

INCONTRIAMOCI A

INTER MOBILITY

future ways

IN CONTEMPORANEA CON



19 - 21
NOVEMBRE
2024

RIMINI EXPO CENTRE,
ITALIA



SPEAKER

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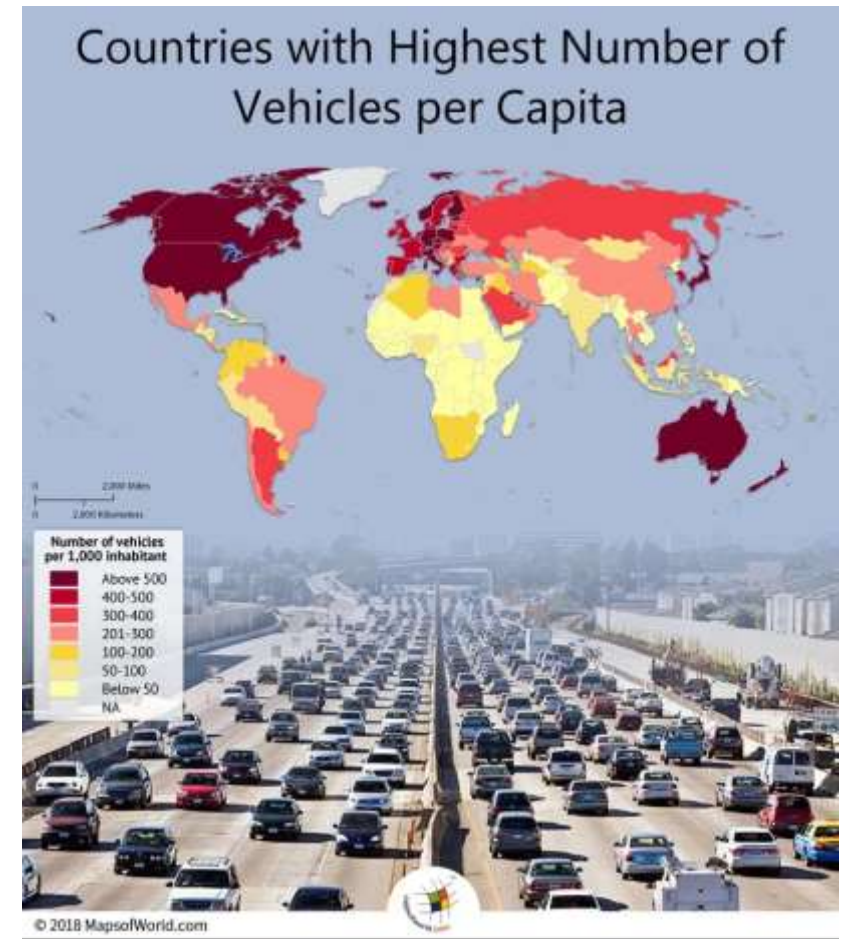
Megatrends: CONGESTION / car density

Country	cars per 1000 inhabitants	total number of cars
United States	831	275.913.237,00
Canada	790	30.754.600,00
Australia	782	20.335.000,00
Poland	771	29.369.800,00
Italy	755	45.487.900,00
France	668	45.297.000,00
Germany	628	52.275.833,00
Spain	627	29.707.581,00
Japan	624	78.461.953,00
United Kingdom	600	40.800.000,00
Netherlands	588	10.248.388,00
Malaysia	542	17.728.482,00
South Korea	485	25.167.409,00
Russia	395	58.116.046,00
Mexico	391	50.400.000,00
Argentina	373	17.000.000,00
Colombia	324	16.500.000,00
Thailand	280	19.576.630,00
Turkey	254	21.763.186,00
Ukraine	245	10.500.000,00
South Africa	232	13.570.330,00
China	226	319.000.000,00
Brazil	215	46.200.000,00
Iran	175	14.500.000,00
Indonesia	82	22.587.923,00
Nigeria	61	13.000.000,00
India	59	80.888.051,00



