

Project Interreg IVB Ecologistics

The use of EPCIS network in an urban logistics context

City Reference Group recommendations

Introduction

A good visibility along the supply chain can increase the efficiency of flows from both an ecological and economic perspective, while standardised traceability data is shared between logistics partners.

In order to demonstrate the ecological and economic wins of the technology promoted by the project (EPCIS network), Ecologistics partners have set up several didactical scenarios showing the advantages of visibility in different logistic processes. In urban logistics, visibility is also paramount.

That is why the project has brought special attention to the specific issue of urban logistics. Urban logistics indeed presents its own challenges and constraints. These issues concern both logistics co-ordinators and policy makers, not forgetting the general public.

Indeed, city centres are complex and restricted spaces characterized by a great diversity. The city centres can be workplaces as well as leisure places or housing places, etc. They are impacted by:

- the scarcity of resources: transport is fully dependent on the fossil fuel;
- demographic change: the context is the one of the sustainable development but the demand of e-commerce is increasing (people are getting more individualistic);
- heavy impact on the environment;
- the evolution of the logistics: high level of competition, information technologies are evolving, etc.

Hopefully, initiatives are taken in order to deal with those various issues.

New methods of organization the first and the last-mile delivery were also set up:

- City hubs are put in place (systems of pooling storage and transport tools)¹ with various advantages:
 - more spaces : very few stocks in city centres (deported stocks, remote inventory management);
 - more bicycles and other alternative modes of delivery, with smaller templates, more economical and more sustainable, less CO2;
 - more frequent deliveries, better filled vehicles.
- Distribution in short circuits with territorial coverage and combination of means of transport: example of the Dabbawala model;²
- Pools of packaging: returnable packaging, sorting and washing stations.

¹See flow analysis "Lille river ports" & "Auchan".

²See flow analysis "La Tournée" e-commerce local products in short circuits" & "Coursier Montois & efarmz".

The visibility thanks to technologies emphasized by the project can't help directly to reduce the various issues raised above but it can help to have more trust on the alternatives put in place.

Environmental impacts of the introduction of EPCIS network in city logistics³ :

First benefits are mainly related to the reduction of burning fossil fuel. Indeed, EPCIS allows to better know the exact last position of logistic units, improving so the supply chain efficiency and reducing the transport of extra materials or reducing possible rerouting of trucks.

Another benefit is related to the truck fill rate which can be improved thanks to EPCIS. Knowing where trucks are, knowing their current fill rate allow to plan in real time additional collections of additional logistics units, reducing so the number of VKM. Exchanging information between partners of a same supply chain is one issue, exchange data between competitors is another one. Indeed, thanks to EPCIS, competitors become coopetitors mutualizing some externalized logistics activities such as delivery processes and directly reducing their costs and the environmental impacts by reducing the number of vehicles on the road.

The above mentioned benefits are mainly related to the transport activity. However, other impacts can be expected. EPCIS can be used to ensure that hazardous materials are safely packaged, stocked, transported or that combination of hazardous materials in a same truck are suitable as regards of regulations, reducing the risk of hazardous materials spills in the environment.

EPCIS is also expected to considerably reduce food wastage in some supply chains thanks to a better temperature tracing and a better check of the cleanliness of reusable assets such as isotherm boxes. To conclude, the visibility provided by the EPCIS networks will consolidate sustainable development efforts undertaken by towns and cities while continually improving the efficiency of logistics for logistic providers. Indeed, better synchronisation between players in the supply chain enables better organisation of trips, especially during the final kilometre, thereby reducing the number of vehicles in urban centres. Moreover, better visibility allows space savings through greater optimisation of stock levels and a more reactive approach for better customer service.

List of precise processes where traceability is beneficial both in an ecological and economic perspective:

1. Basic traceability of goods

³Source: "Analysis the technologies promoted and developed as part of the EcoLogistics project, from an environmental and economic perspective", DART Consulting sprl, 2015.

Every single logistic unit can be traced with information about the designation of the product, its localization, when it has been localized and what is the logistic step associated with it.

2. Traceability of reusable assets

Thanks to the same process used for goods, every boxes or pallets can be traced. As their position is known, it is easier to organize their collection, to create an alert if unmoved for a long period of time. It helps to avoid loss and wastage. It is also possible to know the rotation speeds and downtimes of boxes in order to reduce their stock numbers. Eventually, it is possible to specify how much they cost supplier by supplier, reference by reference, order by order, etc.

3. Traceability dedicated to end costumer

An alert can be sent to the final costumer if there is a delay in the delivery. They can also be provided with information about their purchase (for example the date or the location of production). Such information can also help to fight against counterfeiting.

4. Traceability dedicated to green logistics

A better visibility on each logistic unit can improve stock management but within the cities, where commercial spaces are very expensive it can provide shops more trust on remote stocks and even more in mutualized hubs.

Initiatives like city hubs can foster the use alternative transports (like little electrical vehicles or cargo-cycles) because as shops have a good vision on their inventory and so can rely more on several delivery with few items.

These transports, in turn, can better organise their journeys and trips. Finally, thanks to geo-localized data associated to final logistic step of the unit, the deliverymen can have a secure proof of delivery.

Conclusion

To conclude, EPCIS network can provide more visibility on logistic units and can encourage logistic partners to better synchronize, helping so to avoid unnecessary journeys, improve stock management, increase the responsiveness of operators, and thus foster effective and sustainable logistics.

To go any further: <http://www.ecologistics-project.eu/content/urban-logistics>