SURFLOGH WP 6 BUSINESS MODELS

Mechelen Case Study: City Hub and EcoKoeriers

Mechelen Case Study Final

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CASE STUDY 2: MECHELEN CITY HUB AND ECOKOERIERS

1. Introduction/Background

This case study outlines the cooperation between city hubs ODTH, a logistics company who have two warehouses in Mechelen, one in the south industrial district and the other located strategically in the north of the city, and local cargo bike courier ECOkoeriers. Whilst the two companies have separate corporate identities, what they provide is an integrated service to the customer. This consists of having goods delivered to the ODTH warehouse in the southern outskirts of the city, where they are then consolidated with other consignments and then delivered to their final destination by ECOkoerier cargo bike.

Leading the city hub is Jos De Wael, whilst ECOkoeriers is led jointly by Inneke Vos and Veerle De Wael. ECOkoeriers employs six VTE bike couriers, most of them working part time. Both companies can be considered to have a pro-active socially focused employment policy, and hence wherever possible, engage employees that need extra assistance finding their way in a working environment, making this a social project at the same time.

2. Mechelen Area

Mechelen is situated in the north of Belgium and is a typical medium-sized European city/municipality in the province of Antwerp, which is located in the Flanders Region of Belgium. It currently has almost 88.000 inhabitants which is estimated to grow to 100.000 inhabitants by 2030. In recent years the city has attracted increasing numbers of inhabitants, entrepreneurs, employers, visitors and tourists which has resulted in a considerable increase in traffic levels and more general transport flows, particularly around the city centre area. The city has good transport links to the Belgium capital Brussels, with a high frequency direct rail link to both Brussel airport and city centre.

Mechelen has a historical centre that used to be situated within city ramparts, and as such contains a high number of narrow cobble stoned streets. Today however, there are only a few remains of these ancient ramparts. In this part of the city there are about 20.000 inhabitants, as well as a vibrant city centre that includes general stores, high end retailers, cafes, bars and restaurants.

3. Policy Framework

Belgium is a federation, and although there is some crossover between federal and regional authorities with regards to transport policy, this is more consistent with a division of responsibilities rather than a tiered approach to governance. Policy in the area of urban freight is therefore largely driven by the Flemish Government and Mechelen City Council. The main policy instrument in this area is the Flemish green deal on sustainable urban logistics, which was introduced in April 2019. This is as

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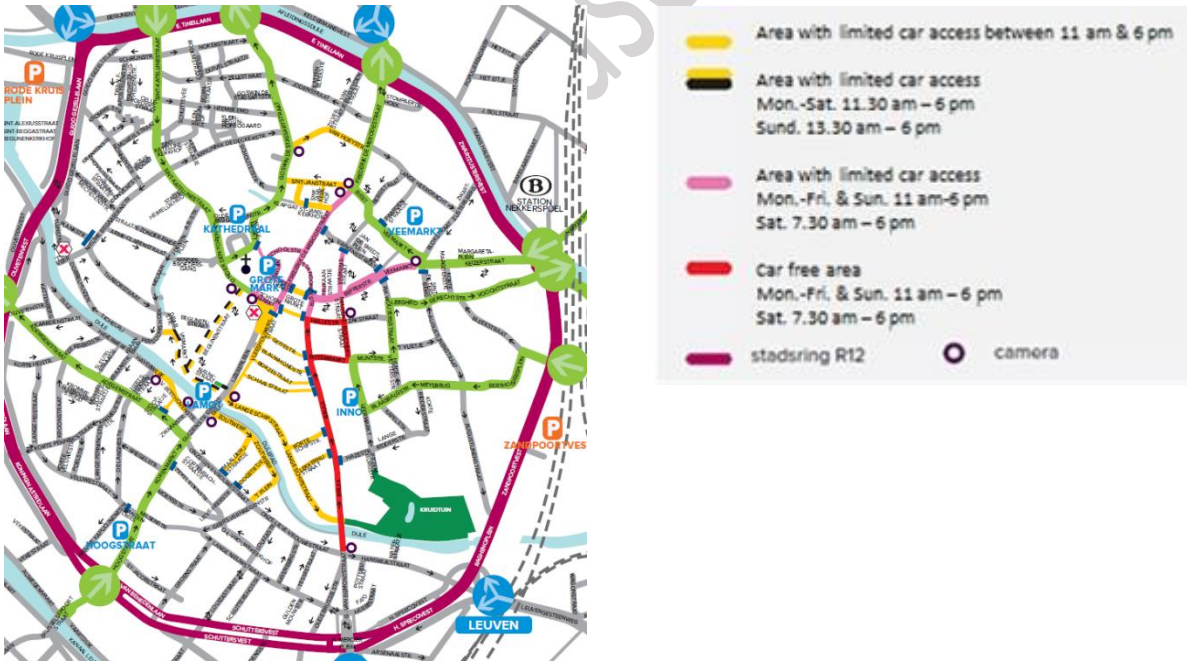
a result of a Flemish coalition agreement stating that the region should commit to zero emission in logistics by 2025. Nevertheless, it is by and large left to individual cities within the region as to how this target is attained and any proviso/progressive measures taken in anticipation of the 2025 zero emissions target. Despite the green deal, the existing regional and national frameworks regarding urban logistics could best be described as rather unambitious, if in existence at all. As a result, often cities aim for higher goals than are expected from them, and this is certainly the case for Mechelen. What this leads to is the setting of targets that are largely unattainable, and hence lack any real commitment or ambition in attempting to achieve them.

