



CityLab Brussels

Increasing vehicle loading by utilizing spare transportation capacity

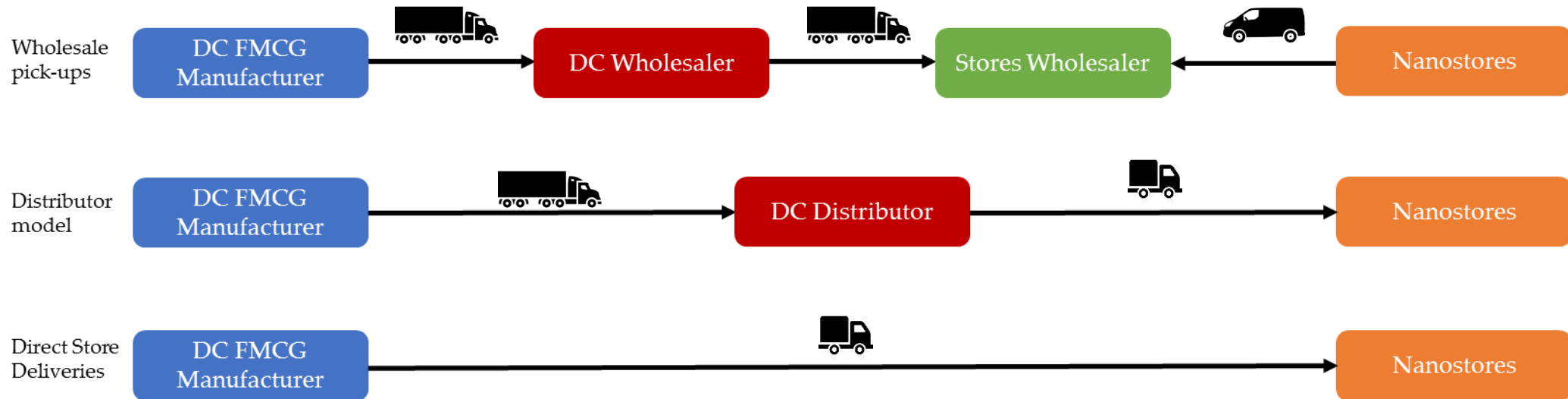
Lieven Deketele (P&G) & Bram Kin (MOBI-VUB)



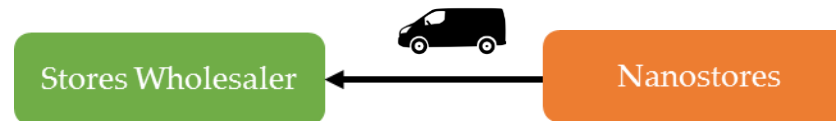
Small, independent retailers (nanostores)



Supply: Modern vs. Independent retail



Own-account pick-ups



- 30-40%: all daily delivery trips in cities as a result of independent retailing (Dablanc, 2011)
- >50%: independent storeowners in Brussels visiting the wholesaler at least twice per week (Citylab, 2017)
- <25%: vehicle fill rate of own-account vehicles (Buck, 2005)

