

BARCELONA'S URBAN FREIGHT DISTRIBUTION STRATEGY: BASES AND WORK LINES

NOVEMBER 2022



BARCELONA REGIONAL

- I. Current Situation and Main Concerns
- II. UFD Strategy (2030 Horizon)
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I. Current situation and main concerns

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- 2. Models
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What is Urban Freight Distribution (UFD)?

It is the last step in the supply chain, in which goods and services are delivered in urban areas.

Essential and non-essential needs are covered through a wide variety of freight: food, clothing, construction materials, medical supplies,... **enabling economic and social activity**:

It plays an important role in urban metabolism





Ajuntament

e Barcelona

What is Urban Freight Distribution (UFD)?

It is composed by **complex supply chains**, with great **variability** among them, with **multiple** (private) agents involved and global interrelationships engaged.

Sector with a general lack of knowledge. Difficult to gather data about it.



UFD it's perceived as a challenge for the Administration.

Composed by three different models:



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Business to Business Goods distribution to 96.000 commercial establishments



Business to Consumer Product delivery to direct consumers (1.6 million inhabitants) Urban Services Distribution to commercial establishments and direct consumers



12 clusters identified





3 clusters identified





DUS

6 clusters identified



UFD Models



2

12 clusters identified







UFD most **visible** part

Public infrastructure originally designed to meet their needs

Activity concentrated in **commercial** areas

UFD Models

2

3 clusters







Scattered deliveries, slight concentration in residential areas and offices



Public infrastructure wasn't originally designed to meet their needs

Market dominated by few big players

Generates **real concerns** among the cities





Shared among B2B, B2C and DUS...

...but also with **PRM** (disabled) as well as **private vehicles parked illegally**.



SPRO: Parking app to manage load and unload operations.



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Assist couriers to find free spaces



Essential source of information



... However, not all couriers start session whenever they load or unload:

- Only half of the stops (<30') are registered.
- The **shorter** the stopover, the **less chances** the courier will **start session** in the app.
- 75% of <5' stopovers **don't even start the session**.



On Street infrastructure

DUS is the most on street hours demanding model.



Its necessary to get **more knowledge** about DUS and probably offer **new spaces** for long duration stops.



Off Street infrastructure

Low offer available due to limited space and high prices.

UCC (Urban Consolidation Centres) MACC (Main Access Consolidation Centre)

- Vanapedal: Located in Estació de França (municipal suport, through european projects)
- Geever: collaboration with BSM and SABA



- Railway access
- We are working in different initiatives with FGC...
- No experience yet

Malls, large stores, municipal markets, etc.



- Establishment's indoor spaces
- Indoor unloading docks, etc.

Challenges to maintain its financial viability

Financial support and access restrictions



Pick Up Points: B2C least impact delivery mode.



UFD has direct influence on air quality



Vans and lorries contribute further to pollution due to two major reasons: the **size** of the vehicles and the higher percentage of **diesel** vehicles.



NO₂ immission map of Barcelona and surrounding municipalities (2017)

Despite UFD represents up to 17% of Veh-Km/Year, it contributes to air pollution in a **higher proportion**.

UFD contribution to mobility



UFD contribution to air pollution







Most of the accidents and casualties associated with UFD vehicles happen in the Eixample.

victims were from Vans are involved in up to **81%** of t

81% of the severely injured victims were from vulnerable groups (pedestrian, bicycle, scooter or motorbike riders).

Vans are involved in up to 81% of the accidents, while lorries are involved in the 19% remaining.



Quality of public space





UFD vehicles sanctions concentration inside B:SM's controlled area (2019)

46% of the establishments surveyed agree that they receive goods from vehicles parked out of the UFD places.

47% of the fines due to lack of time ticket. 32% of the fines due to exceeding the time allowed

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Negative externalities

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Therefore, UFD can be considered an activity **conditioned by the NIMBY effect**. Its **negative externalities** are visible and responsible for the **negative perception**. It's important to show it is essential for the city life



Translated from: La logistique, fonction vitale. Les carnets practiques nº8, de l'Institut d'aménagement et d'urbanisme, île-de-France

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Paradigm shift

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New consumption habits: E-commerce breaktrough has transformed the traditional delivery models adding the "extra mille"



High demand with accelerated growth due to the pandemic:

- ✓ 23M online purchases in BCN (2018)
- ✓ 33M online purchases in BCN (2020)
- ✓ +44,6% increase in two years

Demanding consumer profile who asks for:

- Greater product diversity
- Shorter lead times
- ✓ Home deliveries (86%) in 2018

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High market growth.



E-commerce sales in Europe

- ✓ 5% of e-commerce over total purchases in Spain (2017)
- ✓ UK (18%), Germany (15%) or France (10%) have higher market share, which means...
- ✓ Important forecasted growth



London: Freight and servicing action plan. March 2019

[...] Van kilometres in London have grown by 54 per cent over the previous 25 years and are forecast to increase by **43 per cent over the next 25 years** [...]





