A conceptual framework for evaluating City Logistics business models

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Extended abstract

Objectives and motivation
So far academics and public officials have mainly focused on some specific aspects of the City Logistics (CL) notion, such as socio-economic and environmental impact, evaluation of policy measures (Yamada & Taniguchi, 2005) or freight demand modelling (Nuzzolo and Comi, 2014). Several pilot projects worldwide proved to be successful, satisfying the stakeholders involved and reducing the negative impacts generated by urban freight distribution. These initiatives are completing the early stages of implementation and entering a scaling up phase. In this context, we believe that it is necessary to understand the factors that enhance the scaling up process of CL initiatives. This process can take different forms, according to the initial starting point. For example, a successful implementation on a delimited area could be extended to larger areas; a project that involved a selected number of stakeholders could be extended by involving more stakeholders.

Analysing the business models of CL initiatives that show a consolidated path towards their extension to larger areas can provide some additional elements to the goal of highlighting recurring factors that can be taken as best practice or common patterns that have emerged. However, only few recent academic papers have investigated CL initiatives and innovations from a more business oriented point of view, and to our best knowledge there is a lack of works that tackle this issue by exploring a variety of international existing practices.

Therefore, the present work contributes to bridge this research gap, investigating CL schemes and initiatives from a perspective that takes into account the main business-related aspects to a greater extent. This perspective can highlight the factors that make CL initiatives not only successful from an operative point of view, but also profitable for private entrepreneurs and stakeholders.

General description
The enabling factors for the scaling up of CL initiatives will be investigated qualitatively via the application of a conceptual framework to selected practices in CL. The framework of analysis will be developed following a deductive approach, by integrating the dimensions that compose a business model with the operational dimensions and the performance indicators of a CL scheme, retrieved from pertinent literature.

In this sense, we will build on previous academic papers focused on the classification of business models of CL systems, namely the works by Benjelloun et al. (2010), Leonardi et al. (2014) and Quak et al. (2014). When considering business models for CL, the specific features of CL have to be taken into account. For instance, the plurality of stakeholders involved from the design process in CL makes the identification of a customer value proposition less clear, since we refer to stakeholders involved in the process rather than customer segments to whom a company is delivering its value proposition.

The framework is developed as a phased classification framework. The upper level is composed by the main pillars of a business model, such as the followings:

- offered services, mainly distribution, warehousing, consulting, etc.;
- operative modes of delivering the services, such as third-party or direct delivery;
- key stakeholders/customer segments;
- value proposition and benefits for stakeholders;
- cost structure, divided in operating costs and investments;
- revenue streams, which can be variable (e.g. capacity dependent prices) or fixed (e.g. subscription to a service).

The lower levels provide a categorization of all the alternatives through which those pillars are implemented in practice. In order to build this categorization, we will classify operative dimensions and performance indicators from previous literature and case studies. Some examples of such categorization are proposed by Nuzzolo and Comi (2014), who aim at measuring the effects of planning actions by means of dividing indicators into three different spheres of applications, namely Economy, Environment and Safety. Another classification is presented by Van Rooijen and Quak (2014) who identify thirty indicators classified into five categories (economy, energy, environment, society and transport) for evaluating the impact of CL, besides evaluating the process of CL itself on a more qualitative level in order to gain insight into the barriers that hamper the implementation of CL initiatives.

As far as operational dimensions are concerned, Morganti and Gonzalez-Feliu (2014) adopt a set of operational variables to assess the performance of a CL system. The variables are classified into two groups, namely logistics (frequency requested by receivers, load units...
and number of deliveries) and technological variables (type of vehicles, delivery period, optimization of loadings, type of carries and nodes in the supply chain).

The selection of best practices will be performed according to the criterias proposed by Leonardi et al. (2014). In order to confirm the existence of enhancing factors and common patterns for the scaling up of best practices we will also cross-check the analysis with existing practices that cannot be classified as best practices. We will select these cases according to the criterias that are responding to our research objective. These criterias are sometimes self-evident, such as the failure of the project. However, other cases are not classified as best practices because they were heavily subsidized or failed to reach some of their initial goals.

Results and conclusions
From a theoretical point of view, this work is intended to extend the previous academic frameworks in order to build a more detailed approach to the evaluation of the CL business models. This will give new insights and opportunities for further research on evaluation tools that take into account profitability of private stakeholders.

From a practical point of view, two main outcomes are associated with this work. First, the analysis is aimed at defining the common patterns arising from international practices, with focus on the potential enabling factors for the scaling up of CL initiatives. To this end, the conceptual framework is the tool used to extract those features and attributes that characterize the best practices and that are missing in non-best or worst practices. Hence, these features are considered as potential enabling factors. A more quantitative approach for assessing the impacts of such factors gives promising opportunity for future research.

Second, we aim at providing a preliminary clustering of the best practices, based on some of their relevant characteristics (e.g. location, stakeholders involved, governance, etc.).

References


Keywords: conceptual framework; business model; city logistics; success factors; profitability.