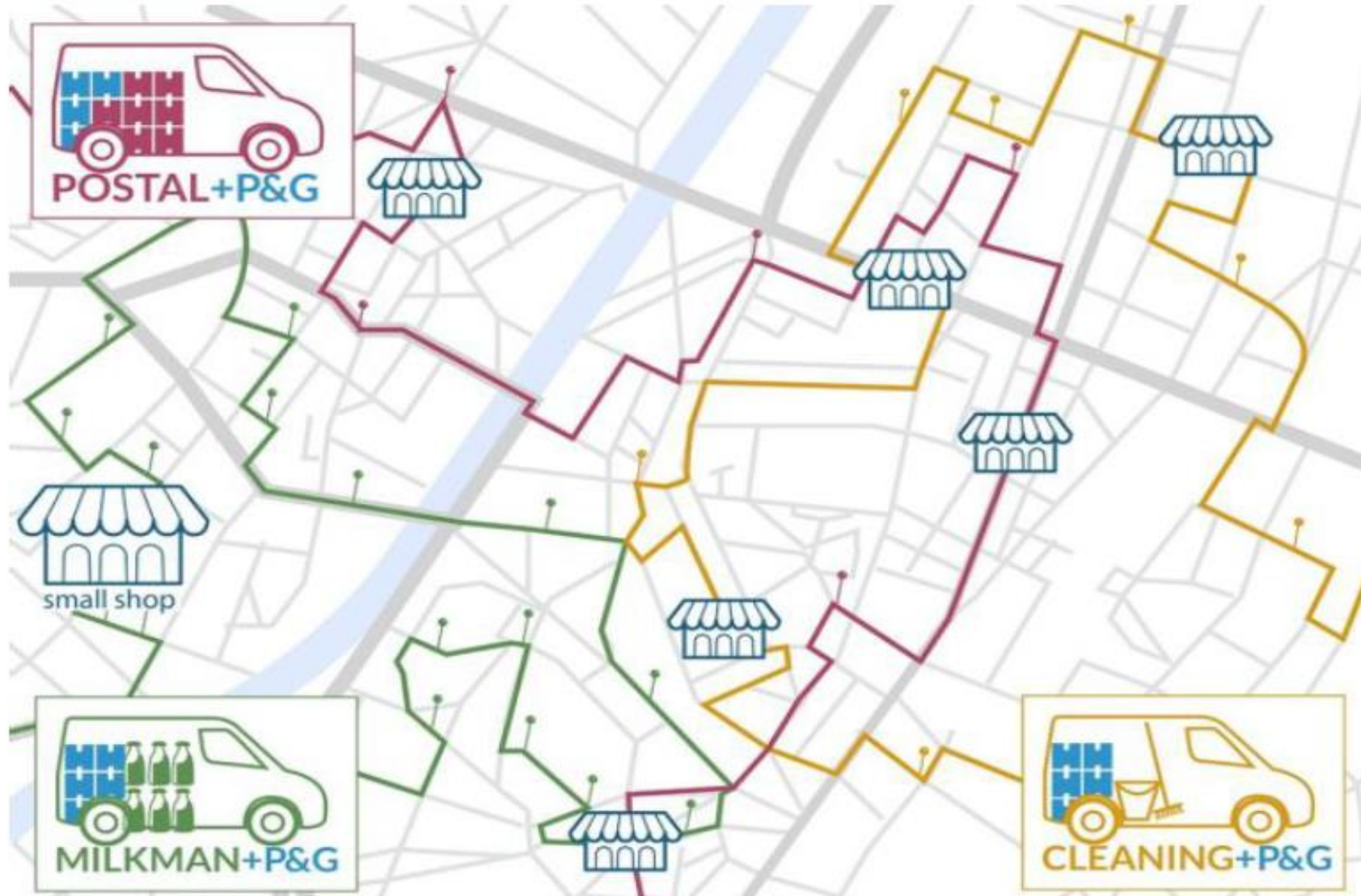


- Unnecessary presence of freight vehicles, mostly vans, on urban roads
- Own-account pick-ups are a cost but not considered as such by storeowners
- Very low vehicle utilization, occupying urban space most of the time
- No in-store visibility for manufacturers

Vehicles of service-driven companies



Concept





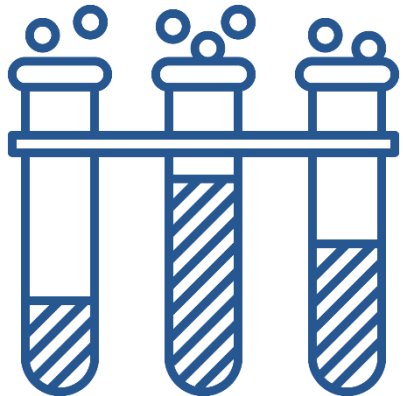
Living Lab Experiment



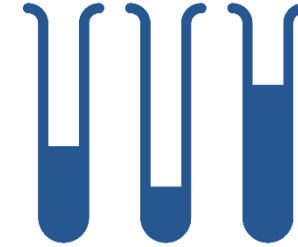
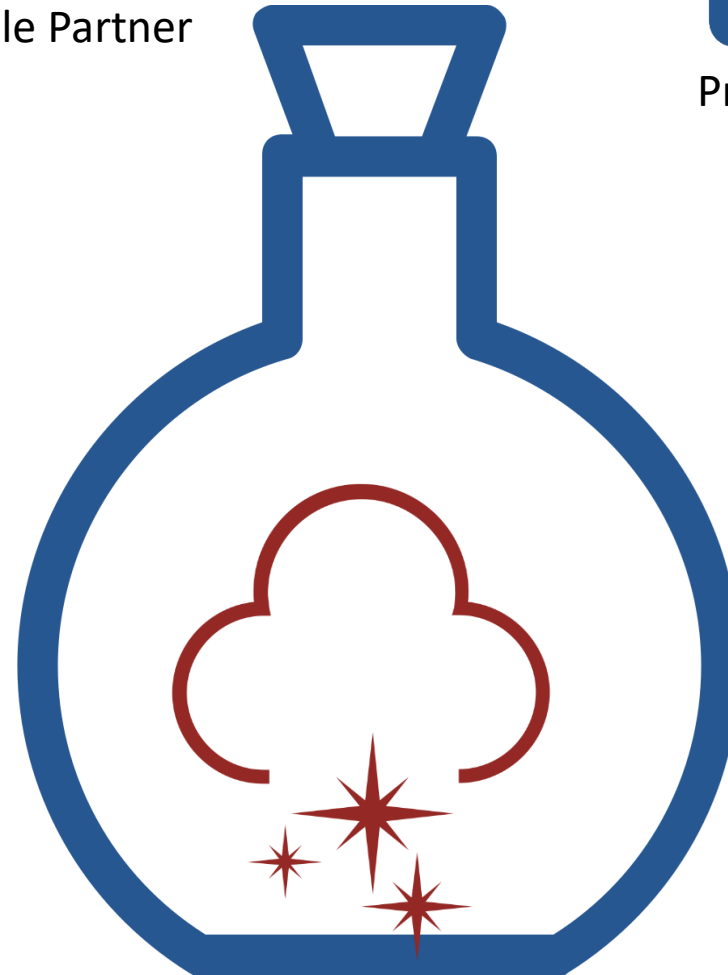
Service-driven
companies



