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The benefits of crowdshipping for urban logistics



A study assessed the environmental and economic impacts of a 'crowdshipping' platform in urban areas. This is where customers use the public transport system to pick up or drop off goods in automated parcel lockers. The study found that the adoption of such an approach has potential environmental benefits, but requires policymakers to provide greater incentives. It outlines a number of recommendations for further research.

Urbanisation and e-commerce are two trends that make city logistic solutions challenging. A number of urban freight transport strategies exist that could be adopted to balance accessibility and economic development benefits with the negative impacts of traffic congestion and polluting vehicle emissions. These include demand management, electrification, regulatory measures and improved capacity utilisation.

Crowdshipping is one promising solution that uses information and communication technologies to integrate passenger and freight mobility to deliver goods.

A study investigated the link between e-commerce of crowdshippers using public transport, especially the metro network. In this case, the crowdshippers are passengers that use metro lines for other reasons (e.g. journey from home to work), but also pick up or drop off goods in automated parcel lockers located at the metro station or its surroundings.

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The benefits of crowdshipping for urban logistics

The study evaluated the environmental and economic impacts of a 'green' crowdshipping service that is based on public transport in the city of Rome, Italy. It undertook a survey of stated preferences to study the potential demand for crowdshipping. It then used discrete choice modelling and scenario analyses to calculate the reduction in externalities, revenues for the crowdshipping operator as well as the investment and management costs for the crowdshipping platform.

Implementing a crowdshipping service in Rome has the potential to reduce annual emissions of particulate matter (0.3 tonnes), nitrogen oxide (4 tonnes), carbon monoxide (2 tonnes) and carbon dioxide (1098 tonnes). The growth of e-commerce suppliers could see more vehicles being replaced by crowdshipping and further emissions could be avoided.

However, the greatest challenge for policymakers is the redistribution of costs and benefits among stakeholders. The economic sustainability of a crowdshipping platform is reached only with public incentives (e.g. subsidies) justified by the social benefits of reduced local and global air pollutant emissions, noise and road crashes that a crowdshipping service could produce.



The results of the study provide a better understanding of the potential of crowdshipping for last-mile business-to-consumer deliveries. They provide a knowledge base for local policymakers and freight companies on the future development of a public-transport-based crowdshipping platform, and associated economic and environmental impacts.

The study recommends further research to provide a more detailed environmental assessment. It suggests using micro-simulation modelling that takes account of traffic conditions and the availability of commercial bays, and compares traditional delivery options to public transport-based crowdshipping.

An in-depth analysis should be carried out into the technical requirements (e.g. the location and size of parcel lockers) and the coordination needed between shippers, logistics operators and crowdshipping platform providers. Finally, a comprehensive assessment should be undertaken of the critical elements (e.g. economic, legal, social and psychological issues) that might hinder the adoption of a successful business model.