



Ministry of Transport

EXECUTIVE SUMMARY

ACTION PLAN FOR THE DEPLOYMENT OF INTELLIGENT TRANSPORT SYSTEMS (ITS) IN THE CZECH REPUBLIC UNTIL 2020 (WITH THE PROSPECT OF 2050)

STRATEGIC DOCUMENT OF THE MINISTRY OF TRANSPORT RELATING TO THE APPLICATION OF THE CUTTING-EDGE DETECTION, DIAGNOSTIC, INFORMATION, CONTROL AND SECURITY TECHNOLOGIES BASED ON INTELLIGENT TRANSPORT SYSTEMS (ITS), GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) AND EARTH OBSERVATION SYSTEMS IN CONNECTION WITH DISPATCHING SYSTEMS, ADEQUATE TELECOMMUNICATIONS INFRASTRUCTURE, CRISIS MANAGEMENT SYSTEMS AND MEASURES FOR A VITAL STATE INFRASTRUCTURE.

MINISTRY OF TRANSPORT, PRAGUE 2015

The Transport Policy for the years 2014 - 2020, as approved by the Government of the Czech Republic by Resolution No. 449 of 12 June 2013, instructed the Ministry of Transport to compile a follow-up document focused specifically on intelligent transport and satellite systems and systems applying space technologies. The document contains a strategy for the application of cutting-edge detection, diagnostic, information and control technologies based on intelligent transport systems (ITS), global navigation satellite systems (GNSS) and Earth observation systems, in connection with adequate telecommunications infrastructure, crisis management systems and measures for vital state infrastructure.

The “Action Plan for the Deployment of Intelligent Transport Systems (ITS) in the CR until 2020 (with the Prospect of 2050)” - (hereinafter the “ITS AP”) is also a follow-up strategic document to the Operational Programme Transport 2014+ (OPD2), its compilation being one of the prerequisites for drawing of resources from the Operational Programme in question.

Chapter 2 of the ITS AP describes the preparation of the ITS AP, in which a wide range of parties has been involved, including, but not limited to, the public administration sector, transport infrastructure managers, transport companies or supplier industry as well as research and university departments or professional and civic associations. This approach allowed for an objective reflection of the state of ITS development in the CR across all transport modes, allowing the parties involved to recommend, in a transparent way, improvements of the *status quo* or to contribute to further development of this area, as described in Chapter 3. Furthermore, this chapter points out the importance of implementing the ITS, GNSS or remote Earth sensing system for the society. With the systems’ ability to detect starting dangerous phenomena, their implementation is crucial in terms of prevention. Compared to the costs of elimination of the consequences of traffic accidents, the costs of building and operating ITS, GNSS and Earth observation systems are lower. In order to achieve a highly efficient manner of spending public resources on ITS and GNSS development and operation, the ITS AP stresses the need for applying technical standards and system parameters in public procurement. Experience from other countries, among others from neighboring Germany and Austria or Switzerland, show that compliance with these principles reduces investment and operating costs by dozens of percent.

Chapter 4 analyses the fundamental strategic documents and legal regulations both on national and European level referred to in the ITS AP as part of the proposed measures. The most important include, among other, the ITS Directive 2010/40/EU and related technical specifications for individual priority actions as well as the description of a method for implementing the relevant Directive in the Czech Republic.

Chapter 5 describes persisting problems of the currently operated systems and ITS applications, using negative experience of ITS end users as basis for the analysis. To improve the situation, the document offers recommendations also based on the experience of end-users, i.e. citizens, passengers, drivers or staff controlling the ITS system devices.

Chapter 6 elaborates on the area of multinational cooperation vital for the Czech Republic, both in relation to Central-European countries and the EU as well as globally. Being involved in preparation of the strategy at the very start of the process means that the Czech Republic will be allowed to add aspects to the final solution that are vital from the Czech Republic’s point of view.

Chapter 7 analyses the strengths and weaknesses, opportunities and threats for ITS development in the CR. The following Chapter 8 suggests how the ideal final state of ITS development should look like. Based on this prospect, Chapter 8 sets out the global objective, i.e. ensuring continuous, safe and energy-efficient transport to strategic and

specific targets. Apart from the technical and technological aspects, this chapter discusses the essential standardization and technical synchronization of ITS elements to ensure interoperability of intelligent transport systems on both national and European level. From the viewpoint of the public sector, the document emphasizes the public interest in the development of ITS technologies, i.e. traffic safety, timely detection and elimination of crime in transport, making transport more accessible to persons with special needs, including, but not limited to, persons with reduced mobility or orientation, elderly people or parents with baby carriages. The chapter also deals with the development of necessary training programmes (including lifelong learning programmes) and areas of professional training and regular trainings designed to acquire, maintain or expand expert qualification and knowledge of the staff employed by operators or administrators and operators of transport infrastructure. Considering the advancing automation of various processes, the document also points out the necessity of training staff for cases of emergency when technology fails. Without confronting this issue in the future, the advancing automation could result in people simply using and fully relying on the systems without being able to recognize, due to lack of experience in using systems without automatic assessment and decision-making, that a critical situation actually occurred which needs to be understood and handled. Dealing with such critical and dangerous situations can be – particularly in case of professional employees – trained on devices able to simulate emergency situations in the most realistic manner. Adopting this approach would prevent a decline in the ability to deal with critical events as a result of insufficient practice.

