SURFLOGH WP 6 BUSINESS MODELS

Business Models in Action: Policy Frameworks and Interventions.

Authors	Jonathan Cowie[1], Keith Fisken[2] and Peter Jackson[2].
Quality Assessor	Damian Stanchov[1]
Date	15th July 2022

1. Transport Research Institute
Edinburgh Napier University
Colinton Road
Edinburgh
EH10 4DT

2. South East Scotland Transport Partnership (SEStran)
Scottish Government
3D Bridge Victoria Quay
Edinburgh
EH6 6QQ

https://blogs.napier.ac.uk/tri/projects/

Executive Summary

As part of the 18 month extension of the Surflogh project and the work associated with Work Package 6, SEStran and Edinburgh Napier University TRI were tasked with applying a theoretical framework that would allow the policy framework in each of the partner cities to be assessed. Specifically, the Surflogh project team agreed to use the business model insights gained from previous cases to help develop the innovation pilots (WP5) in the extension stage, and in doing so attempt to establish if there was any relationship between the (commercial) success of these initiatives and the prevailing policy framework.

In respect of this work, an extensive literature review was carried out on the role and effectiveness of policy in the area of urban freight transport (UFT). This was then complemented by the construction of a theoretical framework based on the ideas of Kiba-Janiak (2017) in terms of a city's level of UFT policy 'maturity'. Through a series of in-depth interviews with the project partners, this was applied to each partner city. What the results showed is that all partner cities had medium to low levels of UFT policy maturity, with Groningen the highest (rated at a medium level, termed 'policy focus'), and Edinburgh the lowest (low maturity, termed 'pure market'). The success of the pilots was evaluated through a Delphi panel workshop where the criteria to be used to rate 'success' were discussed and agreed, immediately followed up with face-to-face interviews with each pilot sponsor.

What the results show is no association between UFT policy maturity and the success of the pilot, strongly suggesting that at lower levels of policy maturity, the success of any freight related policy initiative is more likely to be dependent upon situational factors outside of the policy environment. As a consequence, the instigation of meaningful policy actions only possibly start at high levels of UFT policy maturity, specifically identified in the research as levels four (policy aspirant) and five (pro-active).

Contents

List of Tables

List of Figures

1. Introduction

One of the key lessons learned from the first phase of the Surflogh project was the importance of policy interventions and actions in creating a conducive business environment in order to facilitate green last mile logistics in a commercial sense. The Surflogh Business Model Canvas (for further information, see Cowie and Fisken, 2019a) recognized this importance and hence the policy element was included in the overall framework. Following on from this, as part of the 18 month project extension (from now on referred to as phase 2 of the project), SEStran and Edinburgh Napier University TRI were tasked with applying a theoretical framework that would allow the policy framework in each of the partner cities to be assessed. This would then be applied to the business model roll out in phase 2 of the project. Specifically, the Surflogh project team agreed to use the business model insights gained from previous cases to help develop the innovation pilots (WP5) in phase 2, and in doing so attempt to establish if there was any relationship between the (commercial) success of these initiatives and the prevailing policy framework. The aim of this report is to present the findings of these investigations.

2. Background

This document develops the approach taken in assessing the policy framework and presents the findings arising out of the 'business models in action' phase of the project. In the original phase of the Surflogh project, WP6 was concerned with identification of the underlying business model associated with each pilot project. This was a key aspect of the whole Surflogh project, as Björklund et al (2017) highlight that few researchers have actually provided profound insights into the design of viable business models for success with regard to urban freight consolidation initiatives. As a consequence, the work on Surflogh makes a strong contribution to filling an important gap in the research literature, and should be of considerable value to other European cities proposing similar initiatives.

For terms of reference, a 'business model' is formally defined as:

> *'…a description of the means and methods a firm employs to generate the revenue projected in its business plan. It views business as a system and attempts to answer the question 'how does the business make profit to survive and grow?'* (Gassman et al, 2013).

In more general terms, a business model is the identification of the key factors that lead to medium to long term profitable operation of a commercial enterprise and thus financial sustainability. The basic framework not only recognizes the importance in identifying underlying economic factors in any business situation, but other important dimensions that lead to the successful 'conversion' of a potential business opportunity. Hence taken overall, if there exists an advantageous business opportunity (the underlying economics), how is this converted into medium to longer term profitability (the business model)? A second aspect in this particular case is the extent to which policy interventions and actions contribute to presenting green urban logistics with potential business opportunities.

In the first stage of the project, through the development of the Surflogh Business Model Canvas (for info, see Appendix 1), augmented with the construction of case studies on each pilot, the following business models were identified in each of the partner cities:

Table 1: Surflogh Identified Business Models

Location	Initiative	Business Model
Borås, Sweden	Good Goods	Microhub/duality business model
Edinburgh, Scotland	Zedify Cycle Logistics	The partnership business model
Eelde, Province Drenthe, the Netherlands	Goederenhub Groningen-Eelde	The intercept business model
Groningen, the Netherlands	Go Fast Cycle Logistics	The localisation of freight business model
Mechelen, Belgium	Ecokoeriers	The add on business model

In this second phase of the project, the purpose is to evaluate the success of each of these business models and to attempt to identify if success in any form can be related to the policy framework.

