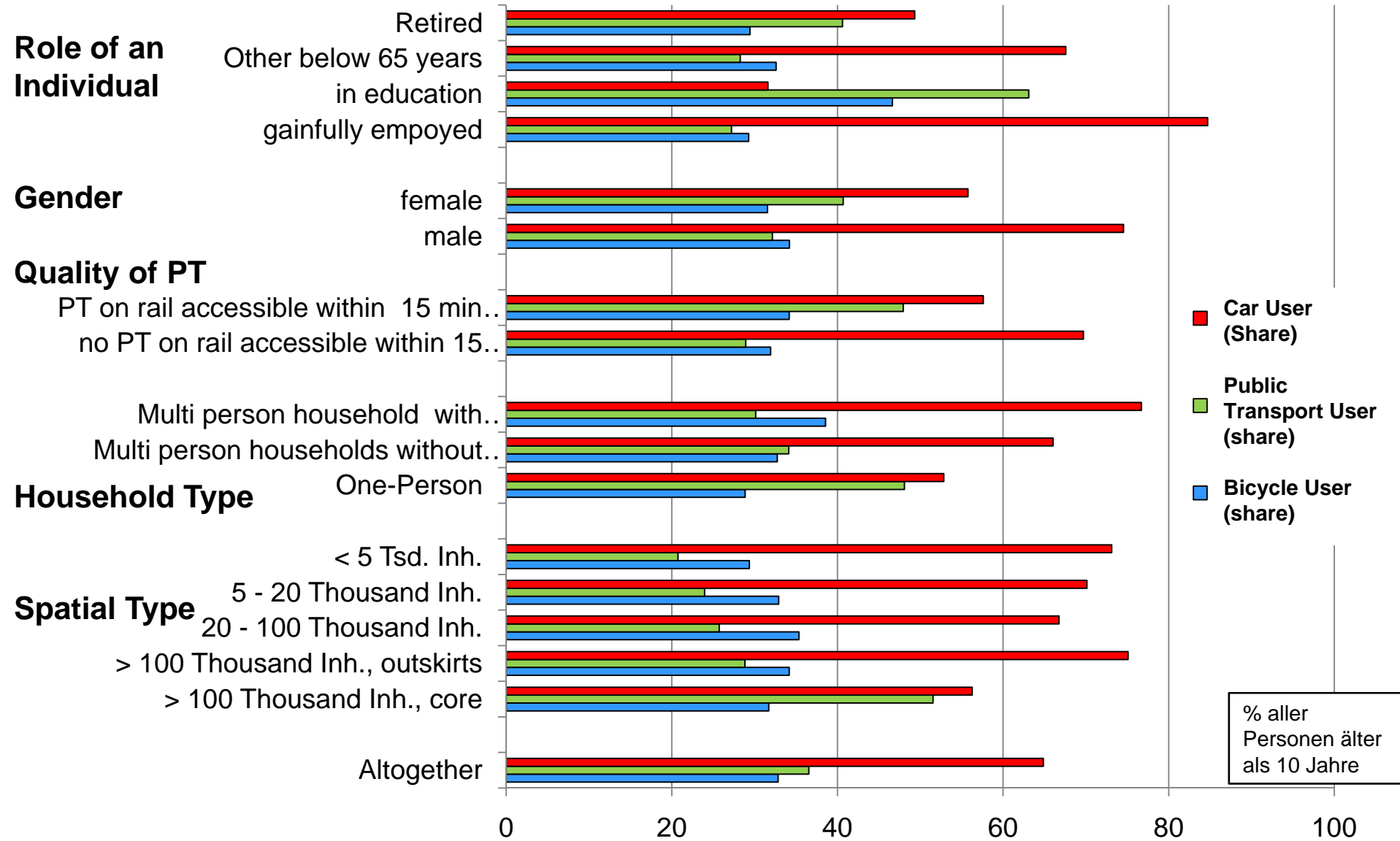
Classification of the population by used modes within one week

