Abstract

The overall research project, in which this study is a part, is developed within the frames of “Roadmap City Logistics – A National Roadmap for Urban Transports in Sweden”. During the work with the roadmap all actors considered the absence of business models for city logistics to be a barrier for more environmentally friendly urban goods transports. The aim of that overall project is to develop models supporting design and decisions on city logistics and business models describing division of roles between actors and financial prerequisites for cities, logistics service providers, retailers etc. The project is focused on small and mid-size cities with about 25 000 – 300 000 citizens. The project will contribute with practical models for cooperation between the different partners in a city logistics system, including: Business models for different city logistics systems both public and private/commercial. Decision models for the different actors, Allocation models for costs investments and revenues between the actors, Business conditions for the different actors – cities, logistics providers, retailers, real estate companies, etc. As such the overall research project and the specific research in this paper contribute to stimulating sustainable city logistics initiatives, stakeholders’ behavioural change and engagement.

Extended abstract

Objectives and motivation

This paper is a part of a larger research project “Business models for city logistics”. Purpose of this paper is to identify patterns in and categorise city logistics business models. In the overall research project we have identified a number of economically as well as technical, environmental and operational feasible business models and even if the models have several similarities they also show patterns that differ widely. In this paper we strive to identify the patterns that differentiate the models from each other and suggest a categorisation framework that can be used to illustrate different types of city logistics and its business models. This framework can provide a contribution to both practitioners and researchers within city logistics as it can support the understanding of different types of city logistics. These “models types” that can be used as guidance when designing a business model for a specific city logistics solution and to manage these solutions.

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General description

Many city logistics initiatives of today are technical driven – not business driven, focusing on technical, environmental and operational feasibility, e.g. emission free vehicles. However, a consideration to the economic feasibility is often week or totally lacking (Quak, 2011). Long term success of city logistics solutions requires a viable business model that secures financial feasibility (Quak et al., 2014). To define city logistics business model is also considered an important foundation for the involved stakeholders (Macário et al., 2008). The lack of consideration to business models is identified as a major barrier to implement city logistics (Lindholm et al., 2014).

Business models can be implemented in a different scope, engaging all sub systems in the urban logistics system (Macário et al., 2008). All cities are different and the city logistics initiatives implemented must consider the specific character of the city, resulting in different solutions. As the important research of characterising different types of cities and initiatives, there is a need for identifying different types of business models for city logistics initiatives. The knowledge today is limited regarding how the unique city context and type of initiative influence e.g. the content and priorities in a feasible business model. Another differentiator is the initiator of the city logistics system. Allen and Browne (2010) put forward two actors that can implement city logistics initiatives: the logistics/transport companies and authorities. Munuzuri et al. (2005) add the goods owner (sender or receiver) as a third potential actor. In our cases we have seen significant differences between systems initiated by authorities, and logistics companies. This raises the questions if the business models differ depending on the initiator? And, can different business models be characterised based on the initiator?

Environmental and social aspects are often put forward as reasons for implementing city logistics initiatives (see e.g. Lindholm et al., 2014; Björklund and Gustafsson, 2015; Culliane and Edwards, 2010; Patier and Browne, 2010). However, the knowledge regarding to what extent and how social and environmental components (for instance external costs) are considered in existing business models is very limited. What characterises the business models that consider these aspects and can this is described as a “business model type”?

The type of city logistics initiatives targeted in this paper is initiatives including an urban consolidation centre (UCC) as a decoupling between long distance transports (with large trucks) from the last mile transport within urban areas (with vehicles feasible for urban transports). Furthermore, the UCC can provide value added services such as storage. (Van Rooijen and Quak, 2010; Browne et al., 2005). BESTUF (2007) describes two different forms of UCCs depending on if it delivers goods to one organisation or several. Browne et al. (2005) suggest the following types of UCCs: Thus who deliver to city parts or entire cites, those with deliveries to one owner (e.g. city malls), and construction consolidation centres.

Two types of business models are described in the literature, activity/role-oriented or value/customer-oriented (See e.g.Ostervalder et al. 2005). Despite that the importance of business models are often put forward in recent city logistics research, few researchers provides
any deeper insights to what components that constitutes such a model. Two articles have been identified providing more insights regarding the content of the city logistics business model. Benjelloun et al. (2010) put forward “business models” as one of five components in their taxonomy of City Logistics projects. They state that a city logistics projects need to address critical aspects regarding for example financing and management etc. Based on the nine building blocks in a business model canvas by Ostervalder (2010), Turblog presented in 2011 an urban logistics business model canvas. Furthermore, Turblog add a very important building block in this context, the externalities. These building blocks are: customer segments, customer channels, customer relationships, revenue streams, key partners, key activities, key resources, cost structure, value proposition to customers and value proposition to society.

**Results and conclusions**

This research adds to Quak et al. (2012, 2014) and his canvas for business models for city logistics with building blocks from both the business model theory and from empirical findings highlighting the roles for different actors as well as the importance of ICT as a part of the resource base needed for the city logistics system. Before applying our extended new canvas in the investigation of successful business models we tested it in workshops with three different groups of participants, 15 respondents representing different stakeholders all with an interest in city logistics, 4 researchers within sustainable logistics, and 8 organisations representing our reference group in the overall research project. Some minor changes was made due to this testing, furthermore clarifying what “value proposition to society” includes, placing “coordination” as one aspect regarding the relations, and highlighting planning and management as examples in the block “key activities”. Another interesting finding from the pre-tests was that no component were identified as being of very little or no relevance in a city logistics business model.

The business models of four successful city logistics initiatives were investigated using our extended canvas. The initiatives was selected both as they represented successful cases but also since they can represent different types of business models/patterns as they cover different initiators and UCCs with different scope (goes to one or several organisations and geographical coverage). Four cases is a too small sample to make general conclusions regarding the components in focus in different types of business models. However, our findings show that the models differ and that this might be explained by their differences with regard to the identified patterns: initiator, type and scope of the UCC, aim of the initiative, and focus on customer/value vs roles/activities. Even if most or all components of the business models are covered in the models studied, their focus was different. Despite that one initiative was implemented due to environmental concerns, this component had little presence in that model. The most central part in one business model regarded key resources and activities (the information on the actual transport operations and the system and competences of managing this). Another business model put forward “the potential of scaling” as the most important part of the model, thus its potentials to grow (thus be “copied” to other cities) and reach large scale results from a cost (and indirectly environmental) perspective. Thus this model seems to target both competitive strategy and the use of resources.

**References**

- Björklund & Gustafsson (forthcomming), Towards sustainability with coordinated freight distribution of municipality goods, Journal of cleaner production.
- Munuzuri et al. (2005) Solutions applicable by local administrations for urban logistics improvement. Cities, 22(1).
- Quak et al. (2010), Evaluation of City Logistics Solutions with Business Model Analysis
- Quak et al. (2012) Innovative solutions for city logistics demonstration and viability results, Associations for European Transport and Contributors.

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