In more general terms, the mobility plan for Mechelen puts forward the safety of vulnerable road users, such as pedestrians and cyclists, and liveability as its two prime objectives. Through European projects the city has resources to investigate and implement smart logistic solutions. Together with poverty and entrepreneurship, mobility is one of the spearheads of the city's Multi-Annual Plan[1] covering the period 2020-2025.

Within the city centre there exists low car (restricted to residents only) and car free-zones, as well as time windows for all deliveries (including to private households). There are 4 different regimes. These zones are monitored and maintained by the local police (*Lokale Politie*) via ANPR-cameras (ANPR: Automatic Number Plate Recognition). Unless a motorized vehicle has a (one time or permanent) permit, it cannot enter the car free zone. There are however a number of exemptions, such as cars of a car sharing platform fleet (i.e. car clubs) are allowed access 24/7. The relevant zones are illustrated on the map below.

Figure 1: Mechelen, low car and car free zones, 2021.



[1] See https://www.mechelen.be/meerjarenplan-2020-2025 for further details

In this area vehicles that are larger than 10 tons and/or longer than 11 metres are banned at all times. This was instigated around 2011 primarily due to the nature of the urban environment with its narrow streets and a strong historical heritage, and concerns over uncertain ground conditions resulting from a network of underground tunnels from the middle ages. As with the low and car free zones, enforcement is the responsibility of the local police, but in reality this has proved difficult to maintain, as with a low chance of being caught, the offenders may simply view the resulting fine as a business expense. (De-criminalise?)

4. City Hub and ECOkoeriers Operations

ODTH First class logistics offers warehousing, distribution, value added services and other tailored logistic services at 6 different locations across Belgium. It was founded in 1978 by Jos De Wael and currently has more than 150.000 m² total warehousing space. The company employs more than 230 people, and as stated Mechelen houses two of these city hubs, one in the south and one in the north.

ECOkoeriers was founded by IV-ENT, managed by Inneke Vos and Veerle De Wael (daughter of Jos De Wael, founder of ODTH), who describe themselves as social entrepreneurs. After a brainstorming session initiated by the city of Mechelen on sustainable business models for cargo bike couriers, Inneke and Veerle decided to take the leap and founded ECOkoeriers as part of IV-ENT. In order to be both operationally and financially profitable, various partners come out as one brand (namely ECOkoeriers) and collaborations set up with other (logistics) companies: IV-ent itself, ODTH and ShopWeDoo (which specializes in e-commerce).

5. Critical Elements in the City Hub/EcoKoeriers Operation (i.e. the Business model)

Whilst the above represents the bare facts of the operation, presented below are the key elements drawn out in the course of the research associated with the Surflogh project that identifies the critical factors driving the City hub/Ecokoeriers business model, as well as some of the issues that this has encountered.