Fulfillment +
Wholesale Partner



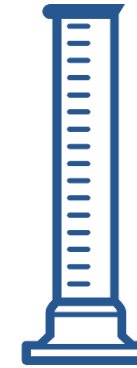
Storeowners



Product offering



Ordering platform

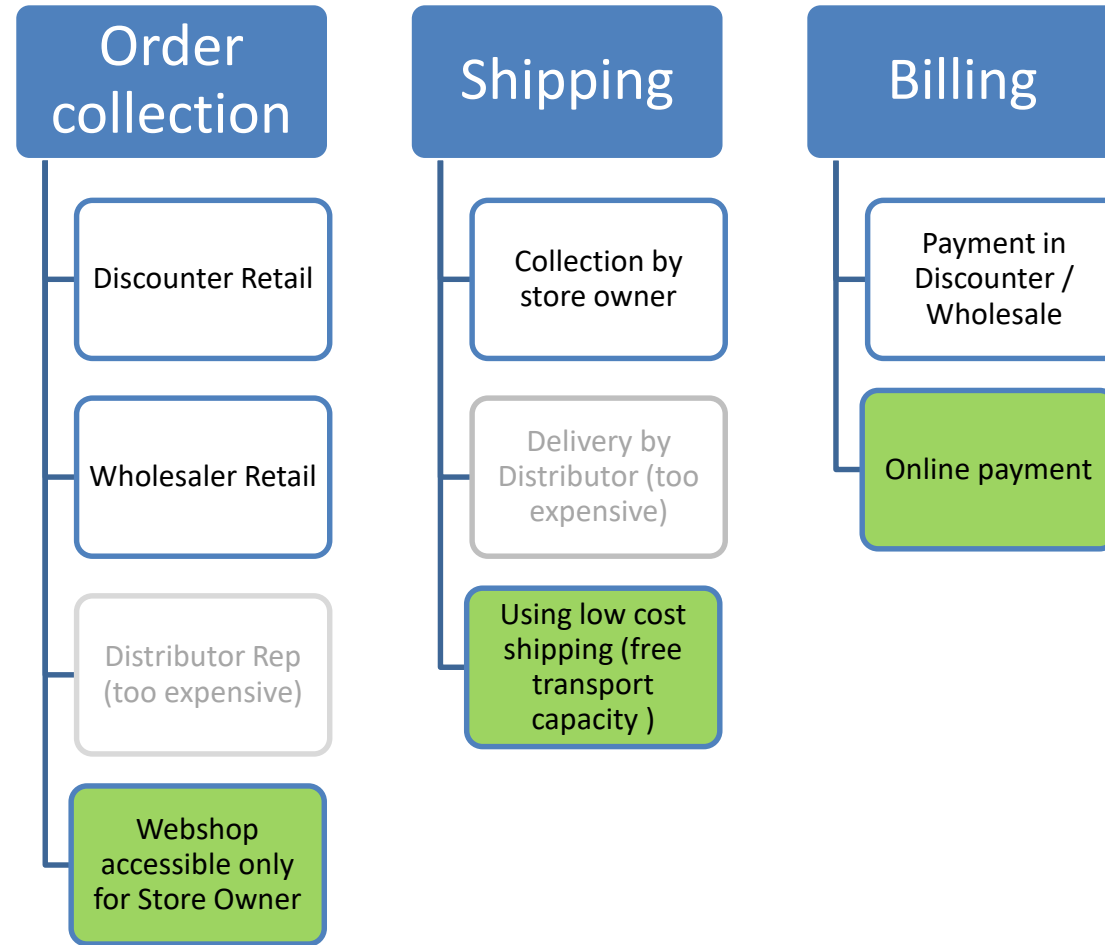


Payment set-up

