



Should city officials take a different perspective on the deployment of autonomous vehicles?

Insights from population surveys in Germany.

Torsten Fleischer, KIT-ITAS

Maike Puhe, KIT-ITAS

Jens Schippl, KIT-ITAS



Background

- Advocates for autonomous vehicles (AV) offer ample ideas and promises how they could improve public transport and contribute to achieving sustainability goals
- Majority of studies on deployment, diffusion and acceptance of AVs in public transport focuses on new on-demand mobility services (mini-shuttles, robotaxis) in metropolitan environments
- High hopes, high complexity, few experiences, some problematic trade-offs



Some current limitations / blindspots

- Focus on deployment of vehicles, not on system building for mobility services (depot management, remote supervision, roadside assistance/teleoperation, customer needs, service launch)
- More conservative innovation strategies and behaviors only occasionally mapped, e.g.:
 - potential of automating familiar means of public transport (e.g. electric BRT/BHNS),
 - better understanding of reasons for non-use or rejection of certain forms of mobility services (usage complexity)
 - application experiences and mobility needs in different, less dense settlement structures
 - mobility requirements in urban-periurban links



Evidence

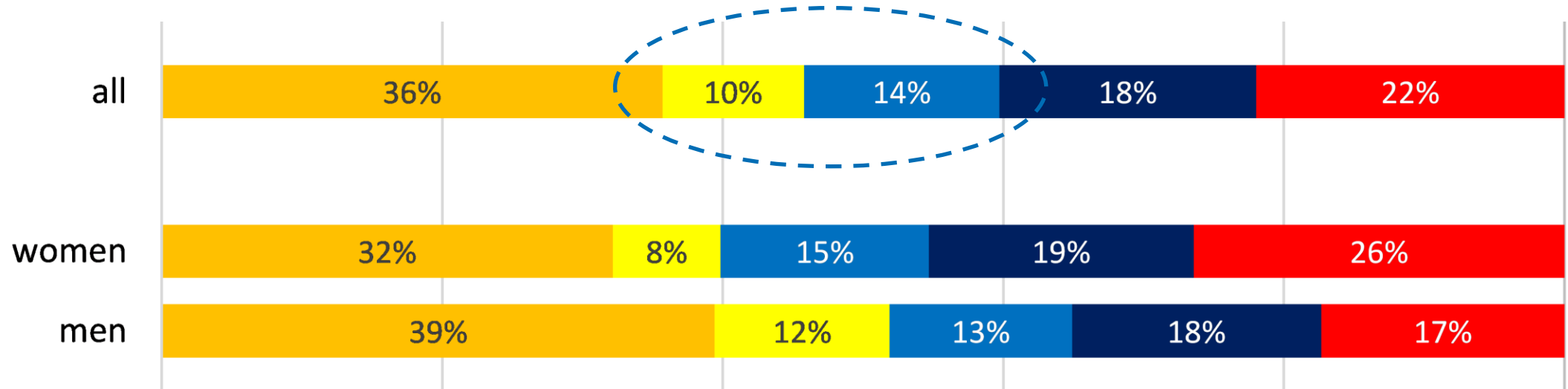
Excerpts from representative population survey in Germany

- on mobility behavior, mobility needs and autonomous driving, attitudes towards technology (and, of course, sociodemographics).
- German-speaking resident population in private households aged 16 and older (**N = 1,507**)
- conducted in November / December 2022 in a mixed-mode design (CATI/CAWI)

Two questions re adoption

- When you think about autonomous vehicles, which of the following options would be most suitable for your everyday life?
- Now imagine that a transport company in your area offers a new local bus route on which autonomous mini-buses are used. Which of the following statements is most likely to apply to you?

