12-12-2022

Autonomous Driving: How to Influence User Acceptance of Self-Driving Cars - An Ontology-based Sentiment Analysis of Online Posts

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The vision of the self-driving car will not become reality if potential customers do not accept it. So far, knowledge about future usage behavior and customer attitudes to autonomous vehicle technology is still very limited. These are essential both for the successful adoption of this technology and for value creation and value delivery in the form of business models and marketing measures.
One way to explain user behavior is to extend the Unified Theory of Acceptance and Use of Technology Model (UTAUT), known as UTAUT2. This indicates that hedonic motivation has a major impact on behavioral intention. However, the theory can only explain part of the attitude and potential usage behavior. Therefore, in this study, we develop and examine an extension of the UTAUT2 model. We suggest an extension of the UTAUT2 by the determinants of Pleasure, Arousal, Dominance, and Anxiety. This way, we achieve a better coverage of the complex user attitude. Overall, it can be shown that in the context of autonomous driving and self-driving cars, especially emotional factors have a decisive influence on the behavioral intention of potential future users.
We investigate this extended UTAUT2 framework by using an ontology-based sentiment analysis of 1.050.578 online posts from Twitter and the international social news aggregator Reddit. By applying a text mining analysis, we gain insights into the needs, values, wishes and issues of potential customers regarding the technology of the self-driving car. Based on these results, we can already derive initial implications for practice. These includes business model strategies and marketing approaches for OEMs, suppliers and IT companies.

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