Ajuntament de Barcelona

URBAN LOGISTICS

In the Sostenible Urban Mobility Plan context 2013-2018

November 2016
Mobility Service
Ecology Urban and Mobility
Municipality of Barcelona

01

THE SUSTAINABLE URBAN MOBILITY PLAN 2013-2018

STRATEGY

B

REGULATORY FRAMEWORK

LAW OF MOBILITY OF CATALONIA 9/2003
Model of sustainable development
GROUNDBREAKING LAW

National Guidelines of Mobility (DNM)
Catalonia Area

Master Plan of Mobility for the Metropolitan Region of Barcelona (PDMRMB)
Metropolitan Area

Urban Mobility Plans (PMU)
Local Area

Metropolitan Plan of Urban Mobility (PMMU) Metropolitan Area

Evaluation studies of generated mobility (EAMG)

OBJECTIVES OF PMU

SAFE MOBILITY

- Reduce the number of accidents associated with mobility.

SUSTAINABLE MOBILITY

- Facilitate modal shift towards more sustainable modes.
- Reduce air pollution resulting from transportation.
- Reduce noise pollution resulting from transportation.
- Moderate energy consumption in transportation and reduce its contribution to climate change.
- Increase the proportion of renewables and “clean” energies consumption.

EQUITABLE MOBILITY

- Encourage alternatives uses of public road.
- Ensure accessibility to the mobility system.

EFFICIENT MOBILITY

- Increase the efficiency of transportation systems.
- Incorporate new technologies in mobility management.

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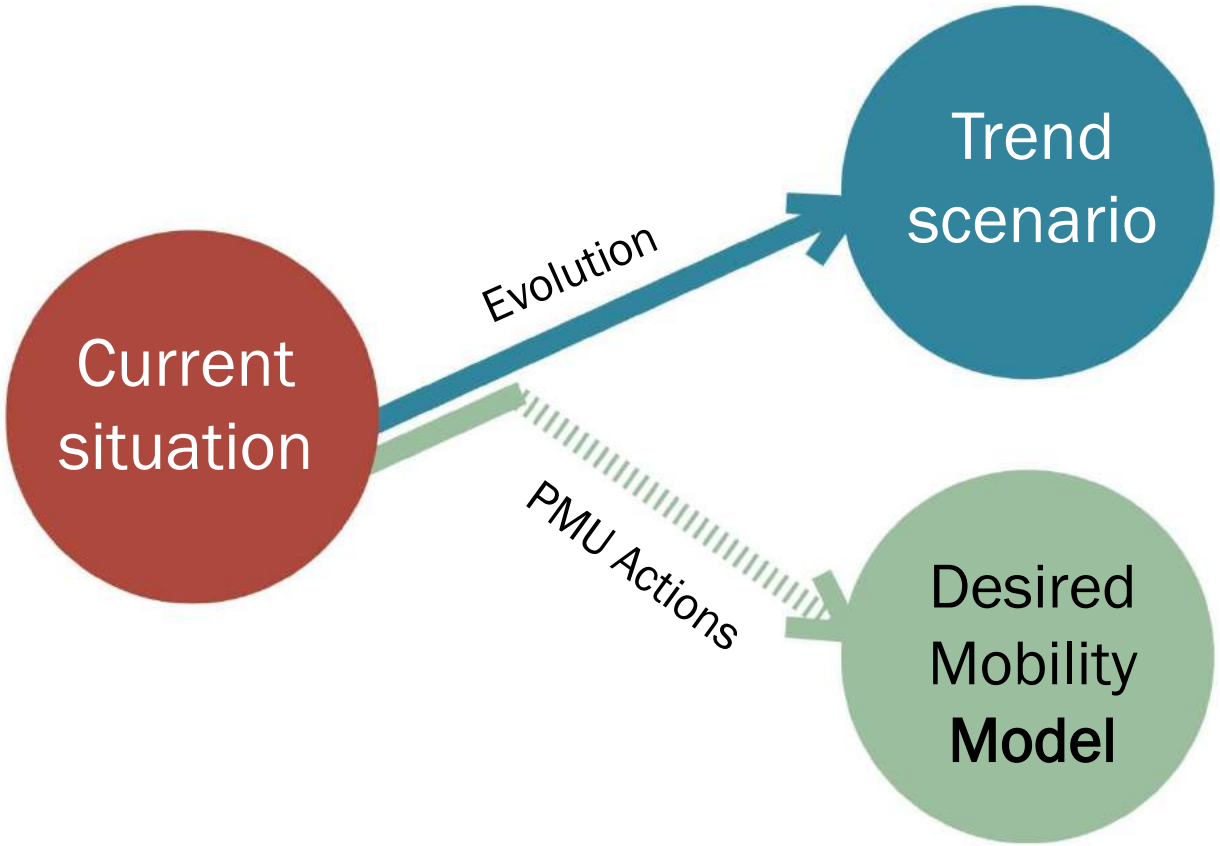
Urban Mobility Plan of Barcelona 2013-2018

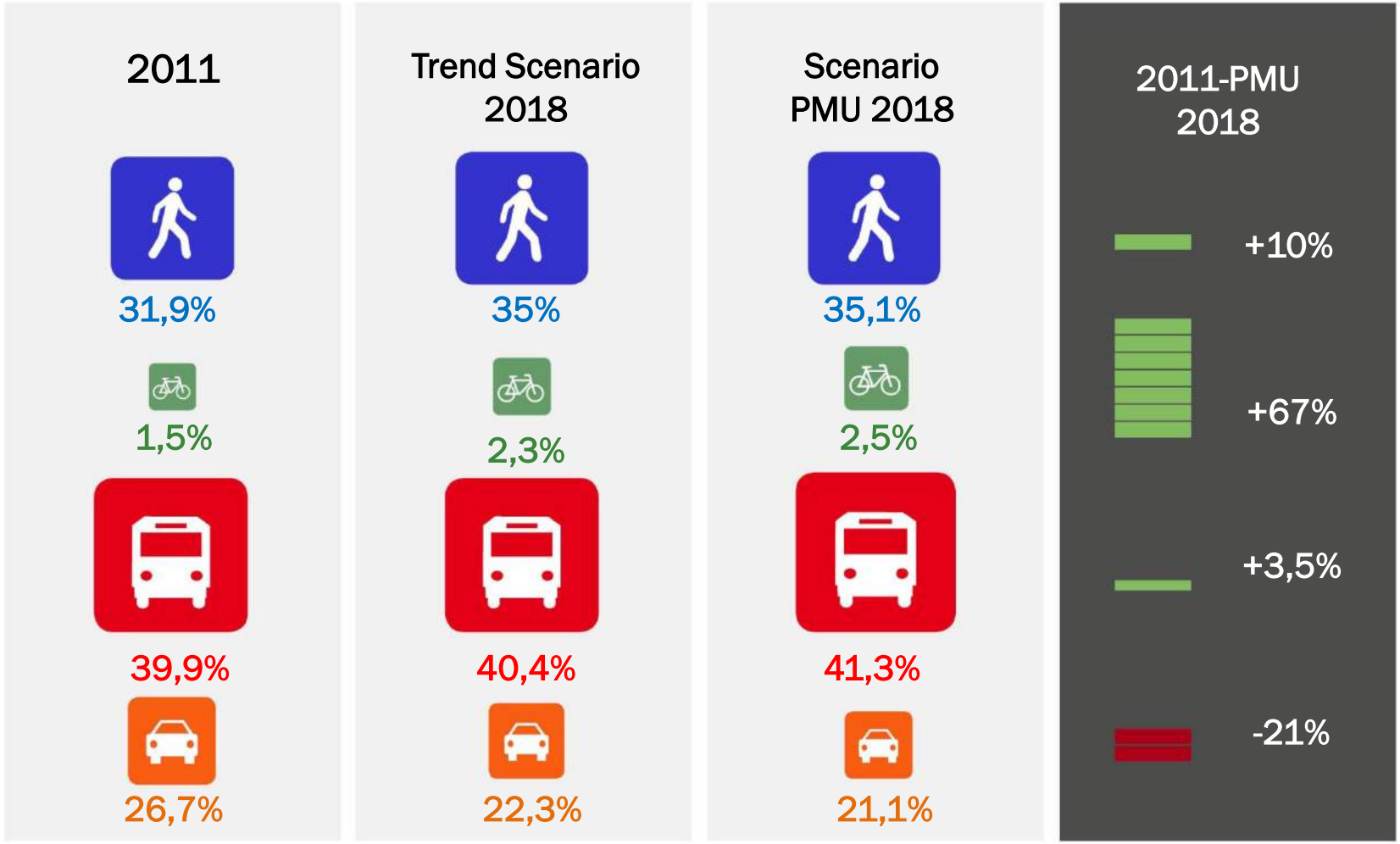
		2012	2018
Safe Mobility	Implementation of Road Safety Local Plan	249 serious injuries 30 dead	-20% serious injuries -30% dead
Sustainable Mobility	Compliance of UE* parameters for NO_2 and PM_{10}	NO_2: 4 stations don't comply (out of 7) Annual average value	Compliance of UE parameters in all stations
Equitable Mobility	New bus network reduces waiting time by half	Average frequency 12'	Average frequency 6'
Efficient Mobility	Improvement of the logistic management of mobility	Conventional urban distribution system 2013 Pilot Test Ciutat Vella	Micro-logistics platforms and new technologies. Efficient use of public space and environmental improvements

