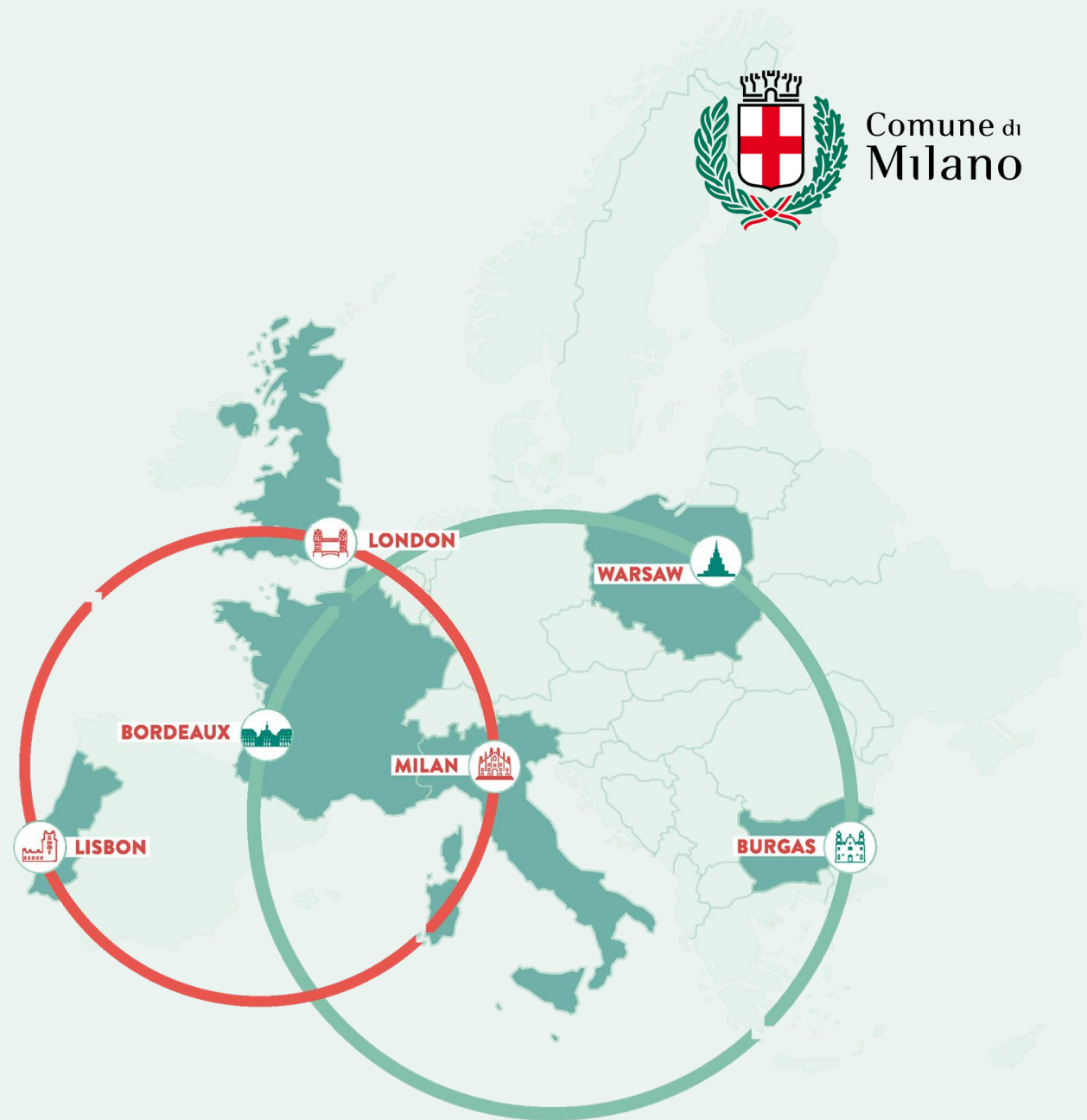




Comune di
Milano

EXPLORING SHARING CITIES

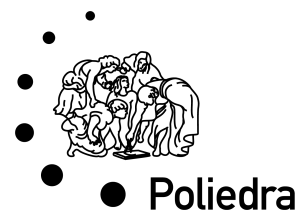
Roberto Nocerino
Sharing Cities Project Manager



This project has received funding from
the European Union's Horizon 2020
research and innovation programme
under Grant Agreement N° 691895