Most suitable mobility option



■ a private autonomous vehicle

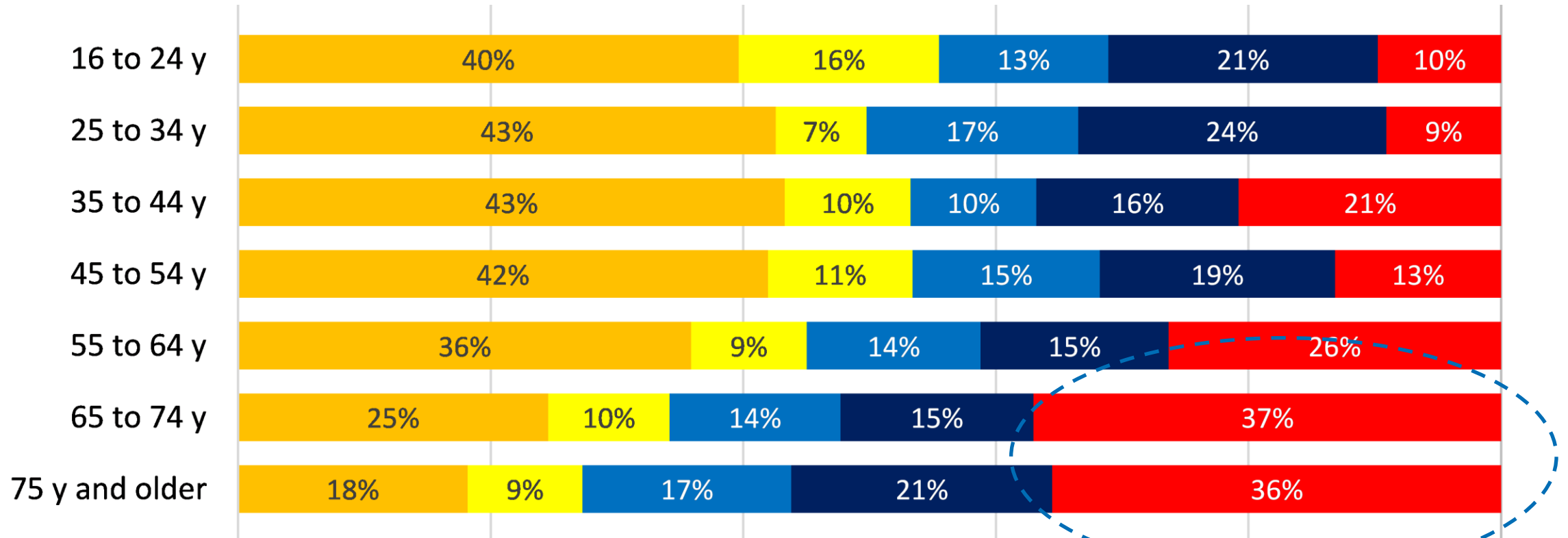
■ a driverless taxi that you can hire for your individual needs

■ a driverless mini-bus that you can hail as needed, but which may then carry other people as well

■ autonomous buses or streetcars - just like today's public transport, but without a driver

■ none of the above

Most suitable mobility option



■ a private autonomous vehicle

■ a driverless taxi that you can hire for your individual needs

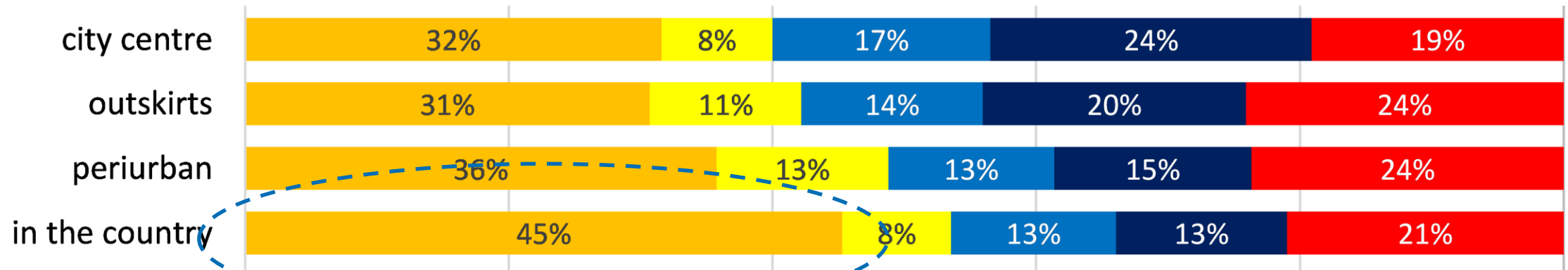
■ a driverless mini-bus that you can hail as needed, but which may then carry other people as well