* The annual average value of NO_2 and PM_{10} must not exceed 40 microgr/m3 in any of the measuring stations of the city. The daily limit value of PM_{10} (50 microgr/m3) must not exceed either more than 35 times a year, or hourly limit value of NO_2 (200 microgr/m3) more than 18 times a year.

MOBILITY MODEL SHIFT



MODAL DISTRIBUTION



TOTAL STAGES

SCENARIO	STARTING SCENARIO PMU	TRENDING 2007-2011→ 2018	FINAL SCENARIO PMU	INCREASE (%)	INCREASE (STAGES)	VEHICLES INCREASE
YEAR	2011	2018	2018	2011-PMU2018	2011-PMU2018	2011-PMU2018
PT	3.126.796	3.088.781	3.236.234	3,50%	109.438	
PV	2.088.348	1.703.367	1.649.795	-21,00%	-438.553	-350.842
BY FOOT	2.500.200	2.675.085	2.750.220	10,00%	250.020	
BICYCLE	118.151	173.705	197.312	67,00%	79.161	
TOTAL	7.833.495	7.640.937	7.833.561			

MAIN LINES OF ACTION

1 ORGANIZATION OF THE CITY'S URBAN PATTERN IN SUPERBLOCKS AND OTHER CALMING MEASURES

2 IMPLEMENTATION OF THE NEW ORTHOGONAL BUS NETWORK

3 TOTAL DEVELOPMENT OF CYCLING NETWORK

4 MANTAIN THE CURRENT LEVEL OF TRAFFIC SERVICE

5 COMPLIANCE WITH REGULATORY PARAMETERS OF ENVIRONMENTAL QUALITY

6 PROMOTION AND POSITIVE DISCRIMINATION MEASURES OF HIGH OCCUPANCY VEHICLES

7 REVIEW OF THE REGULATION OF PARKING
ON AND OFF ROAD

8 IMPROVING THE EFFICIENCY OF LOADING
AND UNLOADING

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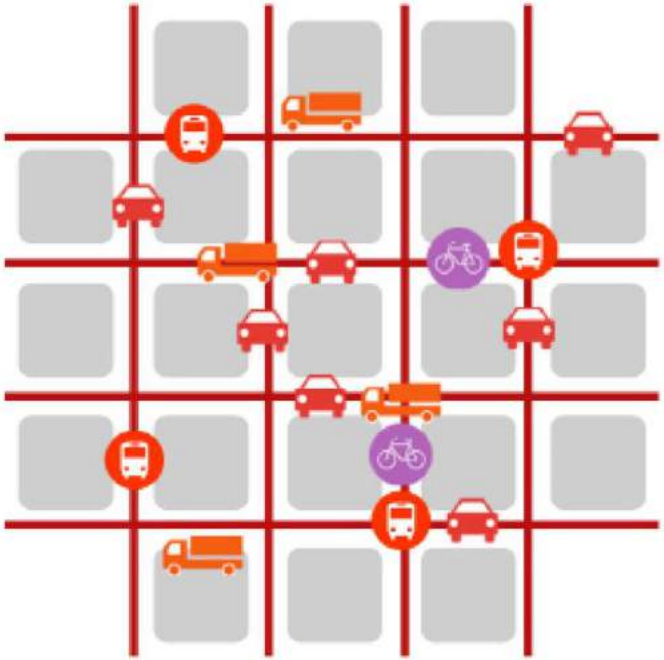
Urban Mobility Plan of Barcelona 2013-2018

SUPERBLOCKS MODEL

Current Model



Superblocks Model

- PUBLIC TRANSPORT NETWORK
- BICYCLES MAIN NETWORK (BIKE LANE)
- BICYCLES SIGNPOSTS (REVERSE DIRECTION)
- FREE PASSAGE OF BICYCLES
- PRIVATE VEHICLE PASSING
- RESIDENTS VEHICLES
- URBAN SERVICES AND EMERGENCY
- DUM CARRIERS
- DUM PROXIMITY AREA
- ACCESS CONTROL
- BASIC TRAFFIC NETWORK
- SINGLE PLATFORM (PEDESTRIANS PRIORITY)