3. Methodology: Primary and Secondary Research

In terms of the methodology employed in this element of the research, this generally follows on from previous stages of the Surflogh project, and hence is mainly qualitative in nature. The overall methodology used is summarized in figure 1.
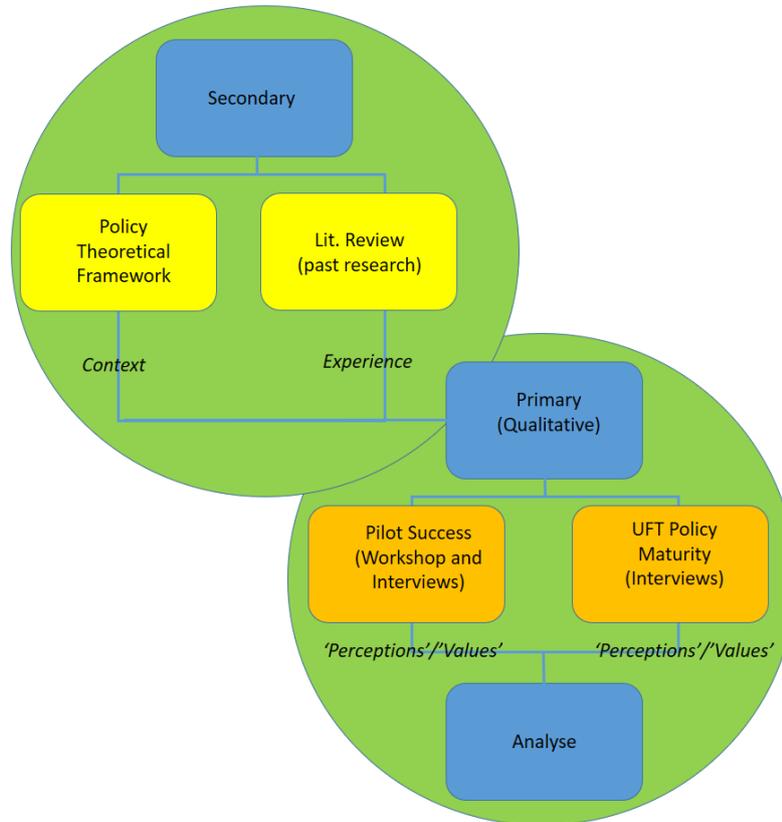

Figure 1 Overview of Methodology for 'Business Model in Action'

As before, in terms of the overall outlook the research has elements of both action research and to some extent, grounded theory. In the former case, the research is an integral part of the process, and looks to draw out salient points from any ground level developments. It is an iterative process of plan, act, observe and reflect (Bryman, 2008). Grounded theory (Glaser and Strauss, 1967) on the other hand is where, through inductive research, theory emerges from the research process, and hence bridges the gap between theory and empirical research. As such, the research component in SURFLOGH is not positivistic in nature, i.e. the issue to be researched is not highly structured and the framework rigid.

The main question to be addressed in phase 2 of the project is the extent to which the prevailing policy climate impacts on the success or otherwise of any green urban freight initiative. One key issue identified in the literature is a lack of laboratory and field experiments in the general area of sustainable supply chain management (e.g. Carter and Easton, 2011), and a complete absence of the impact that policy and its associated measures can have on such initiatives. As such, the current research should go some way to answering some of these important questions.

To summarise the overall approach taken, the research began by carrying out a literature review on the role and effectiveness of policy in the area of urban freight transport (UFT). This was then

complemented by the construction of a theoretical framework based and adapted from the ideas of Kiba-Janiak (2017) in terms of a city's level of UFT policy 'maturity'. Through a series of in-depth interviews with the project partners, this was then applied to each partner city. In terms of the criteria to evaluate 'pilot success', this was established by a Delphi panel workshop immediately followed up with face-to-face interviews. More details on all of these aspects are given later in this report.

4. Urban Freight Transport Policy: Brief Literature Review

This section provides a brief overview of the key research findings surrounding the area of urban freight transport policy implementation and issues. Two key areas are highlighted, problem solving v pro-active policy and the whole idea of the concept of 'city logistics'.

4.1 Urban Freight Transport Policy - 'problem solving' rather than an active policy

Freight transportation, unlike public transport, tends to be viewed as a free market good, and consequently in terms of either policy or regulatory intervention, this historically has been very limited. As an example, Lindholm & Browne (2013) showed that urban freight transport is not a priority in many Swedish cities. Similar results were found by Witkowski and Kiba-Janiak (2014) in a survey in Polish cities with county rights, where in only a minority of cases (38%) were there any policy provisions that partly related to freight transport. Even in these instances, the vast majority tended to be problem focused, hence most measures related to regulations concerning access to city centres.

Lindholm & Blinge (2014) similarly state that local authorities have traditionally focused on public transport, car usage and other modes of transporting people, and even go so far as to highlight that from a local authority perspective, at best freight seems to be somewhat 'uninteresting' (Rodrigues, 2006) and at worst completely neglected (Sjostdet, 2007, cited in Lindholm 2012). The authors highlight that the main reason for the lack of policy is that freight is largely a derived demand, and hence is primarily driven by consumer activity. As such, the local authority has very little, if any, control over the issue. A further facet however is that whilst passenger transport is high on the political agenda, this is not the case with freight, a fact reflected in the construction of public administration bodies. Ruesch and Glucker (2001) for example found that 25% of cities included in their study based on the Netherlands had no responsible entity for goods transport issues, whilst at 43% Lindholm & Blinge (2014) found this to be even higher in Sweden. As regards the former study, the authors found that almost half of the cities studied had less than one part-time staff member employed for that purpose.

The last point is particularly significant, as what it clearly shows is a lack of knowledge and expertise in public administrations with regards to urban freight issues. Dablanc (2007) makes the astute observation that this lack of interest is compounded by (or the cause of?) local public policies regarding freight that are scarce and out-of-date. At the time of writing, the previous twenty years had seen very little, if any, change at all with the same regulatory measures used for largely the same purposes, and as stated, have been very much about addressing 'problems' rather than attempting to steer or direct what is essentially a key economic activity towards a more balanced and enriching outcome.

In a similar vein, Cherrett et al. (2012) underline that historically urban authorities have considered freight policy only as a reaction to negative environmental impacts, hence any measures have tended to be aimed at addressing a specific 'problem', rather than be viewed in a wider context. They also highlight that public authorities are hampered in policy development by a lack of a system of on-going public data collection regarding urban freight operations (beyond bland traffic counts). This typically results in authorities having limited insights into urban freight operating patterns when attempting to develop suitable strategies and policy measures.

