



# 3C. Access for all - **Generating demand responsive bus routes from social network data analysis**

Polis Conference 2019

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# 1. Inclusion

## 2. Barcelona Pilot Lab

- The Problem
- The Solution
- Objectives and Particularities
- Model Development
- Results
- Conclusions

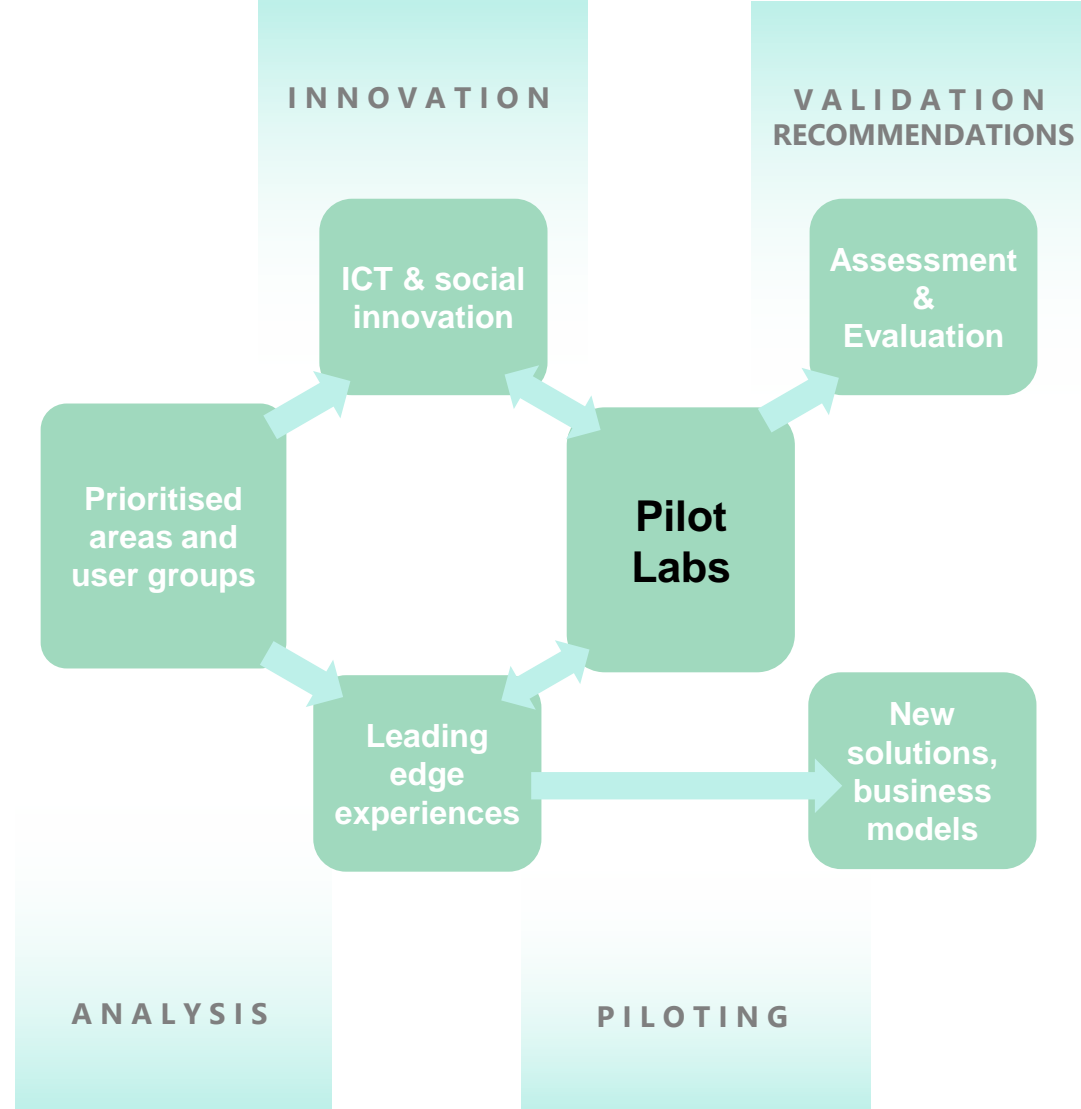
# INCLUSION

## find transferable solutions

...to improve **accessibility and inclusiveness** of collective transport

...addressing **vulnerable users**,

...in **urban and rural** areas.



