

Advanced Driver Assistance Systems – Impact of psychological variables on the acceptance of modern technologies

*Stefanie Müller, Heidi Ittner, & Volker Linneweber
Otto-von-Guericke-Universität Magdeburg
Magdeburg, Germany*

Abstract

Advanced Driver Assistance Systems (ADAS) shall support the human being regarding several driving tasks. The implementation of those systems is assumed to cause a change in the driving process. Therefore the question of acceptance of ADAS arises. This study suggests an own heuristic model to identify psychologically essential variables to explain and enhance the acceptance and therefore adequate usage of ADAS. Two core criteria, willingness to pay for and willingness to use ADAS were defined and examined regarding their relationship with psychological mechanisms. Within the European project Safety Technopro an online survey (N = 7687) has been conducted. The study revealed the significance of cognitive and emotional variables respectively to impact car drivers' potential usage behaviour.

Introduction

Every year there are thousands of people who die in car accidents. According to the European Traffic Safety Council (2007) 39.200 people lost their lives in car accidents all across Europe in 2006. Solely in Germany 1.69 million car accidents were registered from January until September 2007 (Statistisches Bundesamt, 2007). To reduce this huge amount of car accidents electronic safety technologies more and more become an important factor to support the human fulfilling the complex tasks of driving a car. This group of e-safety technologies include Advanced Driver Assistance Systems (ADAS). These provide support for the driver or even take over driving tasks autonomously (Grunenberg, 2003). Consequently, these inventions of modern car technologies lead to relevant psychological changes in the process of driving a car not least because mobility has been and still is of primary meaning in our society (Linneweber & Ittner, 2004).

The crucial point is: how will drivers deal with these changes of the driving process and the consequences of the implementation of new technologies in the car? The proposed benefit of ADAS is to partly take over several driving tasks and facilitate the driving process and increase traffic safety. This might be to navigate the driver via navigation systems in unknown places whereas he or she will not be distracted reading a map and maybe overlook a pedestrian crossing the street. But apart from

In D. de Waard, F.O. Flemisch, B. Lorenz, H. Oberheid, and K.A. Brookhuis (Eds.) (2008), *Human Factors for assistance and automation* (pp. 179 - 191). Maastricht, the Netherlands: Shaker Publishing.