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Most suitable mobility option

Subjective urbanization



■ a private autonomous vehicle

■ a driverless taxi that you can hire for your individual needs

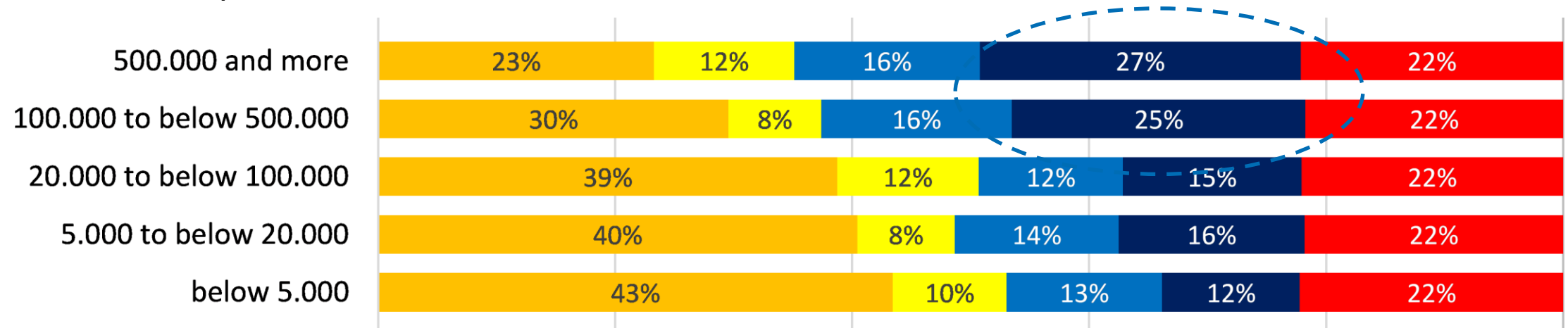
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Most suitable mobility option

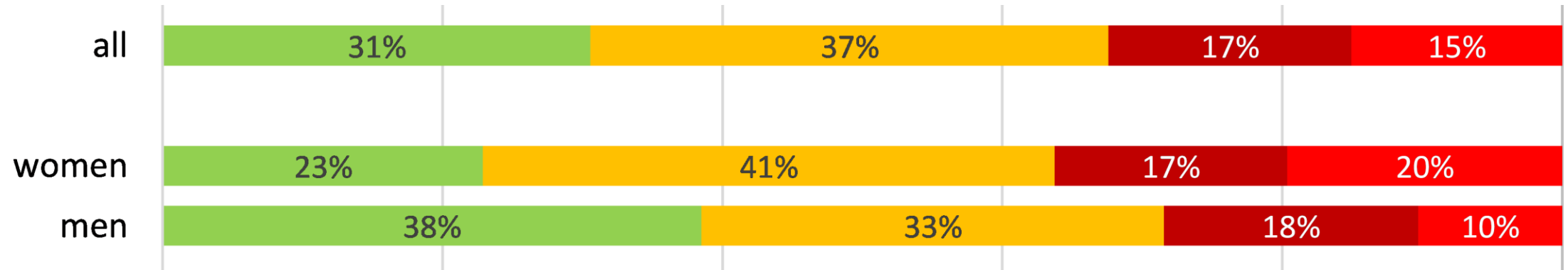
Inhabitants at place of residence



- a private autonomous vehicle
- a driverless taxi that you can hire for your individual needs
- a driverless mini-bus that you can hail as needed, but which may then carry other people as well
- autonomous buses or streetcars - just like today's public transport, but without a driver
- none of the above

