NEW APPROACH FOR URBAN LOGISTICS: DELIVERY AREA BOOKING

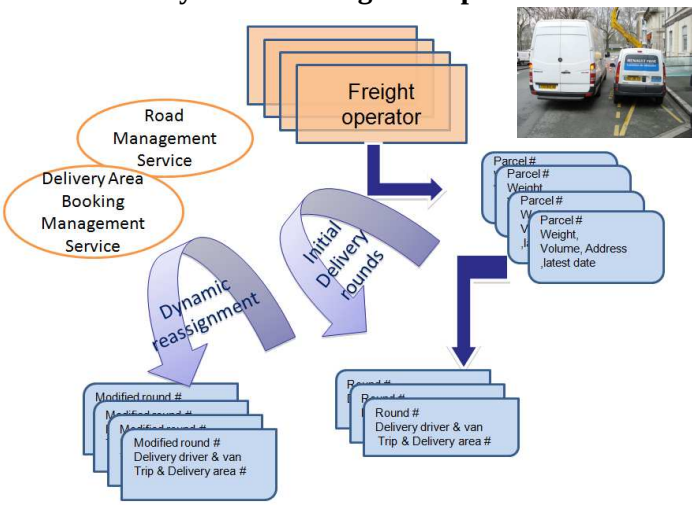
David*, Bertrand, LIRIS UMR5205, France
Patier, Daniele, LET Lab., Bossin, Philippe, Interface Transport, Deslandres, Véronique, Chalon, René, LIRIS UMR5205, Descombes, Pierre, SEMCO, France
*Bertrand.David@ec-lyon.fr

Introduction

- In European cities, and specifically in France, a large percentage (from 70 to 80%) are double-parked deliveries.
- Such behavior creates congestion, pollution and conflicts between road users.
- Delivery Areas were created to improve delivery drivers' work, and to decrease congestion.
- Nevertheless, deliveries continue to be double-parked, as the delivery areas are regularly occupied by non-authorised vehicles (mainly private cars).

New approach : delivery operators can book Delivery Areas for a limited period in advance and adjust the reservation during the delivery round.

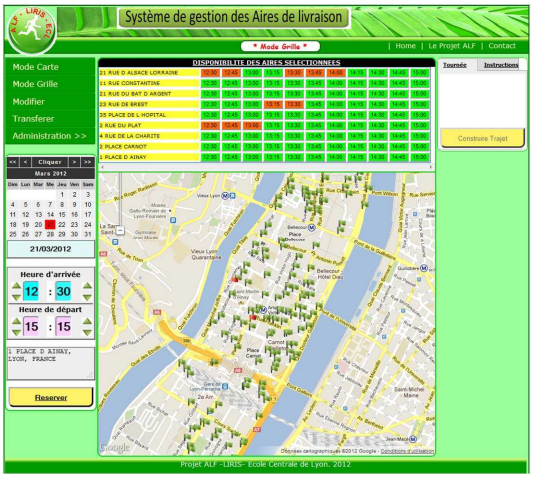
Delivery Area Booking-based process



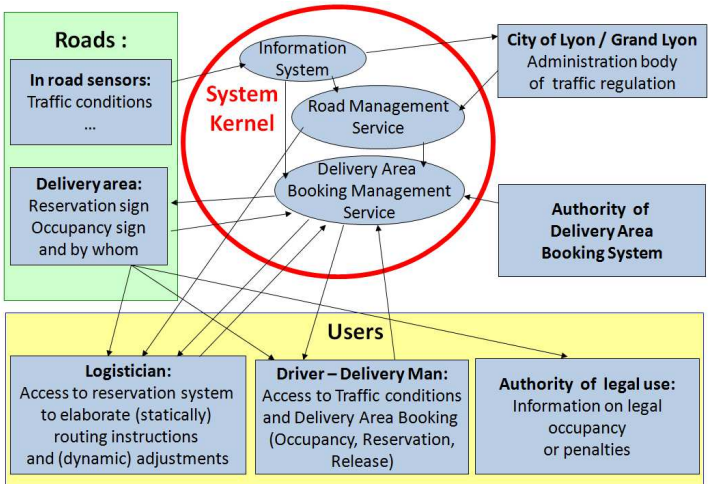
Modularized solution

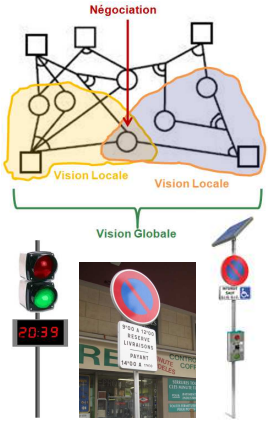
Solution based on three modules. It can take into account another one (ad hoc round deliver elaboration software of a freight operator).

1. SyGAL, Interactive system for Delivery Areas booking management, a web-based system able to manage delivery area reservations and to deliver this information in a mobile and distributed way to different actors (logistician & delivery driver) to in-lorry integrated devices and/or personal devices (Smartphone, tablets, etc.)..



System Architecture





2. Guided CESNA, a multi-agent based system organizing a computational process with distributed negotiation, allowing static delivery round preparation and dynamic adjustments, if necessary.

3. CEMAVIL, an in-the-field information system that collects occupancy information by in-road sensors, and allows different users (delivery professionals, private drivers, etc.) to receive occupancy information.

Additional services: energy delivery, manipulation equipment, shared lockers, etc..

Several aspects of pooling are also considered such as:
- pooling of Delivery Areas with taxi or private parking,
- delegation by zone with a limited number of delivery operators,
- creation of Urban Logistics Spaces,
- choice of treatment of the last Km by a soft means (tri-car, bicycle, etc.) thorough management of traceability.

Conclusions

A proof of concept prototype is working, a real in medium-sized city implementation is yet to be carried out.

Main references

1. David, B., Chalon, R., Deslandres, V., Hassas, S., Garcia Ochoa, G., Thébaud, J..B., Parisot, S. (2011) Delivery area IT based management: ALF project in 8th ITS (Intelligent Transport Systems) European Congress, Lyon, France.
2. Patier, D., David, B., Deslandres, V., Chalon, R. (2013) A new concept for urban logistics: Delivery area Booking in The Eighth International Conference on City Logistics, Bali, Indonesia. Procedia Social and Behavioral Sciences. Elsevier, 2013.