

BUILDING SMART CITIES TOGETHER

SHARINGCITIES

Sharing Cities

An integrated approach for the Smart City

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30th January 2020



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



Cross-cutting Unit of Municipality of Milan

Mission: create vision and identify priorities for Milan smart city, coordinate different municipality departments in smart city projects and activities

Main activities

- Smart District promotion
- Sharing Cities project
- Smart City lab
- Start-up promotion and incubation

economiaelavoro.comune.milano.it



SMART CITY
& SMART
CITIZENS



SHARING &
COLLABORATIVE
ECONOMY



NEW CRAFT
& URBAN
MANUFACTURING

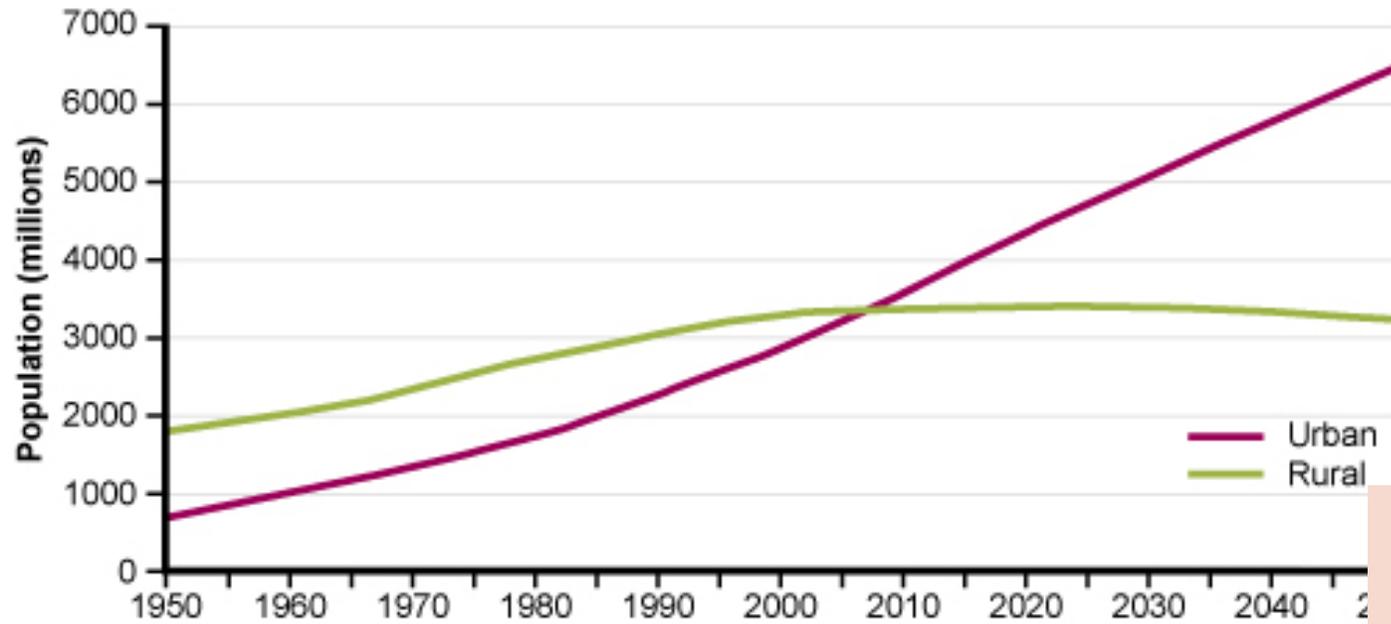


HYBRID
ENTERPRISES
& URBAN
REGENERATION



START UP &
KNOWLEDGE
INTENSIVE
ECONOMY

The role of the cities



2014