One issue not directly identified in the literature, but undoubtedly a major factor, is that with a problem focused policy framework, what this has created in many locations is an overall outlook of regulatory negativity, and certainly one not consistent with active city logistics or key stakeholder buy-

in.   Stathopoulos et al. (2012) for example, in a study of three stakeholder groups (policy makers, carriers and retailers) in Rome, found little support for policies targeted at addressing some of the issues with urban based freight. In all bar one category, policy support was less than 50%, and that included the policy maker group, underlining the general lack of interest within this body. Responses from retailers and carriers were even lower and averaged 21% across all categories, with a highest value of 44%. Carriers were particularly anti, with a level of support that ranged from a high of 33% to a low of 0% and averaged a mere 15%. One clear reason for such a lack of policy support is that it is difficult, if not impossible, to highlight any positive benefits for the main stakeholders that come with such policy initiatives, as in many respects, what is being traded is economy for quality of life. As highlighted, this represents is another potential barrier to future policy development beyond the 'problem solving' focus.

4.2 The Concept of City Logistics

The whole area of last mile deliveries is part of the wider concept of city logistics, which concerns the public and private planning and management of urban logistics. Benjelloun et al. (2010) for example suggest that the City Logistics concept has emerged as a comprehensive approach aimed at attempting to mitigate the negative impacts of urban freight transportation without penalizing many economic, social, administrative, cultural, touristic, and other activities. From an overall perspective however, this should be considered as an idealised view, or certainly at best a long-term aim, as to some extent there must be a trade-off between one or more of the issues highlighted. In a similar vein, Cardenas et al. (2017) break urban logistics down into three components, city logistics, urban distribution and the last mile. Urban distribution is the operational aspects of how goods can be better distributed in, from and to urban areas. Last mile relates to the final leg of the supply chain, whether that be business to business (B2B) or business to final consumer (B2C), and need not necessarily be a separate stage. City logistics on the other hand focuses on the inter-dependencies between citizens' welfare, the logistics system and the public administration of urban logistics policies. According to the authors, it refers to both the decision-making process and the implementation of policy measures. Taniguchi (2014) defines city logistics as "the process for totally optimising the logistics and transport activities by private companies with support of advanced information systems in urban areas considering the traffic environment, traffic congestion, traffic safety and the energy savings within the framework of a market economy.". Whilst not explicit therefore, the role of the public sector would be to monitor and regulate the main externalities associated with urban freight in order to achieve a more optimal balance between economic and social needs. It could be further implied therefore that the years of a lack of proactive policy intervention would suggest that such a position has already been obtained.

To put the above into perspective, the situation in most locations at present is the free market solution. As Cowie (2017) strongly argues that such outcomes are as a consequence of an almost perfectly competitive market in road haulage, then any regulatory factor, policy or any other form of interventionist measure which seeks to change that situation must inevitably come at an economic cost. In many respects, there are no simple solutions, but as discussed above, it would be expected that from a broader society perspective, any such intervention should result in a more desirable (public) outcome. It also suggests that if there was any other system other than that which presently exists that would result in efficiency improvements in the supply chain, then operators would currently be operating such measures. Ultimately therefore, it indicates any such approaches are uneconomic,

certainly without any form of policy intervention. It would therefore seem that the practice of city logistics, as defined in this overview, needs to be far more proactive than it has been to this point.

5. Assessing Urban Freight Policy Maturity

In order to assess the policy framework in each Surflogh partner city, the research team decided to base this on the idea of urban freight transport policy maturity (UFT policy maturity) put forward by Kiba-Janiak (2017). This is comprises of five stages of UFT policy maturity ranging from low to high. In many senses however, what these differing stages of maturity reflect are different levels of intervention in the market by the relevant authority. Table 1 therefore outlines the main factors typical of each situation and re-classifies and adapts the basic ideas to reflect levels of market intervention:

Table 2: UFT Policy Maturity, adapted from Kiba-Janiak (2017)

Title	Maturity	Engagement	Key Elements
Pure Market	Low	Minimal	Minimal involvement, lack of staff with related responsibilities and expertise, no data collection, policy mainly focused on passenger, freight policy only relates to restrictions. Minimal mention of UFT in strategic documents. Generally, left to the market.
Policy Appeasing	Low/Medium	Irregular	Unambitious aspirations for freight in strategic policy documents, lack of relevant expertise or experience in the subject area, no data collection, limited implementation of UFT related projects beyond the restrictive level, limited engagement with key stakeholders. Policy actions primarily driven by external pressures.
Policy Focus	Medium	On Going	Clearly determined goals for UFT in strategic policy documents, although may be lacking elements at the tactical level. Adhoc data collection, no formal body to engage with key stakeholders. Lack of specific UFT related freight projects, those that exist are more focused on better use of public space.
Aspirant	Medium/High	Proactive/Strategic/ Core	Continuous and a high level of tactical engagement, if lacking in a degree of co-ordination, improvements in the planning and implementation of specific UFT measures, involvement in UFT focused initiatives on a regular basis. May have a formal stakeholder forum

Proactive	High	Taking Initiative/ Strategic/Core	UFT a key strategic objective, regular data collection, high level of expertise in UFT in the public administration, reflected by broad experience in the implementation of regular and co-ordinated UFT projects, decisions made in collaboration with key UFT stakeholders reflected in a formal body e.g. a FQP.

In order to place the five case study cities in the above framework, questions were derived from the key issues identified by Kiba-Janiak (2017) complemented in several specific areas with additional frameworks from other authors. Specifically, the key themes examined were:

- the role of UFT in strategic policy documents;
- level of policy actions (Stathopoulos et al., 2012);
- levels of stakeholder engagement (Lindholm & Browne, 2013);
- levels of public finance for specific UFT initiatives;
- level of public awareness of such initiatives.