World Economic Forum: The Future

of Last-Mile Ecosystem. January 2020

[...] the number of delivery vehicles in the top 100 cities globally will increase by 36% until 2030. Consequently, emissions from delivery traffic will increase by 32% and congestion will rise by over 21%, [...]



Paradigm shift

The city is **committed to reduce its private vehicle traffic** and the "extra mille" represents a challenge to overcome.

PMU 2024 Goals

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S	SITUACIÓ de PARTIDA (Dades 2018) 📫		ESCENARI PROPOSAT (2024)
83	Mobilitat general: 8,063 milions etapes/dia	+4,72%	8,444 milions etapes/dia
88	A peu: 34,35% quota modal	+7,51%	35,27% quota modal
88	Transport Públic: 37,33% quota modal	+15,70%	41,25% quota modal
88	8icicleta: 2,28% quota modal	+129,44%	5,00% quota modal
88	Vehicle privat: 26,04% quota modal	-25,64%	18,48% quota modal
		\smile	





Vans and lorries contribution to mobility (with a tendency to increase)



UFD Basic data

UFD basic data

- **96.000** establishments, great economic potential
- **1,6M** inhabitants becoming increasingly demanding
- **37M** annual deliveries to **B2B** model (2018)
- 23M annual deliveries to B2C model (2018)
- +44,6% increase in e-commerce sales (yet in a recent market)
- **10.000** UFD places in the city
- 8.500 UFD places controlled by SPRO
- One-off solutions: multi-use lanes and night deliveries
- UCCs*, still emerging experiences.
- MACCs**, without experience with other kinds of freight.
- **1.566** accidents, and **1.709** casualties (1,4% severe injured)
- **17%** of the Veh*Km.
- 31% emissions of PM_{10} and 34% emissions of NO_x

UCC: Urban Consolidation Centre MACC: Main Access Consolidation Centre



UFD Main concerns

- Lack of general knowledge we don't know much about it.
- Operated by private sector, fragmented among multiple actors (precarious working conditions in some cases).
- Three models identified (B2B, B2C, DUS) with different needs.
- Operations infringements.
- UFD places used by multiple actors.
- Contribution to **pollution**, **climate change** and **accidents**.
- Non-existent gender perspective.
- Essential sector conditioned by negative perception.
- Operations concentrated in time (morning) and space (*Eixample*).
- Low use of sustainable delivery vehicles.
- Operations carried out mainly On Street, low use of Off Street resources.
- Important e-Commerce growth
- Transporters' App to manage operations SPRO still underused.

For these reasons it seems appropriate to develop an Urban Freight Distribution Strategy (UFDS)



II. UFD Strategy (2030 Horizon)

- 1. Transversal Goals
- 2. Key Objectives
- 3. Proposals

Common goals, both for public and private sectors

Encourage local commerce, economic competitiveness as well as efficiency Reduce negative side effects affecting the public space to reconcile UFD with daily life

Achieve an efficient, sustainable and safer UFD system



2 Key Objectives

- 1 Improve On Street Operations as well as make its offer more flexible Increase the amount of <u>offered hours</u> to load and unload, and work towards demand's readjustments.
- Allow and encourage Off Street operations
 Promote the use of e-Commerce <u>PickUp Points</u> to decrease home deliveries.
 Foster <u>Urban Consolidation Centres</u> in order to reduce the impact of home deliveries.

 Encourage vehicle fleets transition towards sustainability and promote (
- **3** Encourage vehicle fleets transition towards sustainability and promote cycle-logistics

Promoting commercial vehicles electrification and cargo-bikes

- **4 O Casualties Vision in terms of accidents and reduction of infringements** Work towards 0 mortal victims, 0 severe injured victims. Reduce the illegal load and unload operations.
- **5 Guarantee and promote logistics space at a metropolitan level** Preserving city's <u>industrial land</u>. Increase the use of <u>railway</u> means.
- 6 Set up a complete communication strategy Develop communication channels to <u>improve</u> <u>information</u> and <u>perception</u>.

Create a Data Centre

Enlarge, update and upgrade UFD's understanding through a permanent Observatory.



1. Required infrastructure



PickUp Points network



Design and promote a unique network

Large-scale Urban Consolidation Centres B2C Urban Consolidation Centres





Railway freight hubs

Logistics land reserves





Mercaba



CDAM

2. Management resources





2. Management resources







Underground parking lots new regulations



E-Commerce tax



3. Communication, knowledge and innovation







UFD Data Centre: Indicators, cartography, data base system





Communication channels between City Council and users

International benchmarking



Professional's training and capacity building



4. Governance







POLIS

Innovation funding





III. Participation process

So far proposals have been developed from the City Council point of view, and now require private agents participation.



