

# Electric vehicles: an eco-friendly mode of transport which induces changes in driving behaviour

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## Abstract

The electric vehicle (EV) represents a new eco-friendly mode of transport which involves different kinds of constraints to use that are likely to affect driving behaviour. In order to study the impact of electric technology on driving behaviour in France, the BMW Group in Munich contracted IFSTTAR to lead and undertake scientific research for the MINI E France Project. In this study, 25 “private users” from Paris drove for 6 months a MINI E (an advanced electric vehicle prototype). The study focused on how drivers used the EV, via analysis of their trips and the behaviours they adopted in their daily routine, using questionnaires, travel and charge diaries. This paper describes the outcomes of the study, in particular how EV characteristics can induce changes in driving behaviours that affect different levels of control of the driving task, at the strategic, tactical and operational levels. The important connection between eco-friendly driving and safe driving behaviour in electric vehicles is discussed.

## Introduction

Faced with current energy conservation issues, the reduction of CO<sub>2</sub> emissions is a global priority. In the field of transport, this is reflected in the push for sustainable urban mobility. In this sense, unprecedented financial support has been provided by governments for the development of new energy, new mobility projects and low-carbon emission vehicles.

The electric car is, in this context, a potentially effective and practical alternative to traditionally fuelled vehicles that can play an important role in reducing the environmental impact of transport. Advanced lithium battery technologies also enable the car to help improve the quality of ambient air while supporting the reduction of transport noise.

Use of an electric vehicle, however, has potential to induce in drivers changes in daily vehicle usage patterns. The aim of this study was to identify these changes and their impact on the activity of “traditional” driving, as described in the literature (e.g., Michon, 1979, 1985).