In the course of each interview, the overall framework was outlined to participants and the key characteristics at each of the levels highlighted. Discussions then centred around these components and identifying relevant examples. Interviews ended with an assessment by the participants of the level of UFT policy maturity present in their cities. The results of these are presented below.

Groningen: UFT Policy Maturity Assessment: Policy Focus

Evidence: In 2014, the municipality of Groningen signed the National Green Deal Zero Emission City Logistics (GD-ZES). Three years later the Groningen Urban Logistic Focus Group was established, which meets three to four times a year under the chairmanship of the Municipality of Groningen and consists of representatives of the Groningen City Club, Koninklijke Horeca Nederland, market entrepreneurs (CVAH), business associations TLN and Evofenedex, VNO-NCW MKB Noord (SME representative), the University of Groningen and EnergyExpo. Through this forum, in 2018 the city council drew up and signed the Groningen Sustainable Urban Logistics Covenant. This sets out how the signatories will work towards a liveable, safe, accessible and attractive city centre, with emission-free city logistics as the ultimate target by 2025.

Specific policy actions currently consist of a regulated central area with a time frame (5.00 – 12.00) for logistics, the area of which was considerably expanded in 2022, and this will become the Zero Emissions Zone from 2025.

Mechelen

UFT Policy Maturity Rating: Policy Appeasing

Evidence: Due to the Belgian constitution (i.e. a federation), policy in the area of urban freight is 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. Despite this, 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 has certainly been the case in 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. There does exist a central area of the city where vehicles that are larger than 10 tons and/or longer than 11 metres are banned at all times. Enforcement however is perceived as an issue, and given the low chance of being caught, offenders may simply view the resulting fine as a business expense.

Borås

UFT Policy Maturity Rating: Policy Appeasing

Evidence: In terms of local traffic regulation, the main affected parts in Borås are central areas that are regulated as pedestrian zones. Some intersections with other streets are walking speed areas, and a few are "regular" streets (with pavements, parkings, loading bays etc). The pedestrian zone regulation means that only authorized traffic is allowed to enter the streets (i.e. residents, deliveries, emergency transporter), although in some parts, time windows apply. The main strategic policy document is 'City of Borås Vision 2025', but in the course of the interview this appeared to be a strategy that seemed to lack any actions at the tactical or the operational level, Good Goods (the pilot project), seemed to be about it. There is no formal stakeholder group, hence no dialogue with any stakeholders, and in some senses the whole policy framework came across as being dated.

Edinburgh

UFT Policy Maturity Rating: Pure Market

Evidence: Very little mention of freight in the major strategy document 'Transport 2030 Vision', in fact arguably far less than in its predecessor, 'Edinburgh Local Transport Strategy 2014 – 2019'. Policy tends to be 'problem focused', with interventions centred on traffic management issues rather than developing the concept of city logistics. Whilst several stakeholder groups do appear in evidence, e.g. through three Business Improvement Districts (BIDS), engagement is fairly limited re urban freight issues. The only major development would appear to be the city centre LEZ, a requirement of the Scottish Transport Act 2019, and requires HGVs and vans to meet Euro 6 emission standards. Whilst introduced on 31st May 2022, enforcement of the zone will not begin until 1st June 2024.

5.1 Reflections

During the course of the interviews, and in reflections later, as researchers we felt that a number of the project partners had under assessed their city's level of UFT policy maturity; this was particularly true in the case of Groningen and Borås. In some respects, this was 'confirmed' by a purely evidence based assessment of each city, hence of the discussed issues, at what maturity level was there, at least 'on paper', evidence for. This would have clearly put both cities in the Policy Aspirant category. Nevertheless, what this difference undoubtedly reflects is differences in what can be perceived to exist on paper, and what the actual reality is that lies behind that. As a result, the project partners' perceptions are considered to be an accurate reflection of the reality and hence the ones used in subsequent analysis.

6. The Pilots

For the purposes of this study, the following five pilots across the five cities were selected as the main last mile initiatives put in place as part of the Surflogh project. These are shown in figure 2:
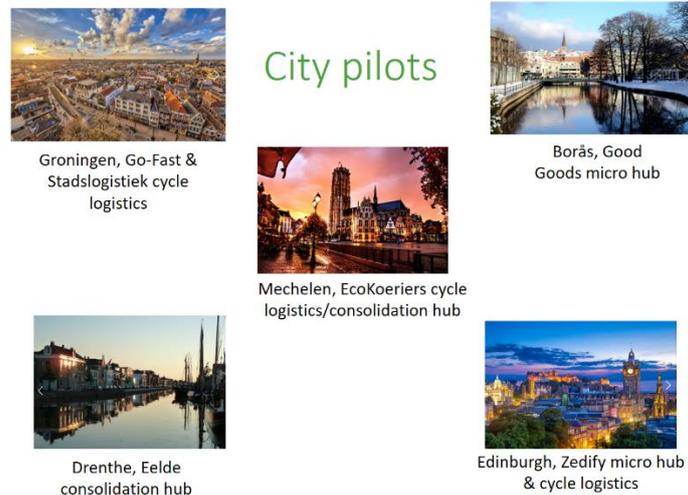

Figure 2 Surflogh Pilots

The further reason for selecting these pilots is that in each case, this included a transport element and a warehouse element, unlike for example the smart locker pilots conducted in Mechelen and Drenthe. The basic details of each are given below:

6.1: Zedify Logistics, Edinburgh, Scotland

Cycle logistics, the partnership business model. The Edinburgh pilot was established through a collaboration between the Regional Transport Partnership, SESTran, and the cycle logistics operator Zedify, through their licensee Pedal Distribution Logistics (PDL). The pilot was an expansion of the latter's existing operations in Glasgow.