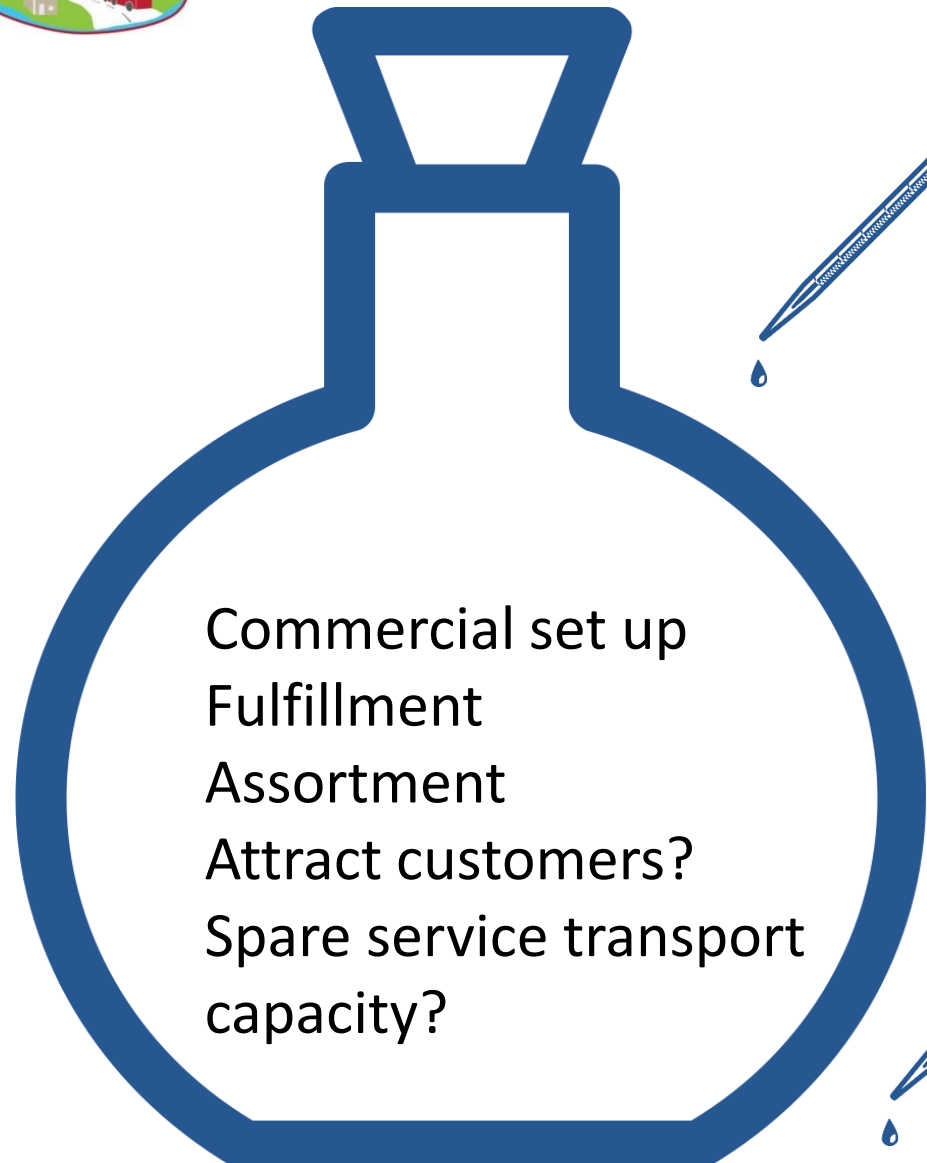


Generate demand





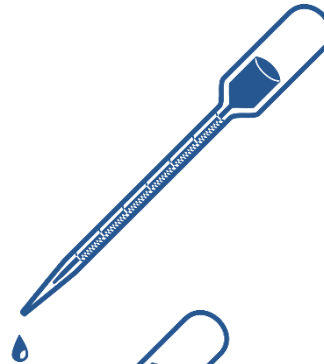
Implementation process



Commercial set up
Fulfillment
Assortment
Attract customers?
Spare service transport
capacity?



