

16 Marzo 2021

Fondazione Bruno Kessler

How available OPEN BIG DATA is transforming the way we plan CITIES? Open Data and Business

Progetto Interreg GLOCOOnDA

Systematica Srl
Transport Planning and
Mobility Engineering

Milan
Beirut
Mumbai
New York

Via Lovanio, 8
20121 - Milan
Italy

T + 39 02 62 31 19 1
E milano@systematica.net
www.systematica.net



Established in 1989

Transportation Planning and Mobility Engineering

With offices in the US (New York), Europe, India and the Middle East



A Multimodal and Integrated Approach to Mobility Planning

An integrated transport vision optimizes design and resources while it improves the urban environment

Sustainable transport solutions rely on the implementation of integrated strategies that involve multiple transport modes. Genova Waterfront Master Plan, developed with Renzo Piano Building Workshop, is one of the examples where Systematica worked on a multi-layered

strategy, including the relocation of the airport, the reorganization of the harbor, and the introduction of new mass transit systems. The Master Plan includes also national and local road network, parking structures, cycling and pedestrian facilities.

Transport and mobility constitute an integral component for improving the quality of the public realm and humanizing public space



Mass transport system
national / regional connections



Mass transport system
regional / urban connections



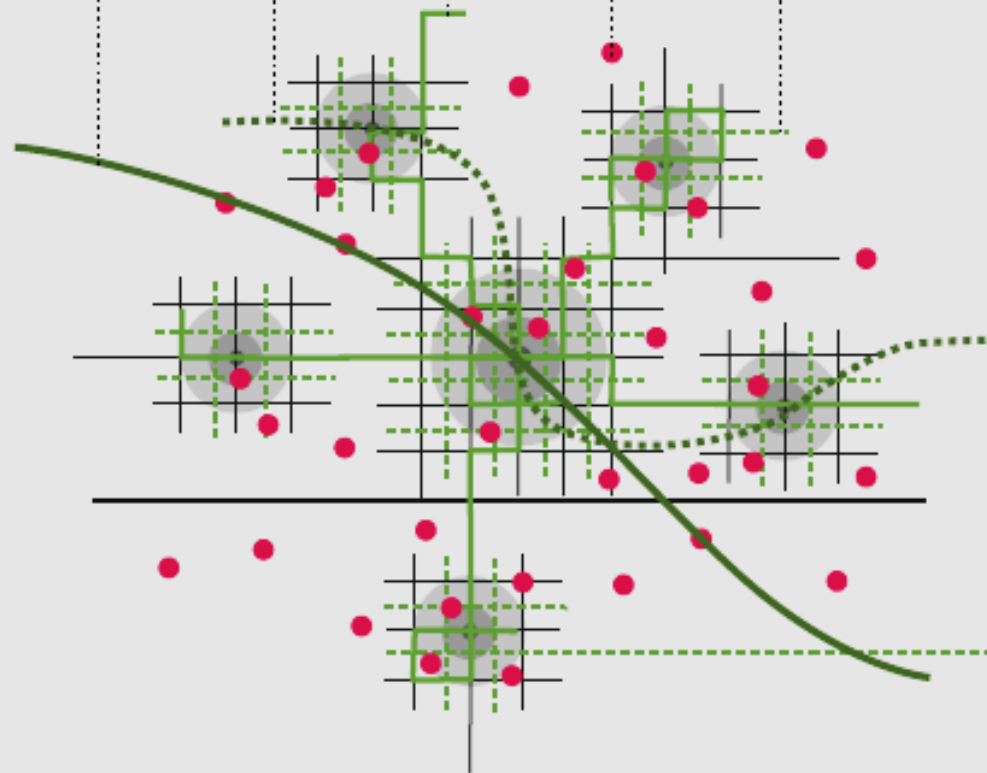
Public transport
local connections



Micromobility
individual-public electric vehicles



Green modes
door-to-door connections



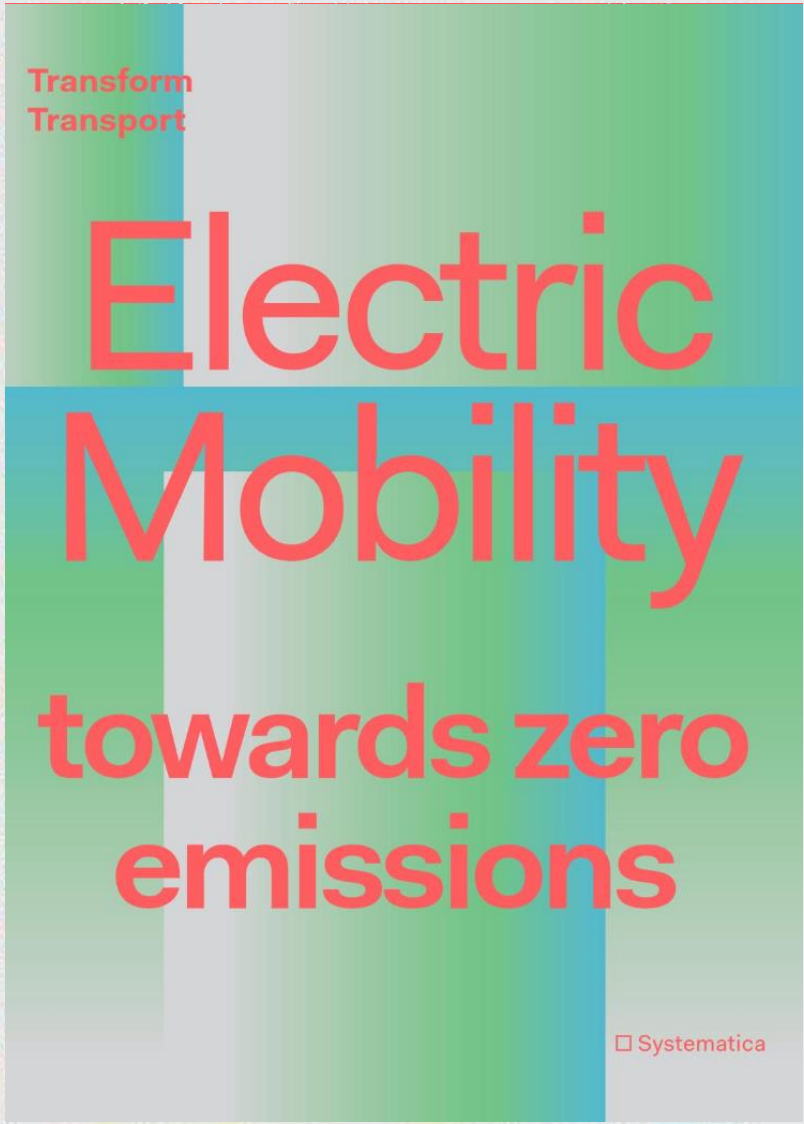
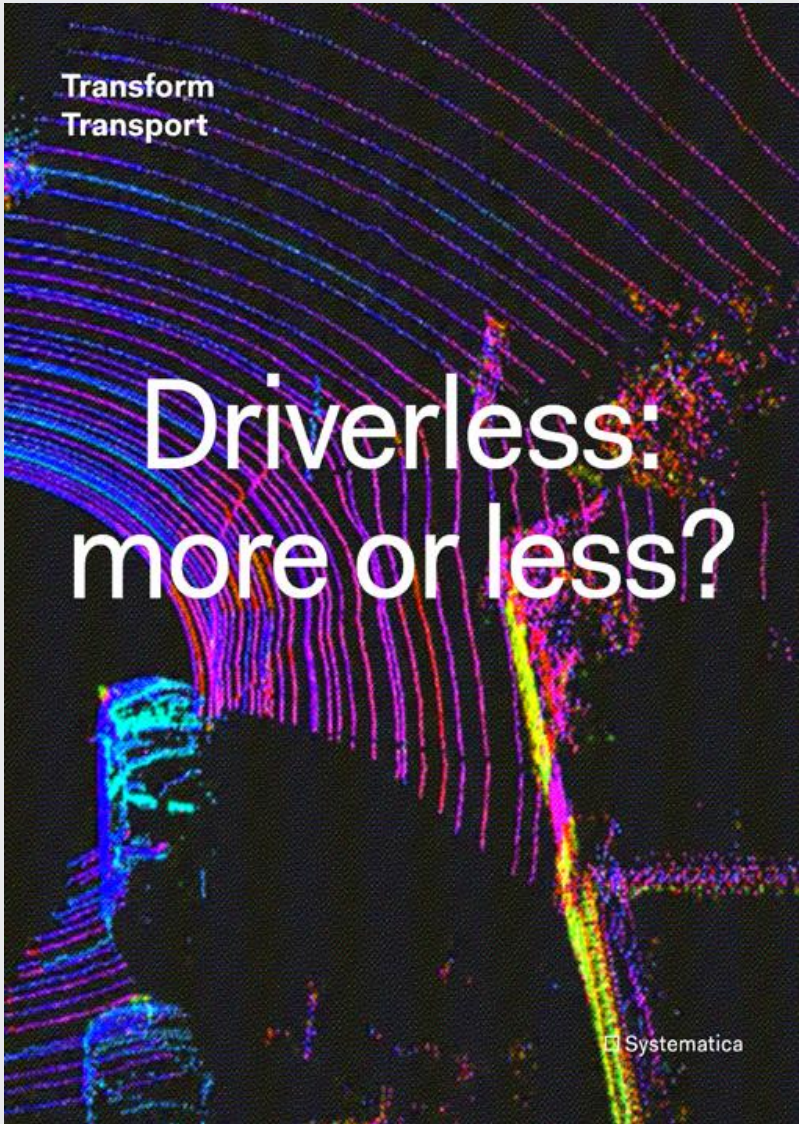
Brownfield Regeneration