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MODAL HIERARCHY

1 BY FOOT mobility

2 BICYCLE mobility

3 PUBLIC TRANSPORT mobility

4 Urban distribution of GOODS

5 PRIVATE TRANSPORT mobility

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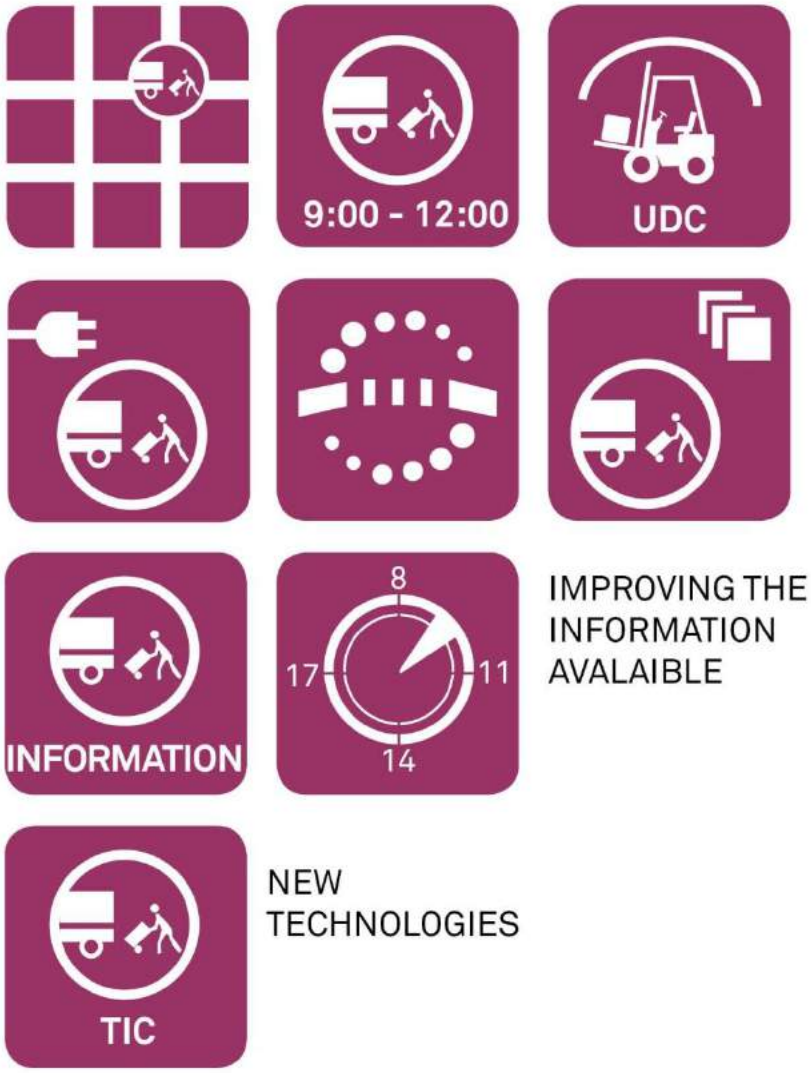
Urban Mobility Plan of Barcelona 2013-2018

Urban distribution of goods



EFFICIENT MANAGEMENT OF URBAN DISTRIBUTION OF GOODS

IMPROVING THE INFORMATION AVALAIBLE

NEW TECHNOLOGIES

02

THE FREIGHT TRANSPORT In Barcelona

FIGURES

B

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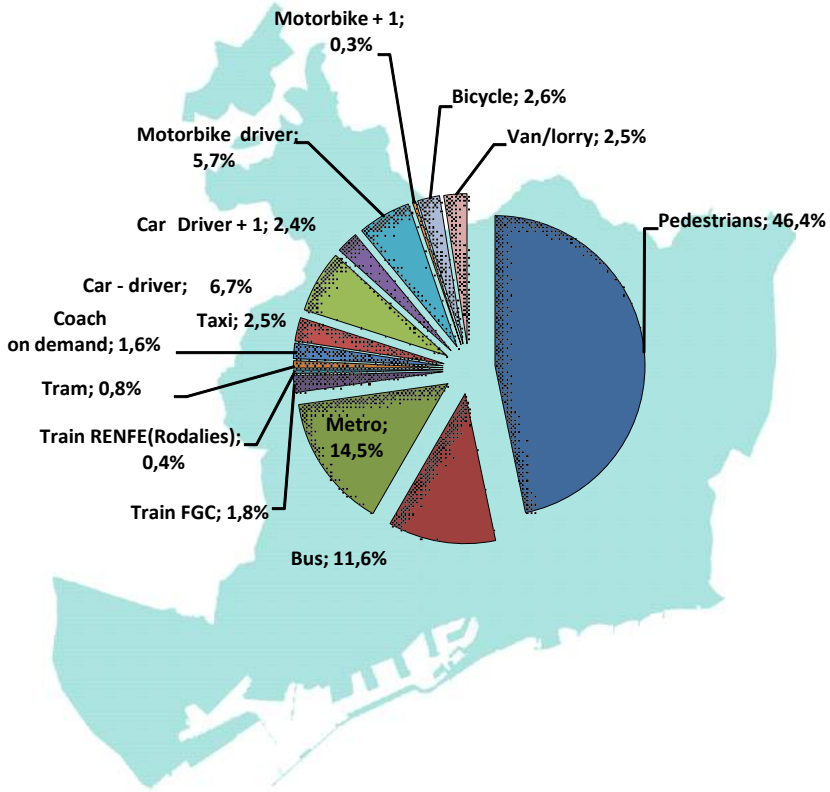
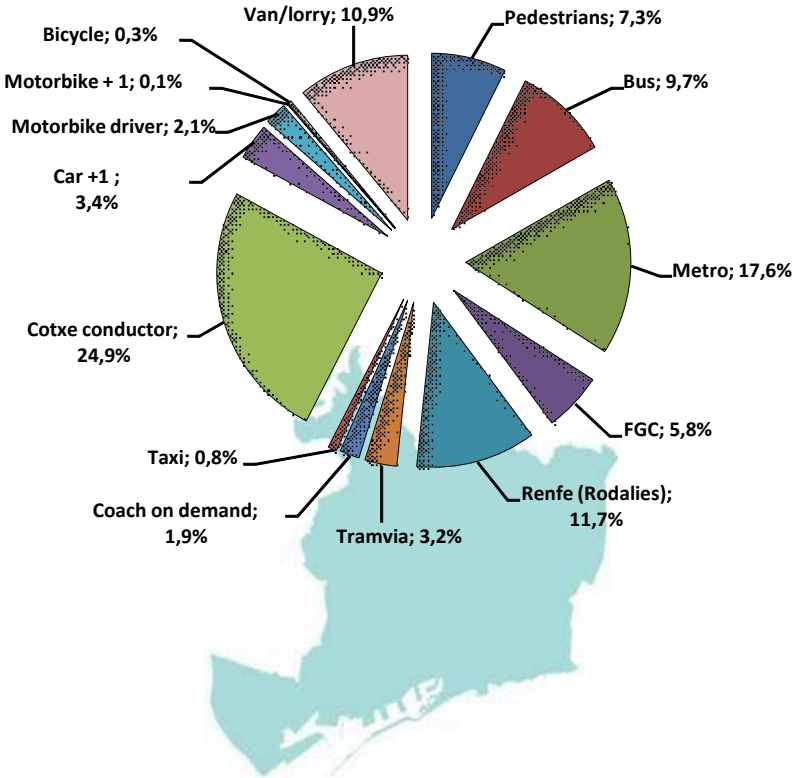
DISTRIBUTION OF GOODS IN BARCELONA - CONTEXT

2,5% of the internal trips stages and **10.9%** of connection trip stages are related to goods delivery

Internal trips
4.922.353
123.930 freight vehicles



Connection trips
2.767.301
301.677 freight vehicles



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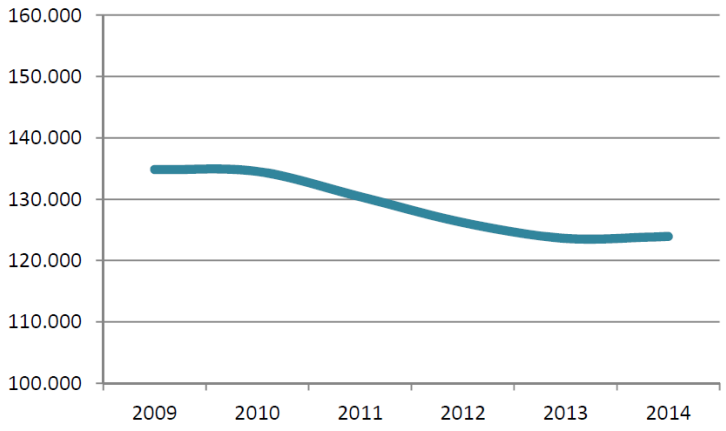
DISTRIBUTION OF GOODS IN BARCELONA - CONTEXT

