

prof. Ing. Tatiana Molková, Ph.D.

Evropský železniční výzkum Shif2Rail a zapojení českých subjektů (European Railway Research “Shif2Rail” and Involvement of Czech Entities)

The article deals with the current state of research and innovations within the framework of the Shift2Rail joint initiative from the European-wide point of view, as well as in the context of involvement of Czech entities in the project programmes. The discussion is focused also on continuation of this technological initiative and core areas of innovation and research activities leading to the support of the position of railway transport in the transport system of Europe.

Ing. Jiří Zmatlík, Ph.D. – prof. Dr. Ing. Otto Pastor, CSc.

Metodika hodnocení způsobilosti v řízení procesů a dopravních systémů v rámci normality rozdělení dominantního znaku jakosti (Methodology of Assessment of Capability in Management of Processes and Transport Systems within the Framework of Normality of the Dominant Quality Characteristic Distribution)

The article deals with performance and capability which are attributes of production and non-production processes and systems, transportation systems, production automated and medium-automated equipment and measurement systems in connection with permanent achievement of high-quality outputs and qualitative normative standards. The qualitative criteria are specified by customers or by other normative ways. They are required by customers, but it is also in the interest of producers to implement their own high-quality and competitive production. Comprehensive assessment of performance is the ground for competitiveness of a firm in the globalised market environment. Quantitative expression of performance and capability is implemented with the help of indicators of performance and capability, which should meet such criteria as simplicity, versatility, plausibility, clearness and wide information capability.

Ing. Roman Daněk, Ph.D. – Lukáš Zástěra

Operativní řízení u ČD, a.s. a jeho IT podpora (Operational Management at ČD, a.s. and Its IT Support)

This article deals with description and specification of operational management of the passenger transport undertaking “ČD, a.s.”. The first chapter defines general blocks of activities of operational management of the passenger transport carrier. The next part then describes the situation of dispatching management of ČD, a.s. At the same time it also specifies the required information system serving for the support of operational management of a railway passenger transport undertaking. Other expected streams and trends in operational management are identified in the final part of the article.

Ing. Michal Hanák – Ing. Petr Kroča – Ing. Jiří Čáp

Podpora přeprav mimořádných zásilek (Support of Transport of Extraordinary Consignments)

This article deals with computer support in the field of transport of extraordinary consignments by rail. The term “support” means a set of applications and modules of the MIMOZA family which help the staff of the Section of Extraordinary Consignments (both at the infrastructure and at the carrier) in the well-arranged negotiations, checking, control and tracing of extraordinary consignments on the railway.

Ing. Martin Švehlík – Ing. Marek Pinkava – Ing. Petr Provazník

Postup přípravy VRT v ČR (Development of High-Speed Railway Preparation in the Czech Republic)

The article focuses on the current state of preparation for construction of High-Speed Railways (HSR) in the Czech Republic. Technical aspects of the HSR preparation as well as legislative, territorial and social aspects are mentioned. Attention is paid to benefits of HSR for regions and to interconnection of HSR with the existing conventional railway network. The European context of implementation of HSR in the Czech Republic and international cooperation in the HSR preparation are described. The process of preparing a HSR is explained as a complex and demanding task across sectors. The concepts of a HSR including not only the infrastructure, but also the rolling stock with its necessities, traffic management systems and assurance of the ability to operate railways are described there as well.

Ing. Jiří Zmatlík, Ph.D. – Ing. Pavel Zdvořák

Problémy hodnocení výkonnosti a způsobilosti řízení procesů v rámci nesplnění normality rozdělení dominantního znaku jakosti (Issues of Assessment of Performance and Capability of Process Management within the Framework of Non-Fulfilment of Normality of the Dominant Quality Characteristic Distribution)

The article deals with performance and capability which are attributes of production and non-production processes and systems, production automated and medium-automated equipment and measurement systems in connection with permanent achievement of high-quality outputs and qualitative normative standards. It deals with cases when process outputs do not have a normal probability distribution or when the number of observations is small. The article further deals with assessment of performance and capability in the case of non-measurable quality characteristics following up to statistical regulation by comparison. The aim is to specify the views of the use of indices of performance and capability if the initial conditions of data normality, observation distance, statistically stable processes are not fully met. A part is formed also of the issues concerning determination of an estimation of non-conforming products.

Ing. Jiří Pohl – Ing. Tomáš Michálek, Ph.D.

Provoz nákladních vlaků délky 740 m, díl I. (Operation of Freight Trains with a Length of 740 m, Part I)

An effective tool for higher performance and effectiveness of freight railway transport is the increasing of the length and therefore also of the weight of freight trains. The railway lines belonging to the main European network are required to ensure operation of trains of a length of at least 740 m. This regulation concerns all three structural subsystems forming the line part of the railway system (railway line, electrical power supply, control and interlocking) as well as the vehicle subsystem. For this reason it is appropriate to identify all the attributes, associated with composition of long and heavy freight trains and to resolve these aspects in a coordinated way so that the railway system can be functional and internally well balanced while dealing with such issues. The first part of this paper is focused especially on the aspects which are directly connected with development of pulling and pushing forces necessary for operation of long and heavy trains, i.e. especially for freight train operation on the lines with uphill gradients.

Ing. Mgr. Robert Číhal, CSc.

Výhybky a výhybkové konstrukce jako objekt modelování v rámci projektů typu BIM (Points and Point Structures as an Object of Modelling within the Framework of BIM Type Projects)

Since the time of publishing of the basic concept materials concerning BIM implemented in September 2017, significant progress has been registered in the field of preparation of detailed methodological documents concerning this method. Especially the time horizon till 2022 is highly motivating, after which the use of the BIM method should be binding in connection with acceptance of the bids for implementation of over-limit jobs for construction works within the framework of public tenders organised on the part of public administration authorities in the role of investors. Transport and especially railway civil engineering features a number of specifics in comparison to previous types of constructions, which objectively result in delays in application of the BIM method in this sector. The paper tries to analyse these issues at a detailed level, by using the “bottom-up” method, and to set out at least preliminary circles of further methodological as well as practical efforts, leading to creation of the conditions adequate to demands for application of the BIM technologies during designing and implementation of extensive transport infrastructure constructions.