Ex-Falk Industrial Area Regeneration Project

Sesto San Giovanni, Italy, 2010

Client: Renzo Piano Building Workshop

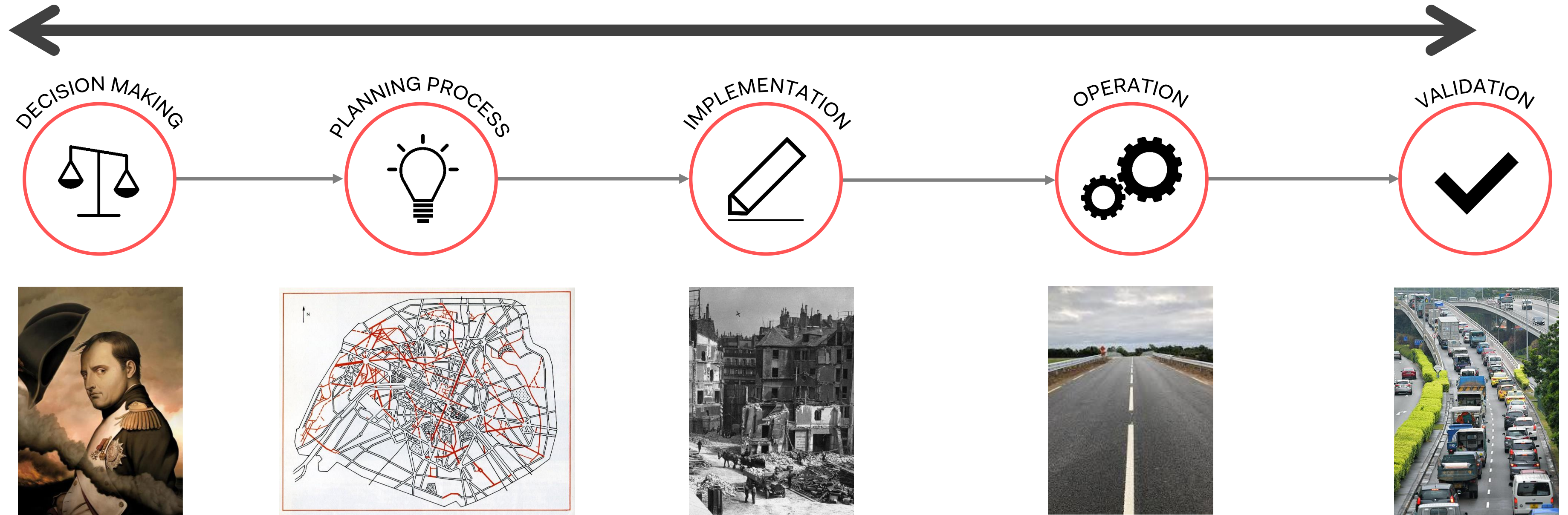




2 - Open (Big) Data for Transport Planning

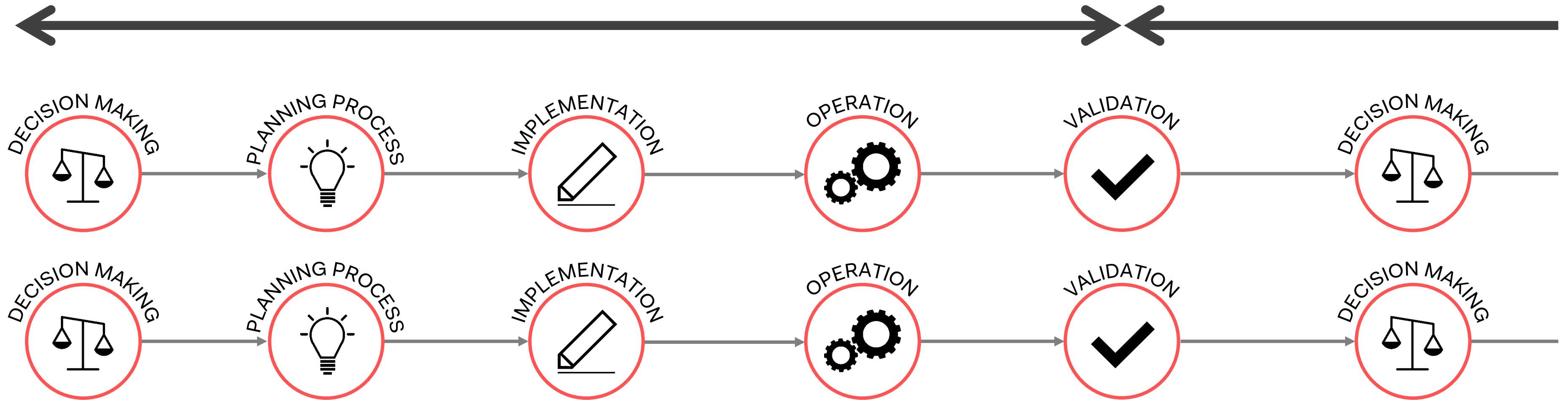
Evolution in the Planning Process

Evidence of top-down urban planning decisions

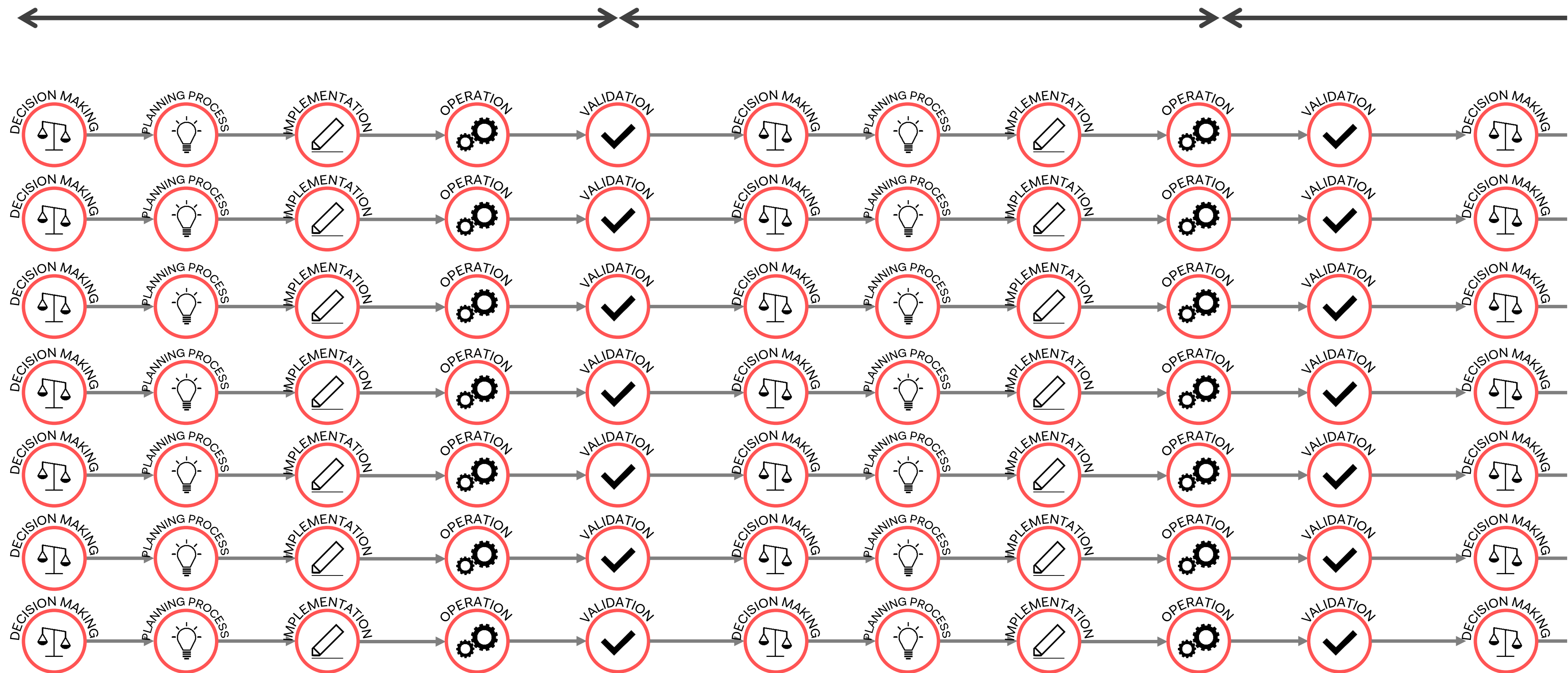


Whom to blame? ←

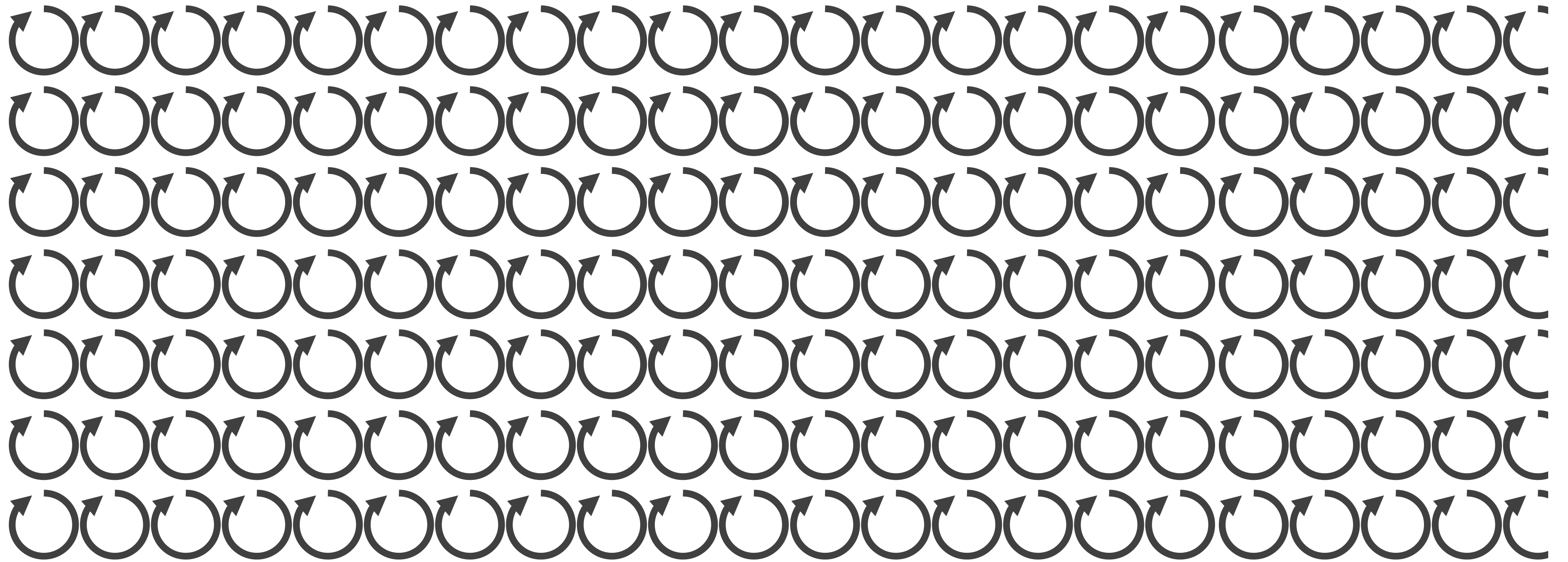
Evolution in the Planning Process



Evolution in the Planning Process



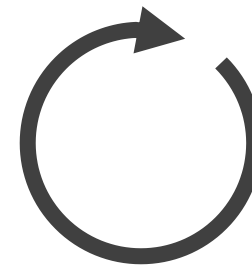
A microscopic, self-corrective and iterative process