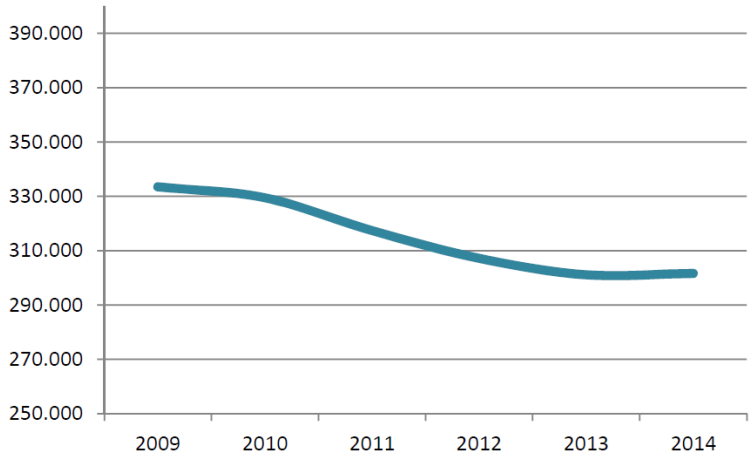
425.000 trips stages are made every day (71% connection trips and 29% internal trips)
Last year stopped the progressive decrease (of 6 consecutive years) of freight trips (-9,12% from 2009 to 2014).

Trip stages in freight vehicles								
year	2009	2010	2011	2012	2013	2014	%	%14/13
internal	134.861	134.524	130.408	126.208	123.621	**123.930**	**29,1%**	**0,25%**
connection	333.500	329.465	317.407	307.186	301.165	**301.677**	**70,9%**	**0,17%**
Total	**468.361**	**463.989**	**447.815**	**433.394**	**424.786**	**425.607**	**100,0%**	**0,19%**

Internal



Connection



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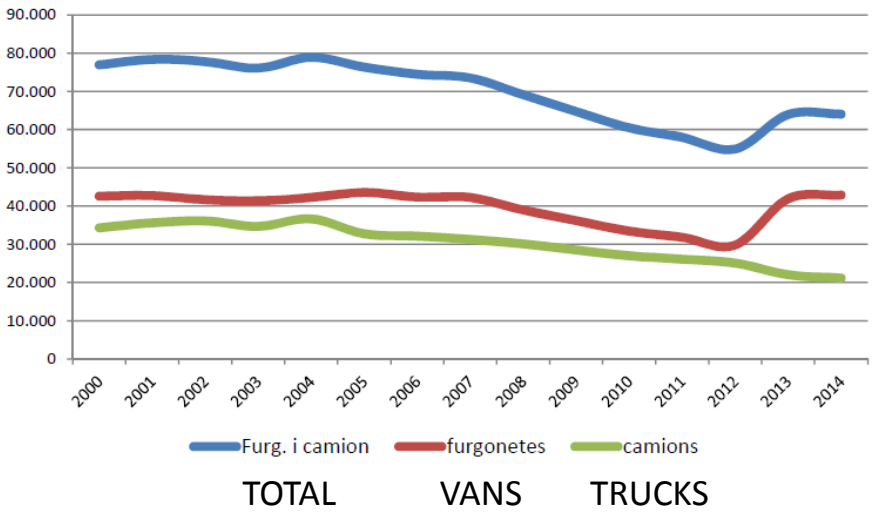
DISTRIBUTION OF GOODS IN BARCELONA - CONTEXT

HEAVY VEHICLES AND VANS – car fleet

In Barcelona there is a fleet of 64.040 freight transport vehicles. The trend is a progressive decrease of the number of vehicles till 2013.

YEAR	Vans and trucks	Vans	Trucks
2000	76.906	42.585	34.321
2001	78.346	42.725	35.621
2002	77.769	41.667	36.112
2003	76.063	41.379	34.684
2004	78.880	42.234	36.646
2005	76.306	43.549	32.757
2006	74.450	42.342	32.108
2007	73.491	42.234	31.257
2008	69.099	38.968	30.131
2009	64.695	36.175	28.520
2010	60.457	33.451	27.006
2011	57.942	31.831	26.111
2012	54.904	29.810	25.094
2013	63.919	41.875	22.044
2014	**64.040**	**42.869**	**21.171**
14/13%	**0,19%**	**2,37%**	**-3,96%**
14/11%	**10,52%**	**34,68%**	**-18,92%**



TOTAL VANS TRUCKS

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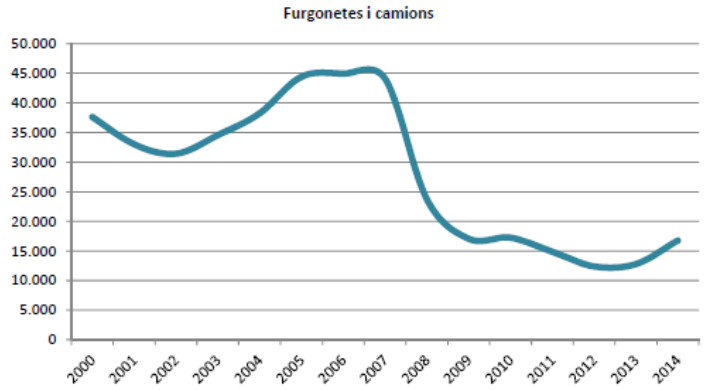
DISTRIBUTION OF GOODS IN BARCELONA - CONTEXT

HEAVY VEHICLES AND VANS – car fleet

2014 van and truck registrations	
Gener	1.060
Febrer	1.194
Març	1.281
Abril	1.375
Maig	1.573
Juny	1.383
Juliol	1.716
Agost	850
Setembre	1.372
Octubre	1.669
Novembre	1.502
Desembre	1.787
Total registrations	**16.762**

BCN Region	Vans and trucks	% variation
2000	37.596	
2001	33.016	-12,2%
2002	31.413	-4,9%
2003	34.550	10,0%
2004	38.229	10,6%
2005	44.397	16,1%
2006	44.923	1,2%
2007	44.073	-1,9%
2008	23.705	-46,2%
2009	17.051	-28,1%
2010	17.232	1,1%
2011	14.850	-13,8%
2012	12.383	-16,6%
2013	12.784	3,2%
2014	**16.762**	
%14/13	**31,1%**	
%14/11	**12,9%**	



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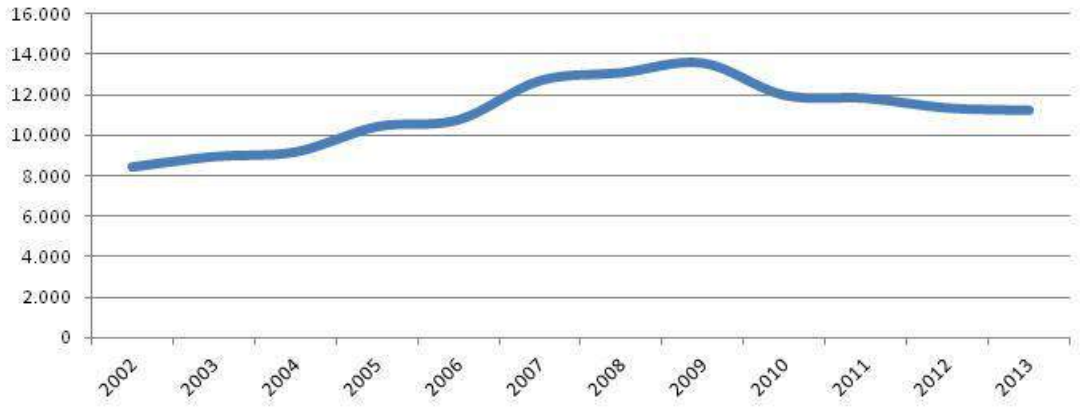
DISTRIBUTION OF GOODS IN BARCELONA - CONTEXT

NUMBER OF LOADING AND UNLOADING AREAS

There are about 10.500 parking places for loading and unloading in the city.
In 2014, 88 places have been removed for the loading and unloading of goods.