# Barcelona Pilot Lab



# The problem

**Occasional group or travellers**  
(particularly young people) moving  
as individuals or small groups,  
**travelling to common destinations**  
as music festivals

When there is limited PT, **target user groups** are used to either **taking their own car** (if it is possible) or **not going to the festival**

## Vulnerable target areas

### Limited PT accessibility to go to the event:

- Inflexible, infrequent during night time
- Operated on a radial routes structures linking peripheries and Barcelona



## Vulnerable target users



### Safety risk for the attendees

- 64% of the attendees are under 24 years old
- 69% of the attendees are females

# The solution

To reduce territorial accessibility barriers to attend cultural events located in peri-urban areas of the Barcelona Metropolitan Region, due to poor or inflexible transport offer.

**On-demand transport services** to increase transport accessibility in different vulnerable areas with a safer, cheaper and more comfortable ways to travel to avoid taking private car to attend the event



**Identification of geographical areas with potential demand** (using Social Networks and other data sources) to attend to the event and to propose the most suitable bus-stops locations for this uncovered demand



# Objectives and Particularities

Identify **potential users' demand** that want to attend to a socio-cultural event through social networks analysis.

Identify **potential geographical areas** to propose the most suitable bus-stops locations for the uncovered demand

## potential users' demand

Past event attendees that have used private transport

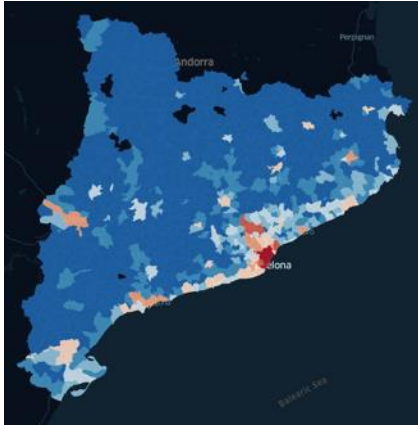
New people that are thinking to attend to the next event

People that have already used BusUp services in past events editions

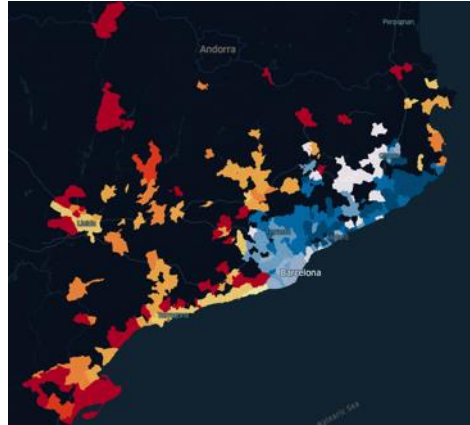
People that was not able to attend the past event because of transport accessibility problems