PDL set up operations in Glasgow in 2014 after negotiations with the established 'Outspoken' cycle logistic provider in Cambridge, subsequently rebranded as 'Zedify' in 2018. As such, PDL was the first franchisee (latterly, licensee), to which a further seven have been added. Under the terms of the agreement, PDL have the entitlement to use the brand name in all business dealings, as well as access (and contribute) to a high-level knowledge base in cycle logistics. Following the rebranding to Zedify, the parent company has been developing the whole brand as a national operator, with some progress being made with this at a regional level between a number of the licensees in England.

As regards the Edinburgh pilot, this was founded on the basis of an extension of PDL's operations in Glasgow, and to use the experienced gained there in developing the Edinburgh market. Key to this was the idea of 'complementarity' of urban freight operations, hence in simple terms rather than compete with existing logistics providers in the city, work in partnership through the idea of complementarity. An agreement was therefore reached with Fedex to deliver the couriers smaller items from a hub located on the west side of the city centre. As such, the agreement with Fedex

represented the backbone of the business, to which other elements/markets could be developed, such as the localisation of freight (see below…). Operations began in July 2018.

6.2: Eelde, Drenthe Province, The Netherlands

Consolidation hub, the intercept business model. Using funds provided by Drenthe Province in the north of the Netherlands, a pilot consolidation centre was instigated at Eelde (10 kms south of Groningen) in partnership with the Royal FloraHolland (Eelde), who own a major distribution centre at the location. The 'Goederenhub Groningen-Eelde' (freight hub) was officially opened in June 2018, with the warehousing facility provided by the Royal Flora Holland (Eelde). The aim was to initially focus on final mile deliveries to the city centre of Groningen, but at the time of launch it was hoped that this would quickly expand as a logistics hub for the whole of the Groningen-Assen region in the north of the Netherlands. The hub was seen to be well located to potentially benefit from the general development of the regional airport, as well as playing a central role in the Green Deal signed by the region to realise zero-emission city logistics by 2025.

The hub was located at the provincial border of Groningen and Drenthe, just off the A28 highway and next to the main artery canal and Groningen Airport Eelde. The choice of location was to enable the hub to be extremely accessible for larger lorries and trucks, and hence offer a viable alternative as it would enable hauliers to avoid the traffic congestion of Groningen City Centre. Cargo would therefore be bundled and consolidated so that the last mile of delivery was carried out as green and efficiently as possible, with cleaner forms of transport and a reduction of traffic movements. As such, the business model could best be described as 'the intercept' model, in that point-to-point one drop deliveries coming from the south could be intercepted enroute and consolidated over the last mile. For this purpose, a 3.5t van was leased over the period of the pilot, and ample warehousing space provided by Royal FloraHolland (Eelde).

6.3: Good Goods, Borås, Sweden

Micro hub, the duality business model. The Borås pilot came about due to the need to create solutions for consolidation of goods to the city centre, as well as the aim of zero emission for the distribution of goods and collection of waste. As a consequence, the municipality of Borås (Department of Trade and Industry Development), The Merchant Organization Borås City, and the local real estate owners association joined forces with local transport company Stures Åkeri (a DHL contractee), and the municipal company Borås Energi och Miljö in order to establish a pilot project under the branding of "Good Goods". The proposed business model, certainly from the perspective of urban freight logistics, can probably best be described as 'micro hub/duality', where deliveries are consolidated over the last mile (through the micro hub), and the vehicle is used in a dual-purpose mode to collect dry waste from the same clients. As a package, this should reduce the (combined) cost to the client. Whilst the initial freight flows were based on Stures Åkeri (DHL) current business, the last mile service was independently branded (as 'Good Goods') and open to other PCS providers.

In order to provide the service, small warehousing space was rented to the west and adjacent to Borås city centre, and as this was a micro-hub, only very basic facilities were required. An electric van was leased, however due to the dual-purpose of the operation, the vehicle used, from the perspective of waste and recycling materials, was completely different from regular refuse trucks with less storage space and no opportunity to compact waste. Focus for the delivery option was exclusively on small consignments. This was generally consistent with Stures Åkeri AB existing business for DHL in Borås,

and it was hoped that this would enhance the opportunities to achieve significant consolidation effects from other operators and PCS providers. A further factor in this decision was because of the fact that the electrical power van has a slight disadvantage regarding cargo space compared to a regular distribution van, with around a 1t carrying capacity compared to 1.3t capacity for the latter. Operations began in October 2019 with the collection of dry waste added six months later.

6.4: Go Fast Cycle Logistics, Groningen, The Netherlands

Cycle logistics/hub, the localisation of freight business model. In the search for smart city logistics applications, the municipality of Groningen (Urban Development Department) and Go-Fast Fietskoeriers & Stadslogistiek joined forces in a pilot project entitled 'Local and Incidental Flows'. Go-Fast bicycle couriers made an inventory of potential stakeholders, in order to connect paying participants with the aim of building on a profitable city logistics service. Services focused on providing delivery services to local companies within the city of Groningen as well as a large part of the wider municipality. The business model was established on the basis that it gives clients the opportunity to develop the local economy through the distribution of products emission-free and hence would enable Go Fast to bundle thin flows and distribute local products. By bundling such goods from different parties in one load (up to 150 kilos), this would remove the expense and time of utilising more elongated supply chains in order to develop the client's business, and as such would provide 'the only mile'. In many respects therefore, what this represented was the 'localisation of freight' business model. The Covid-19 pandemic however did have a major impact on this project, because the initial focus on B2B deliveries, shifted much more to B2C deliveries, hence the major consequence was that 'the last mile' was more geographically fragmented.

6.5: EcoKoeriers, Mechelen, Belgium

Cycle logistics/hub, the add-on business model. The pilot project in Mechelen in Belgium was established through a partnership between the city council, ODTH First class logistics and ECOkoeriers, a locally based cycle logistics company. The proposed business model for the Mechelen hub can best be described as 'the add-on' model (Gassmann et. al, 2013), which is most clearly exemplified by the approach taken by low cost airlines. In that case, the customer purchases the basic service 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 & Quak, 2010; Benjelloun et al., 2010; Browne et al., 2005). Quak & Tavasszy (2011) 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.