~ **60 % monomodal**
always using only one and the same mode

~ **40 % multimodal**,
using regularly variable modes

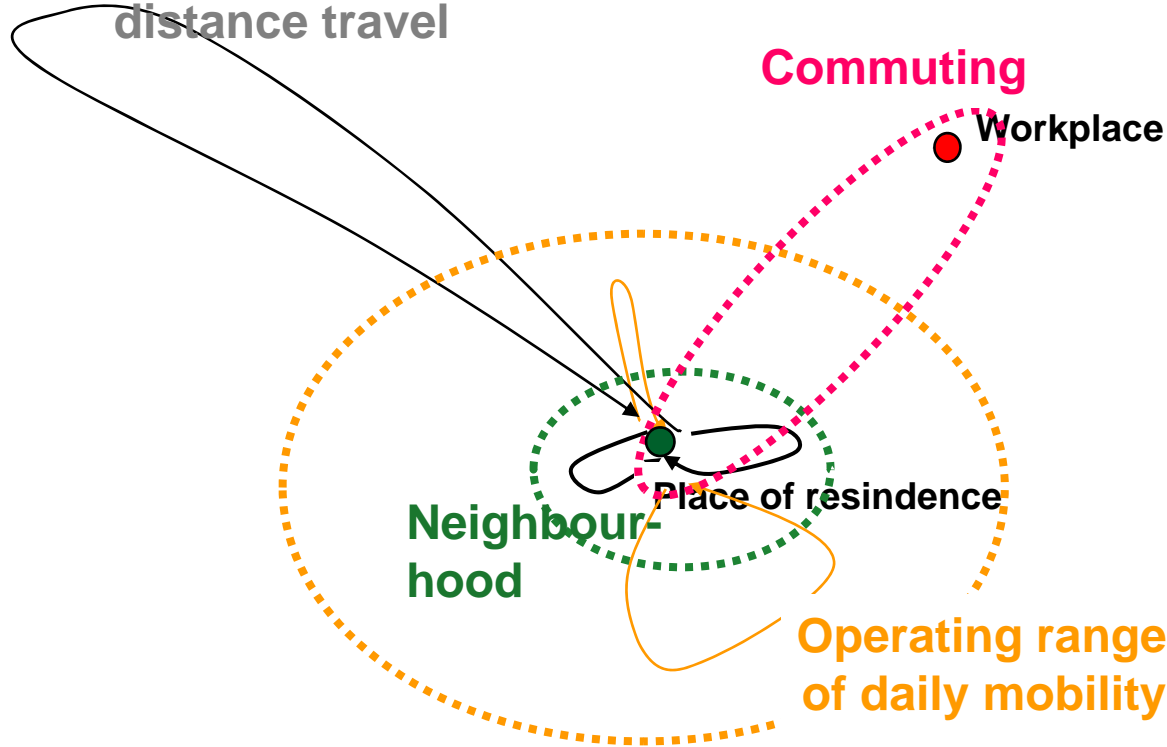


Which modes are used where and by whom?



Definition of market segments in everyday travel with different characteristics

regional und long distance travel



Market Segment 1:
Neighbourhood without commuting

Market Segment 2:
Operating range of daily mobility beyond the neighbourhood

Market Segment 3:
Daily commuting

Market Segment 4:
Comparably seldom events (such as regional and long-distance travel)



