

The use of simulator training for train drivers in Europe – an overview and new approaches in 2TRAIN

*Christian Maag & Marcus Schmitz
Center for Traffic Sciences
University of Würzburg
Germany*

Abstract

In recent years, driving simulation has become one of the most effective methods for the training of train drivers. Nevertheless, the usage of simulators for training often does not take advantage of all possible capabilities. The European project 2TRAIN aims at creating software modules for already existing train driving simulators (Rule-based Expert System, Virtual Instructor, and Assessment Database). These add-on modules allow a more objective, transparent, and detailed assessment of the competence of train drivers.

To get an overview of the existing simulation systems in Europe 18 railway undertakings were interviewed and asked to give detailed information concerning their training concept and technology (research sample: 138 simulator systems).

One of the main findings was that the training concepts of different companies as well as the technical characteristics and capabilities of the simulation systems are very diverse (e.g. real cab replica, small driver desks, software interfaces). The paper presents several aspects of this diversity including the application fields of different types of simulators and a comparison with other training methods. Shortcomings and problems in the application of the current simulator technology are reported. Finally, recommendations for a further technical improvement of simulation technology and training concepts are given.

Introduction

The establishment of safe, competitive, and interoperable railways in Europe requires particular attention to the qualification of train drivers. In order to strengthen a European harmonisation in rail traffic, it is appropriate to advance common training concepts as well as common training technology. Developments concerning these two aspects are the scientific and technological objectives of the rail research project 2TRAIN funded by the European Commission under the Sixth Framework Programme (<http://www.2train.eu>).