

CHAPTER 2: Last Mile Distribution logistics operation and impacts

UNIT 1: The equipment & tools of urban logistics

Capsule 2.1.4

Multimodal distribution models



To be done prior to this capsule:

2.1.1

Capsule linked with:

1.3.1; 1.4.4; Unit 2 of the Chapter 2 (2.2.1;
2.2.2; 2.2.3; 2.2.4); 3.1.1; 3.4.1

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Objectives of the Capsule

The objective of this capsule is to show different experiences of multimodal distribution, in three models: multimodality in transport by road; multimodality in waterways; and multimodality in land transport, using trams or subways.

Category	Document, source	EQF		
		4	5	6
		X	X	X

Exercises included	YES
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Effort for the capsule	Content 15 Min.	Exercises 5 -10 Min.	Extra material 5 Min.
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Contents

1. Multimodality in road transport
2. Multimodality road & waterways
3. Multimodality road & railway
4. Exercise

Instructions for source revision

To show different experiences of multimodal transport in the LMD*, videos will be specially used as a source:

- In the case of multimodal road transport, three cases are presented, using as a source videos.
- For road & waterways multimodal transport, there is a video in French, but with the summary and the images, you will be able to follow the idea. As an extra material, a second source it is also proposed in case you want to go deeper, where experiences of different waterways are analyzed.
- Finally, two examples of road & railway transport models are presented. In the first, the regional rail network is used for multimodal purposes, and in the second, the tram.

To finish the capsule, some exercises are included.

**The definition of multimodal transport is done in Capsule 2.1.1, compulsory to revise it before processing with this one.*

1. Multimodality in road transport

These are some examples about multimodality in road transport, using normally from bigger vehicles to smallest ones, such as cargo bikes:

1) Van – Cargo bike



Source (only images): DHL Express Nederland. (2017, August 1). *DHL Express - Cubicycle.*



https://www.youtube.com/watch?v=xaDzp_K0EPY

1. Multimodality in road transport

2) Van/Truck – City Hub – Cargo Bike/Tricycle



Source (only images) : EIT Urban Mobility.
Prague successfully implements cargo bicycle hubs to reduce freight congestion in the inner city.



<https://marketplace.eiturbanmobility.eu/best-practices/prague-successfully-implements-cargo-bicycle-hubs-to-reduce-freight-congestion-in-the-inner-city/>

1. Multimodality in road transport

3) Van – Delivery robots



Source (EN): RetailEXPO. (2016, September 7). *Robovan Starship Technologies and Mercedes Benz Vans.*



<https://www.youtube.com/watch?v=m7orqWulq1I>

2. Multimodality in road & waterways

In some cities where rivers are useful all year round, road & waterway distribution models are increasingly being implemented or at least piloted.

Source (FR): HAROPA PORT. (2019, December 20). *Le bateau cargo de FLUDIS propose des livraisons fluviales dans Paris.*



<https://www.youtube.com/watch?v=NpYCATIENFc>

Summary:

The use of an electric boat in Paris where the boat becomes a warehouse and the products to be delivered in the LMD are prepared to be delivered **once the boat arrives to the dock by cargo bikes.**



2. Multimodality in road & waterways

But in some cities, where the use of vehicles it is impossible, as it happens in Venice (Italy), multimodal delivery is the only option to get the products in the city. In this case, although freights arrive in boats, the LMD is done walking, using **carts**:



2. Multimodality in road & waterways



The **advantages** of this transport mode (2):

- Avoid traffic jams → To save time and money
- Less risks of accidents → High level of safety for the driver, goods and commodities
- Reduce the use of lorries → Improvement of air quality and reductions of traffic jams
- Pollution free options available → Less CO₂ emissions, and therefore, improvement of the air quality

The **disadvantages** of this transport mode:

