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MIDI-HUBS FOR COOPERATIVE SUSTAINABLE FREIGHT DISTRIBUTION IN URBAN AREAS - BUT WHERE TO LOCATE THEM?

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Short Description

Medium-sized hubs in the inner area of a city can contribute to improve distribution flows of goods in urban areas and thereby mitigate negative effects of road freight transport. A major challenge is the selection of an appropriate location for this midi-hub. We consider quantitative and qualitative factors for the selection process.

Main part

Growing urbanization and rising urban freight volumes contribute to increasing congestion, noise and pollution, which negatively affect a city's population. City hubs are one means of mitigating this problem by consolidating goods of different suppliers at the hub and cooperating in the last mile delivery. Because of the general shortage of urban space, a major challenge is finding an appropriate location for such a hub. This paper provides a decision support tool based on the analytic hierarchy process for the hub location selection problem, which considers quantitative and qualitative criteria. By involving three stakeholder groups - the municipality, logistics companies and citizens - the approach ensures a comprehensive view. The application of the model is tested for the location selection of a midi-hub - a medium-sized city hub - in Vienna. Hence, our results show that a good compromise between different stakeholder views regarding a midi-hub location selection problem can be achieved by the application of our AHP-based decision support tool.

What is new?

New in this project is the consideration of qualitative and quantitative factors, which are included in the analytic hierarchy process. Furthermore, the integration of different perspectives of three stakeholder groups (logistics companies, municipality and citizens) is a novel way to solve the hub location selection problem.

What is transferable to other cities and regions?

The generic location selection model and the characteristics of a midi-hub can be transferred to other cities and suburban regions.

What are outcomes and conclusions?

Our results show the good and simple applicability of the hub location selection model on a real case in Vienna. The perspective of each of the three stakeholder groups on each potential hub location in question is considered in the model and underlines in our test case the appropriateness of a specific hub location for all stakeholder groups.

Who are the main target groups?

The main target groups are municipalities and logistics companies. However, citizens also play an important role in a hub selection process.

And what now? - what will change? - what is the relevance for the future?

The COVID-19 related traffic reduction resulted in less noise, congested streets and pollutants in the air. It showed residents how desirable such a situation is. On the other hand, COVID-19 has triggered an increasing amount of e-commerce, which causes an additional amount of home deliveries currently done mostly by conventional freight vehicles. It is also expected that private traffic will increase, since many people avoid taking public transportation, which also increases the number of vehicles on the streets. Hence, establishing medium-sized city hubs at appropriate locations within a city's area to mitigate negative externalities of urban last mile delivery is of greater importance than ever.

Link to the project

www.midi-hub.at/

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