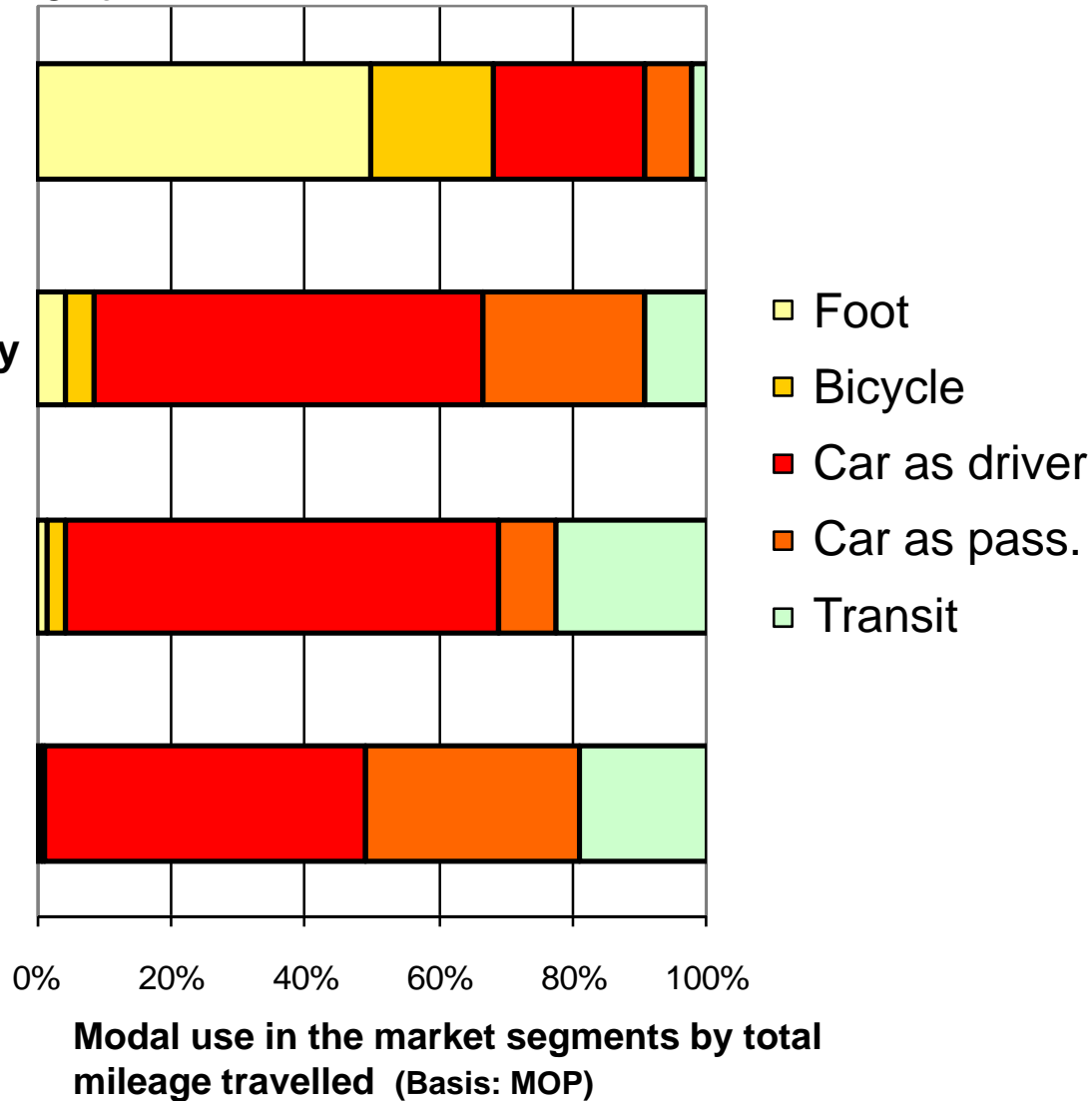
Use of modes by market segment!