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.

7. Business Models In Action: Delphi panel workshop on defining 'success'

As regards evaluating the success of each of the above listed pilots, 'objective' quantitative measures could be applied in such assessments, hence as an example, sales revenues compared. Nevertheless, this presents several problems. In the first instance, all pilots were small scale in nature, hence all revenue levels low, irrespective of the respective magnitudes. As such, this is not a measure of commercial 'success'. In a similar vein, the number of employees engaged in the pilot could have been used. It was known beforehand however that not all those employed in every pilot were fully 'engaged' in the initiative, hence again invalidating the measure as an indicator of commercial 'success'. A second issue is that all initiatives were established as 'pilot' projects, on the basis of identifying a 'successful business model'. In this context therefore, 'success' is more about assessing the 'potentially successful business model', rather than solely the specific business model identified. In other words, the success of a pilot should not solely be based on commercial criteria, but rather indications of the market that could potentially be commercially exploited. As a result, it was decided to examine this across a range of mutually agreed criteria, but that specifically should focus on commercial and not wider social and environmental objectives.

It was decided therefore to rate 'success' using primarily a qualitative rather than a quantitative approach, and specifically through the formation of a Delphi Panel Workshop. All project partners were invited to attend the event held on 15th June 2022 in Groningen. In total, ten partners attended, with three representatives from Drenthe Province, two from Groningen, two from Mechelen, one from Borås and two (including the workshop facilitator) from Edinburgh. In addition to the ten partners, two representatives from Buck Consultants International with direct expertise in last mile logistics also attended. All members of the workshop were familiar with each of the five pilot projects, and as such had been involved with them over the period in which they were instigated. Nevertheless, as preparation, the case studies on each pilot that had been prepared earlier in the project were circulated to all participants in advance of the workshop. Each case study outlined the policy context, the underlying proposed business model, and the critical elements underpinning the operation of the pilot.

The task of the workshop was to agree upon the criteria against which each pilot's 'success' was to be assessed, and this was immediately followed up with face to face interviews/discussions at which each city evaluated their own pilot. This two-stage approach was taken to ensure a high degree of consistency in evaluations across the five cities.

The key criteria identified in the course of the workshop were (a) dependence on subsidy; (b) degree of market penetration; (c) scalability; (d) identify an actual or potential business model; and (e) longevity (i.e. continuation after the pilot phase). In the follow up interviews, for simplicity each criteria was assessed on a straightforward scale of 1 to 5, where 5 was consistent with commercial objectives and 1 inconsistent. As an example, a high degree of reliance on subsidy scored low, whilst a low reliance on subsidy high. The results of this exercise are produced in Table 3.

Table 3: Results of Workshop Forum Success Measures and Results

Criteria	Description	Pilot Assessment				
		Edinburgh	Mechelen	Groningen	Drenthe	Borås
Dependence on subsidy/profitability	Assess on the basis of the importance of subsidy in the operation, high dependence = 1, low = 5	4	2	4	2	2
Market Penetration	Extent to which the pilot has penetrated the potential market, note here this should be assessed on the basis of the independent retail sector, not the whole sector, 1 is minimal, 5 is high	3	1	3	2	3
Scalability	The extent to which the current operation could be scaled up, 1 is little potential, 5 is highly scalable.	4	3	4	3	4
Identify a possible business model	Extent to which a possible business model was identified to pursue now or in the future, 1 for low, 5 for high	3	1	4	2	3
Longevity	Extent to which the pilot has the potential to survive beyond the current pilot phase as a commercial enterprise	5	1	4	2	4
Overall Average:		3.8	1.6	3.8	2.2	3.2
Ranking:		1	5	3	4	2

One general observation from Table 3 is that in each pilot there is generally a high level of consistency across all of the assessed criteria. Only the Mechelen pilot has a co-efficient of variation[1] of greater than 0.5, whilst all of the others return values of 0.22 or less. In some respects, this may reflect the pilot nature of the initiatives, but probably even more so the fact that these were all start ups. As a consequence, success may be strongly related to achieving some kind of momentum in establishing the business, which then enables it to achieve more across a range of business activities, which are broadly reflected in the agreed assessment criteria. Where momentum is not established however, the business simply stagnates (and at a low level).

As regards each criteria, beginning with dependence on subsidy, three out of the five were judged to be heavily dependent on subsidy, with the other two at low levels. In both of these cases this exclusively related to a contribution to start up costs, hence could not be assessed as entirely independent of subsidy (i.e. at a 5). Market penetration in all cases was generally low, and whilst this was judged in relative terms (i.e. due to the nature of the initiatives, none were 'expected' to dominate the market), all nevertheless had low customer bases. In the most extreme case (Mechelen), this consisted of only three stores that had signed up to receive some of their deliveries through the hub. Perhaps the most interesting criteria identified by the panel was the issue of scalability, as in terms of a pilot initiative, this is clearly an important consideration. In all cases, this was assessed to be at least at a reasonable level, i.e. no less than 3, with the three most successful pilots adjudged to have higher levels of scalability. This may reflect the fact that as highlighted, all had relatively low customer bases, and hence the potential to expand to some degree could almost be perceived as a given, although one factor that did come out in the interviews is that all had reasonable access to the resources that would enable such scaling up. As an example, Mechelen had considerable spare warehousing capacity. As regards the final criteria, longevity, there is almost a clear split 3:2 in terms of the potential to survive beyond the pilot stage. One issue however that did emerge in the interviews is that whilst in the case of Edinburgh and Groningen this was on an entirely commercial basis, for Borås this would continue to receive a degree of subsidy (which had been agreed at the time of the interviews), hence in terms of strictly 'commercial' continuation, this may be questionable. As a note in passing, for such projects this is a very high continuation rate. Earlier research on the Surflogh project into previous last mile/consolidation hub initiatives identified that at the very most, only 3% continued after the pilot phase, and in most of these cases the initiatives were still subsidised (Cowie and Fisken, 2019b).