# Model development

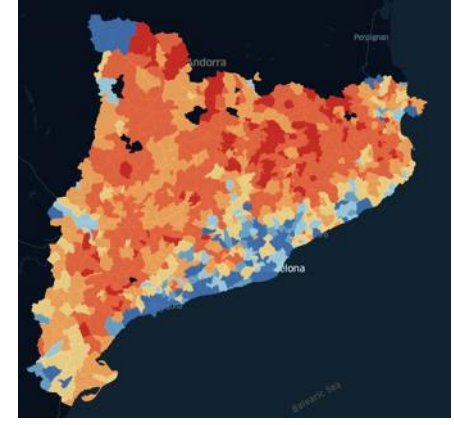
DEMOGRAPHIC DISTRIBUTION



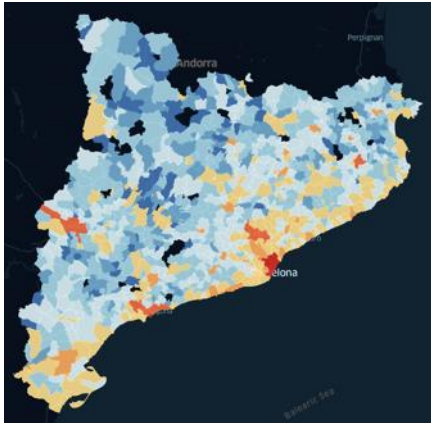
TRANSPORT CONNECTIVITY



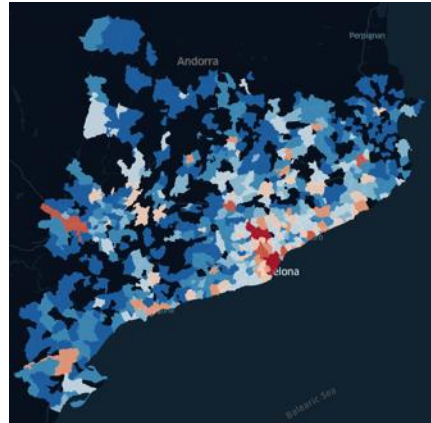
POLITICAL RESULTS



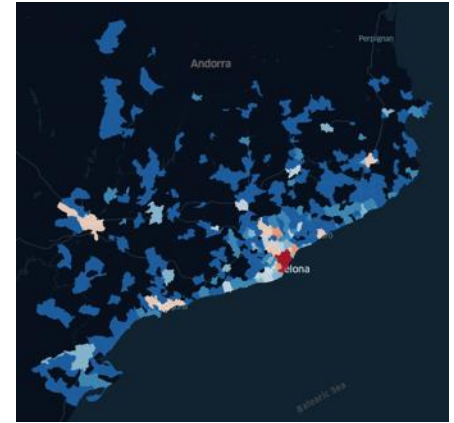
INTEREST ON SOCIAL NETWORKS



HISTORIC OF ASSISTANTS 2018

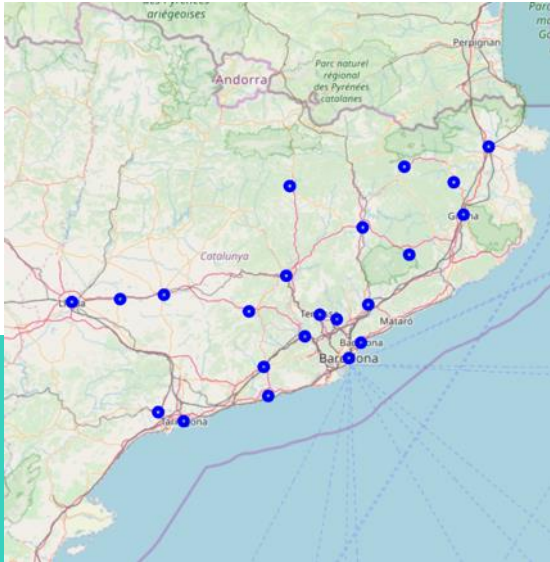


HIGH SCHOOL

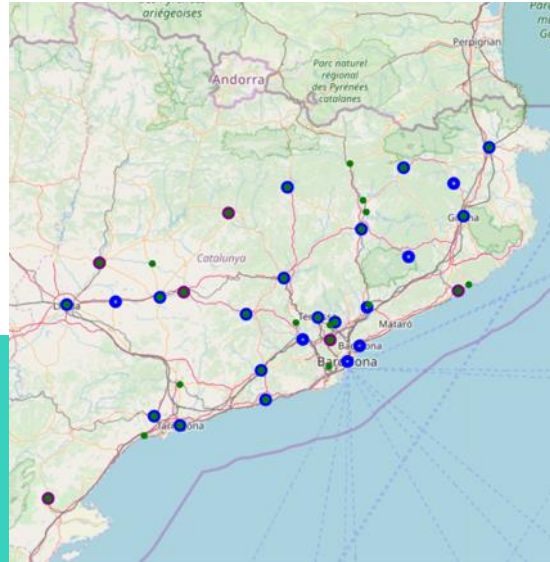




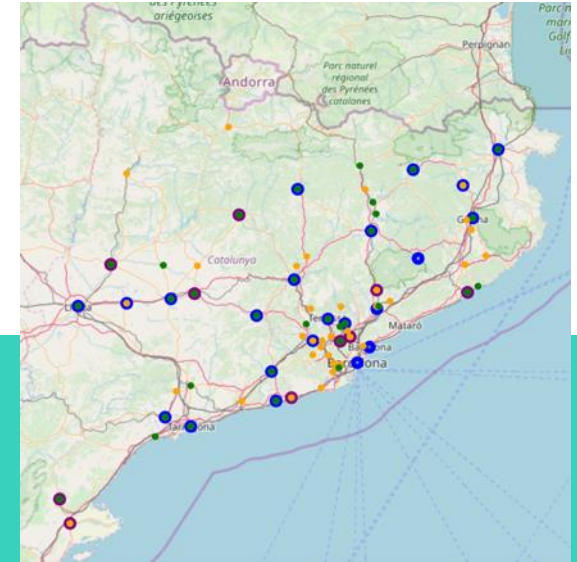
# Results



**19 initial stops  
last year**



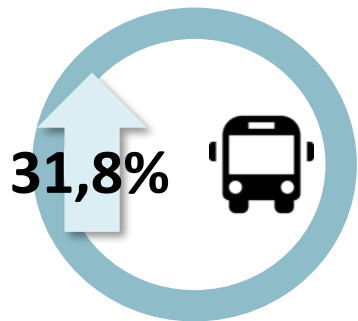
**17 high potential stops  
new stops**



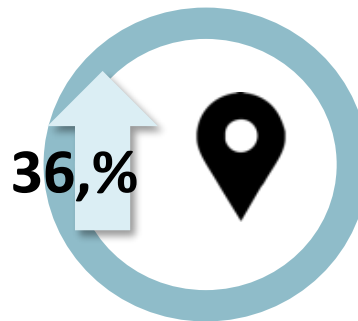
**33 mid potential stops  
new stops**