Market Segment 1:
Neighbourhood without commuting

Market Segment 2:
Operating range of daily mobility beyond the neighbourhood

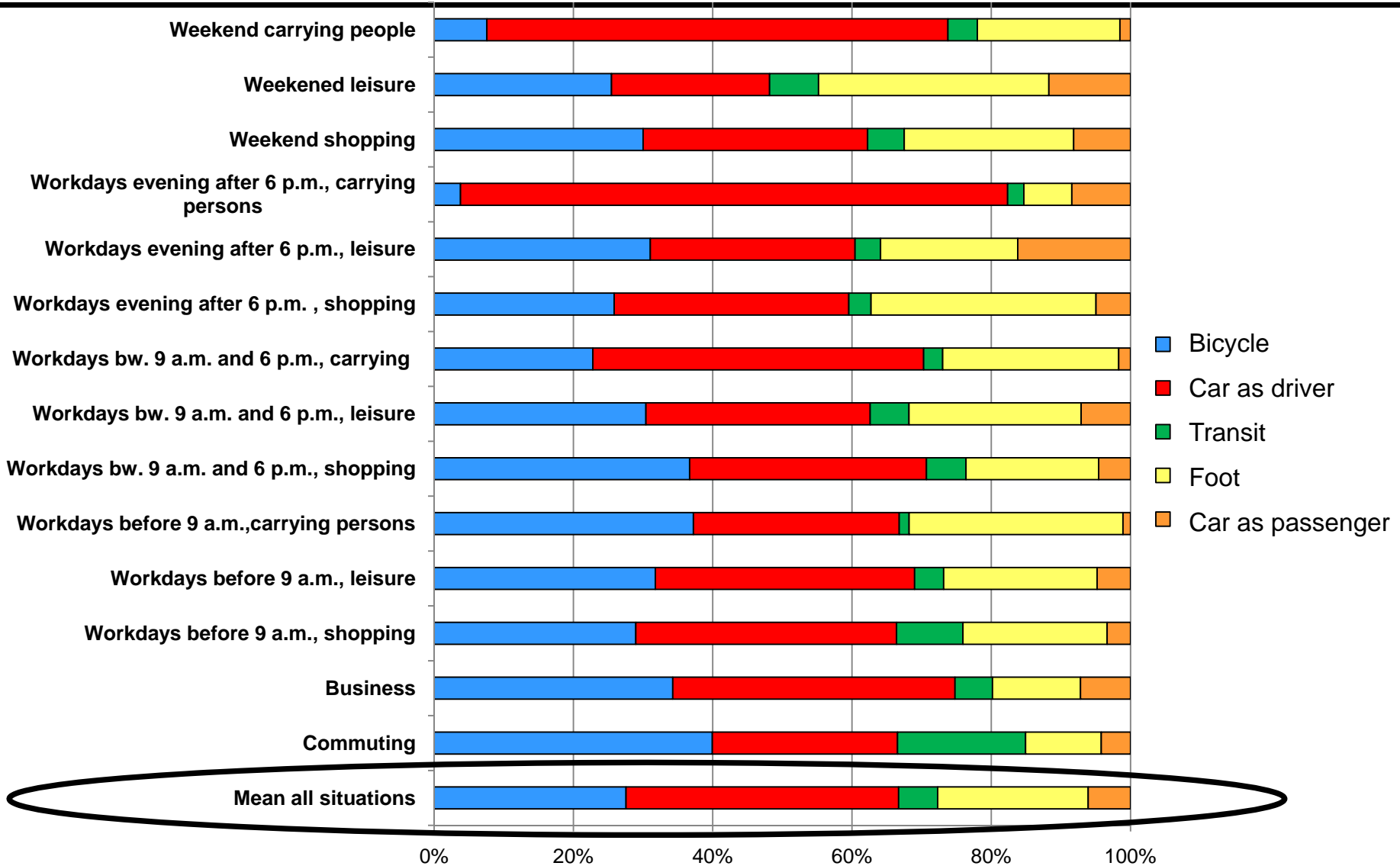
Market Segment 3:
Daily commuting

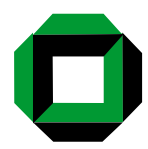
Market Segment 4:
Comparably seldom events (such as regional and long-distance travel)