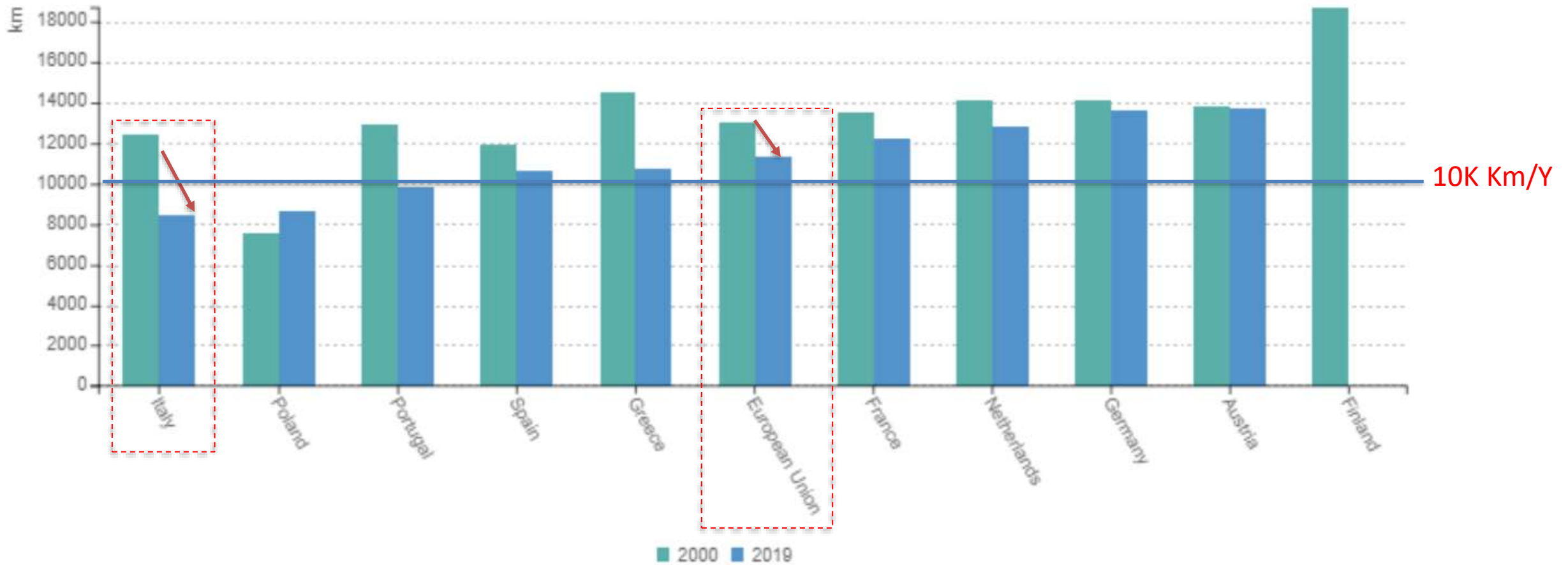
List of countries with more than 10M cars sorted by car density

Italy: 60M people;
45M cars)



Megatrends: CONGESTION / travelled distance (EU)