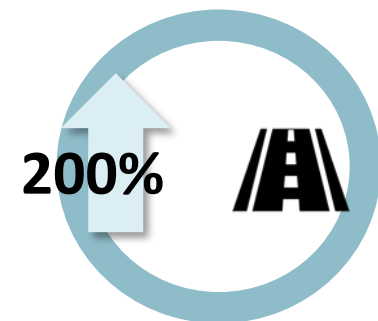
# Conclusions



**Number of buses**  
15 → 22



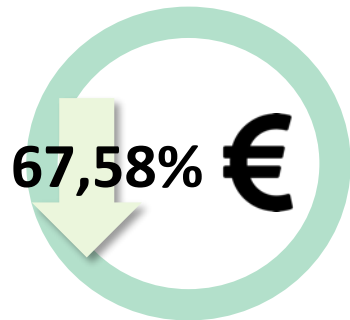
**Number of stops**  
22 → 30



**Number of direct routes**  
3 → 9

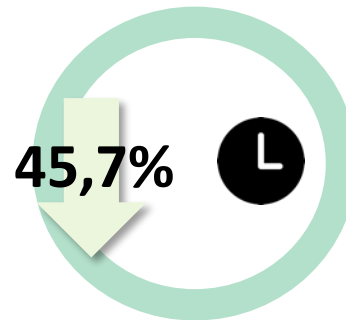
*Service Improvement (comparing 2018-2019)*

# Conclusions



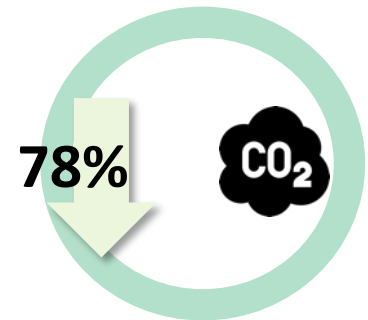
## Cost reduction

*Comparing av. cost by BusUp x pax. services and av. cost by car x pax.*



## Time reduction

*Comparing Public Transport and BusUp services*



## CO<sub>2</sub> reduction 23TnCo<sub>2</sub> → 5TnCo<sub>2</sub>

*Comparing by BusUp and by car*



## Contact details

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#H2020INCLUSION