A changing paradigm

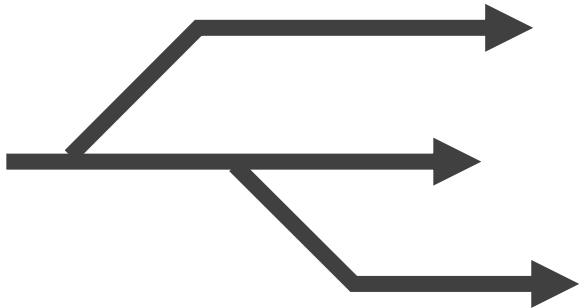


LINEAR

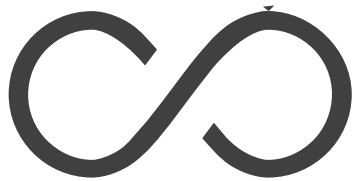


ITERATIVE

A changing paradigm



PREDUCTIVE



ADAPTIVE

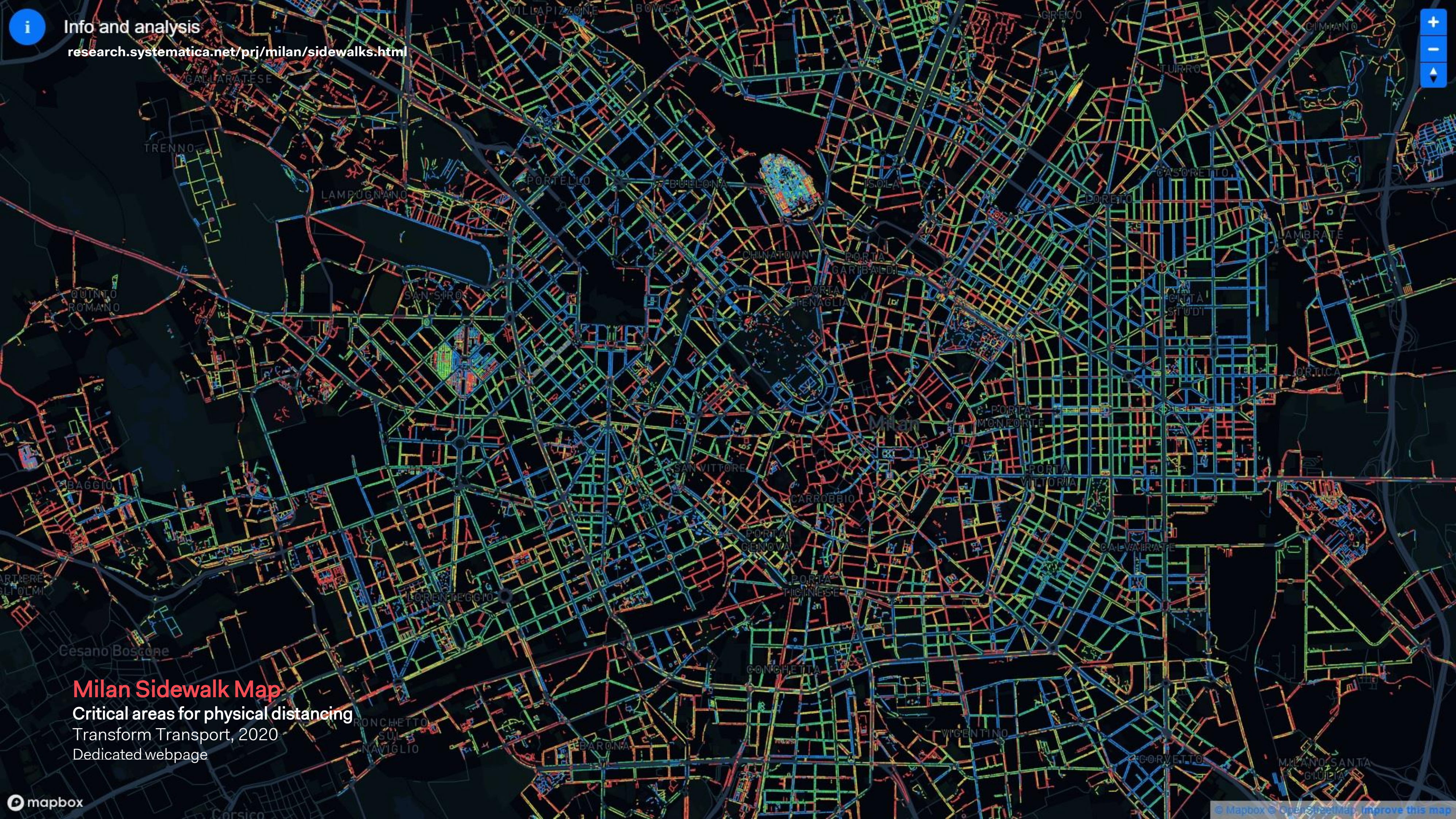
Structures



Nervous System



3 - COVID-19 and Urban Mobility – City of Milan

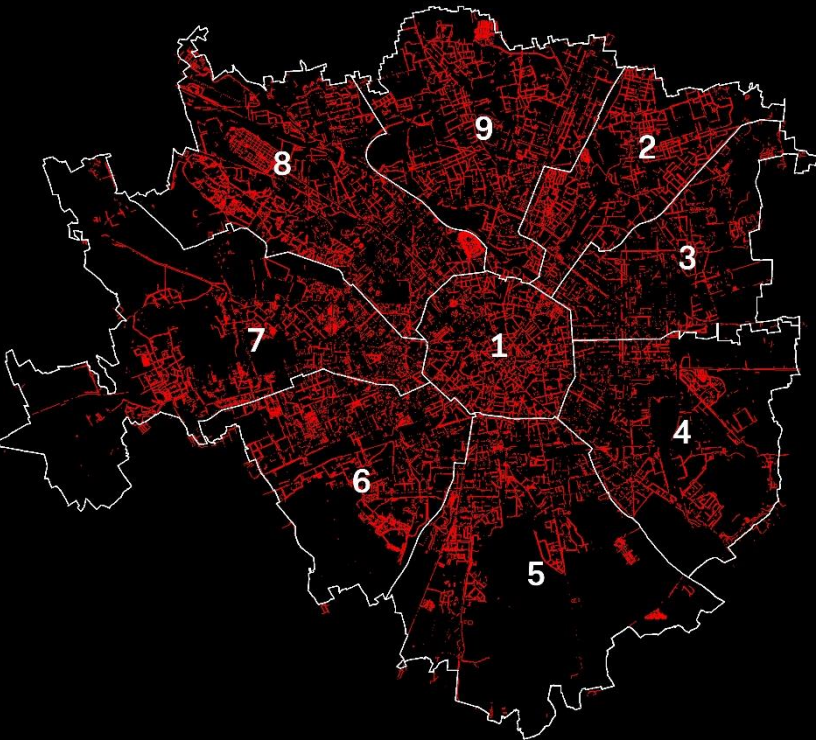


Milan Sidewalk Map
Critical areas for physical distancing
Transform Transport, 2020
Dedicated webpage

Sidewalks in Milan

Marciapiedi a Milano

Unsafe sidewalk
Marciapiede non sicuro
< 2,4 m



45%
1.374 km

- ➔ ZONA 1 – 44%
- ➔ ZONA 2 – 52%
- ➔ ZONA 3 – 32%
- ➔ ZONA 4 – 40%
- ➔ ZONA 5 – 47%
- ➔ ZONA 7 – 45%
- ➔ ZONA 7 – 46%
- ➔ ZONA 8 – 46%
- ➔ ZONA 9 – 49%

Acceptable sidewalks
Marciapiede accettabile
≥ 2,4 and < 3,3 m



24%
730 km

- ➔ ZONA 1 – 22%
- ➔ ZONA 2 – 25%
- ➔ ZONA 3 – 27%
- ➔ ZONA 4 – 26%
- ➔ ZONA 5 – 24%
- ➔ ZONA 7 – 22%
- ➔ ZONA 7 – 22%
- ➔ ZONA 8 – 22%
- ➔ ZONA 9 – 26%

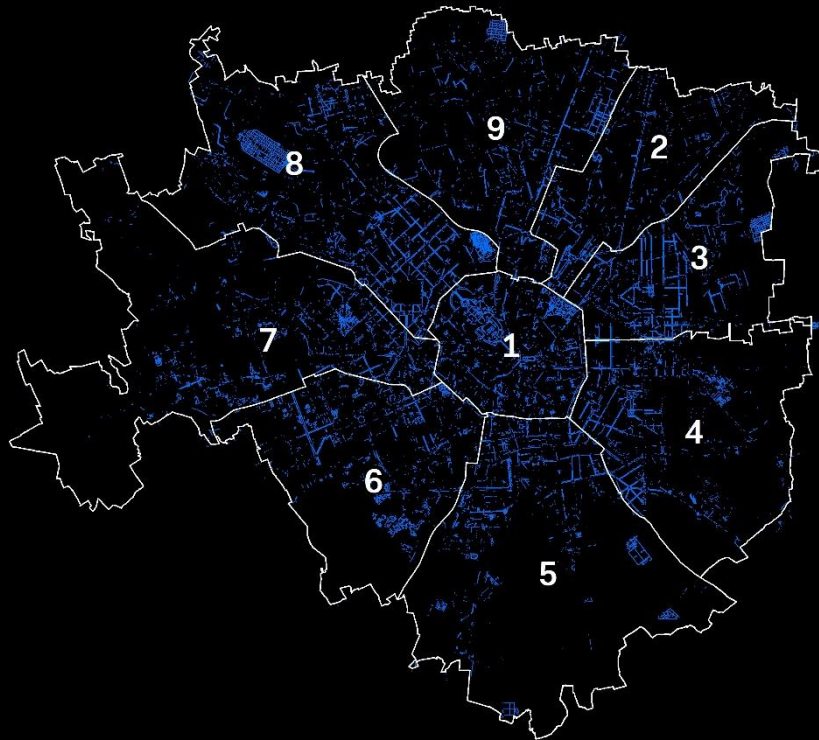
Safe sidewalk
Marciapiede sicuro
≥ 3,3 and < 4,2 m



14%
429 km

- ➔ ZONA 1 – 12%
- ➔ ZONA 2 – 11%
- ➔ ZONA 3 – 20%
- ➔ ZONA 4 – 17%
- ➔ ZONA 5 – 13%
- ➔ ZONA 7 – 17%
- ➔ ZONA 7 – 18%
- ➔ ZONA 8 – 11%
- ➔ ZONA 9 – 11%