Evolution of loading/unloading areas		
year	areas	new areas
2003	8.950	518
2004	9.177	227
2005	10.440	1.263
2006	10.780	340
2007	12.730	1.950
2008	13.123	393
2009	13.604	481
2010	12.003	-1601
2011	11.853	-150
2012	11.368	-485
2013	10.719	-649
2014	**10.631**	**-88**
%14/13	**-0,82%**	
%14/11	**-10,31%**	



03

THE FREIGHT TRANSPORT
In Barcelona

CONTEXT - SOLUTIONS

B

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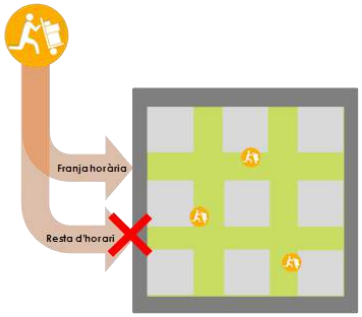
IMPROVED SOLUTIONS

Assign operational functions to each context

- Improve the effectiveness of the urban distribution of goods in the city.
- Reduce possible frictions with the other urban uses.



As we are facing a very complex context, with different types of goods delivered, different vehicles and different needs, we have to realize that we are not going to solve the problem with just one solution, and we need to define a **range of solutions,**

It is necessary to establish what operational function is the **most suitable for each context.**

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IMPROVED SOLUTIONS

IMPROVING THE INFORMATION AVALAIBLE

- Having the information **sorted by** territorial districts and neighborhoods


1


2


3

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IMPROVED SOLUTIONS

IMPROVING THE INFORMATION AVALAIBLE

- Collect the information necessary to disaggregate vehicles of **urban distribution of goods** of private vehicles in general.





- We realise we need know how the operators work, and **which are they needs**.





CONTEXT – SOLUTIONS – WHAT DO WE DO?

1. BUILDING REGULATIONS FOR OFF-STREET DELIVERY AREAS

- Every **public market reserves some space** for deliveries and logistics. This spaces can/must be used not only for the market but also for the businesses in the surroundings.

- In **private buildings**:

  - Every **comercial building** with more than 400 sq meters has to arrange an off-street delivery area.

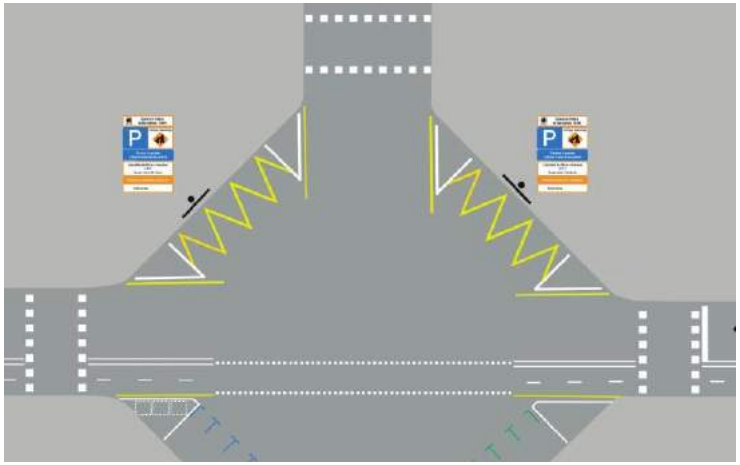
  - **Bars and restaurants must have an storage area** with a minimum size of 5% of their total surface.

CONTEXT – SOLUTIONS – WHAT DO WE DO?

2. ON-STREET LOADING AND UNLOADING AREAS

There's a wide range of **parking spaces reserved** for goods deliveries all across the city, defined considering the particularities of each site.

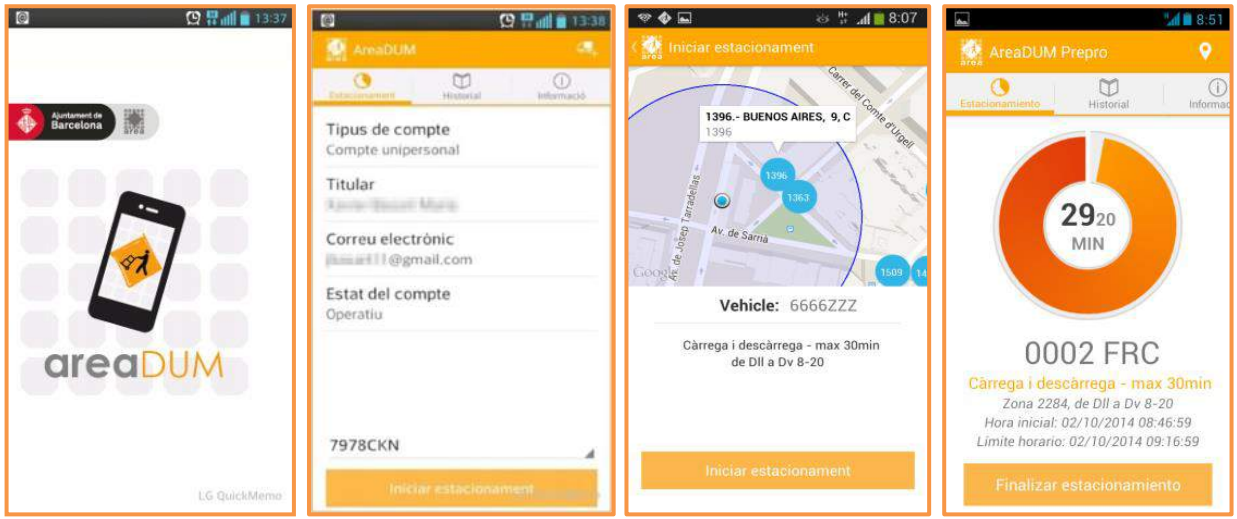
There's a **time limit of 30 minutes** for each operation.



CONTEXT – SOLUTIONS – WHAT DO WE DO?