Change in distance travelled by car for selected countries

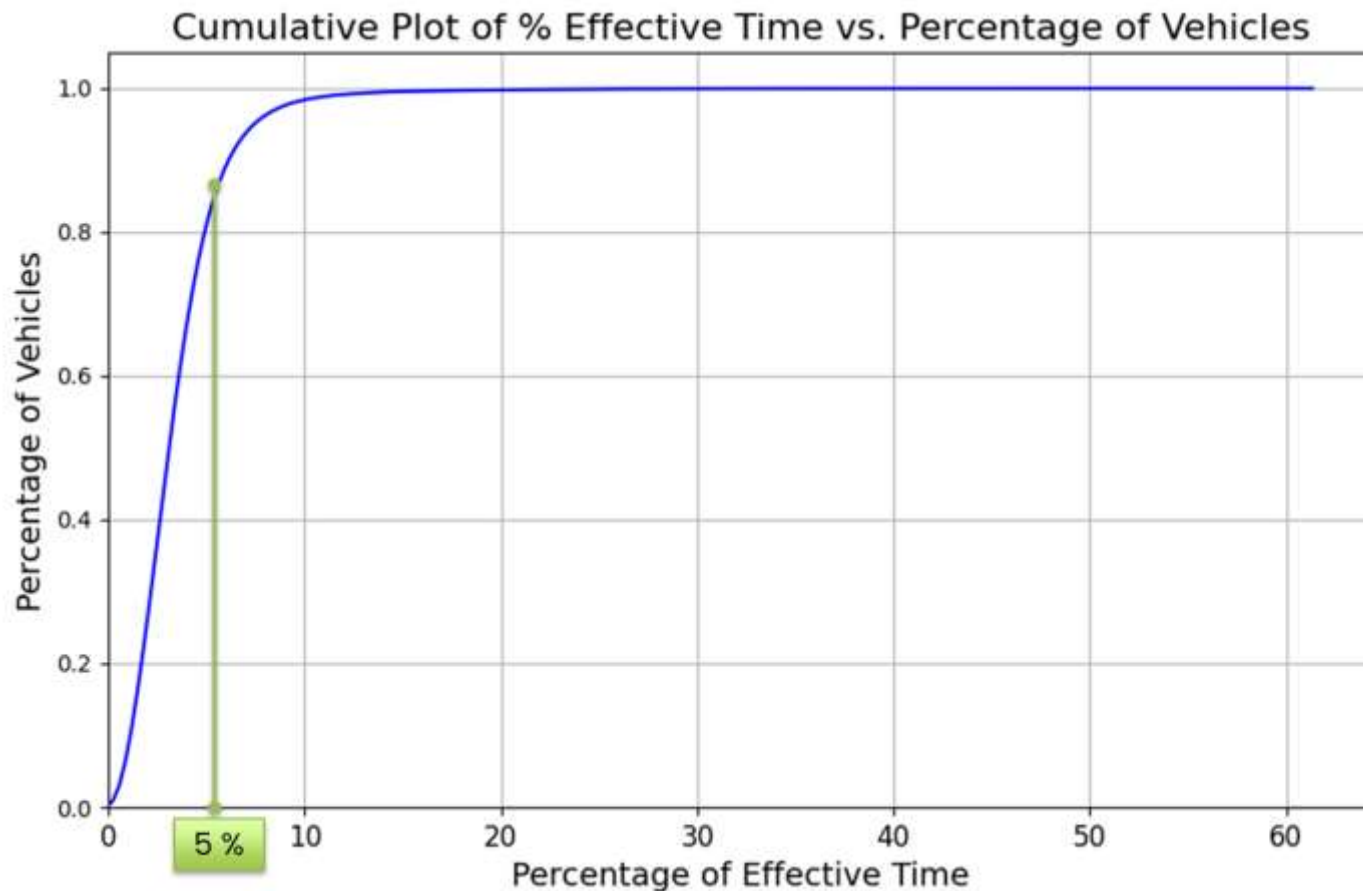


<https://www.odyssee-mure.eu/publications/efficiency-by-sector/transport/transport-eu.pdf>

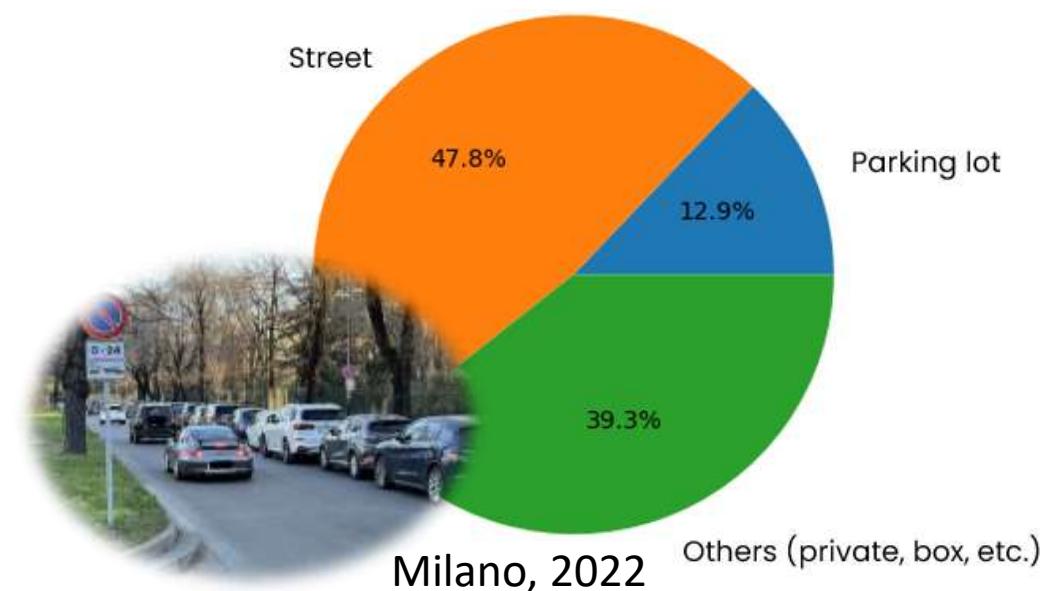
Remark: car usage (Italy, 2022)

Data source:

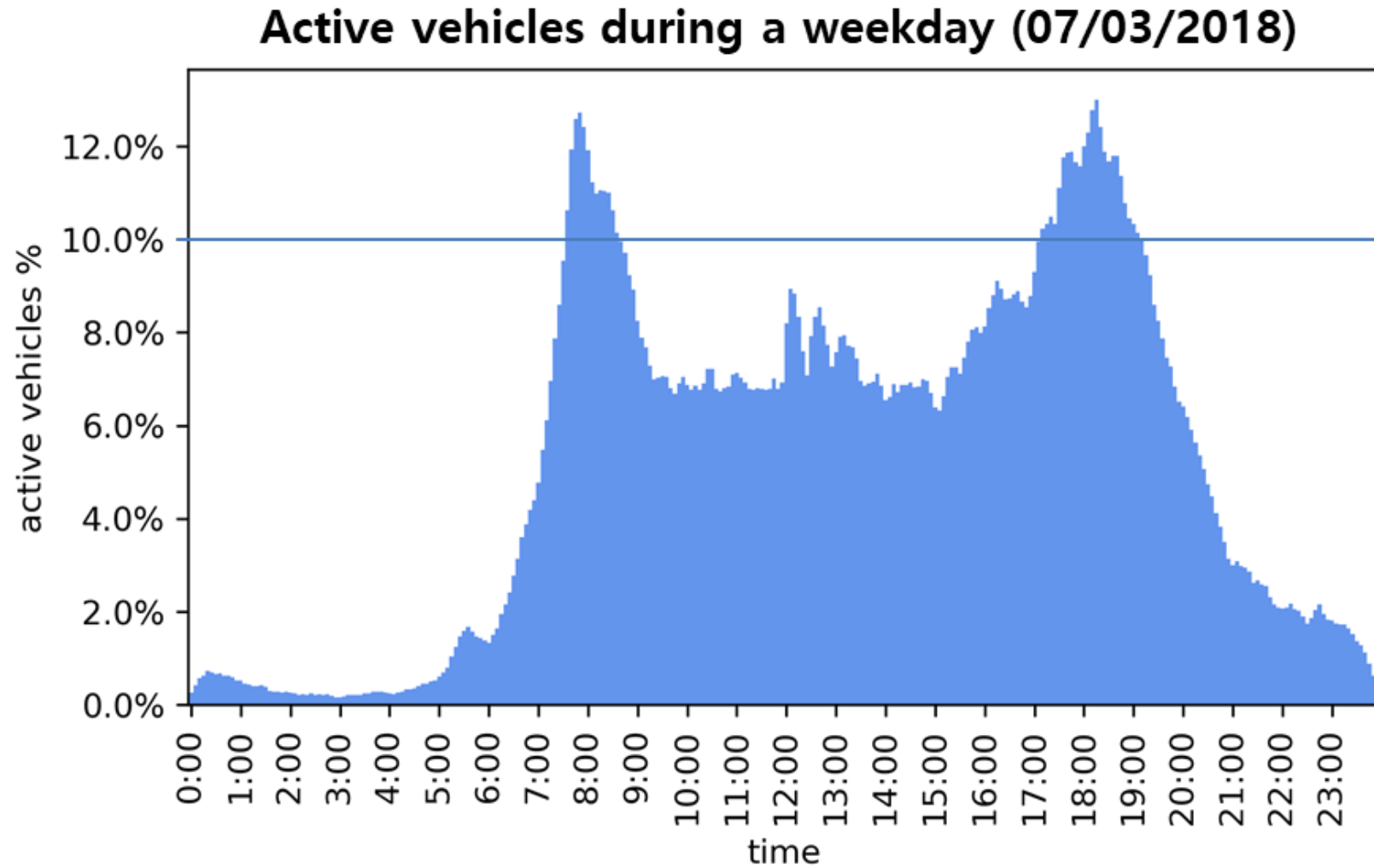
UnipolTech
SOLUZIONI TECNOLOGICHE



85% of the cars in Italy (2022) are used less than 5 % of time



Remark: simultaneously-used cars



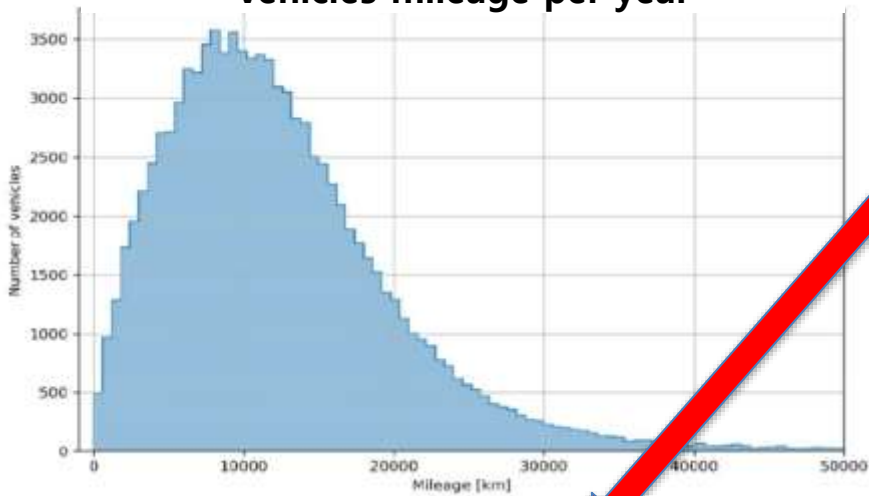
Data source:

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SOLUZIONI TECNOLOGICHE

Electric car and personal ownership: a mismatch

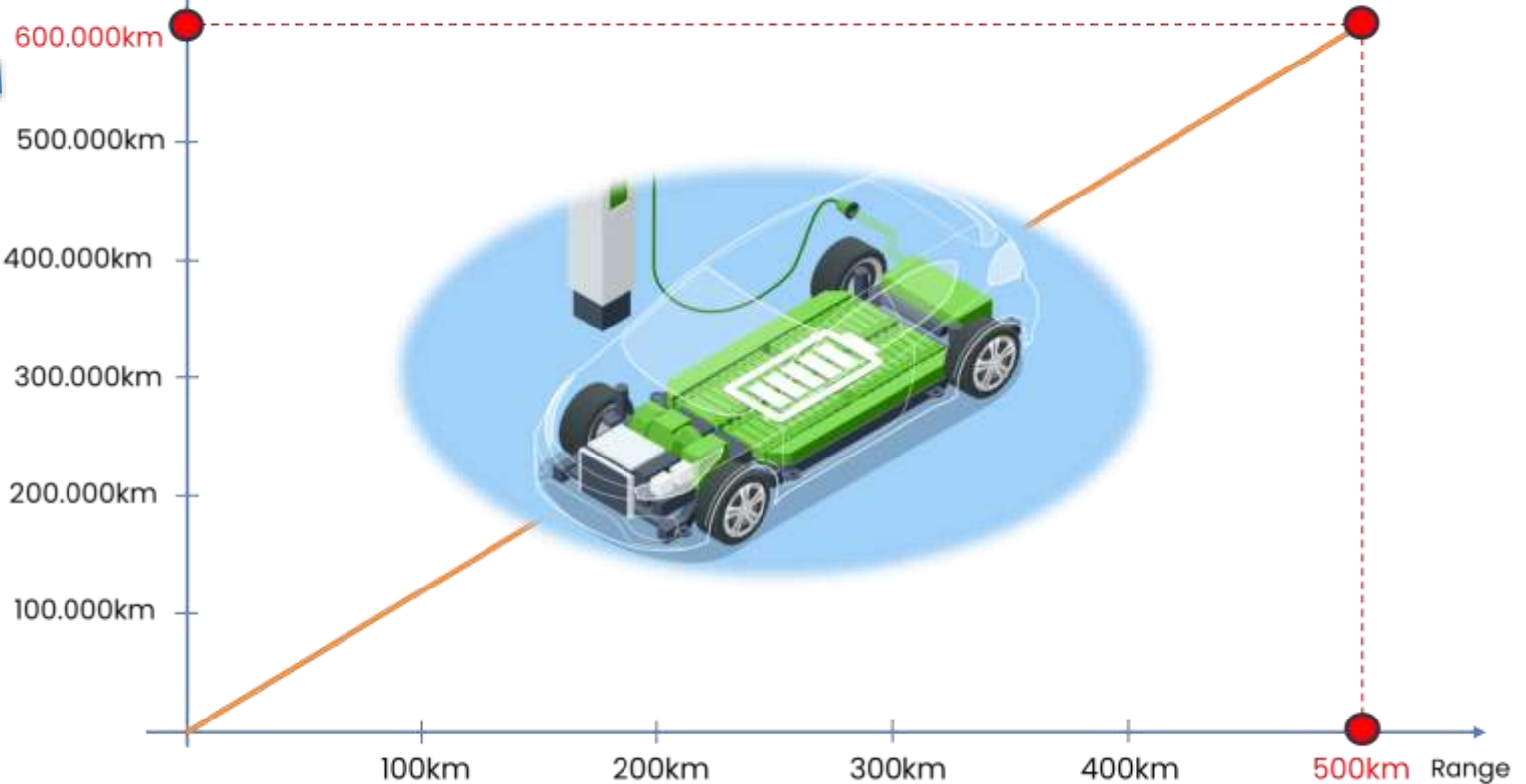
The longer the range, the longer the lifetime: For a 1200 cycles battery : **500Km range = 600.000+Km lifetime**

Vehicles mileage per year



Average mileage: (less than) **10.000km/year**

Battery lifetime (1200 cycles)



Cross-links...

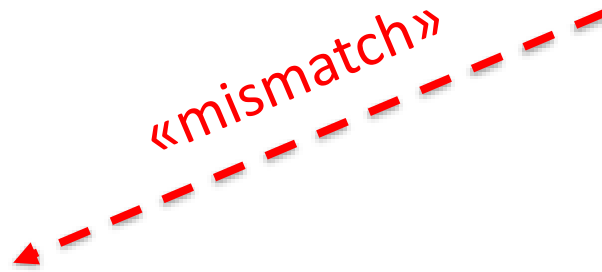


Fossil fuels



Electric

«mismatch»



«perfect fit»



- large mileage
- globally-optimized recharge
- (shorter trips)
- (smaller vehicles)



Personal



Shared

Car-sharing, today (useful but limited effectiveness – hardly scalable)