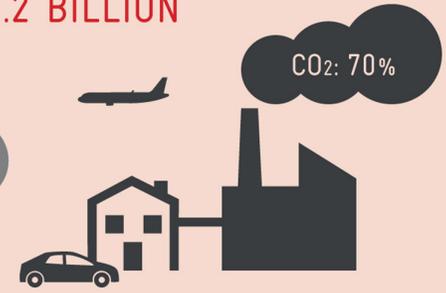
WORLD POPULATION: \approx 7.2 BILLION



CO₂: 30%



Rural population
46%



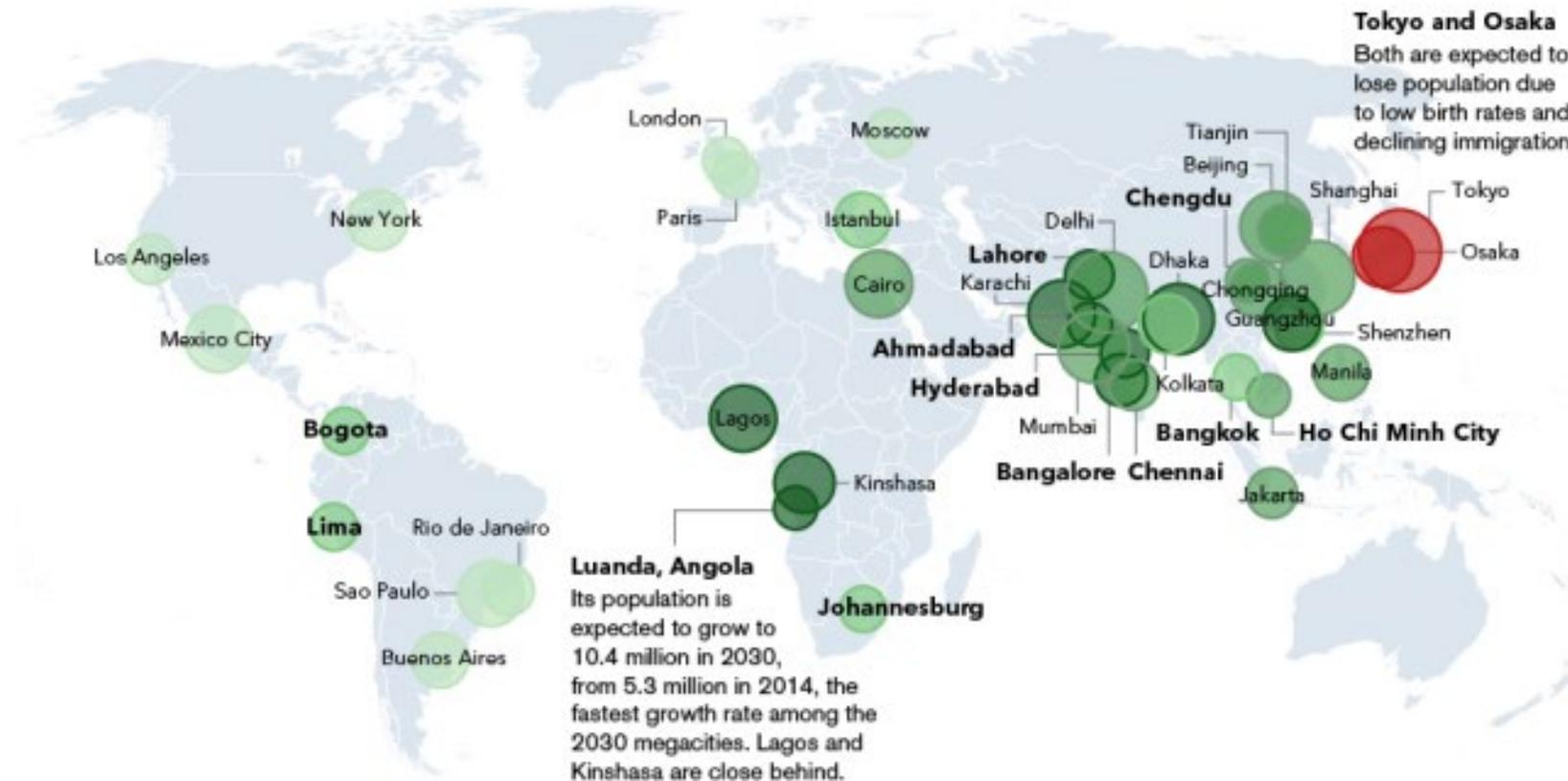
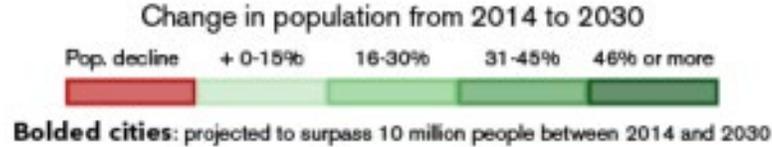
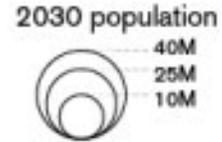
CO₂: 70%



Urban population
54%

The role of the cities

Cities with a projected 2030 population of more than 10 million



MILAN SMART CITY – First steps

Path of public consultation
with stakeholders and
creation of 7 "smart"
thematic working groups

December
2012

April 2013

May 2014

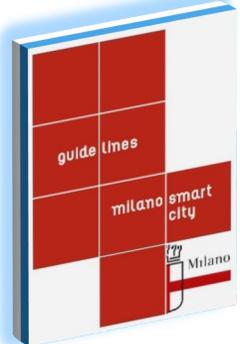
IMPLEMENTATION

Guidelines for
launching Milan
Smart City
project and
public
consultation

1st Public
Hearing of Milan
Smart City in
collaboration
with Chamber of
Commerce

Mapping all the
"smart" stakeholders
and experiences, both
within the Municipality
and on the territory,
and boosting their
growth