Ideal sidewalk
Marciapiede ideale
≥ 4,2 m

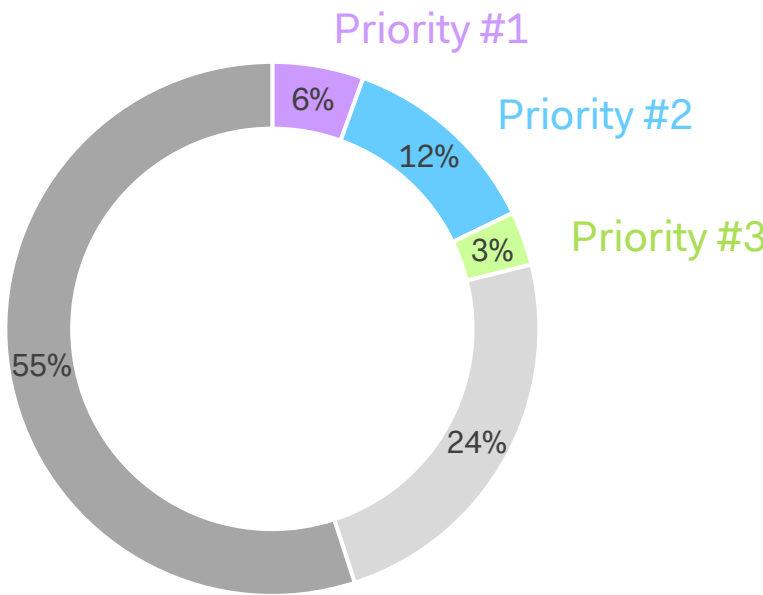


17%
520 km

- ➔ ZONA 1 – 21%
- ➔ ZONA 2 – 12%
- ➔ ZONA 3 – 21%
- ➔ ZONA 4 – 17%
- ➔ ZONA 5 – 17%
- ➔ ZONA 7 – 16%
- ➔ ZONA 7 – 14%
- ➔ ZONA 8 – 21%
- ➔ ZONA 9 – 13%

Sidewalks intervals are based on social distancing of 1 meter, promoted in Italy to respond to Covid-19 pandemic
Gli intervalli dei marciapiedi si basano sul distanziamento sociale di 1 metro, promosso in Italia durante la risposta al virus Covid-19

Priority of interventions



Narrow sidewalks with **Priority 1**
(elderly and dense) **169 km**

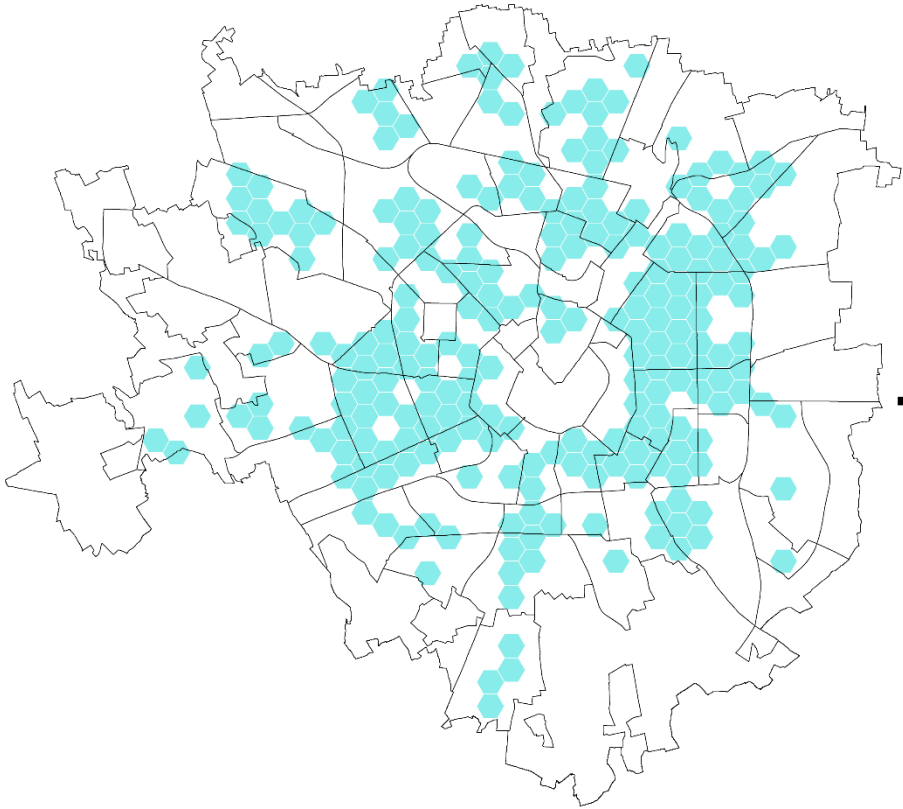
Narrow sidewalks with **Priority 2**
(elderly areas) **376 km**

Narrow sidewalks with **Priority 3**
(dense areas) **100 km**

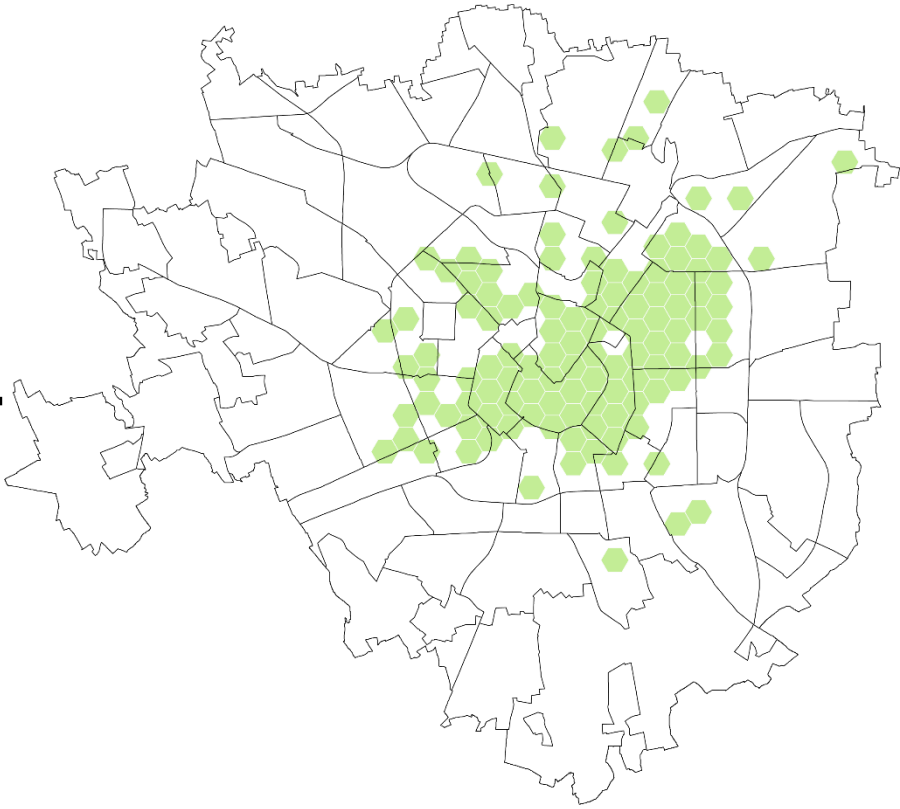
Narrow sidewalks with no Priority **729 km**

Sidewalks wider than 2.4 meters
(not a priority) **1,679 km**

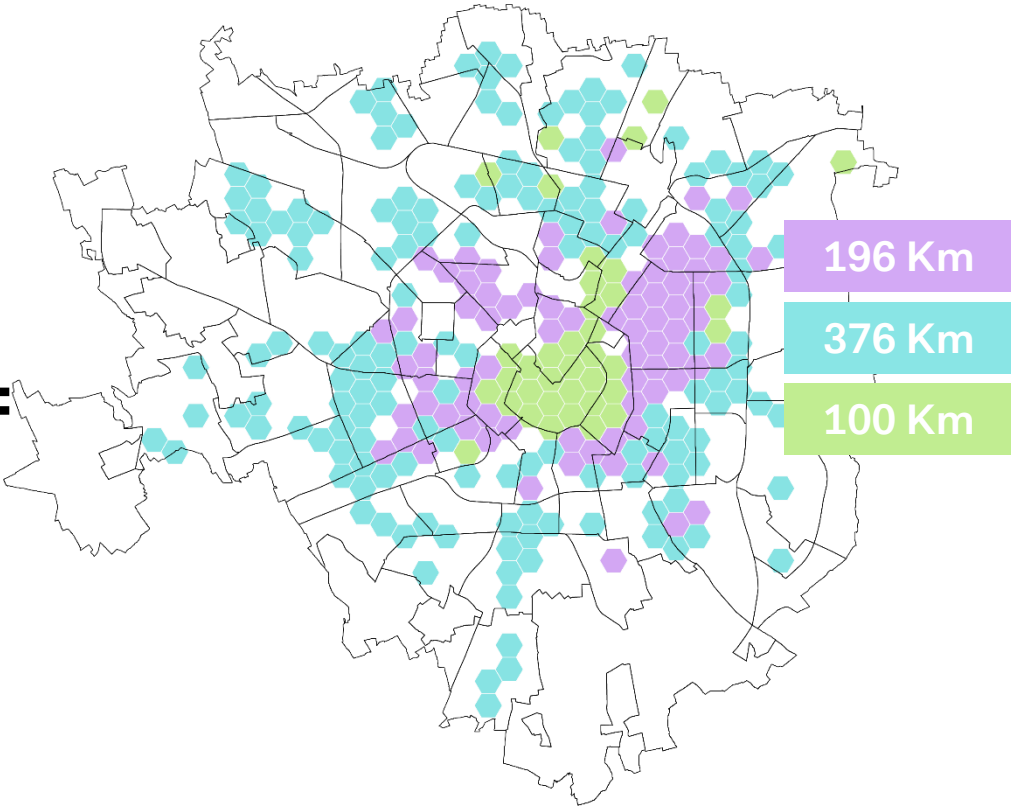
Total sidewalks **3,053 km**



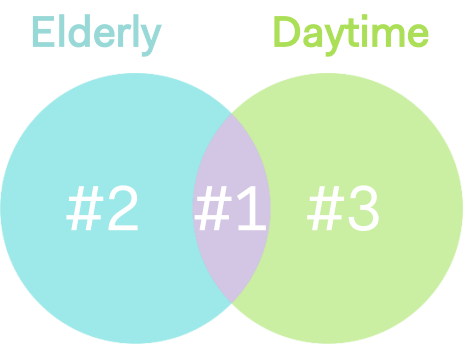
**Elderly population
above Milan average**



