



BSI Standards Publication

Road vehicles — Ergonomic aspects of human vehicle interactions — Taxonomy for the classification of adaptive interactive vehicle systems

National foreword

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Foreword

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Introduction

With increasing technical feasibility of artificial intelligence (AI), more companies are integrating AI-based adaptivity and personalization into vehicle systems to adapt their behavior and/or content to the needs or expectations of individual users or groups of users. This enables vehicle systems to match individual user preferences and assist and ease execution of non-driving related functions. For the driving context, this offers the potential to reduce workload and distraction by helping users to handle large amounts of information within road vehicles. Nevertheless, there is no uniform classification for the capacities and characteristics of the type of adaptivity for vehicle systems.

This may lead to several risks of misunderstandings and unmatched expectations for different stakeholders as well as for the end user. If the type of the adaptivity is not clear to the end user, it can lead to uncertainty and a lack of transparency, predictability, algorithmic awareness, and understanding of the vehicle system's capacities and limits. Developers as well as the manufacturers as stakeholders also bear the risks of misunderstandings or unmatched expectations within all phases of the development process (ISO/IEC/IEEE 29148).

The ISO 8235 was developed to classify vehicle functions regarding their type of adaptivity and parameters used to achieve the adaptations.

Standardizing the types of adaptation of vehicle systems serves the following purposes:

- a) enables end users to assess the extent and limitations of adaptation specified by the manufacturers, suppliers and researchers,
- b) provides an unambiguous framework for the specification of adaptive vehicle systems and the technical differentiation of the respective types of adaptivity in the requirement phase,
- c) provides clarity and transparency in communication on the topic of adaptive vehicle systems for manufacturers, suppliers as well as researchers,
- d) reduces uncertainty about the capacity and limitations associated with non-transparent black box technology solutions for the manufacturers,
- e) prevents misunderstandings and deviating expectations between development partners of adaptive vehicle systems and therefore,
- f) prevents unnecessary effort, duplicate work and costs in the development and evaluation of adaptive vehicle systems.