Distributor/wholesaler to sell
products and fulfil orders

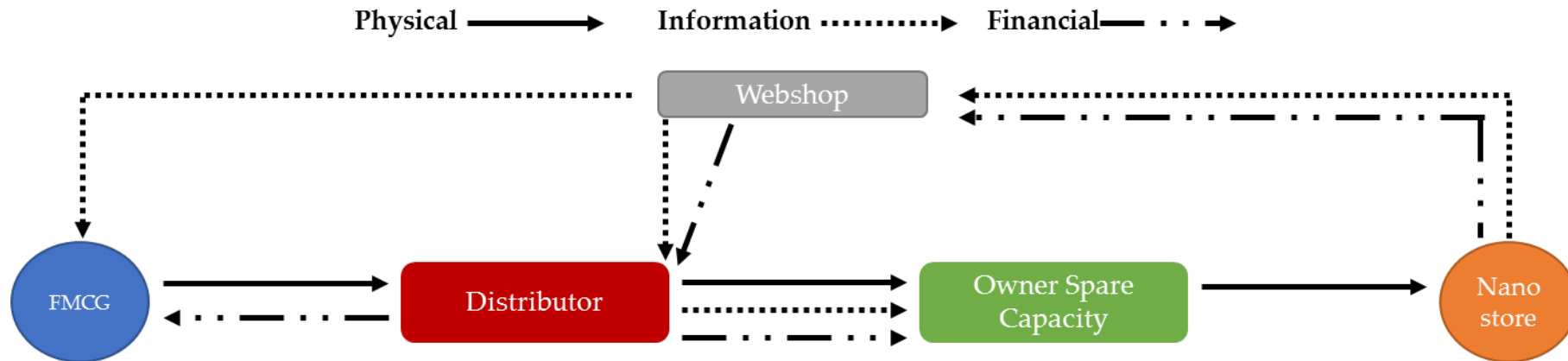


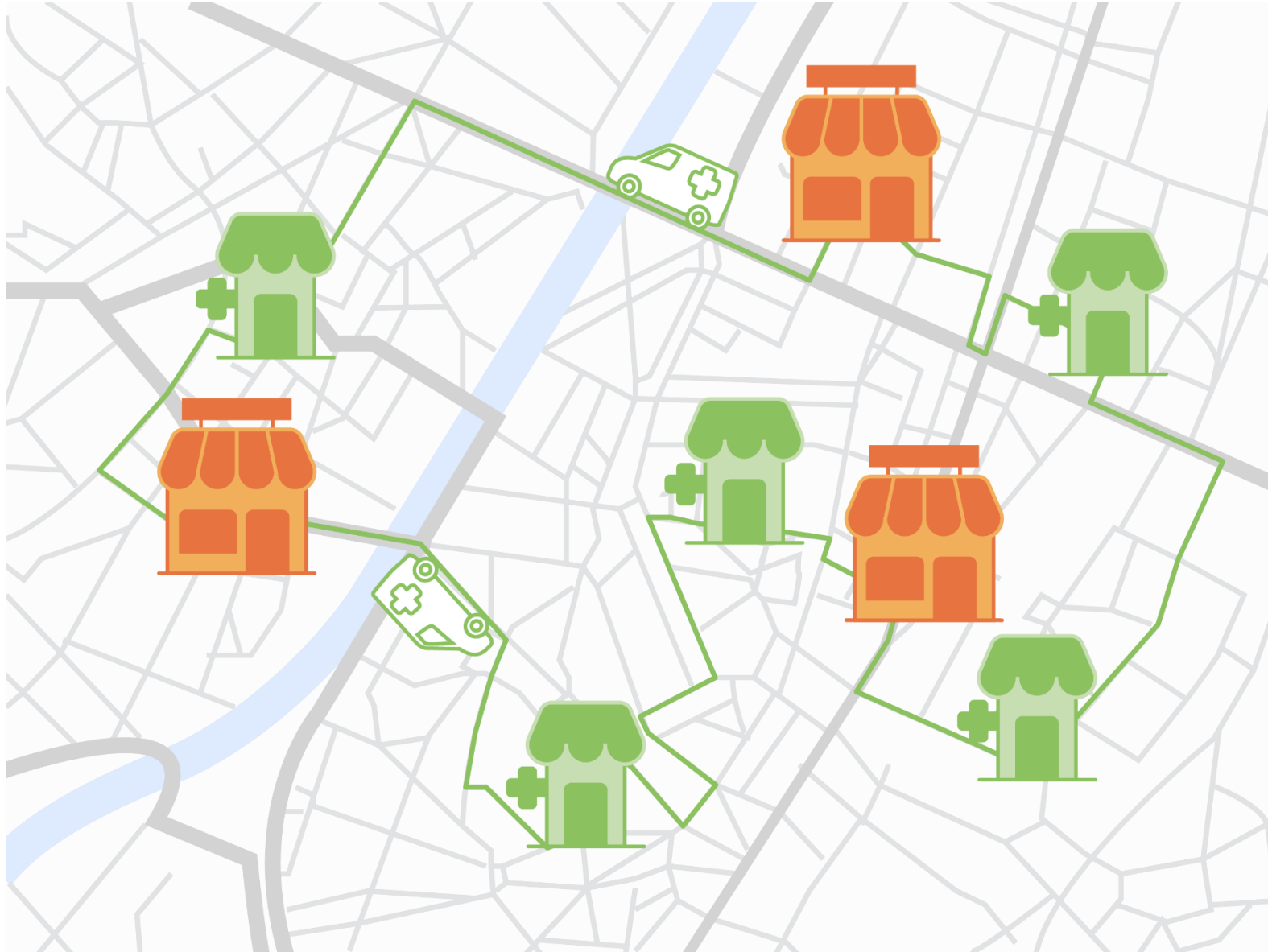
Company to develop
webshop and
payment module