High (attractive) level of services



(too) many cars



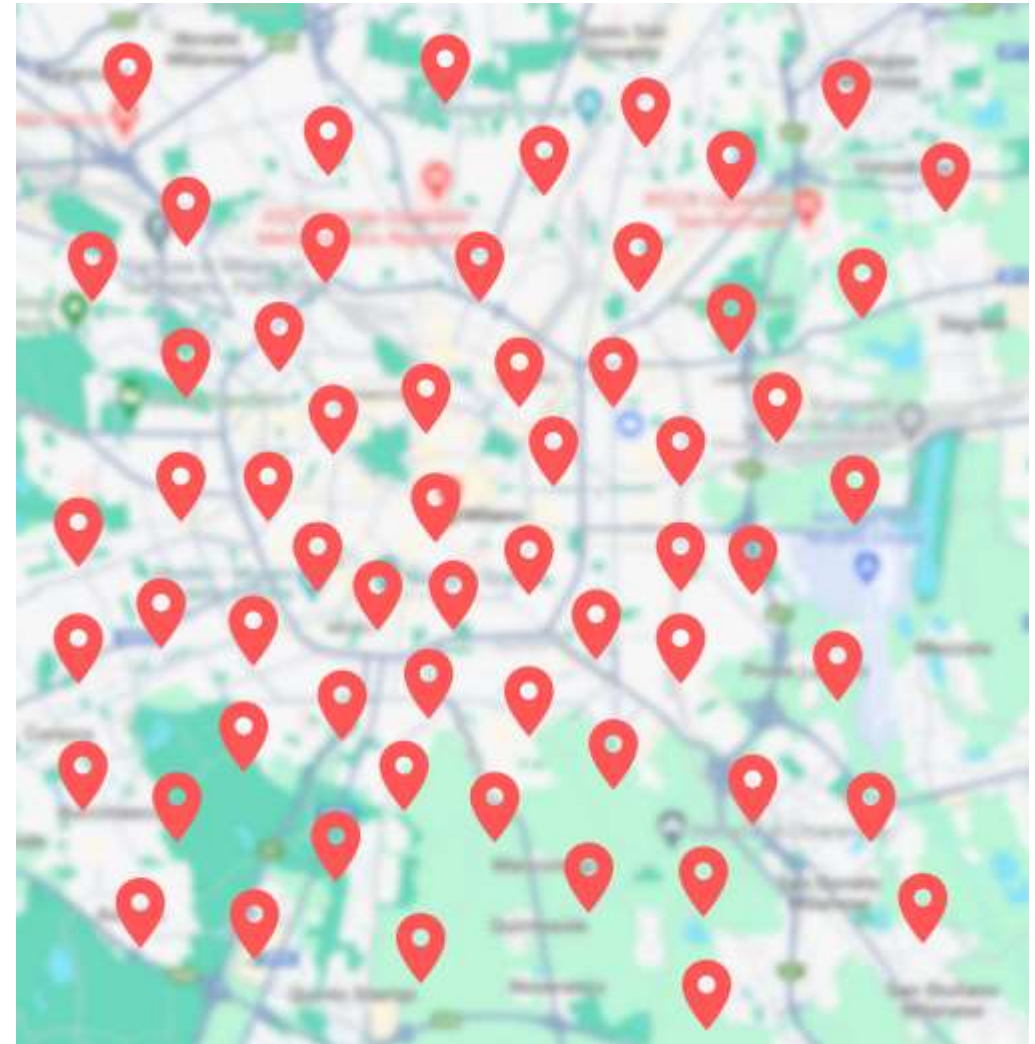
Low mileage-per-car



High cost (user) or non-profits (provider)



«deadlock»



AI(robo) driver: enabling technology for mass-market Mobility As A Service

High (attractive) level of services



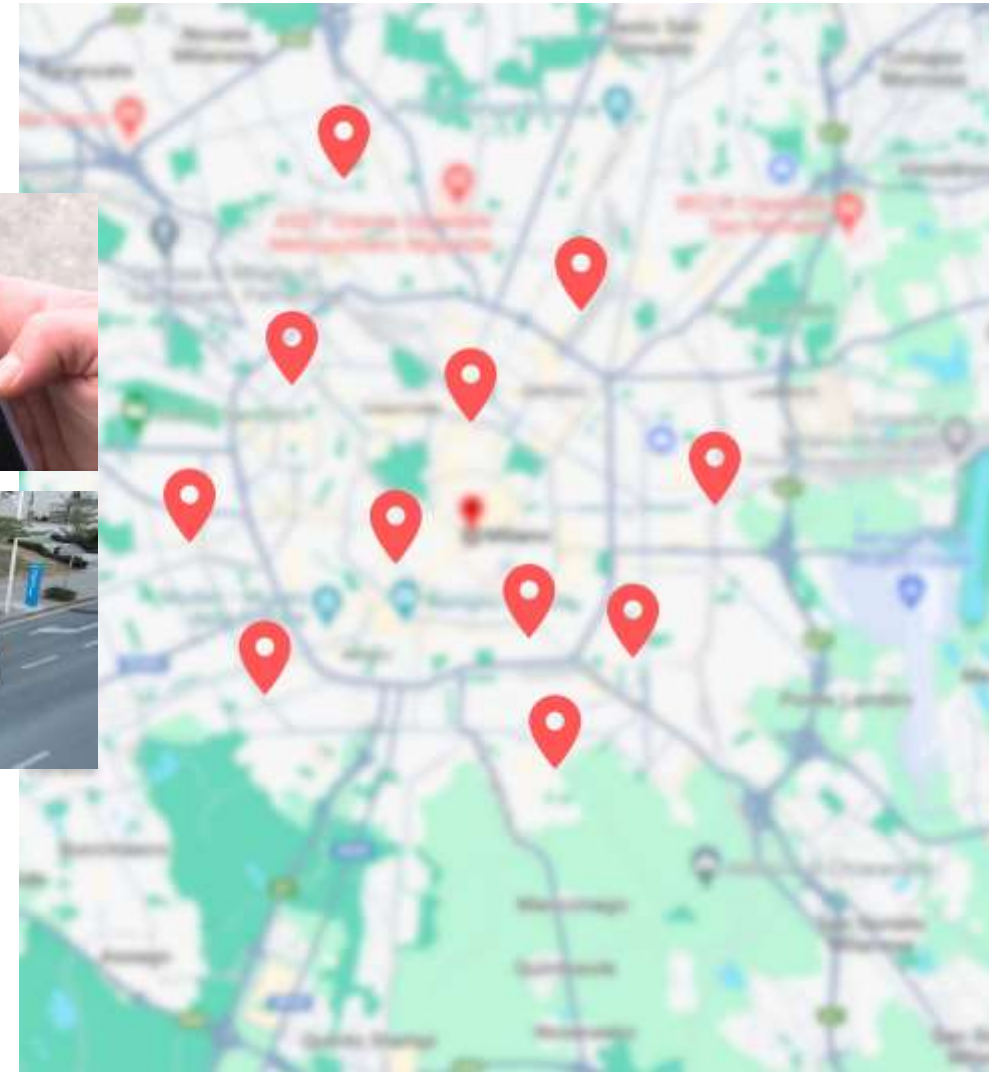
Few cars



High mileage-per-car



Low cost (user) and profits (provider)