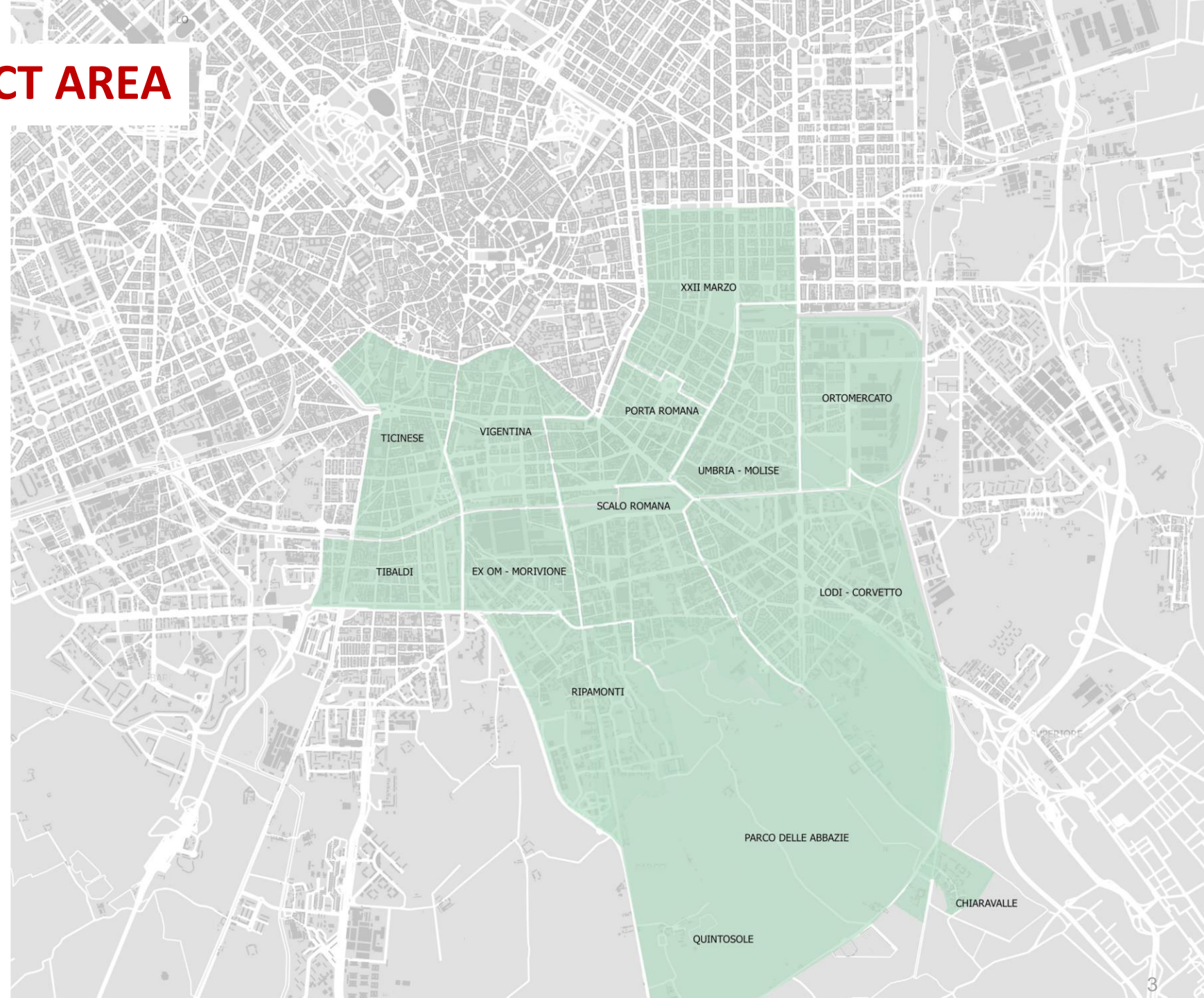
Comune di
Milano



- Former industrial areas
- 70% of real estate asset in G or F energy classes
- Not connect mobility