**Daily population
above Milan average**



**Overlapping of daily
and elderly population**

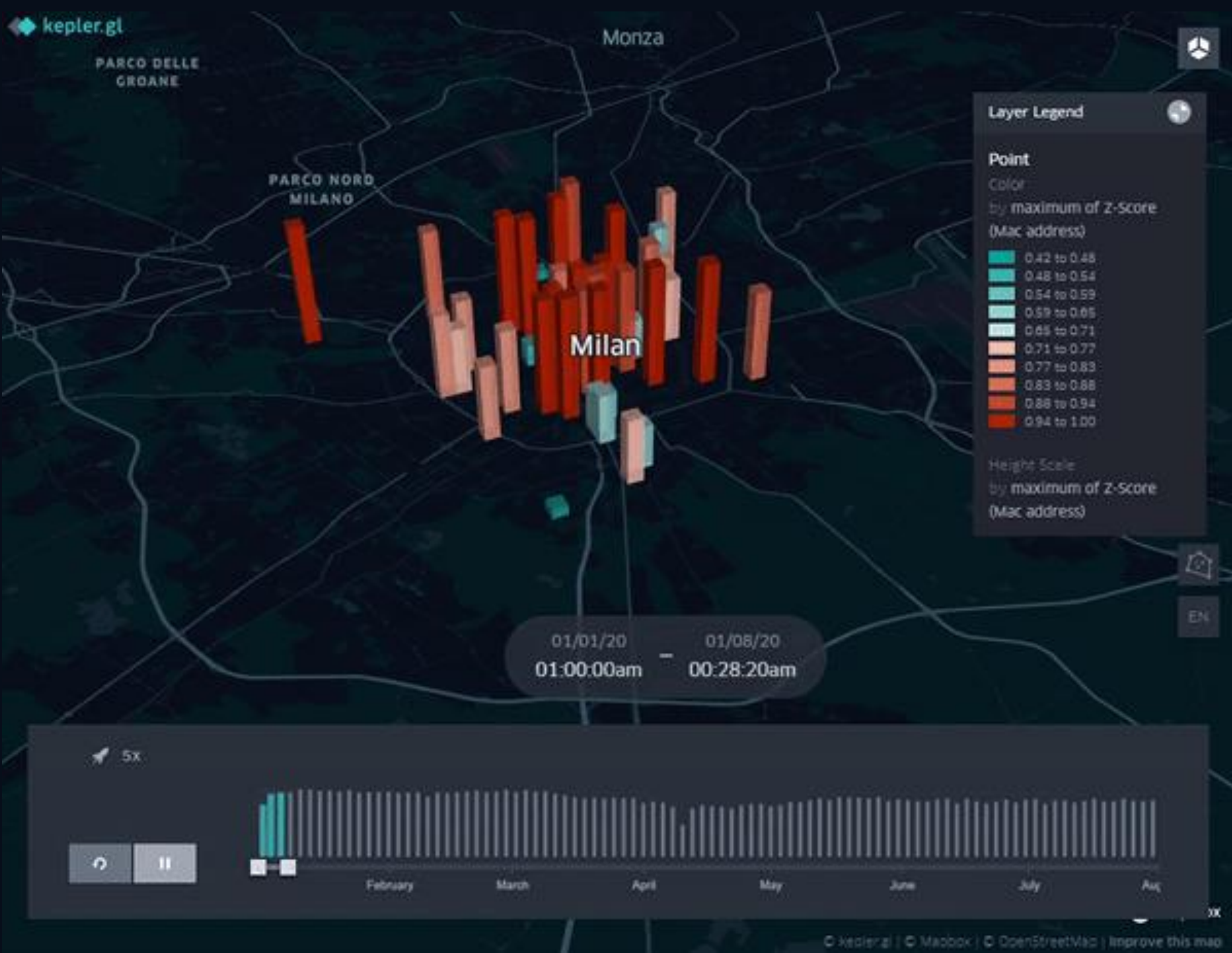


Monitoring Traffic Data Through Wi-Fi Sensors

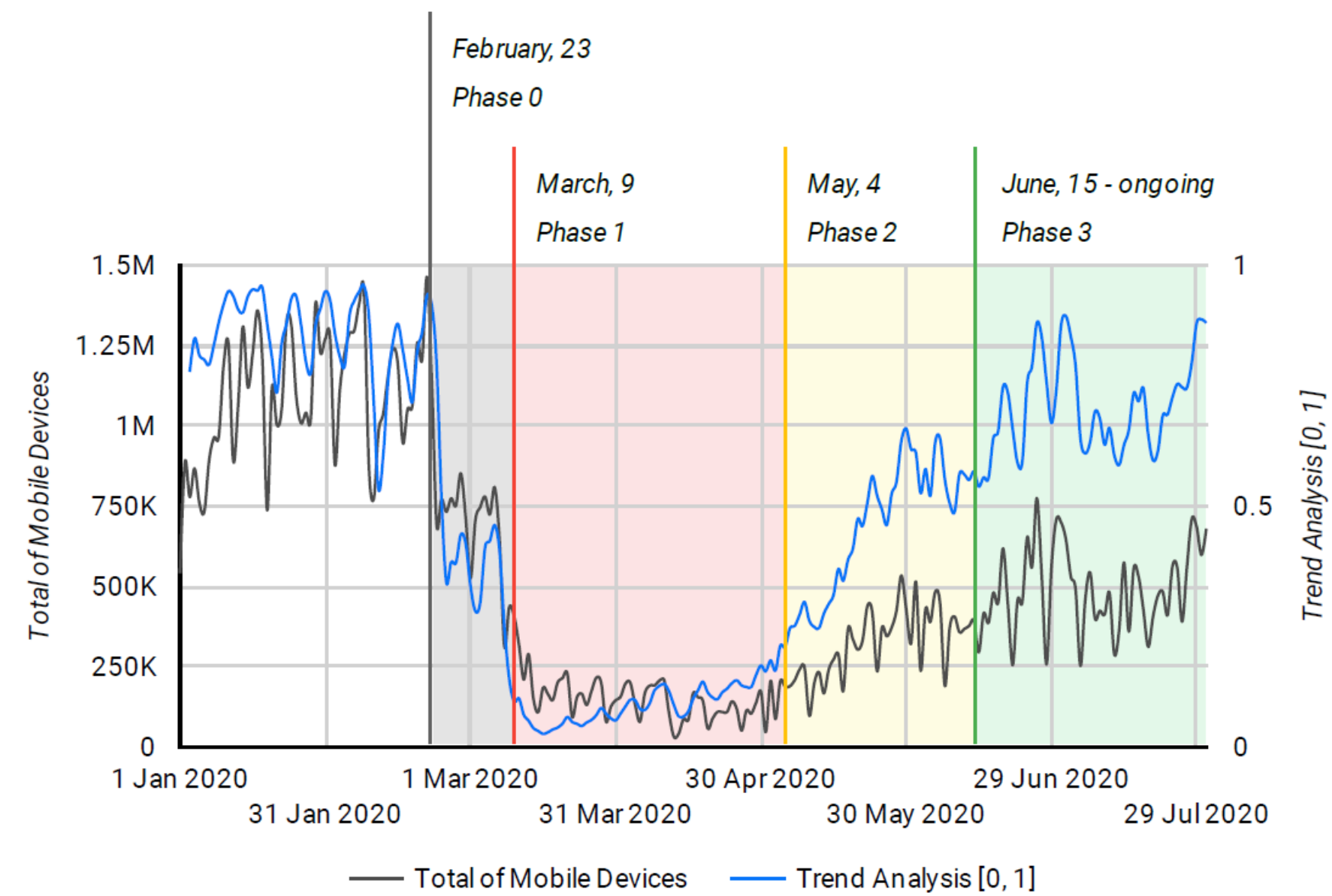
The evolution of the lockdown phases in Milan