- Limited area of coverage → Compulsory to use a multimodal distribution scheme
- If there is not a traffic congestion, it is a slower delivery mode
- In some areas, seasonal inconvenience could happen (river may freeze or in summer not enough water level)

2. Multimodality in road & waterways

As an extra material, a second source it is also proposed in case you want to go deeper:

Source (pdf in EN): Interreg North Sea Region. (2021, May 21). *Market review on city freight distribution using inland waterways.*



https://northsearegion.eu/media/17515/210521_avatar_wp4_market-review_v1_final.pdf

Summary:

This document collects a **market review on city freight distribution cases using inland waterways**, to use it as an inspiration in the AVATAR project (Autonomous vessels, cost-effective transshipment, waste return).



3. Multimodality in road & railway

The use of trams and subways for urban distribution of goods is an option that has been implemented in some cities and is being or has been studied in others in view of the increasing difficulty of accessing city centers.

In addition, the investment required is not very large as it makes use of existing infrastructure but requires adapting the passenger carriages to be able to carry freight.

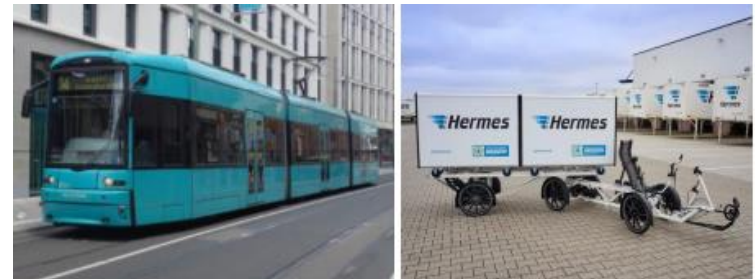
Source (pdf in FR): (3)

In Paris, since 2007 transport of goods for the Monoprix food chain is done via the regional rail network. It connects their distribution center with the center of Paris, 30 km away in 40 minutes.



Source (web site in EN): (4)

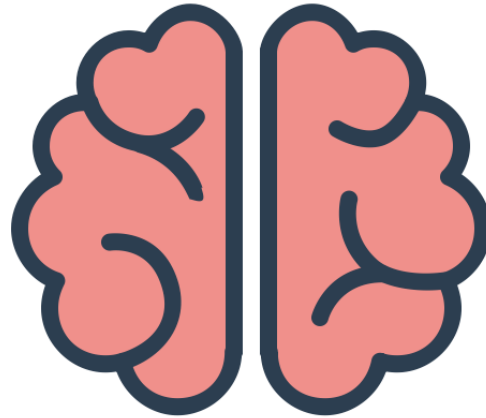
In Frankfurt, a pilot between 2018 and 2019 has been carried to transport containers ("boxes") by tram to different points in the city to be picked up by e-bikes for the LMD.



Exercise

Throughout this capsule, a total of 7 cases of multimodal use have been presented (3 in road transport, 2 in waterways and another 2 in rail transport).

We suggest you reflect on the advantages and disadvantages of each one, and whether it is possible to reach a conclusion on the convenience or not of using multimodal transport also for last mile distribution.



References

- (1) European Commission. *Vehicle categories*. https://ec.europa.eu/growth/sectors/automotive-industry/vehicle-categories_en
- (2) Bilozor, R. (2020, February 24). *How Can We Use City Rivers and Canals for Logistics Purposes?*. <https://www.eurosender.com/blog/en/water-transport/>
- (3) Monoprix. (2007, July 4). *L'acheminement des marchandises par voie ferrée et véhicules roulant au gnv vers les magasins monoprix et monop' de Paris*. <http://www.oree.org/docs/groupes-de-travail/transports/monoprix-dossier-de-presse-ferroviaire.pdf>
- (4) European Review of Regional Logistics. (2018, October 3). *Frankfurt (D) is testing cargo tram for parcels*. <http://www.citylogistics.info/projects/frankfurt-d-is-testing-cargo-tram-for-parcels/#more-1570>