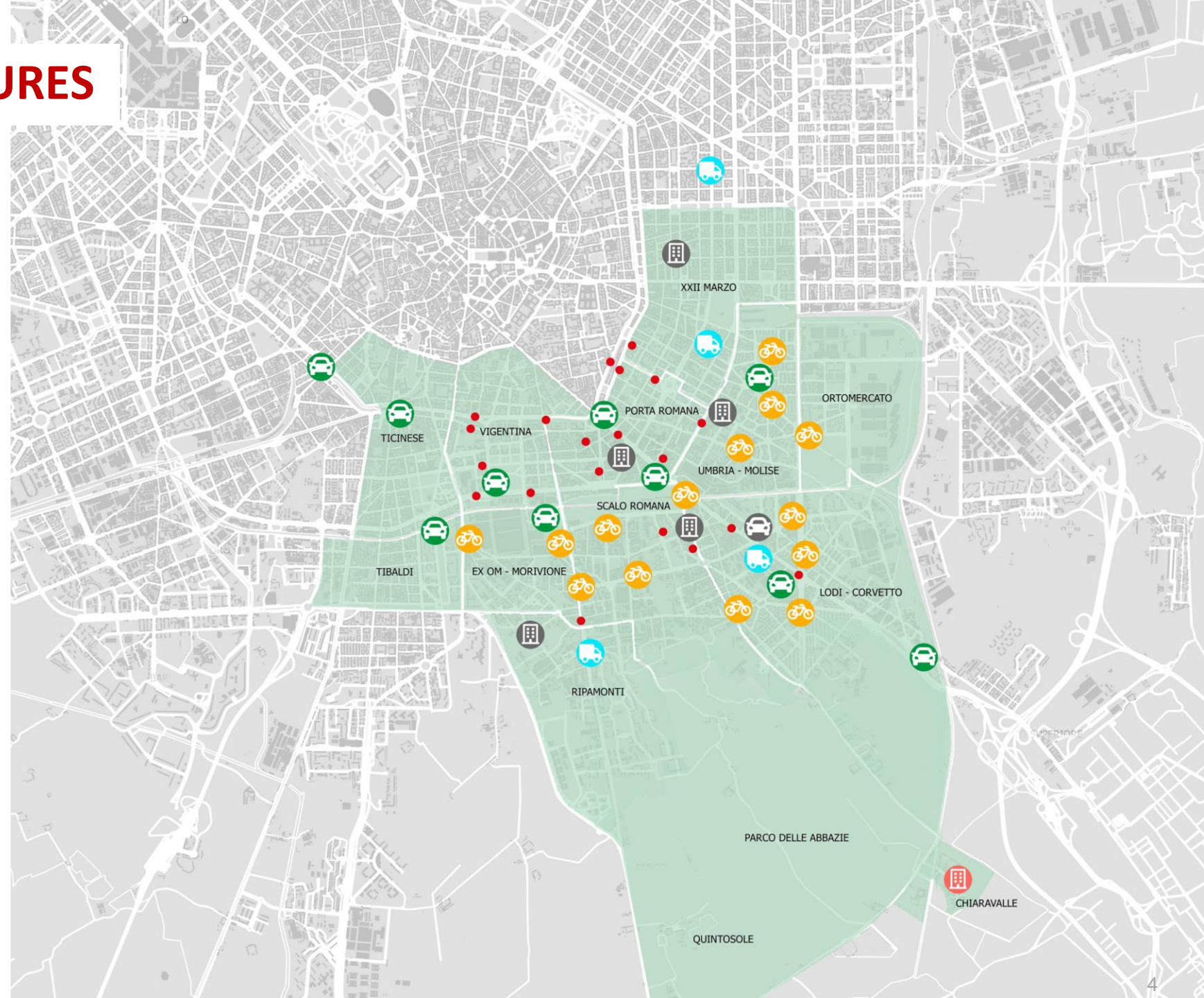
SPECIFIC GOALS

- Energy consumption reduction
- Enhance accessibility
- Boost intermodality
- Facilitate open data access
- Attract public-private investments



SHARINGCITIES THE MEASURES

- Multi-tenants private buildings
- Social Housing
- Bike sharing
- Mobility Areas
- Community car sharing
- E-logistics
- Smart lampposts



ITALY [ENEA, 2016]

55% of real estate stock older than 40 years (75% in Metropolitan Areas)

Energy class

- **56%** in **G** - 2% in **A**
- 95% of Social housing need retrofit interventions

MILAN [AMAT /RSE, 2015]

In metropolitan area building stock is responsible for:

- **50% of CO₂ emissions**
- **25% of pollutant (average)**

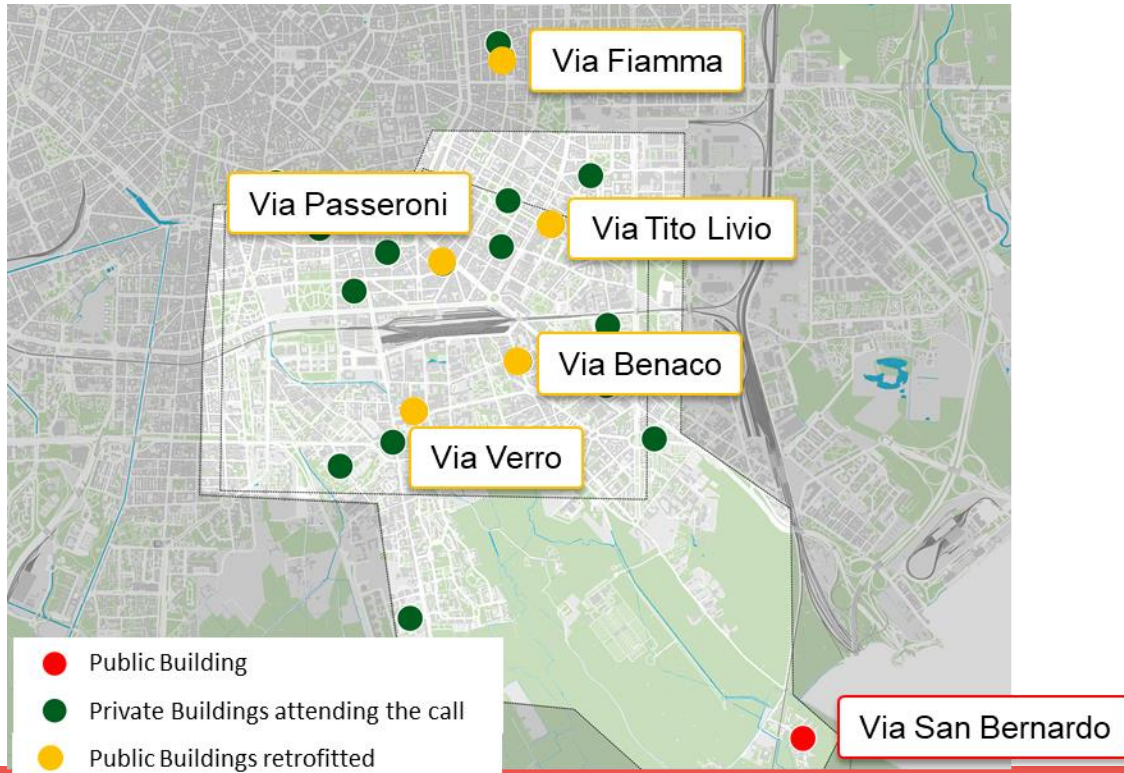
In the city, 3.000 gasoline heat power systems (illegal from 2023)





PROJECT GOALS

- 1) Refurbishment of 21.000 smq of private residential building and 5.000 of public residential buildings
- 2) Sensors and SEMS for monitoring and managing energy consumption