Transform Transport, 2020

Dedicated webpage



Time Series Analysis of Traffic Data Collected in Milan Through Wi-Fi Sensors



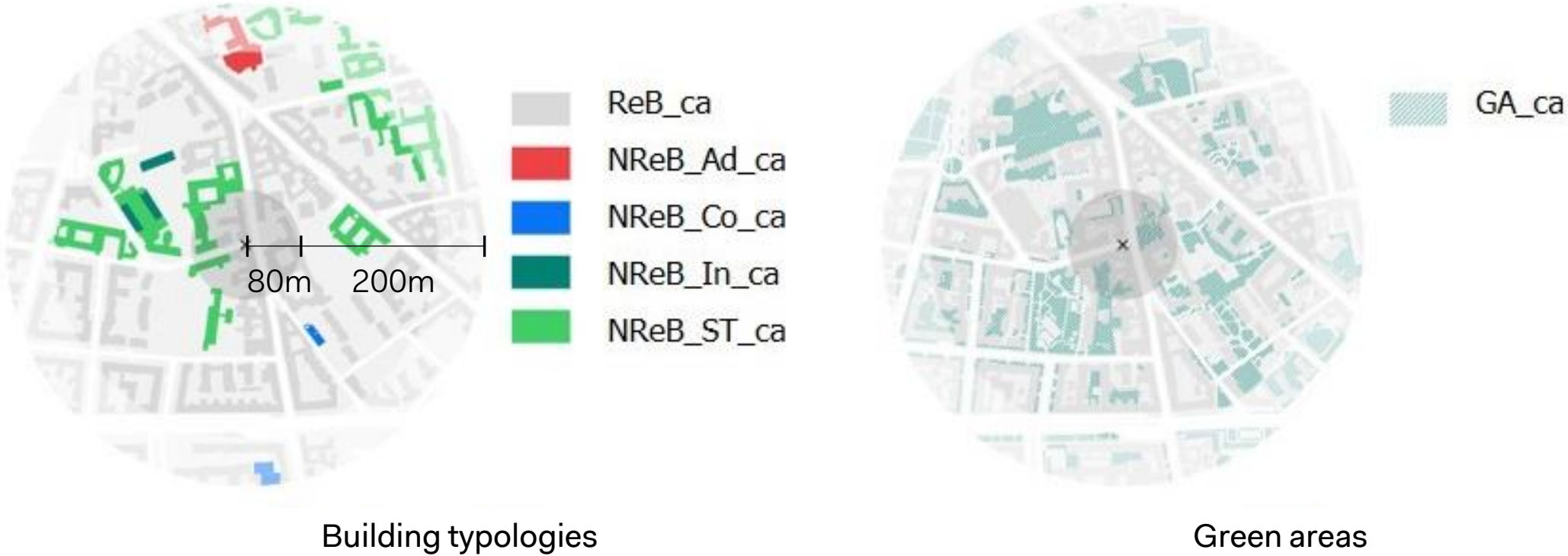
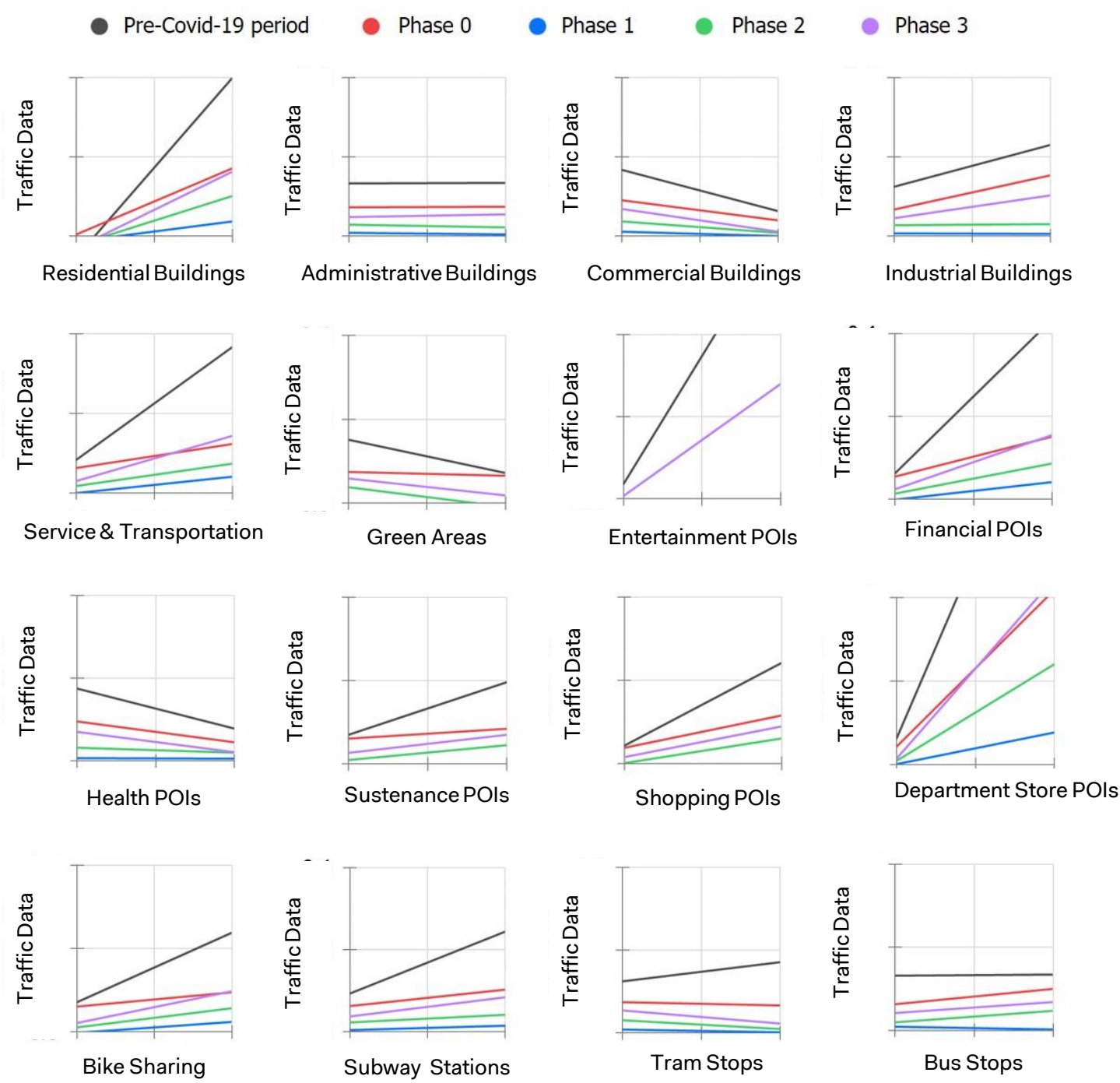
Phase	Total MAC	Daily AVG	SD	Delta
Normal life period	57,850,582	834.893	1,588.763	-
Phase 0	10,536,37	524.068	896.356	-37%
Phase 1	8,546,267	137.544	677.252	-84%
Phase 2	13,445,171	273.193	724.898	-67%
Phase 2	23,274,183	430.597	1,047.084	-48%

Monitoring Traffic Data Through Wi-Fi Sensors

The evolution of the lockdown phases in Milan

Transform Transport, 2020

Dedicated webpage



Indicator	Data typology	Data Source	Year
Traffic data	Wi-Fi APs position	FreeLuna	2020
	Timestamp (YYYYMMDDhh)	FreeLuna	2020
	Counted mobile devices	FreeLuna	2020
Land data	Building typologies	Geoportal Lombardy Region	2012
	Green Areas	Geoportal Lombardy Region	2012
	Amenities	Geoportal City of Milan and OpenStreetMap	2020
Mobility data	Public Transport	Geoportal City of Milan	2020

