BASIC INFORMATION ON SUB-PROJECT

NAME OF PROGRAMME/FUND	Scholarship Fund - Sciex NMS^{ch}
RESEARCH FIELD AND OTHER RESEARCH FIELDS INVOLVED (if applicable)	Engineering Sciences
TITLE OF THE SUB-PROJECT	Information Technologies in Future Transport Economy (ITFTE)
REGION OF THE CZECH REPUBLIC (according to the location of the home institution)	Prague
GRANT AMOUNT SPENT	60 430,39 CHF
INTERMEDIATE BODY	Swissuniversities
HOME INSTITUTION	Czech Technical University in Prague Faculty of Transportation Sciences
HOST INSTITUTION	ETH Zurich Department of Civil, Environmental and Geomatic Engineering
NAME OF THE FELLOW	Michal Drábek

ABSTRACT OF THE SUB-PROJECT	The project is designed as a subtask within the research package “Strategies for the adequate operation of transportation in the Swiss freight transport sector”. The consistent application of modern communication and information technologies is the basis for maximizing the available improvement potentials in freight transport. This applies mainly to the intra-corporate and company-wide process chains as well as to efficient infrastructural management. Given this context, the project concept is designed based on a circular model with three levels: • Infrastructural management • Process chain operation • Intra-corporate planning and implementation Feedback between all levels allows for a two-way usage of the data obtained at each level as well as the deduced information. In doing so, special focus will be on the separation of internal data and generally used data. Seven work packages will be the basis for the design of an information system that combines infrastructural management and process chain formation in an optimized form. The system will cover all carriers regarding road traffic, rail traffic, inland water transportation and air transportation. Based on a detailed situation analysis of the current implemented (partial) systems and the conceivable trends in information technology, the systems’ benefits will be calculated and monetarily evaluated. The potential for optimization will be calculated and compared to further development tendencies in information technology. The variances of the benefits will be determined in order to estimate their scope and are also a part of the evaluation. The development of merging strategies will provide information about the expected project periods and, if needed, supporting measures to be applied.

MAIN RESULTS	Migration strategy To gain experience necessary for development of migration strategy, theory and practical examples from the field of IT migration were analyzed. IT migration itself is a new topic, whose relevance is supposed to rise in future. Migration appeared to be sensitive process, which has to be carried out carefully, with enough knowledge in the legacy system (the system to be migrated). Only after sufficient understanding, how the legacy system works, the new system architecture should be developed. There, data from legacy system to new system should be transferred. This step is a chance for consequent data cleaning (elimination of redundant data). The next step is test operations of the new system. The last step is the cut-over (migration itself): final transit from old to new system. For the sake of reliability, "secure escape" to old system must be enabled. In Swiss freight transport system there are many stakeholders involved. They play six main roles (some stakeholders may play more than one role - e.g. operator + transporter): shipper, operator (forwarder or organizer of intermodal transport), transporter, infrastructure operator, public surveillance authority and lessor of vehicles/rolling stock. The stakeholders directly involved in transport processes seek as high and steady expolitation (of vehicles, eventually infrastructure) as possible, but without unproductive congestions. By contrast, public surveillance authorities strive to constraint traffic flows for the sake of environment (inhabitants and nature). Thus, a diagram with core and supporting processes and linkages between them for freight transport was outlined. The obstacles for successful migration were identified, and strategy to overcome them was formulated. Special attention was paid to security of sensible data (in the sense of competition). As a side effect of his stay, Fellow familiarized himself with Swiss public and freight transport. Thanks to occasion he was able to use his knowledge to co-organise study visits for Czech decision-makers and experts to Switzerland, which were focused on these fields.
DATE OF REALISATION OF THE FELLOWSHIP	1.10.2010 - 30.9.2011
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