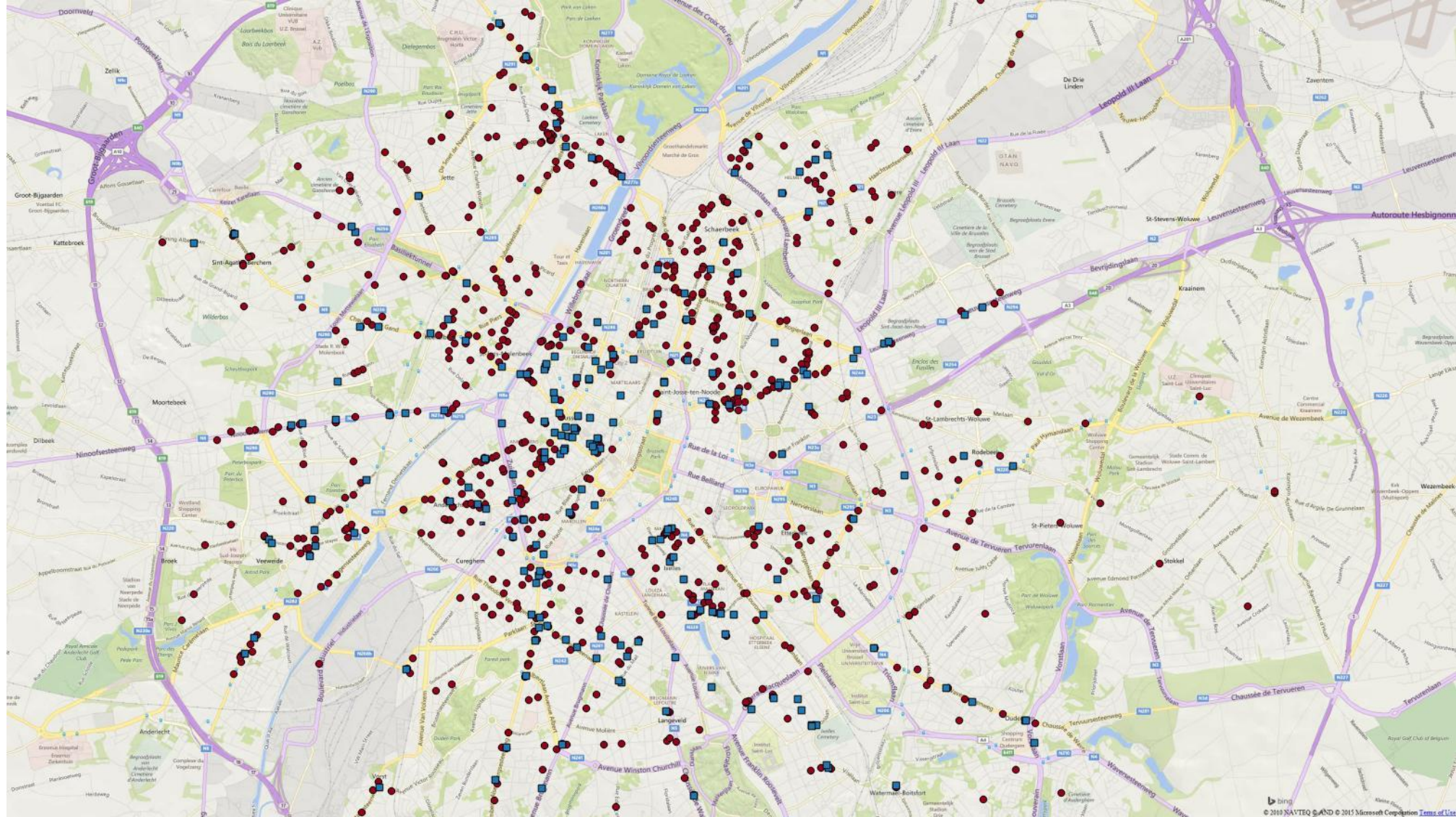
Sales company to approach
and involve storeowners