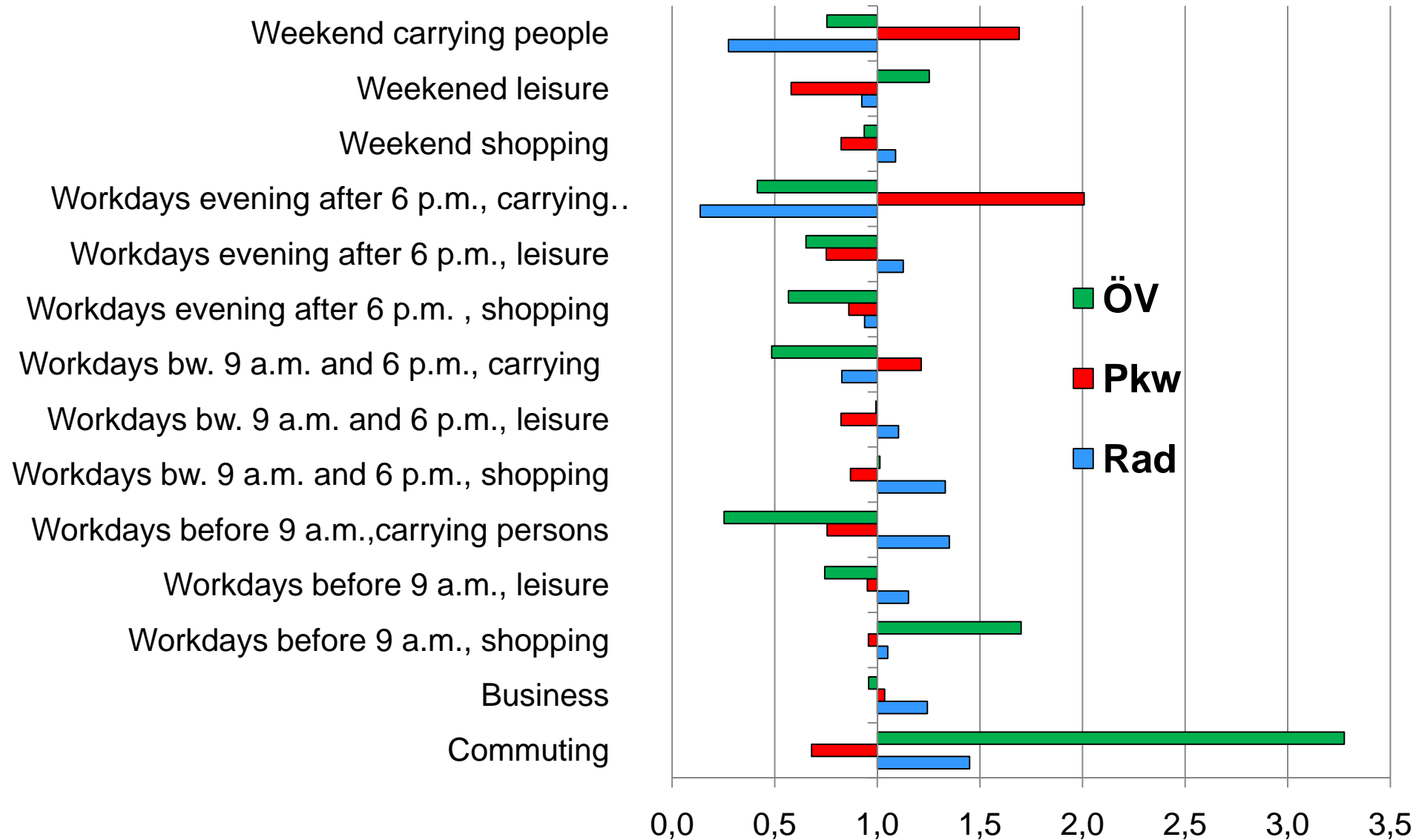


In which situations multimodals use which modes ?





