Available online at www.sciencedirect.com

SciVerse ScienceDirect

Procedia - Social and Behavioral Sciences 39 (2012) 753 – 769

Procedia
Social and Behavioral Sciences

The Seventh International Conference on City Logistics

Improving an urban distribution centre, the French case of Samada Monoprix

Loïc Delaître[a*], Cédric De Barbeyrac[b]

[a]*MINES ParisTech, 60 boulevard Saint Michel, France*
[b]*Samada Monoprix, 4 rue du Courson 94320 Thiais, France*

Abstract

Monoprix has implemented since several years a new scheme of transport, supplying goods in the city centre thanks to rail and NGV vehicles. This innovative organisation reduces by 49% the environmental impacts but still generates extra costs.
The objective of this paper is to propose optimisation possibilities and their evaluation regards to economic and environmental impacts. We analyse scenarios Monoprix can implement and give some recommendations. This work takes part from the Chair of City Logistics of MINES ParisTech called "FRELON".

Keywords: Urban distribution centre ; city logistics ; rail approach ; NGV goods vehicles

1. Introduction

As mentioned by Zunder and Ibanez [1] urban freight platforms have proven a conceptual failure. The case we discuss in this paper does not avoid this rule because the economic balance is still not achieved. This is why the work done in this paper was strategic because it consists in determining an urban distribution centre business model able to be efficient. Taniguchi, Thompson and Chwesiuk (in [2] and [3]) underline urban freight platform as a possible way to optimize city logistics, but each experiment failed. Definitions of Urban Consolidation Centre are largely known in the literature; probably the most famous is mentioned in [4]. Projects of UCC are numerous and very often they tend to be a success before

* Corresponding author. Tel.: +33-0-140519028.
E-mail address: loic.delaitre@mines-paristech.fr

 doi:10.1016/j.sbspro.2012.03.145

their implementation as it was mentioned for La Rochelle or in the Westpomeranian Region of Poland [6]. In this paper we propose new scenarios and evaluate them in order to identify the value of each parameter we took into account allowing an economic balance of the parisian platform of Samada Monoprix.

The assessment of an urban freight platform is still a very recent issue and only a few works exist on the subject [7].

Monoprix is a major French supermarket chain, specialized in convenience stores, and strongly established in city centres, especially in Paris and its suburb. Involved in a sustainable development policy for 20 years, the group pays much attention to the environmental impacts of its activities, especially its logistics.

That is why SAMADA (logistical subsidiary of Monoprix) worked in partnership with public institutions (regional direction of equipments, Ile de France region, city of Paris, RFF (French railway network) and research institutions such as MINES ParisTech) to design and implement a new scheme of transport to supply the Monoprix stores located in Paris and its close suburb.

This new organisation consists in gathering freight flows toward Parisian stores via the railway using a logistical platform situated in Paris (called “Halle de Bercy”). Because of huge volumes, electric vehicles are not suitable for this activity, for this reason, the case illustrated in [8] is not feasible for Monoprix, consequently Monoprix choose NGV (natural gas for vehicles) vehicles cleaner than diesel ones. The products involved in this operation are “general goods” (textile, hygiene, non-foodstuffs…) and the “soft drinks” (water, milk, juice, sodas…), which are prepared in 2 warehouses situated in Combs and Lieusaint, 40 km away from Paris, and linked to the railway serving the south east suburb of Paris.

Currently, the platform receives one train per day, from Sunday evening to Thursday evening, with 17 cars carrying about 750 pallets on average, which are unloaded, scanned and stocked during the night, from 9.30 pm to 4.30 am, after that, they are loaded from 6 am (from Monday to Friday), in the NGV trucks, which come to Bercy after having delivered fresh foods from others refrigerated platforms. The 26 trucks are then reused as many times as necessary to deliver the 94 stores in Paris and the suburb.

In 2009, this new scheme of transport brought a reduction of greenhouse gas (CO2…) and pollutants (NOX, COV…) emissions by 49% in comparison with the previous situation, in particular by reducing the total distance covered by trucks in the Ile de France region [9]. This new design of the supply chain is currently a source of additional costs due to the innovative parts of the scheme of transport (rail transport, breakdown, NGV motorization). This is the main reason why SAMADA looks for new solutions to reduce the additional costs. They have been evaluated in 2009 by Interface Transport and Delaître [9] and were equal to 26%. In 2010, the overcost decreased to 18% thanks to local improvements of the process.

Within this context, this research paper deals with the identification and the assessment of the possible actions of optimization, economically and eco-friendly speaking. To identify how to optimize the platform, we first concentrated on the available space function to the time. Many ideas had been mentioned internally but not quantified; thus the study proposed different operation scenarios dealing with the management of Samada, based on reliable data, permitting them to choose which direction to take. This paper begins by describing the current organisation, then details the different data of the evaluation model as well as the assumptions and compares the different scenarios respect to their economic and environmental interests.