5.1 Importance of the Provision of Ancillary Services

The proposed business model for the Mechelen hub can best be described as 'the add-on' business model (Gassmann and Frankenburger, 2014), which is most clearly exemplified by the approach taken by low cost airlines. In that case, the customer purchases the basic service component for a relatively low price, and then pays extras for any added services, such as fast check-in, boarding priority and catering. This model can easily be transferred to the area of last mile logistics, and indeed the academic literature continually makes reference to the fact that an advantage of last mile consolidation is that UCCs can offer other logistical services (see for example van Rooijen and Quak, 2010; Benjelloun and Cranic, 2009; Browne et al., 2005). Quak and Tavasszy (2014) for example outline the approach taken by the Dutch initiative 'Binnenstadservice' (BSS), in which the basic service, the last mile delivery, is offered free to retailers, but they are then charged for a range of ancillary services, which includes storage, home deliveries, value added logistics (e.g. removal of clean waste) and possibilities for e-tailing. Whilst well established, the BSS still remains significantly subsidised however, which suggests this approach to a certain extent is still unproven in the area of last mile logistics.

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In the case of the Mechelen hub, a charge was made for the actual delivery (but publicly funded in the pilot stage, hence 'free' to the end user), but a range of ancillary services were offered, specifically stock holding, labelling and order picking.

5.2 Elkington's Triple Bottom Line with regard to Key Individuals

Elkington's (1999) idea of the triple bottom line (3BL) advocates that the goals of economic, social and environmental performance can be pursued simultaneously. This whole area was considered by Björkland and Johansson (2018) to be significantly underdeveloped in the urban freight literature, with very few articles considering its relevance or even acknowledging its existence. In some senses, the Mechelen pilot illustrates such oversights very well. Whilst the 3BL has been highlighted in other case studies produced by the Surflogh project (see Cowie and Fisken, 2020), in this context it specifically relates to the commitment of key individuals to providing a more environmentally sustainable solution for last mile logistics. Key to the whole success of the initiative is then directly tied into the commitment, skills and drive of the key personnel behind it. In many senses such individuals are not solely motivated by profit, but by wider social and environmental goals. In terms of mainstream economics, this is consistent with Stigler's idea of maximisation across an individual's whole utility function (Stigler, 1976). In that context it was with reference to work/leisure time, hence individuals are still maximising their utility if they decide to devote more time for leisure at the expense of economic welfare. In this context the trade-off is between economic profit and awareness of wider social and environmental factors and hence a strong motivation to take such factors into account in the approach to business.

5.3 Issues that emerged during the running of the pilot

The Mechelen case study has provided valuable insights into a number of the issues that can be encountered when attempting to establish a relatively new and untried concept in urban freight logistics, and in some senses underlines the fact that the 'theory' may not always be consistent with real life practice.

5.3.1 Establishing a Critical Mass

Key to the success of the Mechelen pilot was the need to establish a customer base that was of a sufficient size to ensure the economic viability of the city hub, i.e. establishing a critical mass. This is consistent with other initiatives. Morganti and Gonzalez-Feliu (2015) for example found that the establishment of a Food Hub in Parma was dependent a number of critical factors, one of which was signing up a sufficient number retailers to ensure financial viable. Triantafyllou et al (2014) on the other hand highlight that the critical success factors for UCCs include the ability to secure a high level of retail participation, and this should enable the UCC to operate without any external funding,

One of the issues surrounding the Mechelen hub however is what Cowie (2019) has termed the paradox of the UCC. As highlighted by Olsson and Woxenius (2014), in the case of transport for larger firms, which would mainly represent retail chains, terminals are 'efficient' because relatively large trucks are used and often fully loaded (Browne and Allen, 1998). Under such circumstances, there is little if anything to be gained from the use of an UCC. Improvements are therefore likely to come from what Allen et al (2000) have defined as decentralised goods supply systems, which mainly serve small independent retailers. The paradox of the UCC however suggests that this sector tends to be a small proportion of the whole potential market and in the majority of cases is insufficient to constitute a critical mass. This appears to have been a critical factor with the Mechelen city hub.