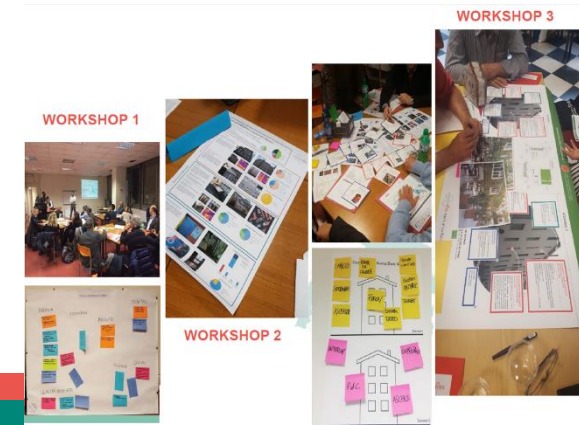
PRIVATE BUILDING PASSERONI

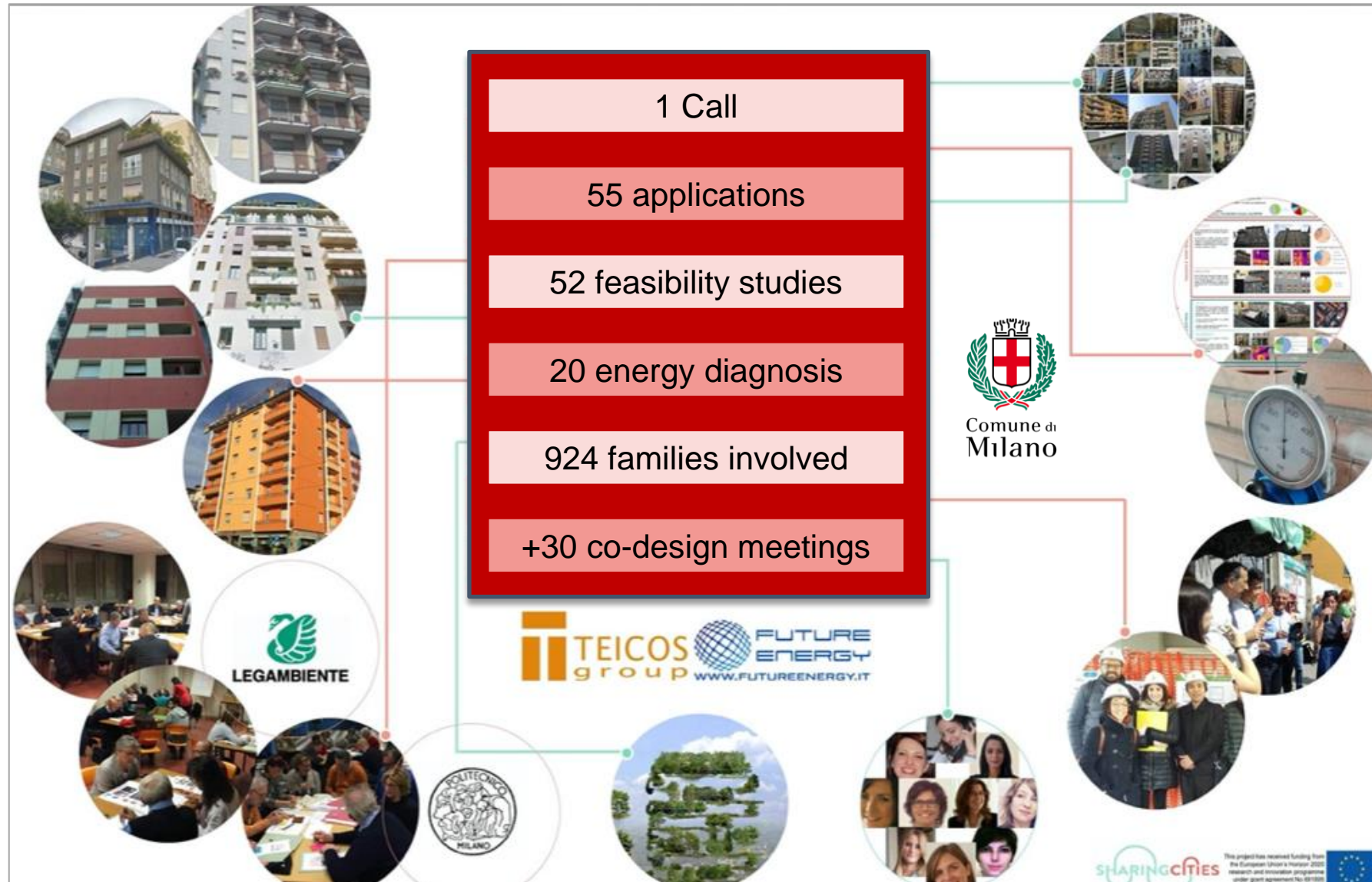
Retrofitted

- Via Tito Livio: 28 apt. (2.000 smq)
- Via Fiamma: 15 apt. (3.300 smq)
- Via Verro: 36 apt. (3.900 smq)
- Via Passeroni: 46 apt. (6.300 smq)
- Via Benaco: 137 apt. (8.800 smq)

On going

- Via San Bernardo: 66 apt (5.000 smq)







Meeting 1 – Trust building

Representatives of 7 buildings for sharing experiences, needs, etc.

