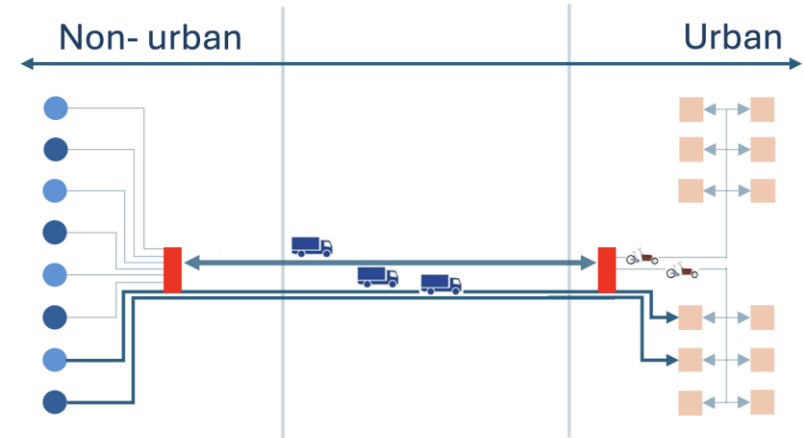
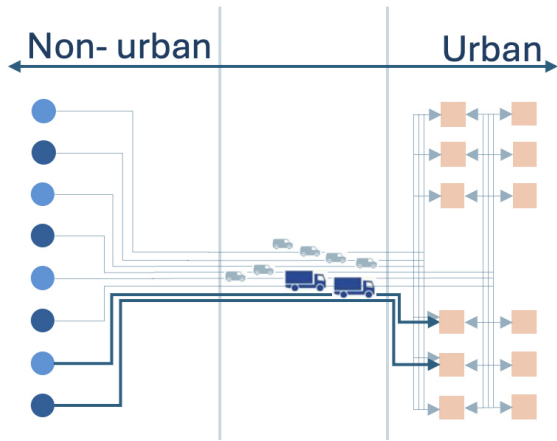


A review on data-driven approaches for predicting commodity flows

Background



Where? How many? What size?

1. Current allocation approach: **ad hoc and opportunistic**
2. Importance of **demand models**
3. **Data accessibility** challenges: abundant yet proprietary so data gaps persist

What are the most effective urban commodity flow models + data sources for estimating spatial and temporal characteristics of goods volumes?

Methodology

Systematic literature review using  

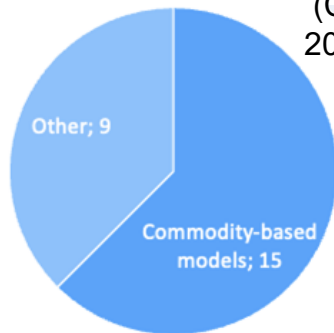
24 models extracted based on keywords including “demand freight modelling”; “urban commodity flows”; “origin – destination”; etc.

Urban commodity flows focused on omnichannel retail, ranging from e-commerce and supermarkets to specialty stores

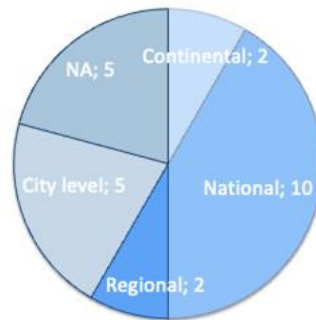
Results

~~truck-based models; delivery-based models;~~ or commodity-based models

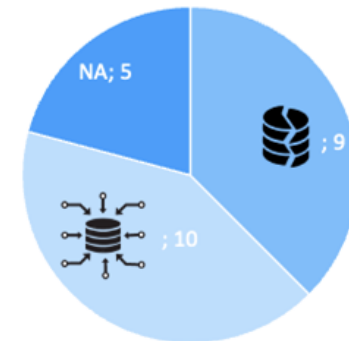
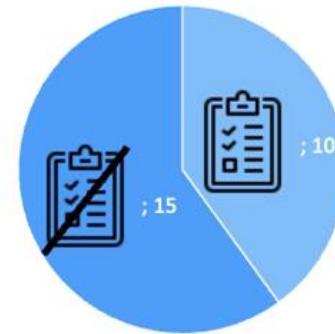
(Comi & Site, 2023)



For what region is the model made?



Does the model make use of a freight survey? or disaggregated data?



Insights

1. Freight surveys are essential factors in demand modelling
2. Automated data collection interface for freight transportation, including information on vehicles, routes, and shipments carried, can improve data quality and thus the decision process
3. Variables often used to model demand are population density and firms characteristics, such as nr of employees and surface per activity

Discussion

1. How can we take into account future evolutions of demand patterns?
2. How can data accessibility be stimulated? What is the role of the government?
3. How do innovations like the physical internet and digital twins improve our grasp on commodity flows?