2. ON-STREET LOADING AND UNLOADING AREAS

The regulations allow **30 minutes** for the un/loading operation.
The driver of the vehicle was obliged to indicate the time of arrival using a **cardboard disc**.
Towards the end of 2015 the cardboard disc was replaced by an **App, ÀreaDUM.**



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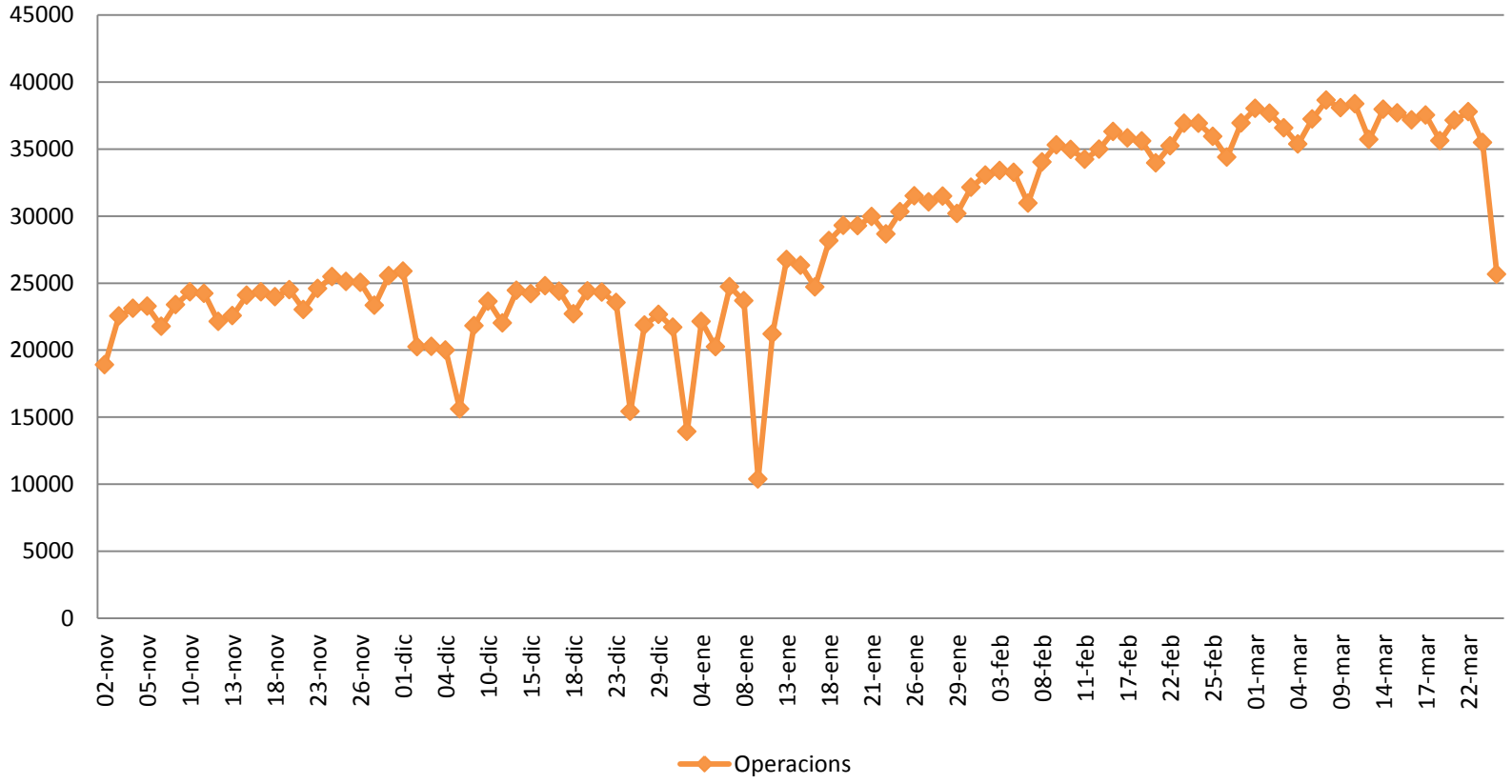
CONTEXT – SOLUTIONS – WHAT DO WE DO?

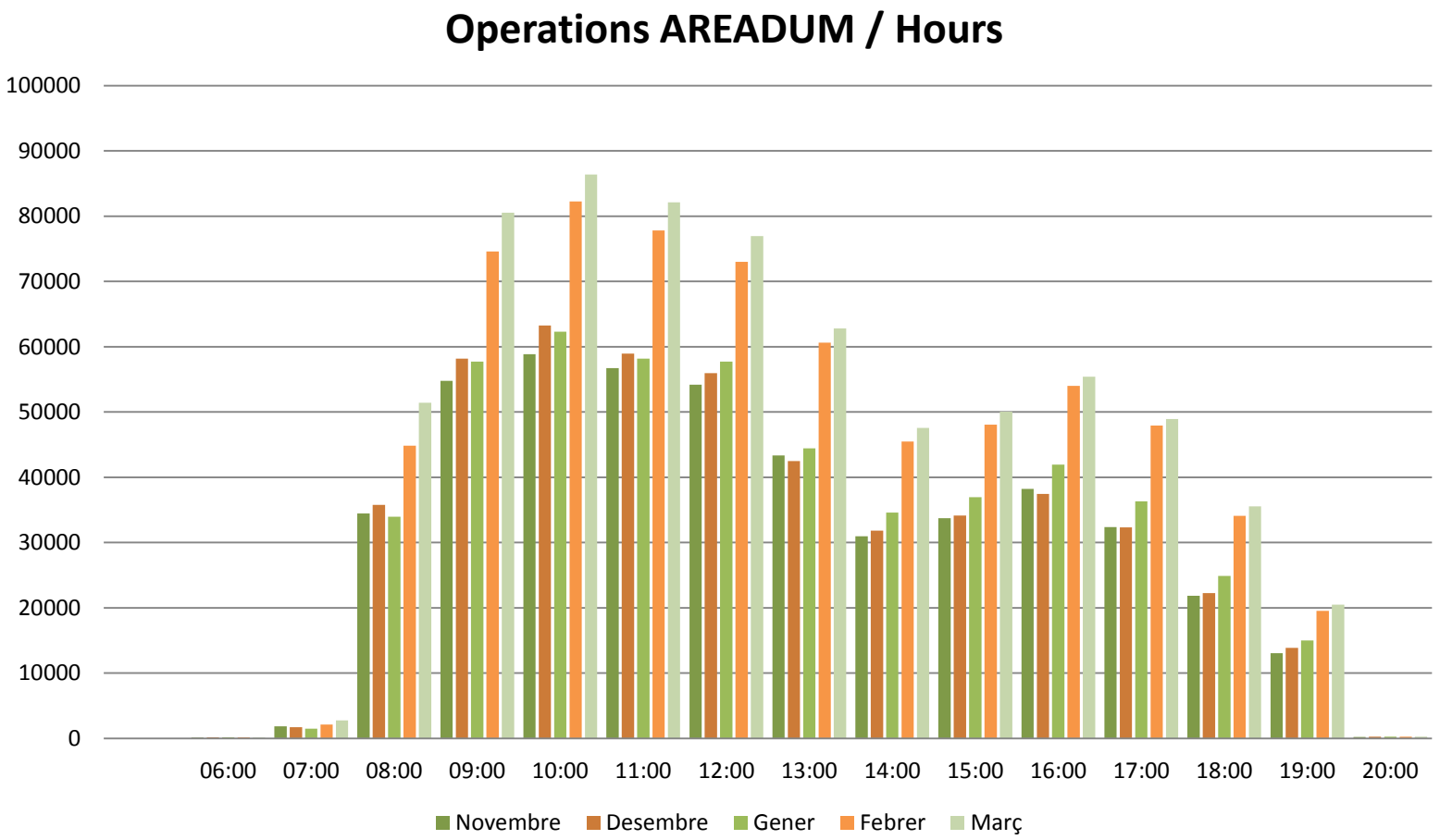
2. ON-STREET LOADING AND UNLOADING AREAS



Number of operations per day, registered by the App

CONTEXT – SOLUTIONS – WHAT DO WE DO?