Modal use of multimodals by situations (Depiction of index)





Consideration of all trips:

- ~ 5 % of reported trips are bi-intermodal
- ~ 1 % of reported trips are tri+-intermodal → Long distance travel

Considering individuals:

- ~ 76 % of all individuals are reporting always one mode !
- ~ 12 % travelling occasionally intermodally! → occasional riders of PT
- ~ 7 % travelling frequently intermodally → regular PT users
- ~ 5 % are optimising intermodality → high share of intermodal trips

→ Intermodality is an individual strategy for optimisation!

- Application in situations in which „Public Transport plus X“ is the better choice
- By reasons of its complexity intermodality is frequently characterised by a routinisation → commuting trips
- Intermodality ↔ Using collective long distance modes



Intermodality – Relationships between Bicycle and Public Transport

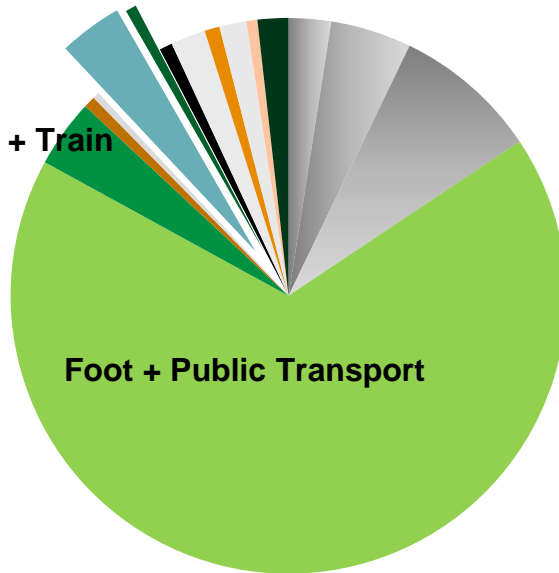


~ 5 % of all intermodal trips

Bicycle + PT

Bicycle + train

Foot + Train



Foot + Public Transport

- ~ about 50 % of all PT-trips are reported unimodally
- for ingressing/ egressing public transport walking is dominating

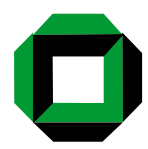
The share of intermodal trips public transport + bicycle is insignificant!

- Higher relative importance in the ingress/ egress to trains than for local public transport
- Complementarity public transport + bicycle on the level of trips is a niche market
- Ingress / egress by foot might be improvable



Individual optimisation determines multimodal behaviour!

- The car is „universal“ and is consequently used everywhere and for every purpose!
- Public transport is used „specialised“ by multimodals (e.g. for commuting, in regional or long distance travel , going shopping in city centres)!
- The bicycle has no obvious markets to be used by multimodals in a specialised form, its strength is for purposes and destinations in the short range, here it is universal !
- The bicycle has no typical clientele
 - ➔ Cycling seems to be rather determined by attitudes than by socio-economic characteristics



Public transport and bicycle are „specialists“ from the perspective of the user → Suitability for special contexts

Public transport and bicycle are normally not competing in the short range
→ **Synergies for multimodals with different „areas of action “**

Public transport and bicycle are competing for the same trip purposes and clients in medium sized cities

→ **Competition for certain market segments !**

Public transport and bicycle can compete united against the car

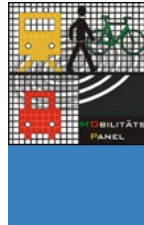
- if the quality is all right,
- if they are enabled to apply their advantages for certain purposes and in certain spatial contexts,
- if generally complementary measures are offered which are attracting people to behave multimodally (e.g.car-sharing)!



Thank you for your attention!

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The final report about the project
„**Multimodal Persongroups FE 70.724**“ and other reports based on the data of
the German MOP can be downloaded at:

<http://mobiltaetspanel.ifv.uni-karlsruhe.de/de/downloads/studien-auf-basis-des-panels/index.html>