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5.3.2 The need for a double co-incidence of wants

The whole business model is founded on the basis that there exists a strong underlying demand for the ancillary services that are on offer, and that the benefits of using these services outweigh the cost of the final mile delivery, i.e. it requires a double co-incidence of wants. As highlighted above, the experience with BSS suggests this is still unproven as a business model. Specifically in the first instance it can be strongly argued provision of such services is not an advantage of a UCC but rather is true of any potential 3PL provider. Secondly, there is very limited evidence of actual 'success' with regards to UCCs in this area, some notable examples do exist, but these are few and far between and certainly until others emerge, should be regarded as the exception rather than proving the rule. What is certainly true is that (in theory) UCCs may be well placed to offer such services, and hence this may be one way to increase the economic viability of UCCs, but that still requires a double co-incidence of wants.

A strongly related factor is that potential clients in most cases will have well established business operations, and this may mitigate against some of the benefits on offer. Johanson and Björklund (2017) for example highlight that store personnel will tend to be far more sensitive to the costs of activities carried out by external actors than they are to the (hidden) costs of their own internal solutions for carrying out such activities. They may also be far less sensitive to the disruption to customer services caused by these in-store logistics activities. Taken together, retailers are likely to considerably undervalue the benefit to be gained from engaging such services, and consequently be willing to pay far less than the true value. A second issue is that staff costs in the very short run can be considered as fixed. Staffing levels in retailers are set at a point that optimises the primary function of sales, but this leaves considerable non consumer service focused time. This then becomes available to undertake other supporting functions. Contracting these activities out therefore actually increases rather than reduces costs. As regards stock handling, this is seen as potentially freeing up retailer store space to provide extra room to offer a larger range of consumables. The expansion in the product range on offer does not come at a zero cost however, as it requires an injection of working capital to support the effort. Why this become particularly critical is that the expansion of the product range must be by definition on second level sellers, as the range already on display is the one that best meets consumer demand. The marginal gains therefore are significantly reduced, and hence the whole proposition becomes less appealing from a retailer's perspective.

5.3.3 Conservatism of Retailers

One factor acting against the economic viability of UCCs is the perception that introducing an extra handling stage into the process can lengthen delivery times and reduce reliability. Evidence for this is very limited however, for example Verlinde et al (2014) found an 8% fall in reliability during the course of a pilot involving a mobile depot, although that may in part have been due to teething problems associated with what was a pilot. Nevertheless, the experience with the Mechelen hub is that retailers are reluctant to add an extra handling stage into their supply chains, the concern being that this will reduce delivery reliability. As a result, over two years of attempting to pursued retailers to sign up to the initiative resulted in only four using the city hub for their deliveries. It is worth highlighting further that due to the low number of retailers using the hub, the reality was that many carriers would drop parcels at the hub but then continue into the centre to make deliveries to other retailers. This in some respects relates back to the idea of a critical mass, and hence to prevent such 'duplication', significant numbers need to be enlisted.

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5.3.4 Dependence on key individuals

One final issue with respect to the Mechelen hub was its dependence on a few key individuals and their commitment to the concern. This in no way is intended as a direct criticism of those involved, but rather a generic issue that reflects the realities of business and personal life. The reality is that other issues can arise that require an individual's attention, and hence focus on the initiative is lost. This clearly was an issue with the Mechelen hub and given the nature of these ventures with their dependence on key individuals, is one that going forward is very difficult to mitigate against.

6. Future prospects and current constraints

One possible way to overcome some of the issues highlighted above concerning developing a critical mass is to expand operations into other areas, hence attempt to build up a financially viable critical mass through developing the concept in sectors other than independent city centre retailers. Ecokouriers have had some success with this, specifically in relation to work with the local authority to deliver food supplies for the vending machines to schools. Further possible sectors to target are medical houses, other local authorities service providers and bars and restaurants (for at least a part of their deliveries).

7. Closing Discussion and Summary

As with the Edinburgh case, establishing and being involved in the running of the pilot in Mechelen has been an interesting and rewarding experience for the Surflogh partners, and whilst the hub did not attain the levels of business that were hoped for, it has nevertheless provided some meaningful insights with regards future prospects and areas for further development. Of those listed above, perhaps the key issue was the need for a critical mass, and in terms of the current situation (largely market based with few constraints), the relatively small size of Mechelen acts against this. This strongly suggests that stronger measures need to be taken with regards to policy

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APPENDIX 1 – SURFLOGH MECHELEN HUB/ECOKOERIERS BUSINESS MODEL CANVAS

SURFLOGH BUSINESS MODEL CANVASS

City pilot: Mechelen, City Hub and Bike Courier

Date: 5th March 2021

Value Propositions

Why should a client use the offered delivery service?
-efficiency gain: By stocking their goods in a cityhub and getting their goods delivered in a consolidated way, retailers hand over a necessary but time consuming part of their job. They don't have to be present in the shop to make sure not to miss one of many deliveries, don't have to unpack them and label them. Through a direct contact with the ECOkoeriers, they ask for their stock and packages to be delivered at a specific time.
- sustainability gain: the consolidated last mile delivery by cargo bike is a zero emission delivery.