Case study: Autonomous Mobility On Demand (MAAS) in Milano

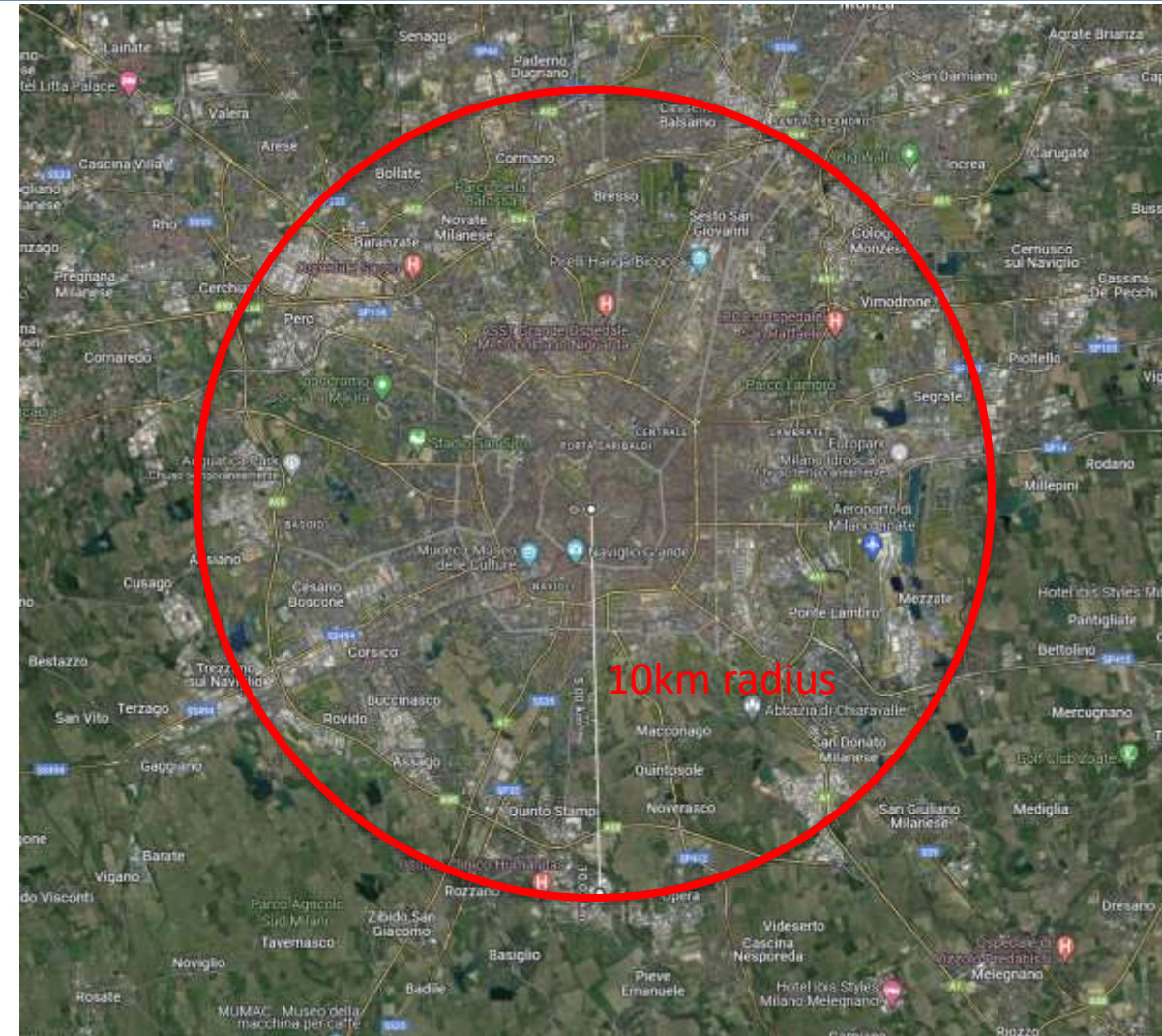
Data source:

UnipolTech
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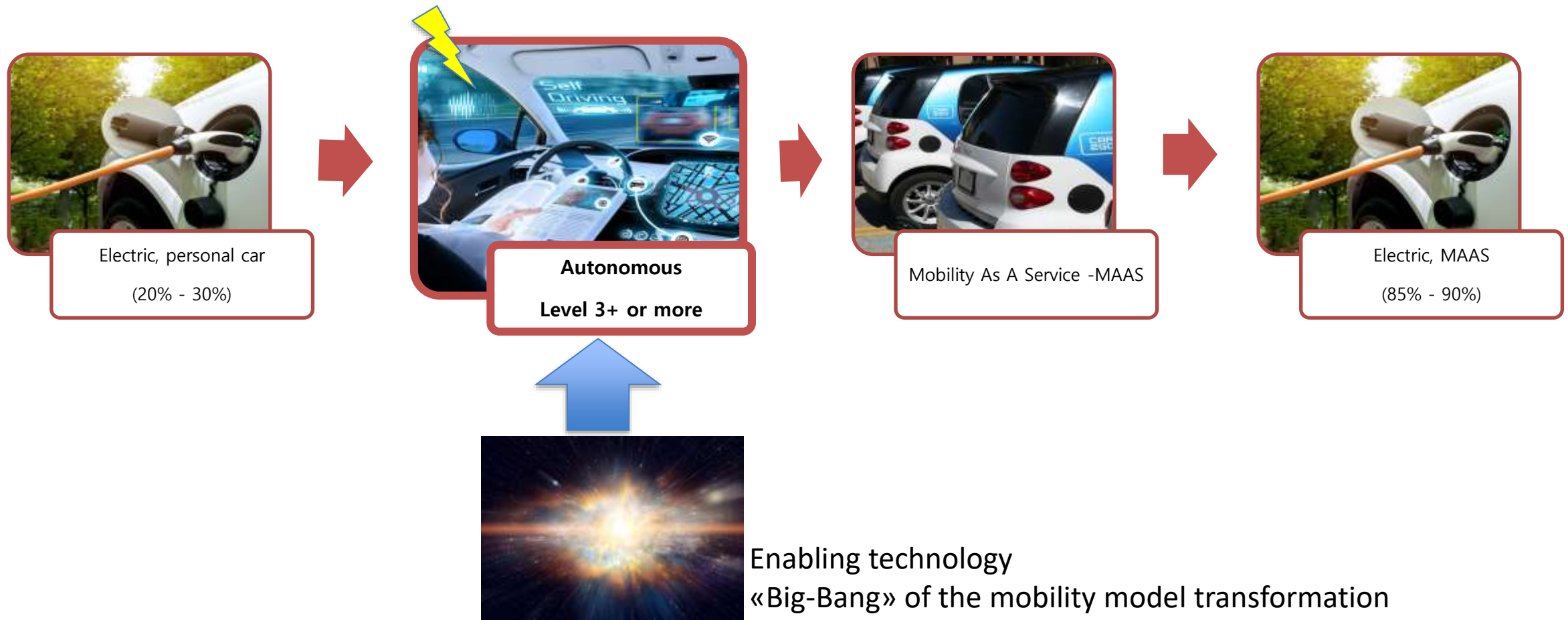
Replacement target: cars with 90% trips «in-in»

Milano	
Optimal Vehicles Number	4021
(Users) Users per car - efficiency	(43800) 10.9
Average Mileage	44.372 km/y
Average Wait Time	2min 20s

Simulation (using real data) of a **robo-taxi service with autonomous driving**



Consecutio – the “right” sequence of the events



A long-term vision of our cities... (a dream?)



PoliMI projects: PoIMOVE team



PoliMI projects: AIDA | 1000MAD | Performance

AIDA
1000MAD



AIDA
PERFORMANCE



1000 Miglia 2023-2024



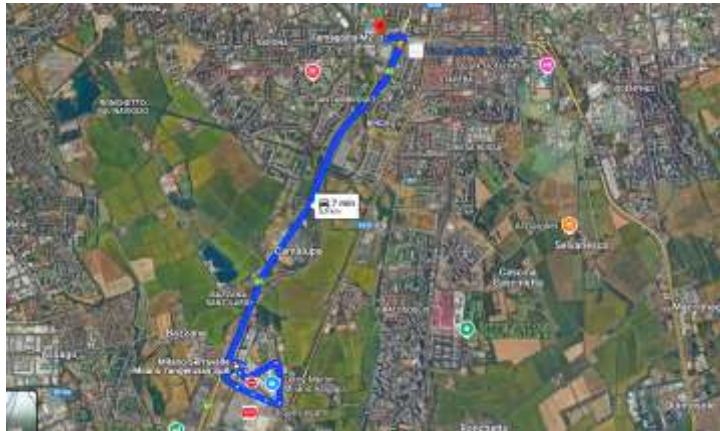
BIG Achievement: Authorization to test on public road (D.M.70/2018 «smart road»)

1000+ KM of authorized public roads

PolIMI projects: AIDA | Urban Opera



Milano



Use-case: shuttle-**multimodale** su hub (barriera autostradale < - > terminale metropolitana)

Brescia



Use-case: **car-sharing assistito (valet service) e docking automatico** ricarica wireless

Darfo Boario



Use-case: **AI-chauffeur di paese** low-speed su hub **servizi sanitari** (farmacie, poliambulatori, etc.) per **anziani**