4 - Nuova Lugano and 15-Minute City

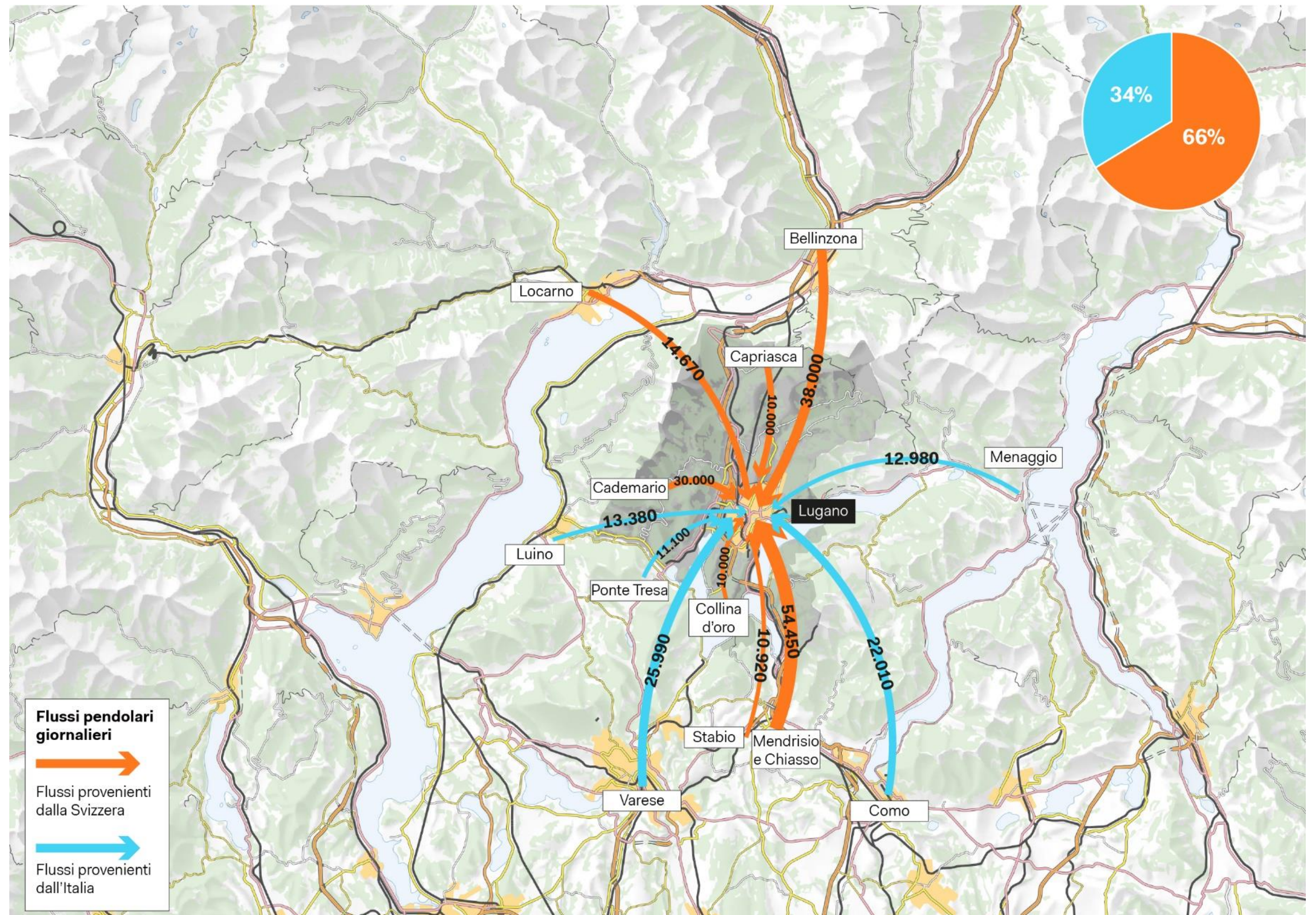
Flussi pendolari

+18%

Previsione incremento
degli spostamenti
generati nel luganese
all'orizzonte 2030

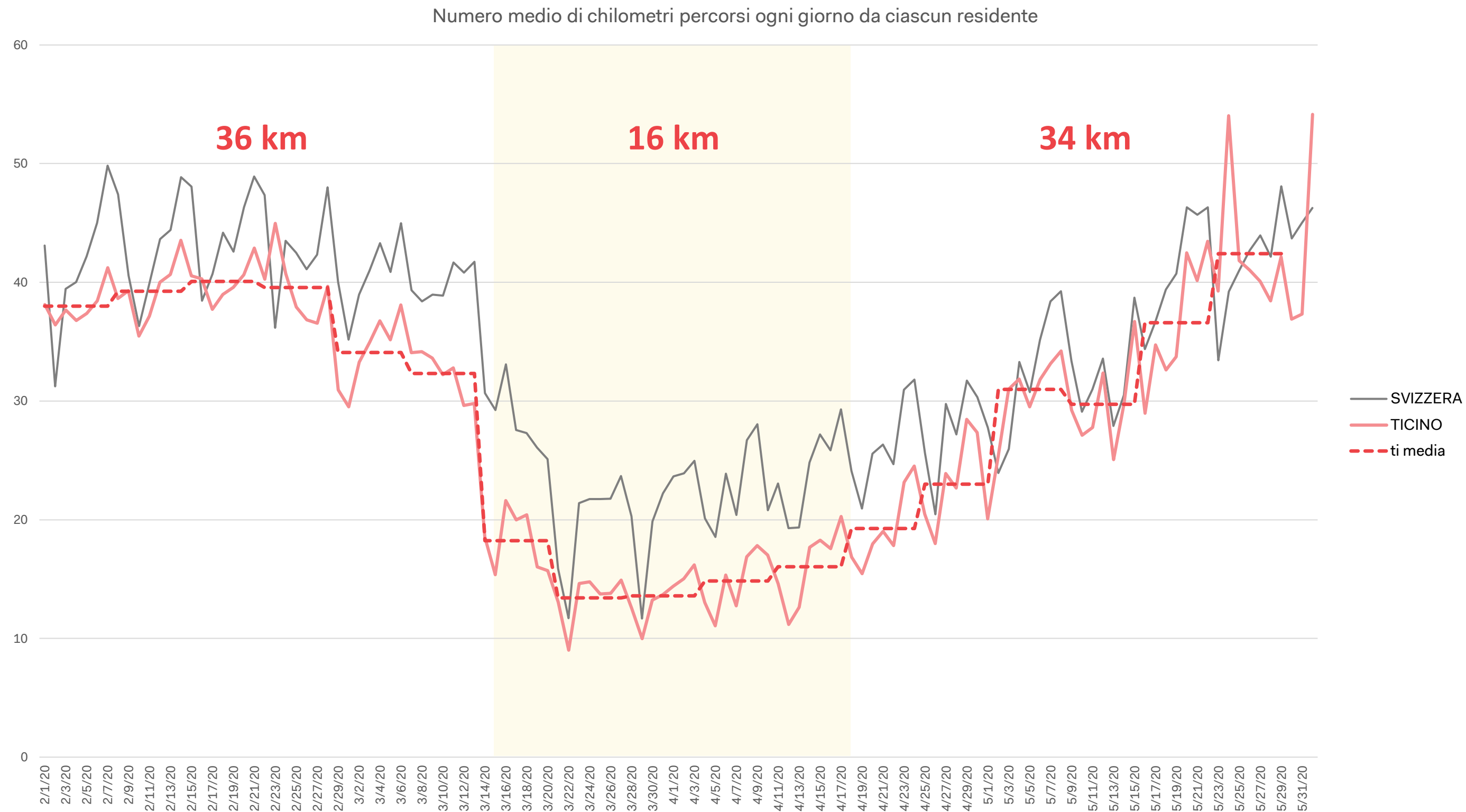
Fonte: PAL3

circa **250.000** spostamenti
giornalieri da zone remote



Media dei km percorsi ogni giorno

Dati per Svizzera e Ticino durante la pandemia



Fonte: swisscom

Systematica

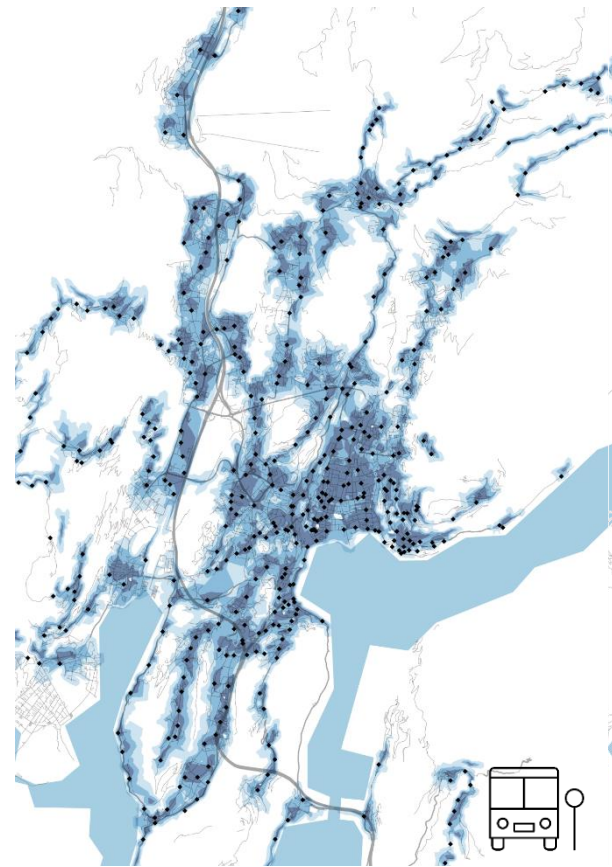
Progetto Interreg GIOCONDA

Lugano, una città di paesi e di quartieri

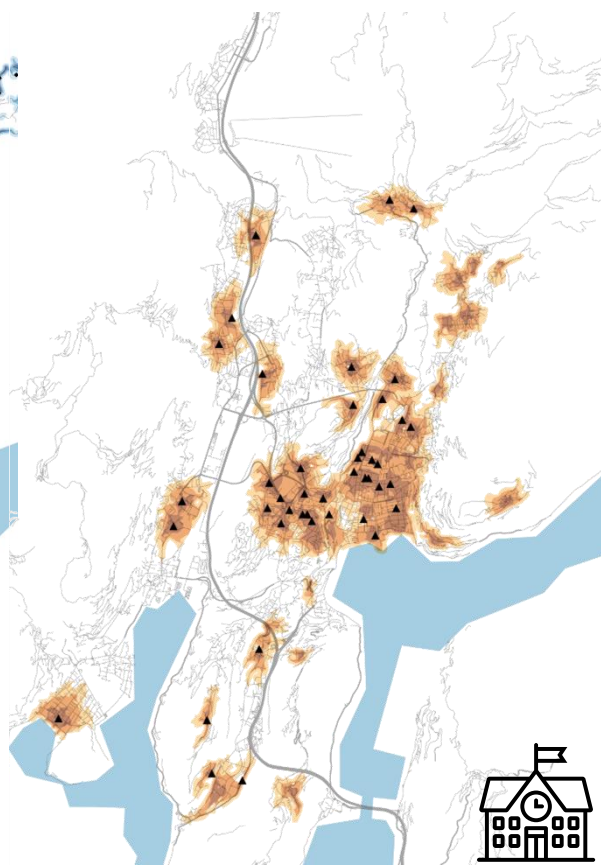
Walkability – metodologia

ACCESSIBILITA' ISOCRONA PER CATEGORIA

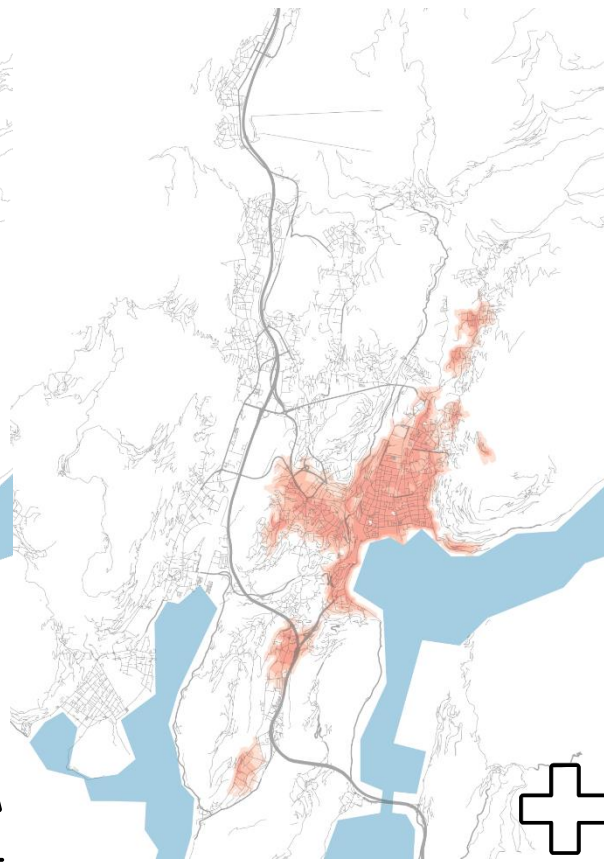
Fermate bus



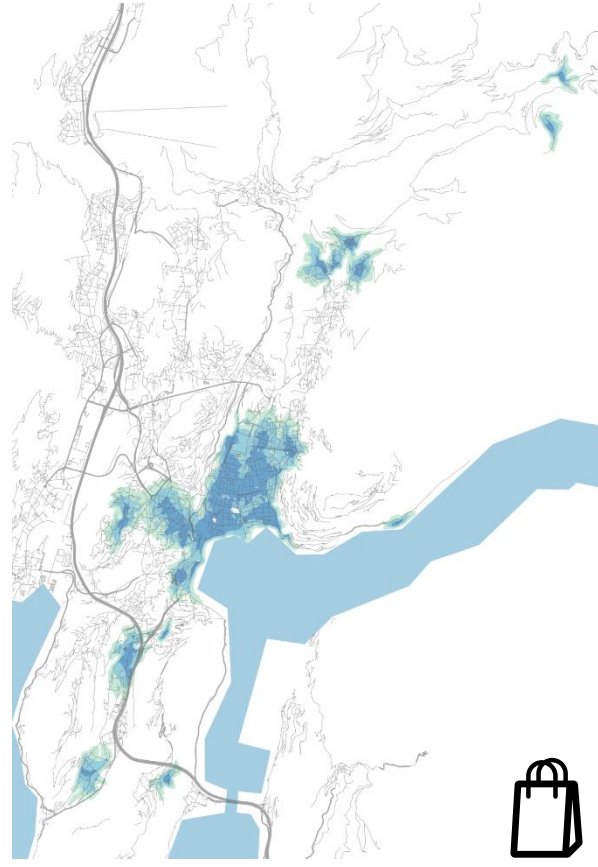
Scuole



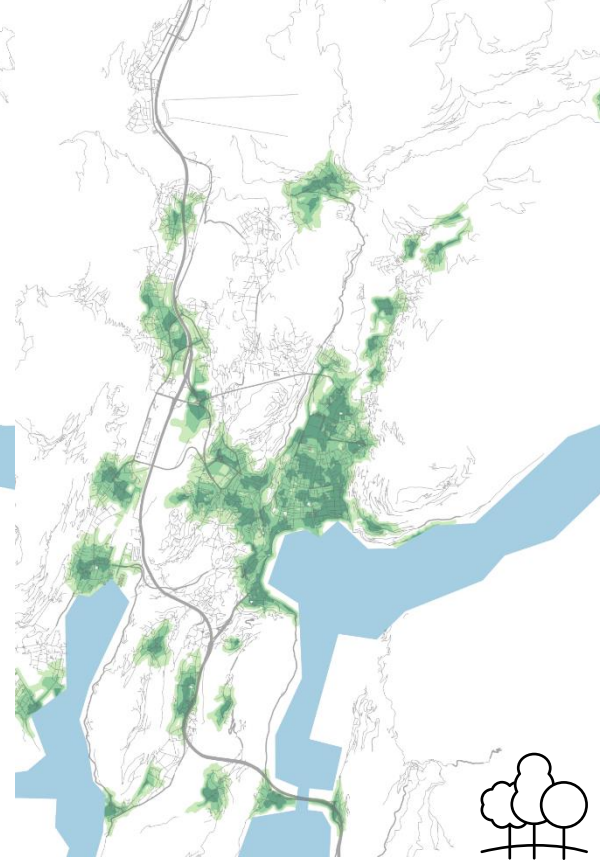
Salute



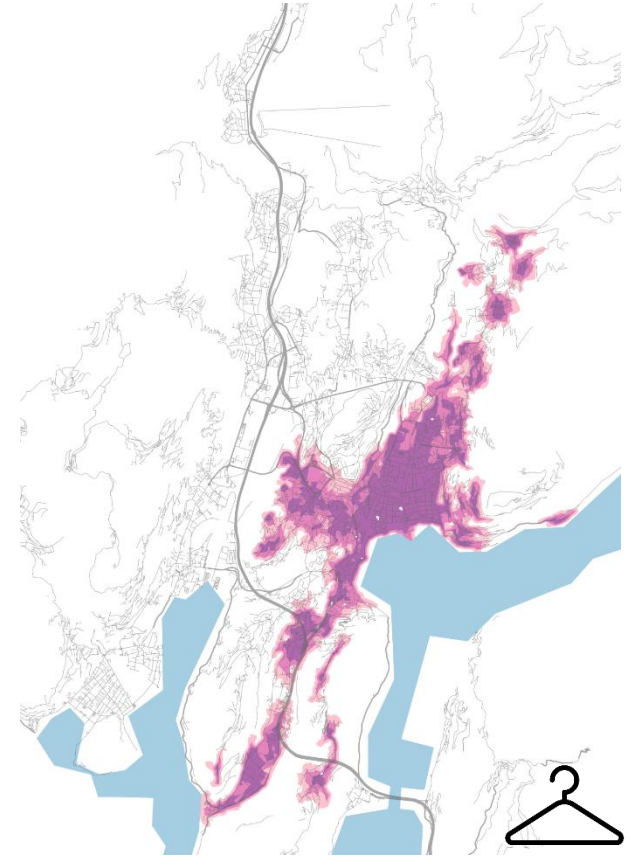
Commercio alimentare



Svago



Servizi/ non alimentare

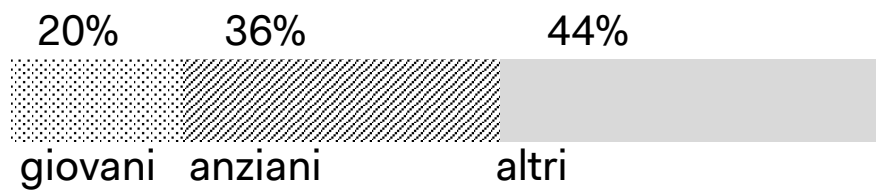