2. ON-STREET LOADING AND UNLOADING AREAS



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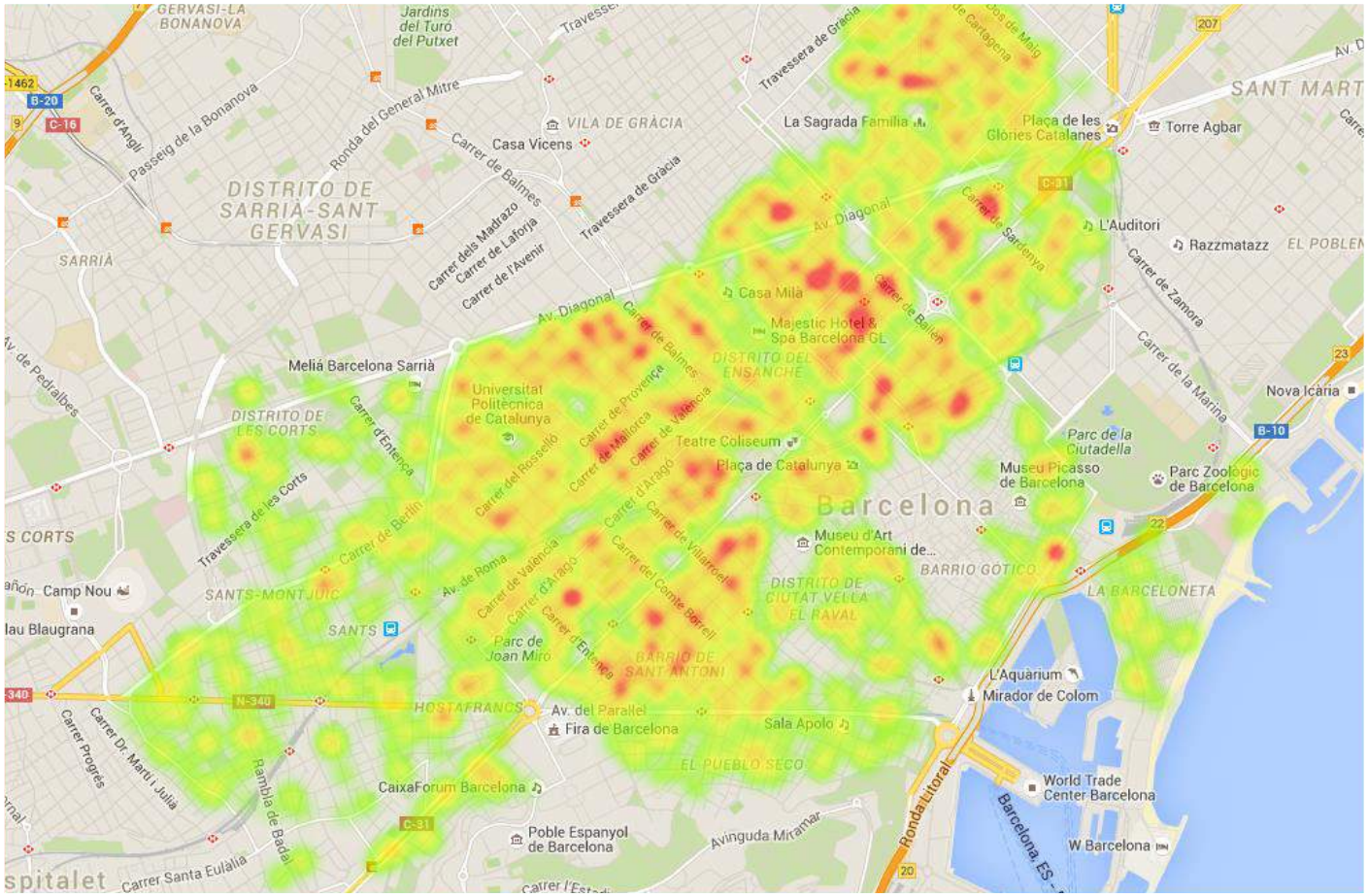
CONTEXT – SOLUTIONS – WHAT DO WE DO?

2. ON-STREET LOADING AND UNLOADING AREAS



Distribution map uses. March 2016

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CONTEXT – SOLUTIONS – WHAT DO WE DO?

3. PEDESTRIAN ZONES

In **pedestrian zones** loading operations are allowed only in certain time-windows.

We are also trying to implement this kind of solution in the **superblocks** strategy for the whole city.

There are different technologies for the **access control**: providing cards for neighbours combined with use of barriers, artificial vision cameras reading license plates, or even just changes in the pavement...

evolution

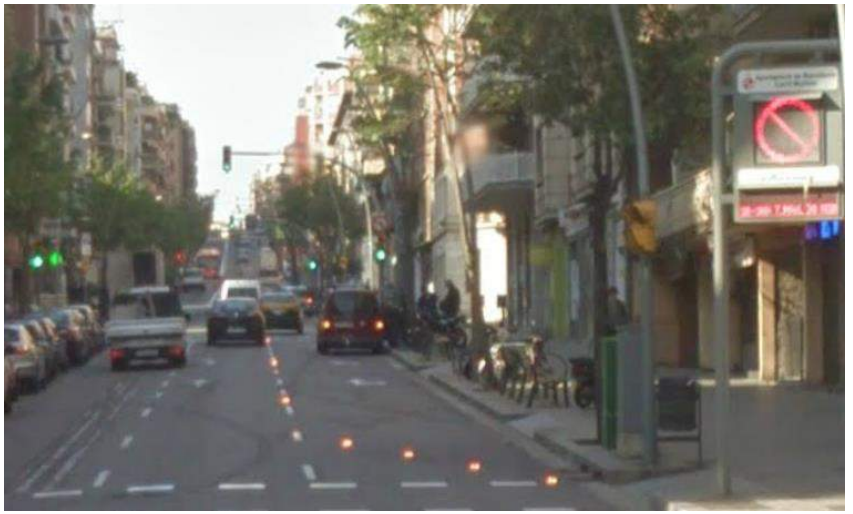
CONTEXT – SOLUTIONS – WHAT DO WE DO?

4. MULTIUSE LANES

Dynamic demand over fixed offer.

This solution allows us to **optimize the use of public space**:

- In **peak hours**, the lane can be used for **traffic or bus.**
- **Out of the rush hours**, during the day, operations of **loading and unloading** are allowed.
- **At night** the space is used as a **parking lane.**



CONTEXT – SOLUTIONS – WHAT DO WE DO?

4. MULTIUSE LANES

We have different **options for signalling** this multiuse lanes:

- Vertical **dynamic signals** and beacon lights on the pavement.

- Vertical **static signals.** Traditional system.

CONTEXT – SOLUTIONS – WHAT DO WE DO?

5. NIGHT DELIVERIES

Management measures try to maximize the number of operations **out of rush hours** and **off-street** (when possible).

We are promoting the night deliveries for the operators that need to carry large and heavy goods to the city such as supermarkets, hotels...

- Changes in the sound level below 0.3 dBA (according to traffic police measurements at the buildings in the surroundings)

- 2 trips out of the peak hour (night) eliminate 7 trips in the peak hour (day)

CONTEXT – SOLUTIONS – WHAT DO WE DO?

