

# A customized nudge to increase consumer preference for electric vehicles

Mario Herberz, Ulf J. J. Hahnel, Tobias Brosch  
University of Geneva

**Zoom link:** <https://unige.zoom.us/j/4033188277>

Consumers underestimate the extent to which available battery ranges of electric vehicles can cover driving needs. This reduces consumer preference and slows down the electrification of private transportation. Here, we show that consumers systematically underestimate the coverage potential of electric vehicles in two representative car owner samples (US and Germany). To counteract this bias, we tested a nudging intervention that provided personalized information about the actual coverage potential based on individuals' driving behavior. We found that this customized nudge significantly increased consumer preference for electric vehicles compared to only presenting battery range. We argue that simple behavioral interventions like the present should be an integral part of the policy tool box to promote electric vehicles, complementing conventional technological and infrastructure developments.

## Theory & Hypotheses

Limited battery range persists as a major barrier to the adoption of electric vehicles although available car models can cover at least 90% of an average consumer's driving needs<sup>1</sup>. We suggest that this is partly due to range anxiety overshadowing the actual coverage potential of electric vehicles. The usual presentation of maximum battery range of electric vehicles might trigger the use of an availability heuristic that facilitates the retrieval of driving instances that require a long battery range<sup>2</sup>. As a consequence, consumers overemphasize the importance of a long battery range in contrast to the actual use they could make of an electric vehicle, which reduces preference.

**H1: Consumers underestimate the coverage potential of electric vehicles.**

**H2: Presenting actual coverage information based on consumers' individual driving behavior corrects this misperception and increases preference.**

## Methods

### Study 1

Two representative online samples of car owners (US  $N = 512$  and Germany  $N = 512$ ; with respect to gender, age and income) estimated the share of their usual car trips that they would be able to cover with electric vehicles of varying battery range. Next, participants reported their habitual car driving behavior in the form of absolute frequencies and lengths of car trips they completed throughout a year. From the reported car trip frequencies we calculated the actual share of car trips that could be covered with a given battery range.

### Study 2

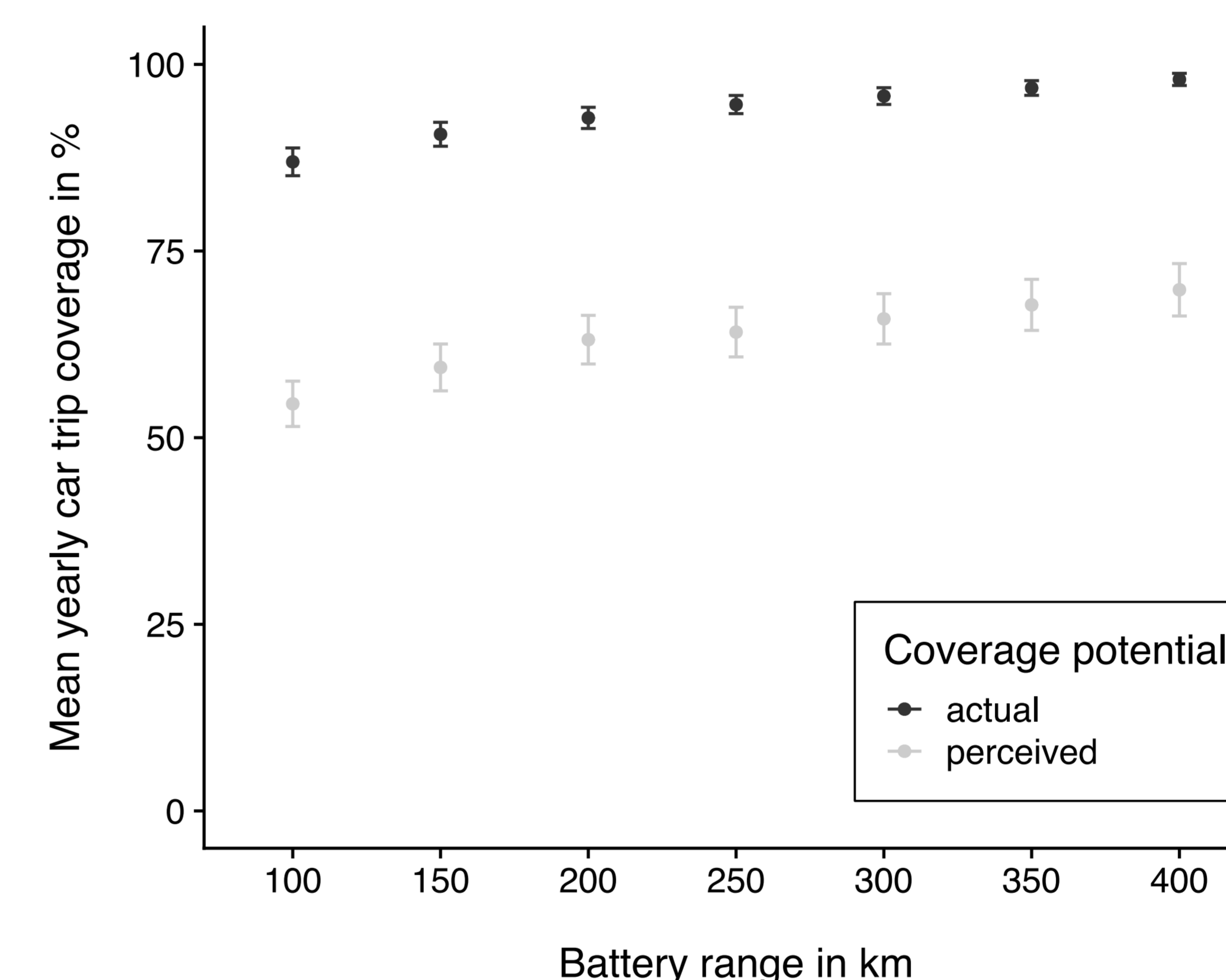
German car owners ( $N = 279$ ) reported their habitual car driving behavior, as in Study 1, and their attitudes towards owning an electric vehicle online. Then they were assigned to either the experimental or the control group. Participants in the experimental group were asked to report their willingness to pay for electric vehicles based on battery range (100 km to 400 km) and the actual customized coverage potential of a given battery range (see Study 1). In the control group, participants reported their willingness to pay only based on battery range.