Approval of
Smart City
Guidelines by
City Council



GLOBAL CITY
NATIONAL AND
EUROPEAN LAB

INCUBATOR
FOR BUSINESS
MODELS

LAB FOR
ENVIRONMENTAL
AND ENERGY
POLICIES

LAB FOR
SUSTAINABLE
URBAN
MOBILITY

LAB FOR
DECLUTTERING
AND
SIMPLIFYING
PUBLIC
ADMINISTRATION

LAB FOR
SOCIAL
INCLUSION
AND DIVERSITY

LAB OF WELL-
BEING IN THE
CITY

State of the Art - Placement

Milan confirms as the most advanced Italian city that seeks to use urban intelligence tools more extensively to promote and manage sustainable development
(Source ICityRate 2019)



RANKING 2019	CITTÀ	PUNTEGGIO ICR 2019	POSIZIONE NELLE GRADUATORIE DIMENSIONALI					
			SOLIDITÀ ECONOMICA	MOBILITÀ SOSTENIBILE	TUTELA AMBIENTALE	QUALITÀ SOCIALE	CAPACITÀ DI GOVERNO	TRASFORMAZIONE DIGITALE
1	Milano	686	1	1	54	2	12	3
2	Firenze	684	14	3	5	1	2	1
3	Bologna	652	2	6	3	3	1	2
4	Bergamo	598	10	4	15	17	10	6
5	Torino	596	9	5	86	6	4	5
6	Trento	594	3	16	1	5	14	10
7	Venezia	594	39	2	29	8	31	12
8	Parma	589	8	12	18	9	7	8
9	Modena	583	4	10	42	16	9	4
10	Reggio nell'Emilia	571	6	11	20	33	6	9



CONSORTIUM AND TIMING

Funding Programme: H2020 LIGHTHOUSE PROGRAMME
“Smart Cities and Communities solutions integrating energy, transport, ICT sectors through lighthouse projects”

DURATION: 2016-2021 (4 + 2 monitoring)

BUDGET: 24 Millions €

35 PARTNERS FROM CITIES, INDUSTRY REPRESENTATIVES, NON-GOVERNMENTAL ORGANISATIONS AND ACADEMIA

Coordinator: Greater London Authority
'Lighthouse' cities: Lisbon - London - Milan
'Fellow' cities: Bordeaux - Burgas – Warsaw

Milano Case Study
17 ITALIAN PARTNERS
Budget: 8,6 Mln euro



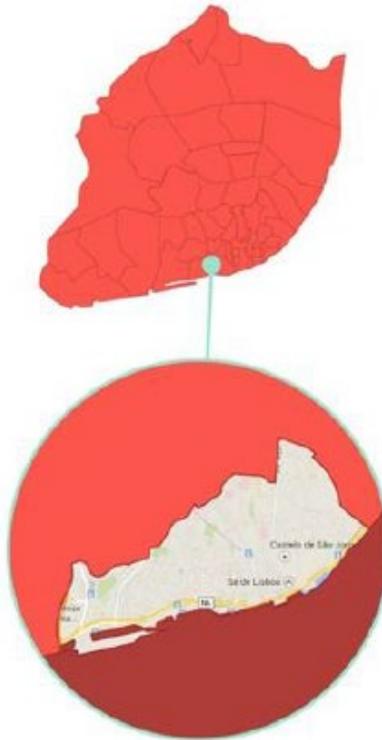
Sharing Cities aims at creating
NEARLY-ZERO EMISSION DISTRICTS

LONDON

Greenwich

**LISBON**

Downtown

**MILAN**

Porta Romana



The **Demonstration Area**
"Porta Romana / Vettabbia":

- is around 14 sq.km at the south-east of the city;
- characterized by several abandoned industrial spaces, 70% of real estate assets with a G or F energy class and a poor and fragmented mobility;
- "stitch together" two areas of the City which are now geographically, economically and socially separated;
- "open-air laboratory" of urban regeneration and innovation

PLACE

Infrastructure solutions for: low-energy districts, e-mobility, retrofitting of buildings, installation of sustainable energy management systems and smart lamp posts.

PEOPLE

User-centric smart city services co-designed with citizens.

PLATFORM

Urban sharing platform based on open data.



Sharing Milan: Building smart cities together



SHARINGCITIES

People



Digital Social Market launched February 2019



150 eBikes with child seats

Platform



Urban Sharing Platform



11 e-logistics vehicles



9 e-logistics charge points

Place



28 sensors installed on 20 lampposts



262 apartments retrofitted by June 2019



72 e-cars for car sharing



60 e-car charge points



125 parking sensors installed by June 2019

SHARINGCITIES MILANO CASE STUDY



Building Retrofit (public and private)



