

Evaluation of a parcel locker pilot in the Oslo area

Lessons from Drammen, Asker, Bærum and Oslo municipalities

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- Parcel lockers shows potential of reducing the traffic load from last mile deliveries compared to manned pick-up points and home delivery.
- Although travel habits depend on location, consumers use car less frequently to parcel lockers than to other delivery locations. At the same time, logistics operators drive relatively few kilometers on average per parcel delivered in a parcel lockers.
- Consumers prefer to collect parcels from parcel lockers at known locations (in the residential area) or on known journeys (at the store or a public transport hub).
- Municipalities have greater leeway to regulate parcel lockers than they use today, for example via the Planning and Building Act, permits and procurement rules, local guidelines and cooperation.
- Shared parcel lockers can be a good solution, but the organization must be carefully considered to avoid a poorly utilized network resulting in more kilometers driven per parcel for the logistics operators than the current solution. As of today, the large logistics operators with their own networks are positive about regulation of parcel lockers, accept to share locations, but not parcel lockers.

This report documents research on the use of parcel lockers as a last mile delivery solution for online shopping. The research is based on a pilot project where Posten Norge AS has located their parcel locker solution called "Pakkeboks" at selected municipal locations in Oslo, Bærum, Asker and Drammen municipalities (hereafter named the VIV-municipalities), but other parcel lockers are also included. The data base has been collected via surveys, semi-structured interviews and document studies. The purpose has been to contribute knowledge about how parcel lockers can provide more environmentally friendly last mile distribution from online shopping.

The project has taken a broad approach and investigated:

- Package lockers as a delivery solution
- Consumers' use and assessment of parcel lockers as a delivery solution
- Logistics suppliers' use and assessment of parcel lockers as a delivery solution
- Public instruments for regulation of parcel lockers and for shared operations
- Effects on traffic and emissions

Overall, the results show that parcel lockers are the last mile delivery solution with the lowest total traffic load (measured in average kilometers driven per parcel) compared to both delivery in a shop/kiosk and to home delivery. See Table S1. The reason is that both the logistics operator and the consumer on average drive relatively few kilometers to respectively deliver and pick up a parcel in a parcel locker compared to other delivery solutions.

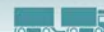
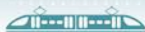
Table S1: Traffic load measured in average kilometers traveled per parcel to parcel lockers, delivery in shops/kiosks and home delivery.

	VIV municipalities			Oslo municipality		
	Consumer	Operator	Total	Consumer	Operator	Total
Parcel locker	0,96	0,40	1,37	0,47	0,40	0,87
Delivery in shops/kiosks	2,73	0,10	2,83	1,70	0,10	1,80
Home delivery	0	2,50	2,50	0	2,50	2,50

This research has showed that just above ¼ of consumers travel by car when they pick up a package from a parcel locker, of which 34 % has this as their sole purpose of the trip. The remaining trips to pick up a parcel from a parcel locker are carried out in combination with other errands or on foot, by bicycle or public transport and consequently have a low traffic load. Overall, consumers' travel habits to parcel lockers in the VIV municipalities result in few kilometres driven per parcel and a further low traffic load in this analysis. Logistics operators report on relatively efficient distribution to parcel lockers in their own network and few kilometres driven per parcel to parcel lockers in Oslo, on average.

Despite the relatively low traffic load per package delivered in a parcel locker, there is room for improvement and further traffic reduction. This could be done by increased efficiency from the logistics operator or from more consumers walking, cycling or combining the journey to the parcel locker with other errands. Municipalities can contribute to by influencing where the parcel lockers are located, as this in turn affects consumers' journeys to the parcel lockers. Municipalities could also support the development of shared or agent neutral parcel locker networks, allowing (specific) parcel lockers to be open and accessible on equal terms for all transport operators. This differs from the current Norwegian solution, which is that each carrier sets up, operates and delivers in its own network. Shared parcel locker networks are controversial, and this report reveals that the large suppliers with their own parcel locker networks are sceptical of such a joint solution.

However, the logistics operators are not opposed to the regulation of parcel lockers but find it important that the authorities assess their business models and financial framework before deciding on a solution. The operators with their own network fear that a shared solution will be rigid, unpredictable and expensive for them because they currently have control over the entire process themselves and achieve relatively efficient routes and deliveries. They therefore keep a close eye on developments in VIV. At the same time, there are suppliers of shared parcel locker networks who believe that this is a solution for the future. Our research shows that a good start could be to combine own and shared parcel networks, as this would provide a solution for smaller carriers who do not operate as efficiently as the largest players, while at



the same time allow the large logistics operators to operate efficiently within their own networks. In any way, it is important to avoid a solution that makes parcel lockers less attractive to consumers than home delivery.

Our recommendation is therefore that VIV continues to investigate tools to regulate the deployment of parcel lockers. This includes tools for (1) giving permission for the placement of parcel lockers according to the Planning and Building Act or the Roads Act, (2) local guidelines laid down in local plans for land use, climate or traffic safety, (3) agreements between municipalities on joint tendering of an open parcel locker network and (4) create a joint public-private company with the municipalities and logistics operators as owner of the parcel lockers. The state could also come forward with guidance material on this. Regardless of whether the current solution is maintained or not, the logistics operators encourages the municipality to contribute in discussions about localization and in application processes.