Strategie di mobilità

Walkability

Un terzo della popolazione risiede nelle aree a modesta vocazione pedonale di cui il 70% è in fasce di età che richiedono maggiore attenzione in termini di pianificazione (giovani < 14 anni ed anziani > 65 anni).

RESIDENTI PER FASCE DI ETÀ (valore medio)



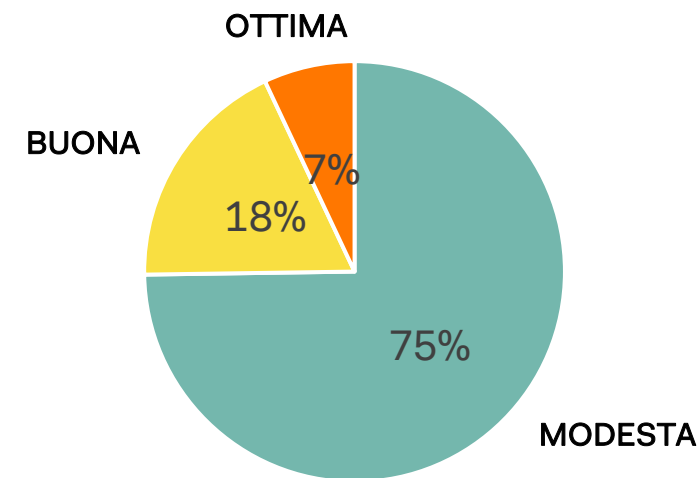
RESIDENTI PER CATEGORIA



Systematica

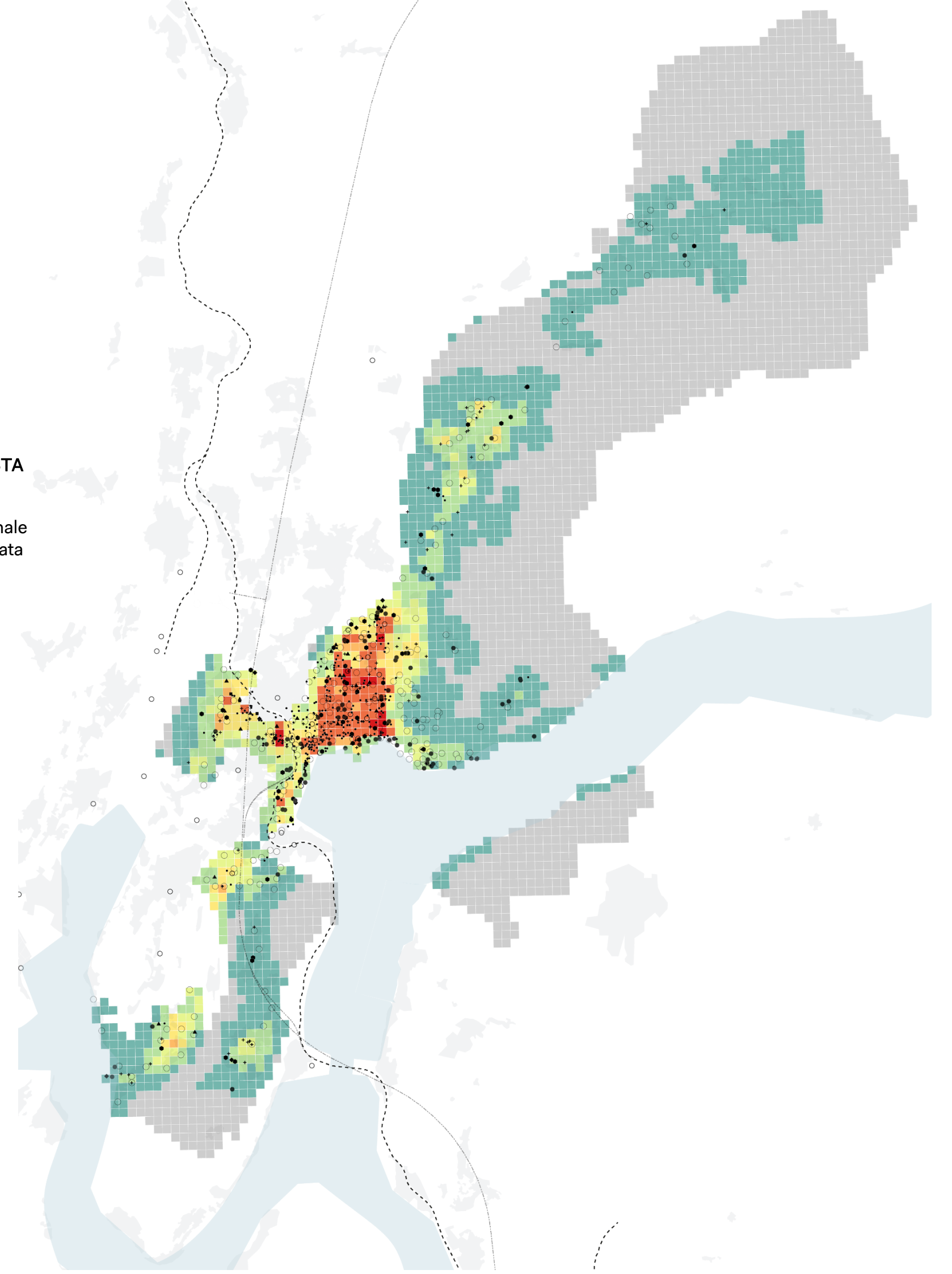
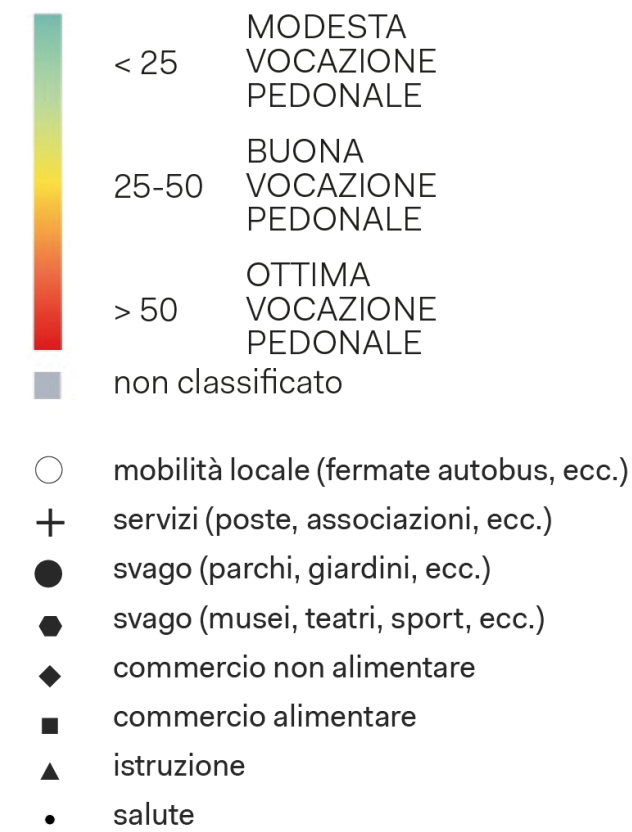
Progetto Interreg GIOCONDA

RIPARTIZIONE DELLE AREE



Non è classificato il 47% del territorio comunale che è quindi escluso dalla ripartizione mostrata nel grafico.

LEGENDA



Thanks!

© 2020 Systematica Srl

All mobility studies presented in this document are developed by Systematica Srl. All rights reserved. Unauthorised use is prohibited.

Systematica Srl
Via Lovanio 8
20121 Milan
+39 02 62 31 19 1
www.systematica.net
milano@systematica.net