Sustainable energy management and monitor systems



Sharing electric mobility



E - Bike sharing



E - Logistics



Charging points



E - Car sharing



Smart parking



Smart Lamppost



Interoperability platform



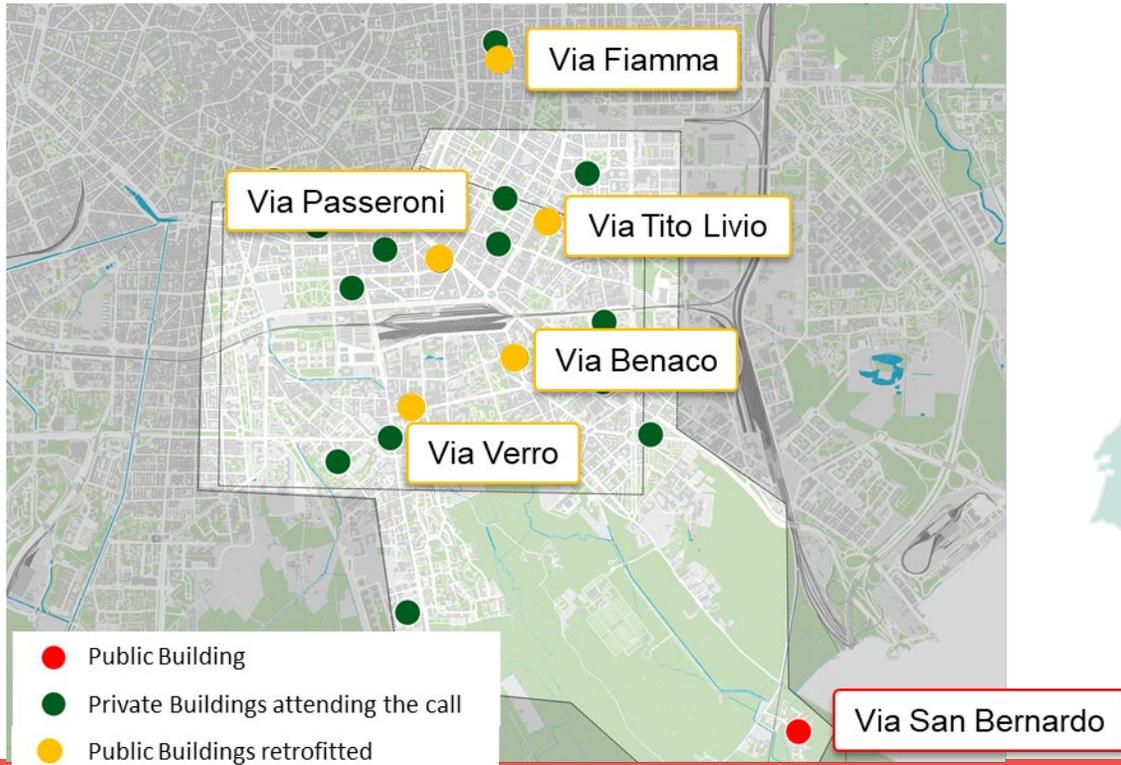
Citizenship co – design of solutions to enhance a sustainable attitude





PROJECT GOALS

- 1) Refurbishment of 24.000 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



Introduction and listening: the 7 buildings participate together in mixed tables for confrontation on the common issues and desiderata of their homes

Ice braking exercises:

mixed buildings tables 'In my ideal condominium..' In my real condominium..'

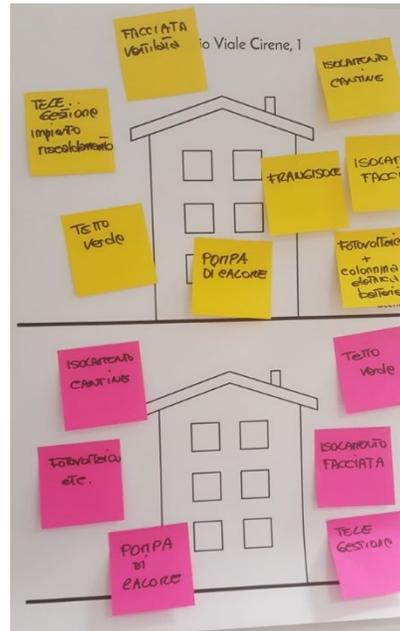
Goal: know each other, general ideas for a better life (non only retrofit), understand codesign meaning



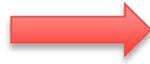
MEETING 2



Sharing of Energy Analysis: Each group works with a technician that analyzed their building; the results of the energy audit are discussed together; the building owners have now the tools for building their scenarios of intervention



MEETING 3



The engineered scenarios are presented: each group is assisted by the technician that worked over the scenario. The costs and cash flows are presented.