5. NIGHT DELIVERIES

Benefits:

- **Less congestion.**
- Operators can use **larger trucks** reducing the number of trips.
- Unloading can be done **in front of their destination.**
- **Cost** due to wages of workers and the new silent equipment is **balanced by the increased productivity.**

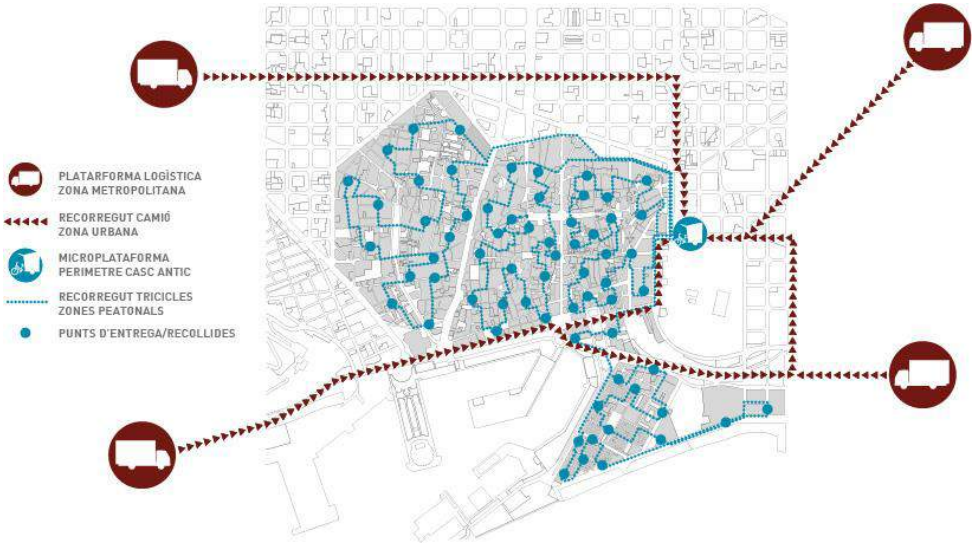
CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

The transhipment point **reduces the traffic of vans and trucks** in the historic centres of the city.

The distribution is made by **electric or assisted cargo-bikes**, less impact vehicles for its volume and its emissions.

This system **doesn't have the restriction of the "time windows".**



CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

SIMLE PROJECT

Started **December'13**, end **June'14** (6 months)

Dynamic & flexible transshipment point, to accommodate future demand

Boost private participation, with minimum support from public authorities

Oriented to **parcel services** and **served** in the same day. "It is not a depot"

vanAPEDAL

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CENIT
CENTRO DE INNOVACIÓN DEL TRANSPORTE

saba aparcaments

TNT sure we can

SEUR

DHL EXPRESS

ASM transporte urgente

ENVIOS URGENTES HALCOURIER

TDN

LA LUNA shipping

CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

SIMLE PROJECT

During the pilot, there were **two types of services** from the trans-shipment point:

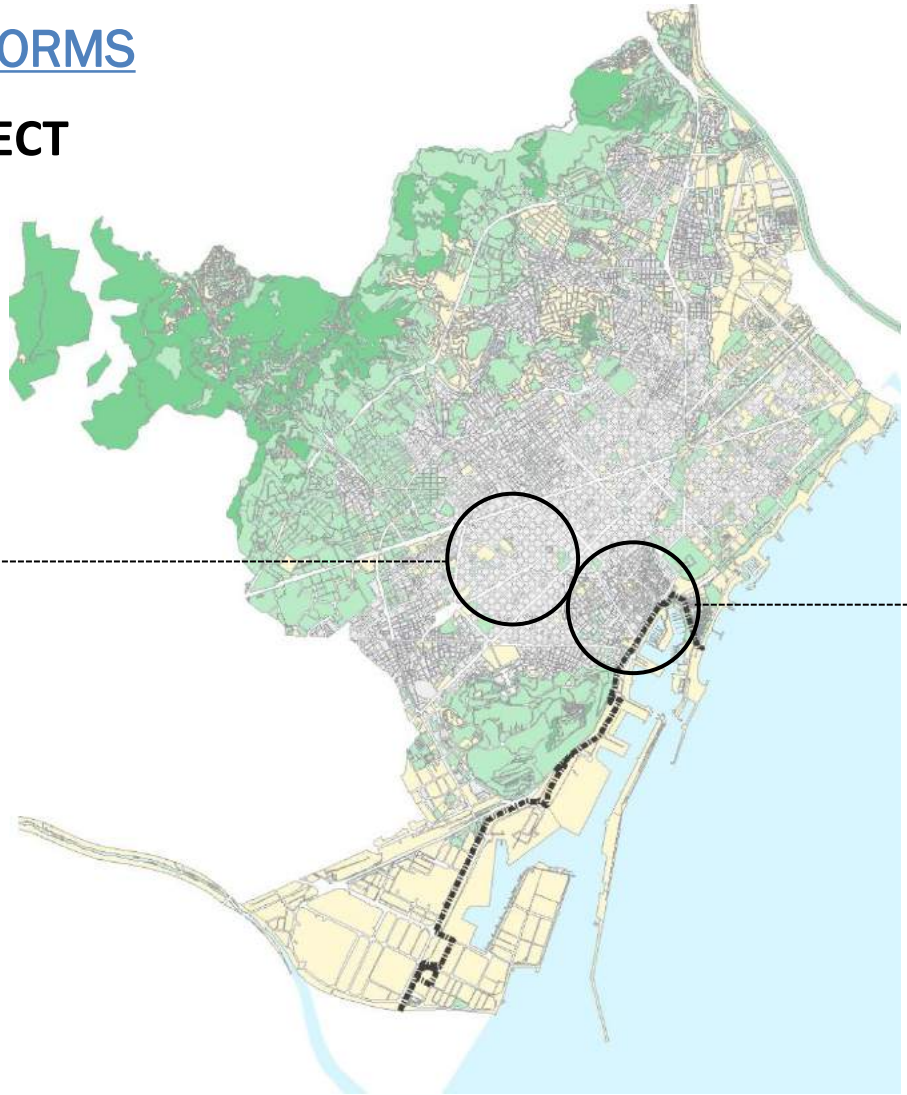
- ***Shared box-service***.
  - Parcels of **different shippers** share same box
  - **Limited number** of packages per operator/ day,
  - service **subsidised** by publicity (during pilot by city council)

- ***Exclusive cargo-bike***.
  - A company subcontracts a **whole tricycle**
  - performs **only its deliveries** in the area
  - **Private contract** between LMO & shipper company
  - e-tricycles/rider are **branded** with original company logo

CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

NOVELOG PROJECT



PILOT
NINOT MARKET

PILOT
ESTACIÓ DE FRANÇA

CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

NOVELOG PROJECT. PILOT. Estació de França

CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

NOVELOG PROJECT. PILOT. Estació de França

CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

NOVELOG. 2016-2017. Pilot Estació de França

CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

NOVELOG. 2016-2017. Pilot Estació de França

CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

NOVELOG PROJECT. PILOT. Ninot Market

CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

NOVELOG PROJECT. PILOT. Ninot Market

CONTEXT – SOLUTIONS – WHAT DO WE DO?

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CONTEXT – SOLUTIONS – WHAT DO WE DO?

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NOVELOG PROJECT. PILOT. Ninot Market

CONTEXT – SOLUTIONS – WHAT DO WE DO?

6. MICROPLATFORMS

NOVELOG PROJECT. PILOT. Ninot Market

6. MICROPLATFORMS

NOVELOG PROJECT.

- Instead of SMILE pack (service subsidy for 6-month pilot, e-trike purchase), provide a longer-term concession of public space to facilitate off-street trans-shipment, cargo-bike storage (avoiding operating costs of module rental, overnight trike parking)…
- …as long as LMO provides data (to show that service are made in a neutral way, serving all shippers).

Thanks for your attention!

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