Supply chain set-up





Nanostores in the Brussels Capital Region





Results



5 storeowners ordered and paid online
Ingrained behaviour to visit a wholesaler



0 additional vehicle kilometers by Febelco to deliver orders
19 avoided kilometres own-account pick-ups



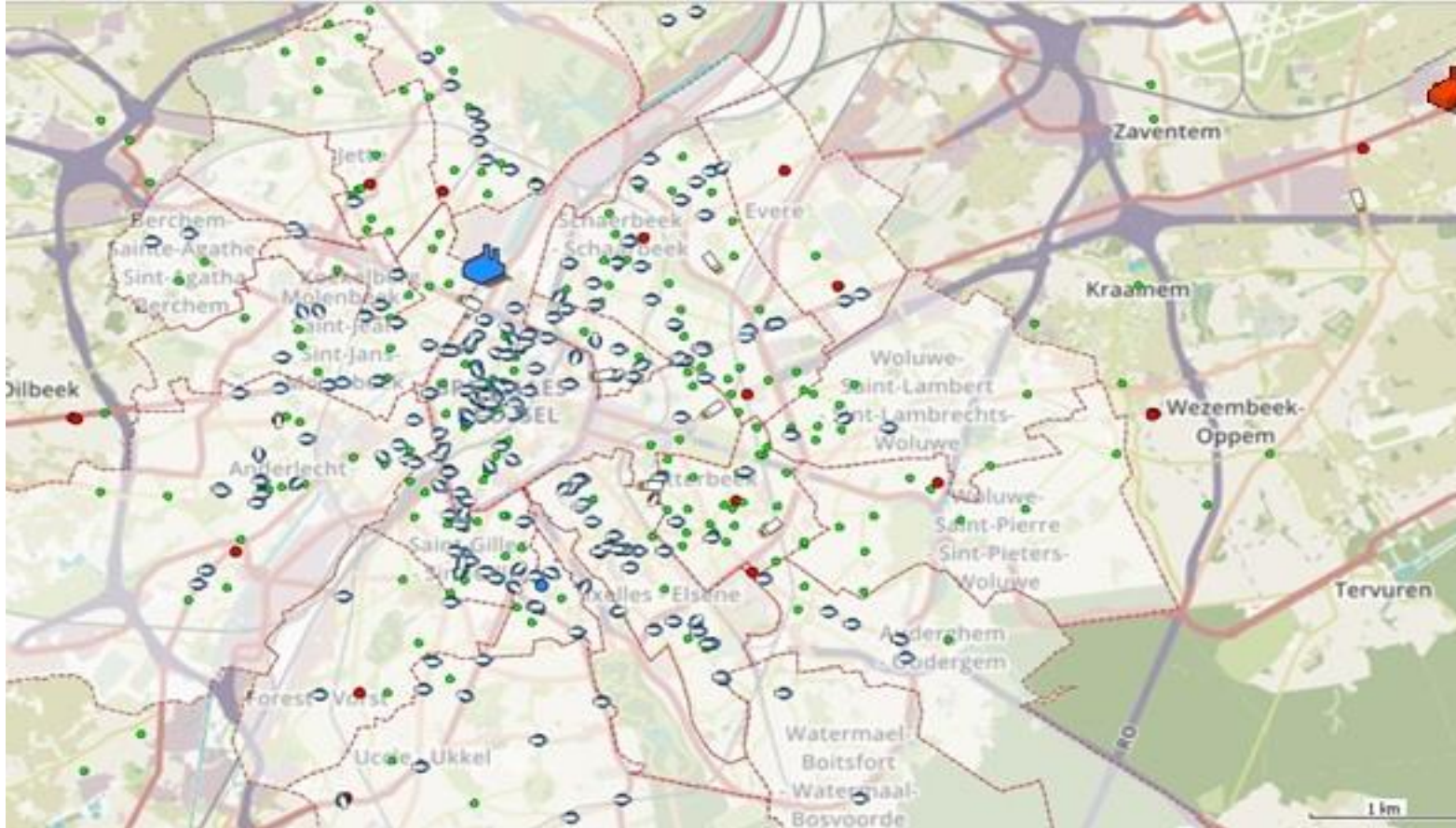
Saved emissions: CO₂, SO₂, NO_x, PM



Supply chain worked, but # orders low
Simulations show that there is capacity to add more deliveries