Condominio Via Scheiviller, 9-11 C Classe energetica stimata di partenza calcolata sull'intero edificio

SCENARIO 1

CLASSE ENERGETICA MEDIA MEDIA (calcolata sull'intero edificio)

D

COSTO TOTALE DELL'INTERVENTO*

€ 759.311

RIPARMIO ENERGETICO SULLA BOLLETTA CONDIZIONALE

29%

COSTO MEDIO PER UNITA' IMMOBILIARE ANNO

4.880

COSTO MEDIO AL MILLESIQMO**

459

PUNTI DI FORZA

RISPARMIA 54 MILA KG DI CO2 ALL'ANNO
(equivalente a piantare un bosco di circa 110 TP alberi, cioè almeno come il 3° anno di solito, ovvero come il 4° di Picea Nordica)

SHARINGCITIES regala al tuo Condominio €360.000

COSTO TOTALE DELL'INTERVENTO (IVA inclusa)** 759.311 €

SCONTO INCENTIVO SHARING CITIES -580.000 €

COSTO PER IL CONDOMINIO (IVA inclusa) 179.311 €

INVESTIMENTO IN UTILE INVESTIMENTI* 54

SPECIA. investimento medio per utile investiment** 4.880 €

RIPARMIO in bollette in 10 anni -1.786 €

RIPARMIO: ammortamento in 10 anni -1.786 €

GUADAGNO PER UNITE IMMOBILIARE DOPO 10 ANNI -1.786 €

SCENARIO 2

CLASSE ENERGETICA MEDIA ALTA (calcolata sull'intero edificio)