What alternatives do customers have?
- Retailers have their packages delivered directly, though scattered, by different freight handlers (usually by truck or van)
- Retailers keep their stock in house

Does the current value proposition meet customer needs fully?
This proposition assumes a certain ecological vision of the retailer. It's better for the livability of the city, it produces less pollution, less congestion and less dangerous situations for the inhabitants. However, most retailers cling to a status quo and they have a very low level of involvement. They are not very motivated to change their behavior. It's important to clearly point out the personal advantages as well: retailers will not only see their comfort increase, but also their exposition space and their available time.

What is the mechanism through which pricing policy is determined?
Making use of the services of the cityhub and the ECOkoeriers comes at a price. Prices are determined depending on the services (stocking and unpacking goods, delivering goods x times a week, picking up parcels x times a week).

To what extent is price used to manage demand to match capacity?
When more retailers sign up for the service, cargo bikes can drive to the city center more efficiently and would have to do less miles for more packages. Prices could be adapted at this point. The higher the volume, the lower the price. This pilot project is however not yet in that phase.

Customer Segments

What customers and customer segments are mainly served?
This service is for retailers in the center of Mechelen that deal with goods that fit a cargo bike and aren't subject to special regulations (temperature, humidity, law...).

Who are the most important customers?
At the moment we mainly focus on retailers, but every company or organization that has goods delivered in the city center is an important customer.

Are there any other potential markets in which the current value proposition could be offered?
In the future the following segments could also become customers: schools, medical houses, every city service, bars and restaurants (for at least a part of their deliveries).

Customer Relationships

What kinds of working relationships do customs expect and how does the company maintain these?
- A quick, on demand service
- Reliable deliveries and safe stocking service
- Online updates of parcel delivery/pick up

In terms of the most important customers, what kinds of business pressures are they operating under?
- Timely pick up and delivery of parcels
- Possibility to demand special delivery or pick up
- Clear overview of goods in stock in the hub
- Intuitive use of software system

How is the value or benefit that is created for customers communicated to the wider business community?
- Active promotion of the project through direct contacts. Convincing with a 6 month free trial to convince retailers of the benefits.

Channels

What are the most critical elements in the service provided?
- Reliability (a separate track and trace system for the cargo bike miles should be included)
- Change of habits (customers feel they give control out of hands when not dealing with their stock first hand)
- Cost
- Time Sensitivity
- Relation and communication with ECOkoeriers. The customer should not have the feeling that it involves more work and time.

Are the clients the final customer?
- Yes

What would need to change to allow the current value proposition to be offered in other markets
- The same principles can be applied in other markets. The more customers, the more efficient the service can be provided. There is a change needed for cold chain deliveries like food and beverages. A cold and constant temperature cannot be guaranteed at the moment for stock keeping, bundling and last mile delivery
- Cargobike deliveries also have their limits in size and weight.

Is there an identifiable 'critical mass' in terms of a customer base?
- Not yet. This project won't grow without input and initiatives from the city of Mechelen.

Key Partners

Who are the most important business partners? To what extent therefore, would a partner be describe as a 'customer' or as a partner?
- The city, as instigator, is a key partner in this proposition.
- The City hub and ECOkoeriers are separate partners, but are an integrated service to the customers.
- Retailers, medical houses, schools, bars and restaurants... are all examples of possible customers.
- Logistic couriers maintain their activities, but unload their cargo at the hub. In a next phase it could be possible that a logistic courier outsources his whole last mile to the local bike courier (Ecokoeriers)
- Bike dealers are necessary for delivering cargo bikes and maintaining them.

Are all partners viewed as being equally important to the business?
- This partnership is a triangle that wouldn't work without one of the others.