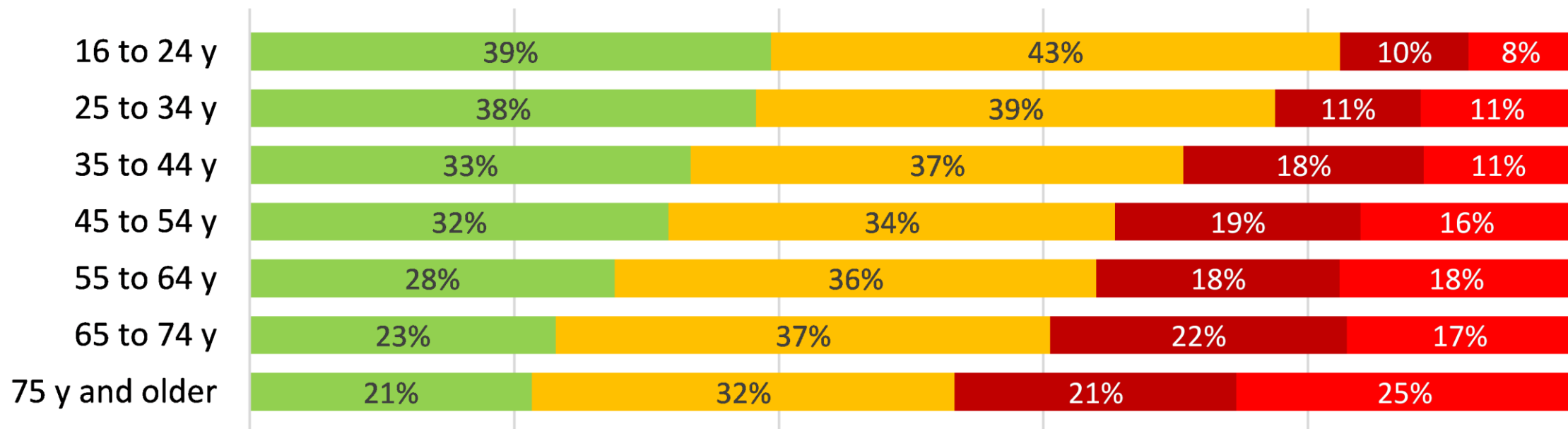
Willingness to use autonomous minibus

Now imagine that a transport company in your area offers a new local bus route on which autonomous mini-buses are used. Which of the following statements is most likely to apply to you?



- Whether autonomous or not makes no difference to me. The important thing is that I can reach my destination easily.
- Before I use this bus, I would wait a while and see how it performs in everyday use.
- I do not use public transportation.
- I would not use the bus because a vehicle without a driver scares me.