C

COSTO TOTALE DELL'INTERVENTO*

€ 1.171.180

RIPARMIO ENERGETICO SULLA BOLLETTA CONDIZIONALE

37%

COSTO MEDIO PER UNITA' IMMOBILIARE ANNO

9.660

COSTO MEDIO AL MILLESIQMO**

908

PUNTI DI FORZA

RISPARMIA 100 MILA KG DI CO2 ALL'ANNO
(equivalente a piantare un bosco di circa 230 TP alberi, cioè almeno come il 5° anno di solito, ovvero come il 7° di Picea Nordica)

SHARINGCITIES regala al tuo Condominio €380.000

COSTO TOTALE DELL'INTERVENTO (IVA inclusa)** 1.171.180 €

SCONTO INCENTIVO SHARING CITIES -580.000 €

COSTO PER IL CONDOMINIO (IVA inclusa) 591.180 €

INVESTIMENTO IN UTILE INVESTIMENTI* 54

SPECIA. investimento medio per utile investiment** 9.660 €

RIPARMIO in bollette in 10 anni -6.504 €

RIPARMIO: ammortamento in 10 anni -6.504 €

GUADAGNO PER UNITE IMMOBILIARE DOPO 10 ANNI -6.504 €

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)

BEFORE

En. Consumption: 91,5Kwh/m2 y
Energy Class: F



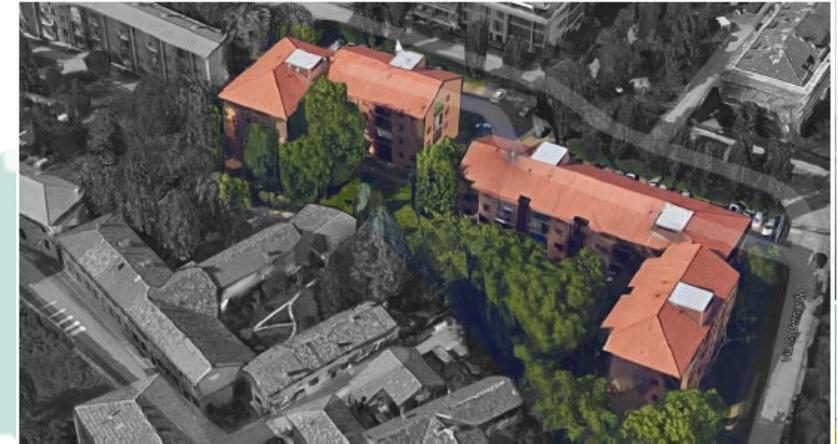
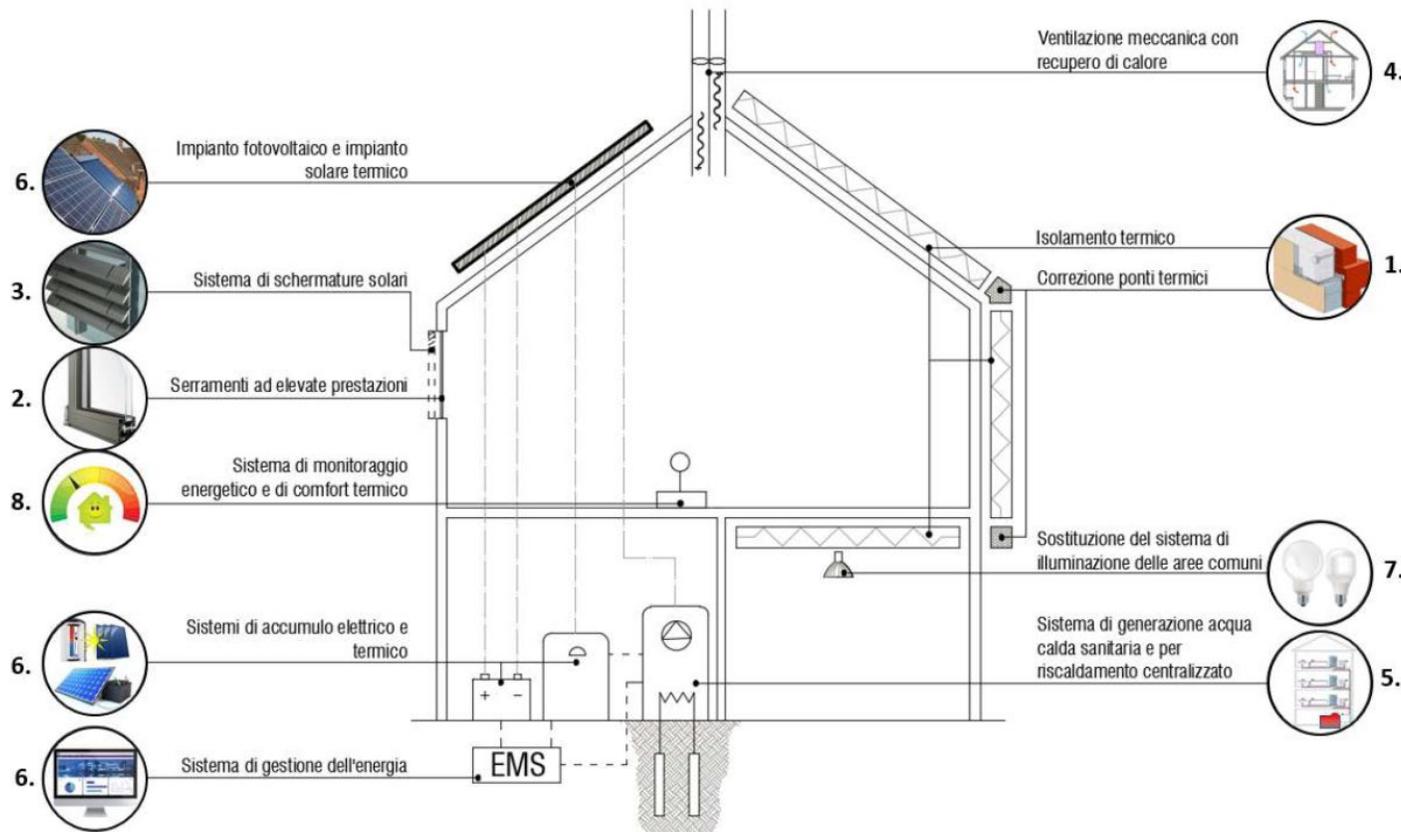
AFTER