What the above results clearly indicate however, is that the five pilots met with very mixed success, with two clearly being perceived by the respective project sponsors as 'successful', one neutral, and two that clearly failed to make any impression. A key consideration of the research is to examine if this can be linked to the UFT policy maturity in each of the cities. Table 4 brings these results together.

---

[1] A key statistical measure of variability, the basic calculation is the mean divided by the standard deviation, values of greater than 0.5 are considered to suggest high variability.

Table 4: UFT Policy Maturity and Pilot Success

City	UFT Policy Maturity		Pilot Success Score
	Level	Description	
Edinburgh	1	Pure Market	3.8
Mechelen	2	Policy Appeasing	1.6
Groningen	3	Policy Focus	3.8
Drenthe	2	Policy Appeasing	2.2
Boras	2	Policy Appeasing	3.2

The clear implication from Table 4 is that there does not appear to be any relationship between the level of UFT policy maturity and the success of the pilot. In fact it is almost ironic that in the case of Edinburgh, this had the least developed UFT policy maturity level and yet was judged as having the joint most successful pilot, and that 'joint' was with the Groningen pilot, where it had been previously assessed as having the highest level of UFT policy maturity.

Two points however need to be considered. The first is that in terms of UFT policy maturity, four out of five of the cities in the study were assessed as either pure market or policy appeasing, hence at relatively low levels, and only one, Groningen, at a level that was consistent with having some element of a tactical function. What this suggests is that at lower levels of policy maturity, the success of any freight related policy initiative is likely to be hit or miss, and hence rather than as a result of a supportive policy framework, is more likely to be dependent upon situational factors outside of the policy environment. That said, there is some evidence that at higher levels of policy maturity this may have some kind of impact. In the case of Groningen, this had the highest UFT policy maturity and (jointly) the most successful pilot. It was also clear from the interviews carried out that the local authority had been very supportive of those behind the pilot. This is nevertheless only example, and hence in terms of clear 'evidence', very limited.

8. Closing Summary

The more general over-riding conclusion from the above is that as regards urban freight policy, the instigation of meaningful policy actions, as opposed to mere 'measures', only possibly start at high levels of UFT policy maturity, specifically identified as levels four (policy aspirant) and five (pro-active).

What this potentially produces however is a vicious circle type situation, in which there exists few freight related skills/expertise in the public authority, hence low maturities. As a consequence, any policy measures are unambitious and disjointed, policy development completely stagnates and city authorities never mature to the high levels required in order to make any real difference. In other words, produce freight related policy measures that fail to break the circle.

What needs to happen however is to increase levels of UFT policy maturity. At the moment, there almost appears to be a chicken and egg situation, in which there exists few skills and expertise in the

public sector, and little motivation to change that position; i.e. lack of policy actions at the tactical level. Until that happens, very little will change.

Clearly however, more research is required on the topic, particularly in the area of how to produce increased levels of UFT policy maturity. As an example, at the time of the final write up it transpired that if the UFT policy maturity of Drenthe Provence was to be evaluated now, it would be at a medium level (policy focus), i.e. it had moved up a level. It was also clear that this was achieved almost by way of an iterative/snowball type approach, but one that nevertheless had required a concerted effort that had resulted in a considerable momentum being gained as regards UFT policy issues/initiatives, i.e. through the creation of a virtuous circle[2].

Acknowledgements

The authors wish to express their kind thanks to all of our project partners who participated in this research for the giving of their time, honesty and insights into the subject.

---

[2] For more information, see the "Eelde Case Study: The Intercept Business Model", which should be available from the publications section of the Surflogh website.

9. References

Benjelloun, A., Crainic, T. G., & Bigras, Y. (2010). Towards a taxonomy of City Logistics projects. *Procedia - Social and Behavioral Sciences*, *2*(3), 6217–6228. https://doi.org/10.1016/j.sbspro.2010.04.032

Björklund, M., Abrahamsson, M., & Johansson, H. (2017). Critical factors for viable business models for urban consolidation centres. *Research in Transportation Economics*, 64, 36–47. https://doi.org/10.1016/j.retrec.2017.09.009

Browne, Michael., Sweet, M., Woodburn, A., & Allen, J. (2005). *Urban Freight Consolidation Centres Final Report* (Issue March).

Bryman, A. (2008). *Social Research Methods*. Oxford: Oxford University Press

Cardenas, I., Borbon-Galvez, Y., Verlinden, T., van de Voorde, E., Vanelslander, T., & Dewulf, W. (2017). City logistics, urban goods distribution and last mile delivery and collection. *Competition and Regulation in Network Industries*, *18*(1–2), 22–43. https://doi.org/10.1177/1783591717736505

Carter, C. R., & Easton, P. L. (2011). Sustainable supply chain management: Evolution and future directions. *International Journal of Physical Distribution and Logistics Management*, 41(1), 46–62. https://doi.org/10.1108/09600031111101420

Cherrett, T., Allen, J., Mcleod, F., Maynard, S., Hickford, A., & Browne, M. (2012). Understanding urban freight activity – key issues for freight planning. *JOURNAL OF TRANSPORT OF GEOGRRAPHY*, *24*, 22–32. https://doi.org/10.1016/j.jtrangeo.2012.05.008

Cowie, J. (2017). Competition and complementarity in road freight: Key drivers and consequences of a dominant market position. In *The Routledge Handbook of Transport Economics*. https://doi.org/10.4324/9781315726786

Cowie, J. and Fisken, K. (2019a). Development of the Business Model framework to be used in SURFLOGH. Edinburgh: Transport Research Institute, Edinburgh Napier University, available at: https://vb.northsearegion.eu/public/files/repository/20191213172124_20191105155029_BusinessModelFrameworkDevelopmentFinalReportFinalDraft.pdf, last accessed 21st July 2022.