ACTIVITIES

Ice breaking exercise

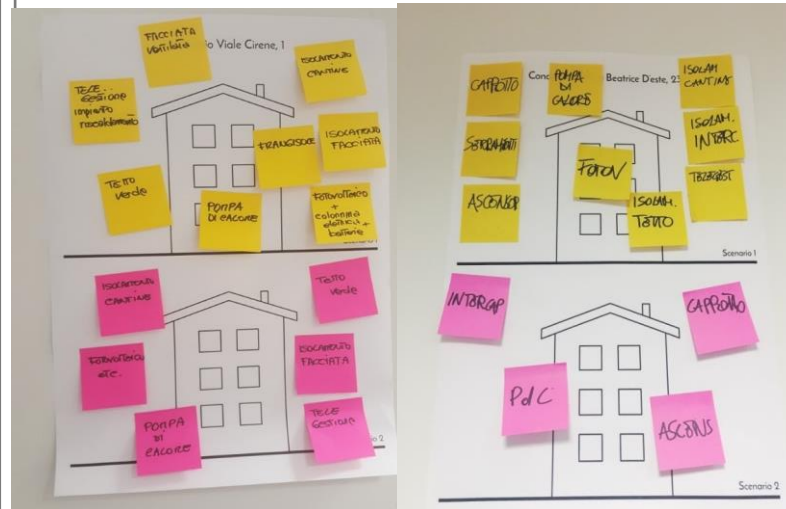
'in my ideal building...'
'in my actual building...'

GOAL

Know each other, trust building, share ideas about the building, understand codesign methodology

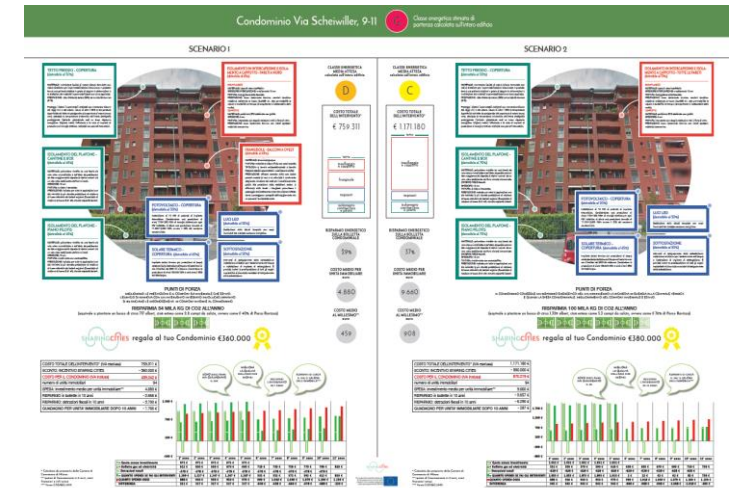
Meeting 2 – Knowledge

Sharing of the energy diagnosis and gamification activity for building two different options of intervention



Meeting 3 – Performance assessment

In terms of environmental, financial and comfort performances





RESULTS

5 multi-tenants private residential buildings

Challenges

- ✓ Majority of owners necessary
- ✓ **Strict Deadline**
- ✓ Deep retrofit


Favourable conditions

- ✓ European contribution
- ✓ Financial tools (tax credit shift, loan to the building)

Innovation

- ✓ **Codesign process**

Impact

- ✓ 5 ed., 2-3 en. classes (cons. -50%), -470 tCO₂/y (23.500 )

CO-DESIGN PROCESS

WORKSHOP 1



WORKSHOP 2



WORKSHOP 3





BEFORE

En. Consumption: 143,2 kwh/m2 y

Energy Class: F



VIA TITO LIVIO 7

28 apartments , 8 floors, 2.000 sqm

AFTER

En. Consumption: -55%

Energy Class: C



RISPARMIA 23500 KG DI CO2 ALL'ANNO

(equivalente a piantare circa 310 alberi, come un campo da calcio)

INTERVENTIONS

- Facade thermal insulation
- Pilotis floor thermal insulation
- High-performance stairwell windows
- Stairwell walls thermal insulation
- Led lighting
- Photovoltaic panels



BEFORE

En. Consumption: 91,5Kwh/m² y

Energy Class: F

**VIA VERRIO 78**

36 apartments , 6 floors, 3.900 sqm

AFTER

En. Consumption: -52%

Energy Class: B

- 23.500 KG CO₂

INTERVENTIONS

- Roof thermal insulation
- Façade thermal insulation
- Pilotis floor thermal insulation
- High-performance stairwell windows
- Stairwell walls thermal insulation
- Led lighting
- Photovoltaic panels
- Thermal regulation with thermostatic valves
- Remote management of the heating system