En. Consumption: -52%
Energy Class: B

- FOTVOLTAICO
- ISOLAMENTO DEL TETTO
- ISOLAMENTO A CAPPOTTO FACCIATE
- SERRAMENTI VANO SCALA B
- ISOLAMENTO PIANO PILOTIS
- ISOLAMENTO A CAPPOTTO PARETI INTERNE VANO SCALA B
- ISOLAMENTO SISTEMA DI DISTRIBUZIONE PRIMARIO
- LUCI LED
- MANUTENZIONE DI MURETTI DELLA RECINZIONE, DI PARAPETTI E PARETI A LATO DELLE RAMPE CARRAIE, E DELLE PARETI DEI POSTI AUTO COMUNI

- 23.500 KG CO2

- **San Bernardo 29A, 66 apartments , 5000 sqm**
- Residents living in the buildings during the works
- Same methodologies for San Bernardo 48-50 (EU Gugle, 144 app.in total)

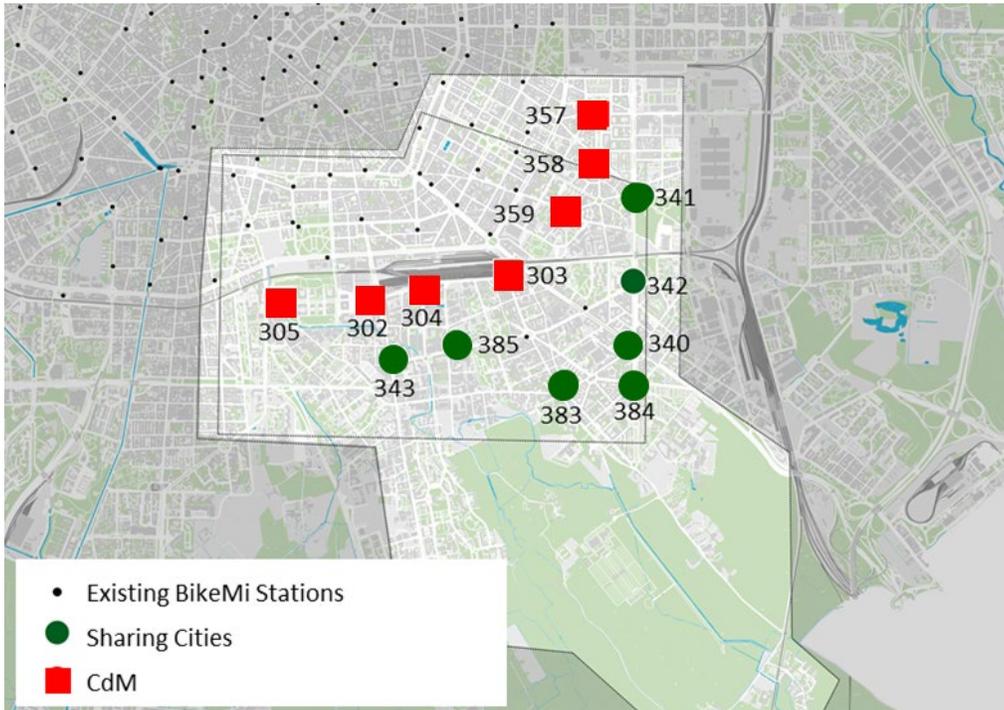


SHARINGCITIES E-BIKE SHARING



PROJECT GOALS

- 1) 150 new e-bikes for bike sharing with child seats
- 2) 7 new project bike sharing stations + 7 financed by CdM
- 3) User and operator based relocation system



BIKE SHARING STATION PIAZZA ANGILBERTO

Funded by Sharing Cities

- 340 Corvetto-Polesine
- 341 Cuoco – Monte Cimone
- 342 Bologna
- 343 Ortles-Ripamonti
- 383 piazza Angilberto
- 384 piazzale Gabriele Rosa
- 385 Ortles-Orobia.

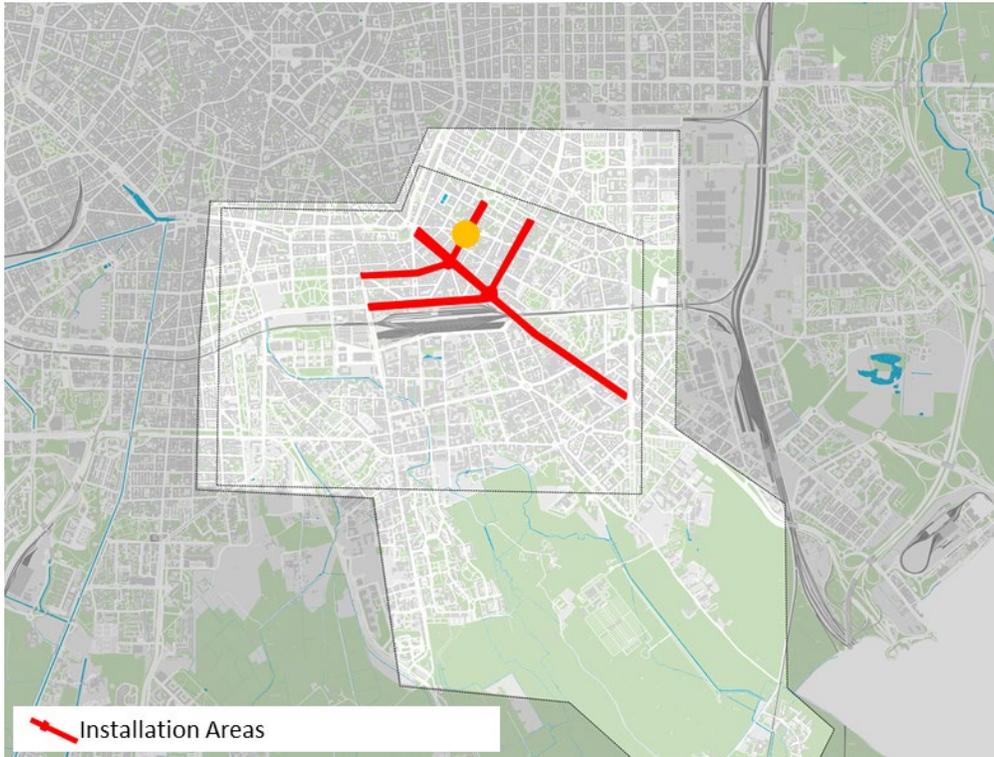
Funded by City of Milan

- 302 De Angeli - Ripamonti
- 303 Benaco - Brembo
- 304 Adamello - Lorenzini - Prada
- 305 Spadolini - Centro Leoni
- 357 Ciceri Visconti - Martini,
- 358 Insubria – Sebino
- 359 Tertullino - Decembrio



PROJECT GOALS

175 parking places with sensors (for logistics, disabled people, no-parking areas, Mobility Areas)