Chapter 9 proposes follow-up measures for further ITS development in the CR. Specifically, these include obtaining and ensuring the transfer and quality of source data, storing data, assessment and processing and subsequent forwarding of the information to users or business entities. Other measures relate to traffic control, process of passenger or goods carriage and provision of related services. Final measures focus on compliance with road traffic rules and systemic and cross-section measures and are divided into technical, organizational and R&D categories. For the purpose of implementing technical and R&D measures, investment activities are expected; as for the organizational aspects, a simple change in the cooperation setting may be sufficient in some cases, needing no extensive investment projects.

Chapter 10 deals with the financing of ITS. Based on the analysis of the present state and proposed development of ITS in the CR, the AP assesses the financial cost of deploying ITS, GNSS and remote Earth sensing systems in all transport modes, for location data purposes and for the purpose of improving accessibility of transport to people with specific needs. The chapter points out the circumstances of spending public resources on ITS development and identifies possible financial sources for deployment and operation of ITS, GNSS and Earth observation systems. Apart from the state budget, funding will be provided for (without limitation) by SFDI (State Fund for Transport Infrastructure), OPD 2014+, IROP, PIK operation programmes, CEF, public resources for research, development and innovation support in the CR (TA CR/Technology Agency of CR, Security research of the Ministry of Interior) and financial resources from the EU (Horizon 2020 and SHIFT2RAIL).

For the purposes of implementing the measures set out by the ITS AP and for identifying possible sources for financing of the same from public domain budgets, a general estimate of the planned expenditure is assessed. For this reason, the ITS AP does not indicate sources and financing structure in respect of particular costs (chapter 327 of MoT, EU funds, TACR, regional and municipal budgets, etc.). Also, data concerning the administrator of the defined framework expenditure (MoT, SFDI, SŽDC, ŘDS, etc.) are missing, along with the breakdown of expenses into state budget and EU shares (if relevant for the respective

expense). Considering that the general estimate of the planned expenses is but approximate, it has not been specified whether the amounts shown are VAT inclusive or exclusive. Based on the ITS AP, an implementation plan will be compiled subsequently that is expected to contain a more detailed factual, time and financial framework of the individual projects.

According to the general estimates of the ITS AP, in order to implement the measures set out in this document approx. CZK 17.5 billion will need to be covered by 2020, among other, from the state budget allocated for the Ministry of Transport or the SFDI budget. After adding the estimated cost of CZK 4.5 billion for systems built by regions and municipalities, the total sum amounts to approx. CZK 22 billion, both for investment and operational costs. If the investment costs for the ITS AP implementation were covered from EU funds amounting to 1/10 of the proposed allocation for the respective Priority Axis of the relevant Operational Programmes, the amount drawn from the Operational Programme Transport 2 could reach up to CZK 15 billion and the amount from the Integrated Regional Operational Programme for the programming period 2014 - 2020 up to CZK 1.3 billion.

When comparing the estimated costs of the ITS AP implementation with the all-society costs set out in Chapter 3.1.10.1, deploying ITS may have a positive effect on the advancing strain of the population and the environment. Also, it may provide significant help in increasing traffic safety, particularly road traffic safety. According to a study of the Transport Research Centre, the total annual economic loss of the CR attributable to traffic accidents ranges between CZK 35 and 55 billion. ITS and GNSS-based devices may prevent the occurrence of serious accidents, such as rail incidents, thanks to the ability of these systems to eliminate the possible failure of human factor in railway and guided transport operation. Other systems planned may also prevent rail incidents, for instance, by building a network of systems able to diagnose a serious defect on the running vehicle that might result into derailment of the train and destruction of the railway track. Deploying the ITS, GNSS and Earth observation systems in transport reduces the risk of all-society losses while also improving the Czech transport system (including the transport network) in terms of quality and efficiency of the transport services provided.

Chapter 11 proposes to monitor the process of meeting the AP ITS objectives; a list of the relevant indicators is included in Annex 1.

To ensure proper usage of set terminology, Annex 2 provides a list of acronyms and a technical vocabulary. For better illustration of the situation in ITS, GNSS and Earth observation systems, maps are enclosed to the ITS AP in Annex 3 while Annex 4 contains pictures and schemes.