

Smart Hubs 2.0

Optimierung multimodaler Knoten im Korridor VII (Donaukorridor)

Ein Projekt gefördert im Rahmen der 1. Ausschreibung
des Programms **Mobilität der Zukunft**
[*Gütermobilität*]

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Problem statement and objectives

Seamless transportation is a strategic objective and key factor in state of the art cargo transport and at multimodal nodes. Concerning this matter lots of innovative organizational and technological approaches for optimisation of logistics have been developed. Most of them only address parts of the transport chain; a comprehensive overall proceeding is missing as well as complementary solution strategies for an economic optimisation.

Future smart hubs will be able to improve effectivity and efficiency of the overall traffic system on a macroscopic level. Furthermore they will ensure a resource-orientated use of existing and planned cargo handling areas as well as the resilience of the traffic system against disruptions bearing in mind the best adjustment of the different logistic processes.

Research approach “Smart Hubs 2.0”

Based on the analyses of existing multimodal nodes in the TEN-corridor VII (Danube corridor) regarding their system parameters, business models, involved actors, actor-specific claims and objectives towards the multimodal nodes conflicts of interests and factors for success have been identified. The resulting benchmark system allows the comparison of individual nodes bearing in mind quantified infrastructural, superstructural, business-organisational, economic and environmental indicators. From now on service capabilities and capacities of individual multimodal nodes can be assessed; problems and bottle necks can be pointed out. In addition statements regarding the equipment and competitiveness can be derived. Apart from the comparisons and analyses the findings were also an essential input for standardizations and enabled the development of the education focus “inter-modality”.

Highlights “Smart Hubs 2.0“

- In-between the actors at multimodal nodes a total of 27 conflicts of interest were identified. Six of these conflicts cannot be resolved unless a political intervention through incentives or regulations is undertaken. Different limiting factors should be tackled with concepts regarding specific locational and regional politics such as e.g. the provision of adequate space for multimodal nodes. Consequently node expansions could be enabled and conflicts arising from different adjacent land uses could be avoided or appeased.

The service capability and arrangement of the available node accesses as well as the road traffic organisation regarding transit and node related cargo traffic needs to be regulated by means of designated traffic measures. From a political point of view a sensible supervision is required regarding the integration of the local node-related network into the overall traffic system and legal restrictions directly affecting the cargo transport such as handling of the bans for heavy vehicle transport during night-times.

- The identified business models of the multimodal nodes do not have a compelling impact on the prosperity of individual nodes but rather has the involvement of the public hand a positive influence on it.
- A main problem in terms of managing and conducting multimodal transport which has been identified lies within the lack of information exchange between the corresponding actors due to concerns regarding data privacy protection and competitiveness. Even the dissemination of logistic related data such as amounts of total cargo, transported cargo types, average transport speeds, planned and current arrival and departure times of vehicles and loadings and further data of the transport chain is seen as problematic for some enterprises since business strategy conclusions could be derived. Consequently taking into account the perspective of the overall traffic system inefficiencies and economic losses occur. The partially established communication exchange impedes the redundant processes of cargo handling at multimodal nodes which again are limited and depending on available cargo handling technologies, weather circumstances, operational times and services of the transport providers. The node layout itself together with the corresponding road network accesses also plays a major role in terms of planning and coordinating the parallel or sequential running cargo handling processes.
- The comparison of the multimodal nodes regarding the available expansion area has demonstrated a highly disperse potential for development that will have an impact on securing the prosperity of the node in the future. The port of Vienna (in particular the port of Freudenu) faces a very limited expansion capability which indicates major development challenges.
- In order to achieve and implement the optimisation objectives of the study corresponding implementation strategies have been developed. They will influence the follow up research project “**optihubs**” which will focus on the development of a systematic optimisation technique for logistic processes based on local limiting factors.

Anhang:

Formale Vorgaben:

Einrichtung der Seite	Abstand in cm
Oben:	3,5
Unten:	3
Links:	3
Rechts:	2,5

Formatvorlage	Schriftart	Schriftgröße
Überschriften	Arial, fett	13pt
Standardtext	Arial, 1,5-zeilig, Block-satz	11pt
Fußnotenzeichen	Arial, hochgestellt	10pt
Fußnotentext	Arial	10pt
Untertitel von Tabellen und Abbildungen	Arial, fett	10pt
Quelle von Tabellen und Abbildungen	Arial	8pt
Seitennummerierung	Arial, zentriert, Seiten-ende	10pt