Simulations: SYMBIT

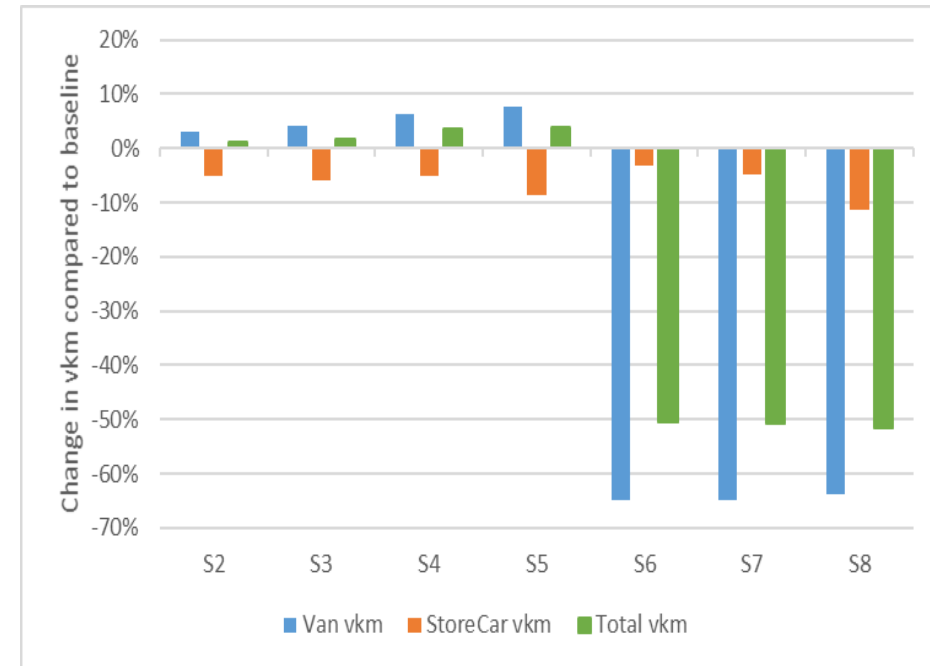
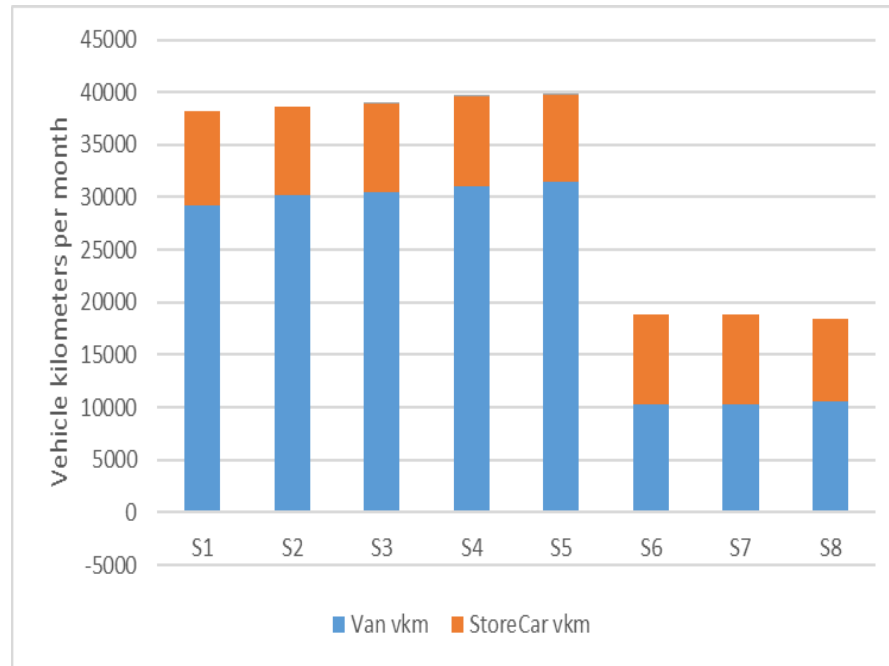


Kin, Ambra, Verlinde & Macharis, 2018

Scenarios

- S1: 100% own-account, 0% website orders
- S2-3: 5/10% website orders
- S4-5: 5/10% website orders, centrally located DC for store deliveries
- S6-8: 0-10% website orders, centrally located DC

Results simulations



Kin, Ambra, Verlinde & Macharis, 2018

Conclusion: is there potential?

- Behaviour store owners
- Professional service-driven companies with a dense network:
 - To provide a decent service level
 - To limit additional vehicle kilometers to a minimum
- Network of service-driven companies and use of centrally located DC with bundled deliveries



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