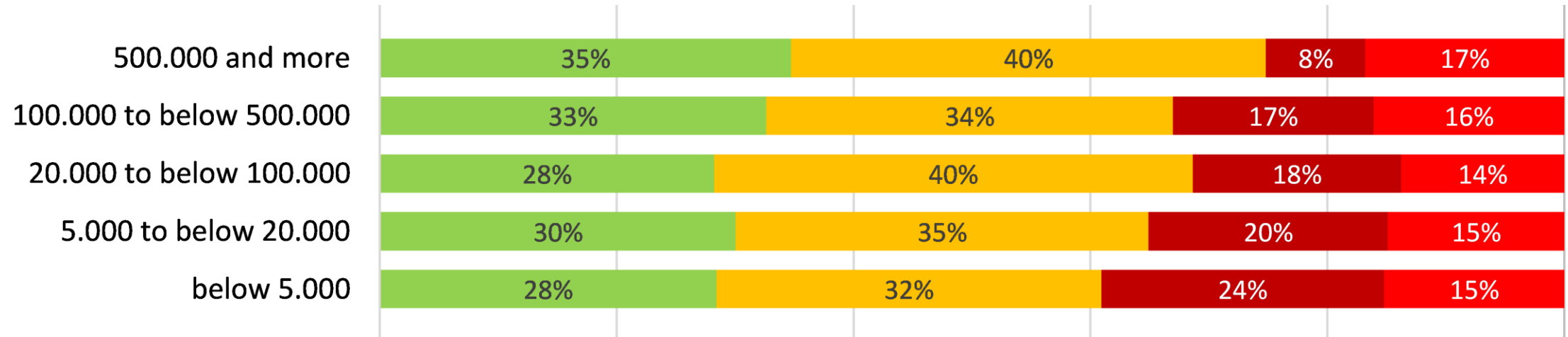
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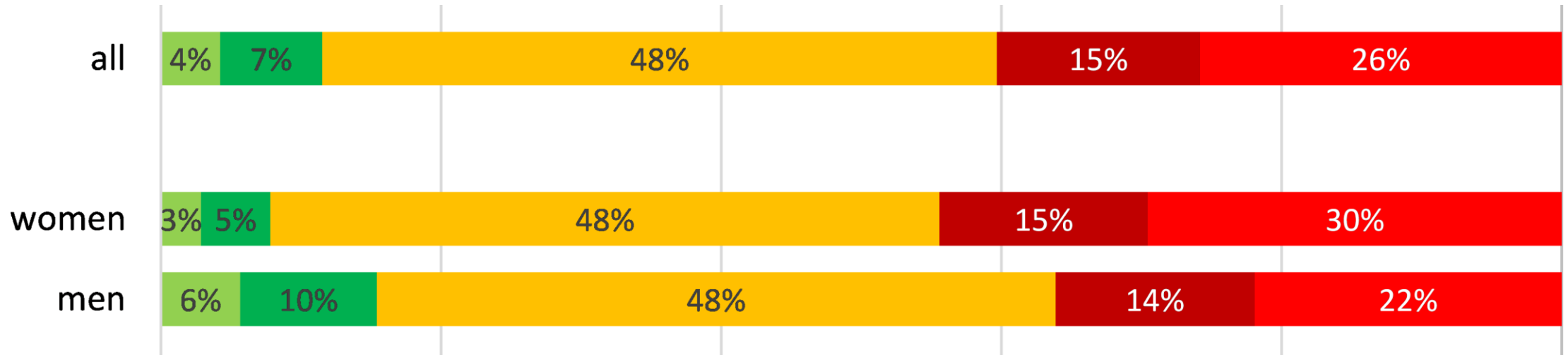
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Buying a personal autonomous car?

Please imagine that in the near future it will be possible for private customers to purchase autonomous passenger vehicles, i.e. vehicles that do not require a human driver and therefore no pedal or steering wheel. Which of the following statements is most likely to apply to you?



- I would purchase an AV as soon as it is available and even make a new purchase sooner than necessary.
- If I were to replace my current vehicle or need a new vehicle, it would definitely be an AV.
- Even if AVs are already being sold, I would want to wait a little longer and see how they perform in everyday use.
- I would definitely not purchase an autonomous vehicle.
- I would not buy a private vehicle at all.



To summarize

- Attitudes towards (new) technologies and mobility expectations (pragmatic and normative) need to be disentangled.
 - Younger men with higher education are most interested in purchasing or using AVs – also most relevant group in modes of active transportation
 - AVs as inclusion option for elderly might prove to be a demanding task → Challenge for deployment strategies and policy communication
 - Substantial wait-and-see groups in both adoption scenarios, but much larger for private than public. Advantage? Rebounds?
 - Smaller groups of habitual non-users and automation sceptics. Learnings?
 - Familiarity with service perpetuates in AV scenarios.
- Better empirical research. Learning, correctable diffusion strategies. RWL



**Thank you for
your attention!**



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For more information:

Torsten Fleischer, Maïke Puhe, Jens Schippl

Karlsruhe Institute of Technology (KIT)
Institute for Technology Assessment and Systems
Analysis (ITAS)

✉ First Name.Last Name @ kit.edu



Baden-Württemberg
Ministry of Transport

