

Location Analysis for Omni-channel Retail & Distribution in Brussels

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Omni-channel Retail
& Distribution in Brussels

- > Guarantee a good mix of stores at shopping destinations and promote sustainable modes to reach them.
- > Create awareness about the cost for society of rapid and free delivery of online purchases.
- > Support innovative store formats and take them into account for regulations and permit procedures.
- > Support logistics service providers in the development, implementation and continuation of micro-hubs by cooperating with the private sector.
- > Continue with involving all stakeholders for the co-creation and monitoring of the integrated policy plan for logistics and goods related mobility flows.

Two simultaneous evolutions are currently reshaping the retail landscape in the region of Brussels: on a global level, e-commerce is increasingly successful, and on the local level, new shopping malls are being built in the periphery. Although e-commerce is experiencing substantial growth, it is unlikely to completely replace brick-and-mortar business. Instead, omni-channel retail allows the consumer to choose the appropriate channel according to experienced need and preference, e.g. online shopping via computer, mobile shopping via smartphone, ordering online and going to a clickand-collect point, or patronizing a brick-and-mortar store, ... For the latter channel, this store can be located in two types of commercial zones: in a city center high street or in a shopping mall in periphery. The joint effect of these two simultaneous evolutions on the location choice of retailers has not been studied in detail. However, it is well-known that the location strategies of retailers influence the attractiveness of commercial zones for consumers and moderate the location and distribution strategies for logistic service providers. Therefore, gaining insight in retail location and mobility patterns will provide insight in the attraction of the Brussels' city center and periphery for retailers, consumers and logistic service providers.

To measure this location impact and net mobility effect, this project entails a field study among the actors in Brussels and the development of a simulation model.

First, the involved actors – retailers, consumers and logistic service providers – are surveyed or interviewed with respect to their changing behavior in the light of the ongoing evolutions. Next, the field study results are integrated in an agent-based simulation model, which allows analyzing the location and mobility effects based on the interaction among the actors. Finally, the simulation model allows to test different policy measures and to estimate the impact of these policy decisions on the resulting commercial attraction of the Brussels' city center and periphery.

We surveyed 825 consumers about fashion, electronics and food purchases, and did not find significant differences in the channel choice between respondents from the city centre and the periphery. City centre or local high street shops are most preferred. The car is the preferred mode, especially for periphery stores. Food retailers see offline retailing as dominant, for fashion retailers the physical store fulfils the shopping experience and the online store offers the tools to make it convenient. Logistic service providers are investing in customisation (e.g. personalised shipment solutions), specialisation (e.g. shipments of large and heavy items) and expansion (i.e. geographically) of their service offer, as well as implementing innovations. Simulation of policy measures shows that electrification of the fleet is the most sustainable scenario among extension of collection points to all stores, modification of consumer behaviour towards longer delivery terms, electrification of delivery fleet and restriction of delivery vehicles by means of licences allocated by public auctions.

Methods,
approaches and results/body

Conclusions

> For consumers in an omnichannel retail context, different shopping channels remain attractive because of different reasons. In a high street or city centre store, the experience of visiting a physical store remains attractive, although the specific reason depends on the product category – for food the travel time to the store is most important, for fashion the travel cost and for electronic the price/quality of the products offered as determining. For all product categories, the neighbourhood of other stores and convenient accessibility is important. We thus recommend policy makers to guarantee a good mix of stores in the city centre and the promotion of sustainable modes to reach the shopping destinations. For online shopping, cost-related dimensions are important, especially free delivery was an important characteristic. In our sustainability analysis of mobility impact, we have shown that a good organisation of parcel delivery is important and policy measures can help to reduce external costs. We recommend the region to create awareness among citizens about the costs for society of rapid and free parcel delivery and to explore delivery organisation in dialogue with the distribution sector.

> The interviews with omnichannel retailers revealed how retailers see the evolution of a physical store network development. Retailers inventively create new, smaller store formats in city centres

and high-streets, such as in-store screens and kiosks or click-and-collect facilities. We recommend the region to support store format innovations and to take into account the accompanying challenges of these innovations in regulations and permit procedures.

> Customer expectations associated to omnichannel developments (stemming from both businesses and consumers, e.g. fast delivery, flexible delivery) as well as logistics efficiency (e.g. cost reduction, delivery lead time reduction) support the use of micro-hubs in the BrusselsCapital Region. Micro-hubs are usually small facilities, scattered around the city. Only in combination with such micro-hubs, more sustainable delivery vehicles (e.g. electric cargo-bikes) become feasible for large-scale implementation in parcel distribution. Yet micro-hubs have not gained large-scale traction, despite these strategic, operational and environmental advantages. We recommend the Brussels-Capital Region to support logistics service providers in the development, implementation and continuation of micro-hubs by cooperating with the private sector. Cooperation is envisioned to provide both immaterial and material input. In terms of immaterial input, we advise to provide logistics service providers with local knowledge and experience that can be used to define and refine implementation plans (e.g. regarding urban design, traffic situation, road works, local regulation). In terms

of material input, we advise to support logistics service providers' search for appropriate locations (i.e. amidst dense parcel delivery clusters, with sufficient access for larger vehicles, with sufficient space for loading and storing vehicles), by facilitating the search or even providing spaces that logistics service providers can test and try temporarily.

> The supply chain of online groceries is still heavily organized from the client perspective. Where does the client want his/her goods to be delivered? When does the client want his/her goods to be delivered? The choices that clients make do not lead to the most cost-efficient transport system, both from a societal and economic point of view. Moreover, we can deduct from the results of this study that the trips of the clients are representing a large external cost themselves. It is for governments to consider those trips along the logistics operations, when they develop policies targeting the transport system and omnichannel retail. In this research, we presented four different scenarios along a business as usual scenario, that affect either; the delivery location (100% click and collect), either the delivery window (rationalisation of consumer behaviour), either the vehicle used (electrification of vehicles) and finally the last mile organization (milk-run concession by public auction). All represent an improvement in the sustainability of the transport system. Yet these scenario's

conflict quite drastically with individual freedom and free market. To enhance the sustainability improvements of the scenario's, we recommend considering also other transport related policies which have a positive impact on the scenarios. There are a lot of different policy measures that are already in place for some years. Examples are road pricing systems (applied in Brussels-Capital Region since 2016), low emission zones (applied in Brussels-Capital Region since 2018), pedestrian zones (applied in Brussels-Capital Region since 2016), toll systems (e.g. London, on the politic agenda in BrusselsCapital Region). Such measures, like low-emission zones and differentiating road pricing systems can enhance the use of (more) sustainable transport vehicles. Toll systems and pedestrian zones can generate a modal shift towards public transport, bikes and walking for the mobility flows and last-mile deliveries by cargo-bike or crowd logistic solutions for the homedeliveries. We recommend the region to continue with involving all stakeholders for the co-creation and monitoring of the integrated policy plan for logistics and goods related mobility flows. Two delivery paths for an online purchase are proposed in this research, being home deliveries and click and collect with pick up of the order in store. The results show that with increasing penetration rates, a limited decrease in external costs can be observed for the home deliveries thanks to higher drop densities, and

related routing and fill rate improvements. Secondly, pick up in store should be preferred when scenario's 'electrification of vehicles' and '100% click and collect' are implemented. In case the 'milk-run concession by public auction' scenario would be applied; home deliveries should be promoted.

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