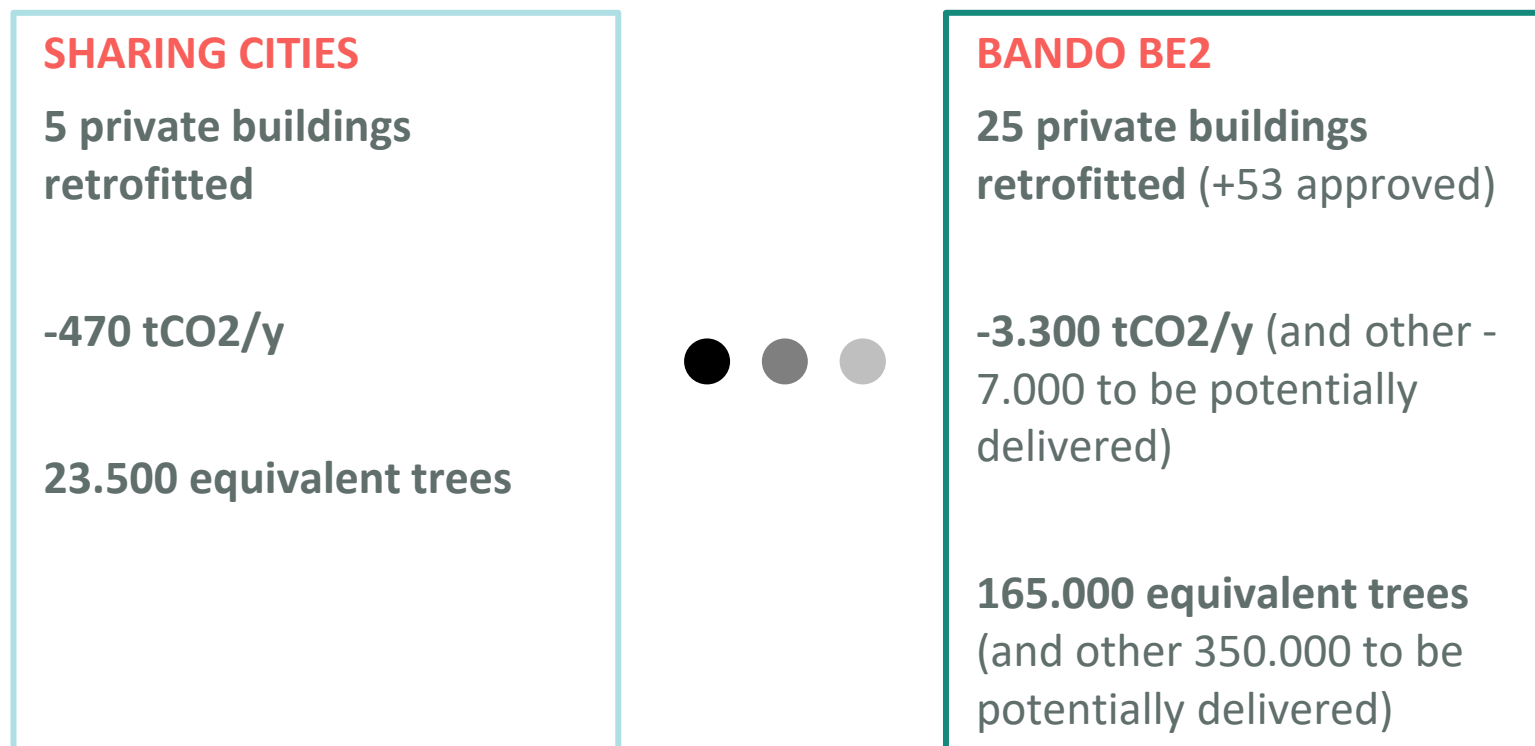


Bando BE2 (2018-2021)

Through the Bando BE2, the Municipality of Milan has allocated € 22,250,000 for funding interventions of:


- improvement of the energy efficiency of heating systems
- Improvement of building insulation

The initiative is aimed at condominiums, companies and owners - private and public.





Bando BE2 + SUPERBONUS 110%

- ✓ 2M€ total costs, only 2.500 € per apartment
- ✓ D→A2 (4 energy classes)
- ✓ Role of codesign (CoREN®)
- ✓ 65% of energy saving ($140 \text{ kWh/m}^2 \cdot \text{y} \rightarrow 50 \text{ kWh/m}^2 \cdot \text{y}$)
- ✓ -88 tCO₂/y, 890 



