Abstract
Railway transport is the only transport mode, which cannot ensure fluent transport over internal EU borders. In that respect the traction powering systems’ differentiation is an important obstacle. Article points out associated challenges, possible solutions as well as risks especially those related to transitional periods together with proposed mitigation possibilities.

Introduction
Different power supply systems were introduced in Europe, due to several reasons. Firstly, because national railways were using national solutions provided by national or quasi national industry. Secondly, because when the railways were electrified it was not seen to be wise to facilitate passing borders by trains – namely by military trains. Thirdly, because when electrification started it was a must to keep the same system for all lines countrywide to preserve unity of the national networks.

Since then perception of the railway as a transport mode changed significantly. Due to globalization processes industry is no longer subdivided between different countries. Armies no longer consider using trains for quick moving of military vehicles on medium distances (circa 300-1000 km e.g. between different countries in Europe) mainly due to evolution of military vehicles and due to revolution in other transport modes, which are offering at present competitive transport services. It is however still imaginable to use railway for transport of military vehicles on long and extra-long distances (circa 2000 km and more), especially having peace inside and possible conflicts outside outer EU borders. Adding EU economic freedoms: namely free movement of persons, and free movement of goods it is necessary to point that countrywide technical compatibility has to be replaced by European-wide rail transport coherency, and that is a real challenge.

Conclusions
Converging electrified rail transport towards European railway system capable to compete with other transport modes is a must. This is a challenge especially from the safety and technical compatibility point of view. Out of two possible solutions – the simple one and the reasonable one only the second is workable without unacceptable risks and very long transition periods lowering already very low railway competitiveness. Implementation of the second solution based on long time usage of multisystem traction units has already started and can be judged to be promising.

References