Cowie, J. and Fisken, K. (2019b). Delivering on Sustainable Logistics by thinking inside the Box – a case study of a successful business model. Paper presented at the Scottish Transport Applications and Research (STAR) Conference, Glasgow, May 2019.

Dablanc, L. (2007). Goods transport in large European cities: Difficult to organize, difficult to modernize. *Transportation Research Part A: Policy and Practice*, *41*(3), 280–285. https://doi.org/10.1016/j.tra.2006.05.005

Gassmann, O., K. Frankenberger and M. Csik. (2013). *The Business Model Navigator – 55 models that will revolutionise your business*. London: Financial Times Publishing.

Glaser, B. G. and Strauss, A. L. (1967). *The discovery of grounded theory: strategies for qualitative research*. Chicago.: Aldine

Kiba-Janiak, M. (2017). Urban freight transport in city strategic planning. *Research in Transportation Business and Management*, *24*(October 2016), 4–16. https://doi.org/10.1016/j.rtbm.2017.05.003

Lindholm, M. (2012). Enabling sustainable development of urban freight from a local authority perspective, PhD Thesis, Chalmers University of Technology, Gothenburg, Sweden.

Lindholm, M., & Browne, M. (2013). Local authority cooperation with urban freight stakeholders: A comparison of partnership approaches. *European Journal of Transport and Infrastructure Research*, *13*(1), 20–38.

Lindholm, M. E., & Blinge, M. (2014). Assessing knowledge and awareness of the sustainable urban freight transport among Swedish local authority policy planners. *Transport Policy*, *32*, 124–131. https://doi.org/10.1016/j.tranpol.2014.01.004

Quak, H., & Tavasszy, L. (2011). Customised Solutions for Sustainable City Logistics: The Validity of Urban Freight Consolidation Centres. In *Transitions Towards Sustainable Mobility: New Solutoins and Approaches for Sustainable Transport Systems: Vol. van Nunen,* (Issue Dordrecht: Springer, pp. 213–233). https://doi.org/10.1007/978-3-642-21192-8

Rodrigues, J.-P. (2006). Viewpoint: transport geography should follow the freight. *Journal of Transport Geography*, 14, 386–388.

Ruesch, M., & Glücker, C. (2001). City Inquiry: European Survey on Transport and Delivery of Goods in Urban Areas. Thematic network BESTUFS1 (BEST Urban Freight Solutions) Additional Report

Sjöstedt, L. (2007). Personal communication with M. Lindholm re Classic Focus on City Planning.

Stathopoulos, A., Valeri, E., & Marcucci, E. (2012). Stakeholder reactions to urban freight policy innovation. *Journal of Transport Geography*, *22*, 34–45. https://doi.org/10.1016/j.jtrangeo.2011.11.017

Taniguchi, E. (2014). Concepts of City Logistics for Sustainable and Liveable Cities. *Procedia - Social and Behavioral Sciences*, *151*, 310–317. https://doi.org/10.1016/j.sbspro.2014.10.029

van Rooijen, T., & Quak, H. (2010). The Sixth International Conference on City Logistics Local impacts of a new urban consolidation centre – the case of. *Procedia - Social and Behavioral Sciences*, *2*(3), 5967–5979. https://doi.org/10.1016/j.sbspro.2010.04.011

Witkowski, J., & Kiba-Janiak, M. (2014). The Role of Local Governments in the Development of City Logistics. Procedia - Social and Behavioral Sciences, 125, 373–385. https://doi.org/10.1016/J.SBSPRO.2014.01.1481

APPENDIX 1 – SURFLOGH BUSINESS MODEL CANVAS

SURFLOGH BUSINESS MODEL CANVASS

City pilot: _____ Date: _____

Value Propositions
Why should a client use the offered service?
What alternatives do customers have?
Does the current value proposition meet customer needs fully?
What is the mechanism through which pricing policy is determined?
To what extend is price used to manage demand to match capacity?

Customer Segments
What customers and customer segments are mainly served?
Who are the most important customers?
Are there any potential markets in which the current value proposition could be offered?

Customer Relationships
What kind of working relationships do customers expect and how does the company maintain these?
In terms of the most important customers, what types of business pressures are they operating under?
How is the value or benefit created for customers communicated to the wider business community?

Channels
What are the critical elements in the service provided?
Are the clients the final customers?
What would need to change to allow the current value proposition to be offered in other markets?
Is there an identifiable 'critical mass' in terms of the customer base?

Key Partners
Who are the most important business partners?
To what extent would a partner be described as a 'customer' or as a 'partner'?
Are all partners equally important?

Key Activities
What are the key competences and key activities within the business?
How does each contribute to the value proposition?

Key Resources
Are labour skills specialised or general?
How are these maintained over time?
What are the main capital requirements and how do these contribute to the value chain?
IT – tracking systems, interface with partners, how are IT systems managed?
Where profits are made, to what extent is this retained in the business?

Policy Perspectives
What are the main policy documents relating to urban freight in the area concerned?
What current restrictions are in place with regards to deliveries (e.g. loading, time, area)
To what extent does the value proposition (current offering) mitigate against these restrictions?
What revenue streams are available under state provisions?
Does there exist any public-private partnerships/forums etc. with regard to city centre management?

Cost Structure
What are the main costs and the main cost drivers
How are costs acquired, for example, overhead v running costs

Revenue Streams
What are the main sources of income (and does this map onto the most important customers)?
How is the income generated
e.g. are there any secondary revenue streams such as 3PL services?
To what extent do revenue streams match cost drivers?
What are the main financial risks in the current revenue model?