LESSON LEARNED

1

TECHNOLOGY ACTUALLY HELPS,
BUT ALONE IS NOT ENOUGH



LESSON
LEARNED

2

CoDESIGN HELPS BUT CANNOT BE A MANTRA:
DOING WITH, NOT FOR

**IF I HAD ASKED MY
CUSTOMERS WHAT
THEY WANTED, THEY
WOULD HAVE SAID A
FASTER HORSE.**

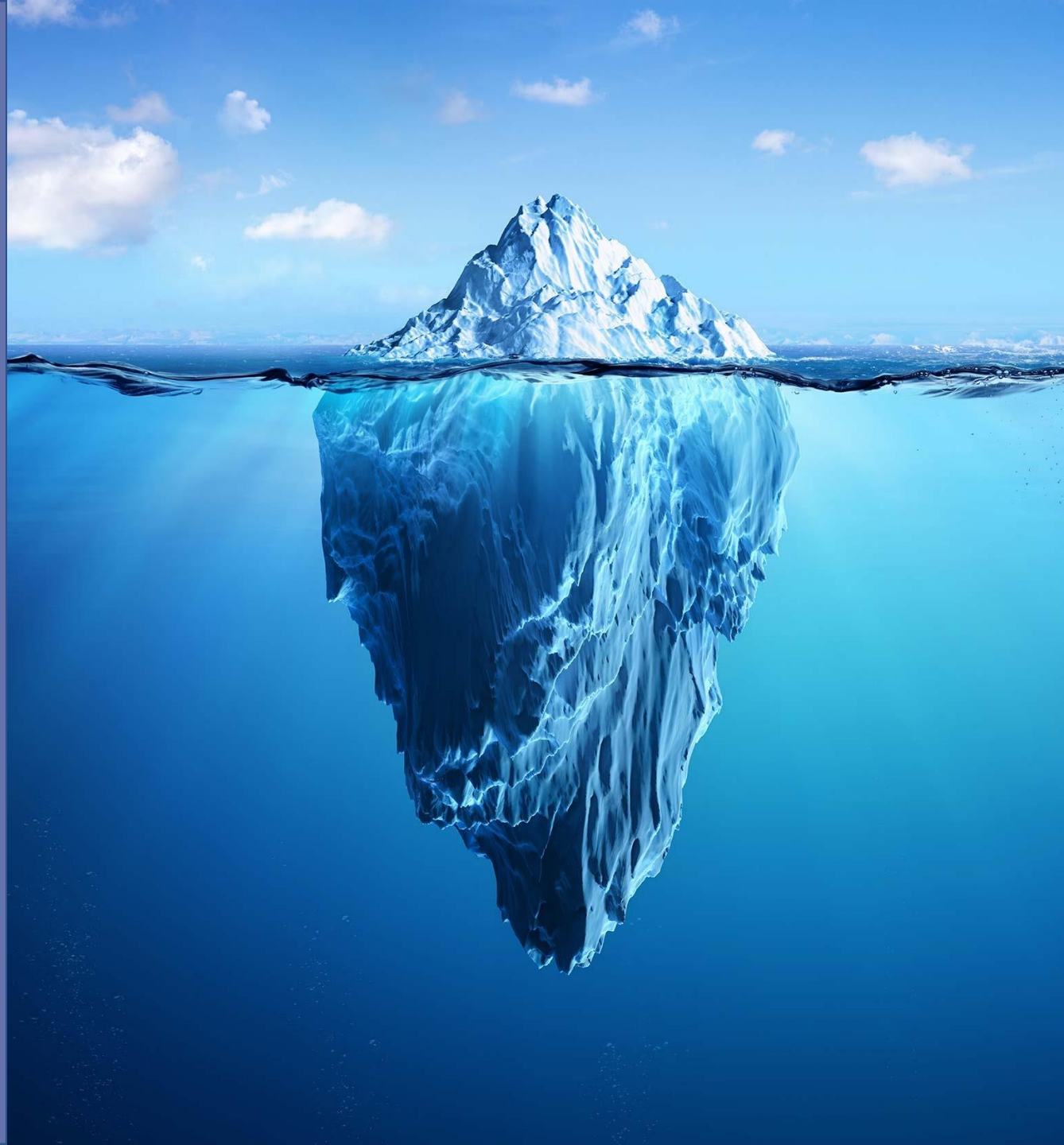
- Henry Ford



LESSON LEARNED

3

DON'T DO (ALWAYS) BY YOUR OWN:
LET PRIVATE SECTOR TO SHARE



LESSON LEARNED

4

BEHAVIOURAL CHANGE NEEDS
STRONG POLICIES AND DIFFICULT CHOICES



LESSON
LEARNED

5

“ONE FITS ALL” SOLUTIONS ARE GREAT
BUT UNFORTUNATELY DO NOT EXIST

For every complex
problem there is an
answer that is clear,
simple, and wrong.



QuoteHD.com

H. L. Mencken
American journalist
(1880-1956)

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