Customized coverage information  
counteracts range anxiety and increases  
preference for electric vehicles

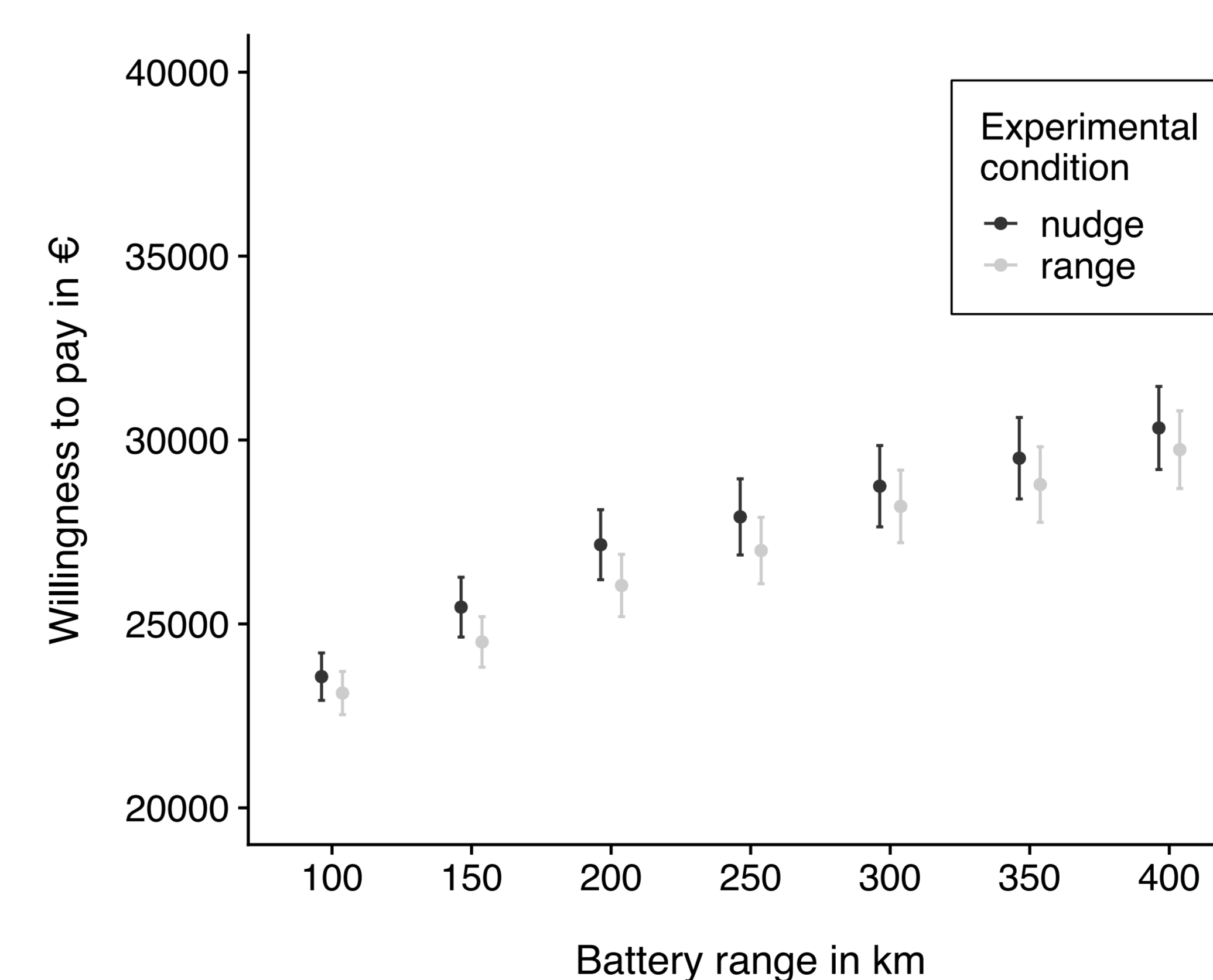
## Results & Discussion

### Study 1



**Figure 1.** Average perceived and actual coverage potential, as share of all trips feasible without recharging, by battery range (German sample). Error bars depict 95% confidence intervals.

### Study 2



**Figure 2.** Average willingness to pay by battery range and experimental condition. Presenting customized coverage information increased WTP compared to only presenting battery range. Error bars depict 95% confidence intervals.

Consumers substantially underestimated the share of car trips that they could cover with a given battery range, both in the US and Germany. On average, underestimation was about 30% ( $SD = 35\%$ ) across battery ranges.

There seems to be an important awareness gap about the coverage potential of electric vehicles which provides a promising target for behavioral interventions.

Providing consumers with the actual coverage potential of electric vehicles in the nudge condition significantly increased willingness to pay in comparison to only providing battery range,  $\beta = 829.4$ ,  $t(277) = 1.7$ ,  $p = .045$ . This effect was stronger for consumers with more favorable attitudes towards adoption,  $\beta_{nudge*att} = 575.6$ ,  $t(275) = 2.15$ ,  $p = .032$ .

Customized behavioral interventions like the one presented here are a promising and novel tool to promote the adoption of electric vehicles, with the potential for application in other fields.



## References

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