Key Activities

What are the key competences and key activities within the business? How do they contribute to the value proposition?
- Receiving parcels in the city hub
- Opening & labelling parcels and stocking goods in the city hub (throwing away as much waste as possible in order to save space in the cargo bike).
- Registering stock: items to an online platform shared with the retailer
- As agreed upon: delivering goods from the hub to the retailer by cargo bike
- Picking up parcels and waste (mainly cardboard) from retailers (and private persons) on the way back to the city hub.

Policy Perspectives

What are the main policy documents relating to urban freight in the area concerned?
- Car free zone with time frames for deliveries
- Restrictions on length and weight of vehicles in the city center (+10 tons &/or +11 meters is not allowed)
- The inner city is a cycling zone (no trespassing of cyclists, speed limits)
- Covenant on sustainable and efficient city logistics (goal: zero emission city logistics by 2030)
- Climate action plan 2030 (goal: 40% reduction in CO2 emissions)

Regional:
- The Flemish Green deal on sustainable urban logistics
- Flemish coalition agreement stating we need to go for Zero emission logistics by 2025

What current restrictions are in place with regards to deliveries?
- Trucks over 10 tons and/or longer than 11m can't enter the city center
- Car free zones + expansion as from 1st of July 2020
- City center is a bike zone (cars can't bypass bikes)

To what extent does the value proposition (current offering) mitigate against these restrictions?
- Cargo bikes provide better direct access and are not tied to the time frames. They can deliver all day long.

Are there any revenue streams available under state provisions
/

To what extent is the local authority engaged with the city centre business community/business group/organization?

Various platforms:
- Shopowners: Mechelen Meemaken
- Made in Mechelen: entrepreneurs in Mechelen
- Logistics: Zero Emission working group
- Companies Mechelen North
- Companies Mechelen South
- Unizo and VOKA: interest organizations that represent the entrepreneur.

Cost Structure

What are the main costs and the main cost drivers? How are cost acquired? E.g. overhead v running costs.
Main cost drivers:
For retailers :
- Cost of having parcels received in the city hub and stocking
- Cost of last mile delivery

For city:
- Cost (expressed in time) of convincing as many retailers as possible
- Marketing cost

For city hub and ECOkoeriers:
- Cost of renting / exploiting the hub
- Staff for manning the hub and riding the cargo bike
- Cost of bike maintenance

Revenue Streams

What are the main sources of income (and does this match with the most important customers)
For retailers:
Savings in terms of time and shop space
Savings in staff hours to unpack and label goods and to be present for possible deliveries
Revenue from having a bigger available stock and being able to respond to customer demands faster
For city:
Cleaner and safer city, healthier people, less social costs
For city hub and ECOkoeriers:
Direct revenues from retailers that rent stock space (fixed revenue) and pay a usage fee for the services (variable revenue depending on the amount of deliveries)

How is the income generated (is there any evidence of the 20/80 rule)? Are there any secondary revenue streams? (e.g. 3PL services)
The cost that is generated by Ecokoeriers and the city hub is currently paid out of European subsidies. If there was more volume generated, the current business model could be adapted where the courier company pays the bike courier to perform the last mile.

To what extent do revenue streams match cost drivers?
- Fully

What are the main financial risks in the current revenue model?
- Not answered – one would be lack of uptake on the use of ancillary services could undermine the whole financial model

Key Resources

To what extent are the labour skills that are employed specialized or general? If specialized, how are these skills maintained over time?
- Nearly all labour skills involved are general. Stock keeping, parcel receiving and labelling, delivery of goods by cargo bikes and picking up of parcels don't require specialized skills. The development of the right software for an online platform (that ideally integrates both stock keeping and track&trace) requires a more specialized profile.

What are the main capital requirements and how do these contribute to the value chain?
- Physical: cargo bikes, stock room, city hub right outside the city center
- Human: staff in city hub, cargo couriers
- Intellectual: online platform

IT – tracking systems, interface with partners, how are IT systems managed, and what more could be done?
- At the moment, parcels are delivered and picked up on a trust basis. In order to professionalize the service and convince more retailers, a track and trace system should be integrated.

Profit distribution – where profits are made, to what extent is this paid out as dividend and to what extent is it retained profit?
- We have too little data to conclude about possible profits.