SMART PARKING SENSOR –
BUS STOP VIA LAZZARO PAPI

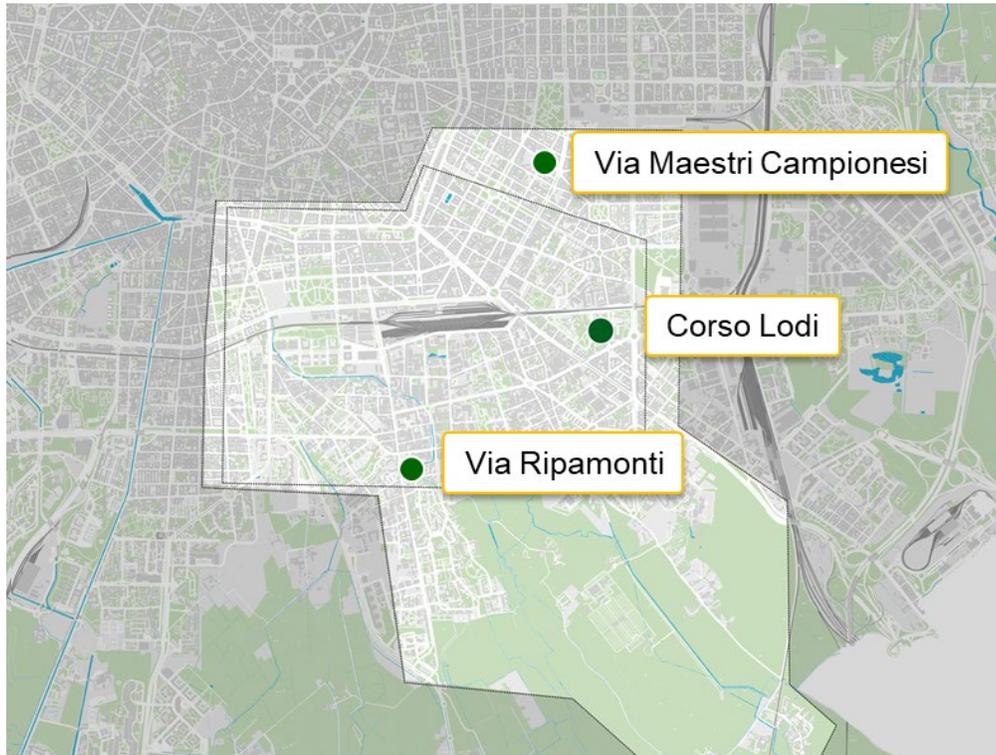
Results so far

- 75 parking sensors installed
- Interactive web view for monitoring parking slots
- 100 sensors to be installed in the mobility areas are in standby



PROJECT GOALS

- 1) 11 new e-vehicles for the logistics, 1 charging point
- 2) Optimization system



Results so far

- 9 eVans
- 2 Cargobikes
- 11 charging points installed

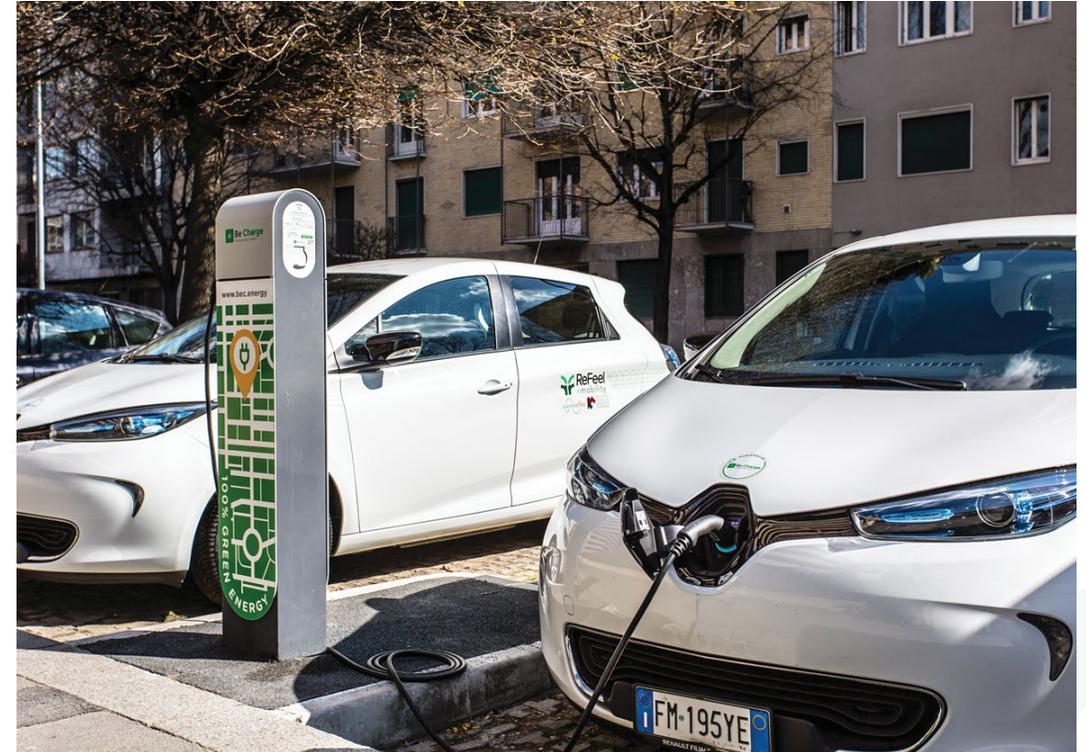
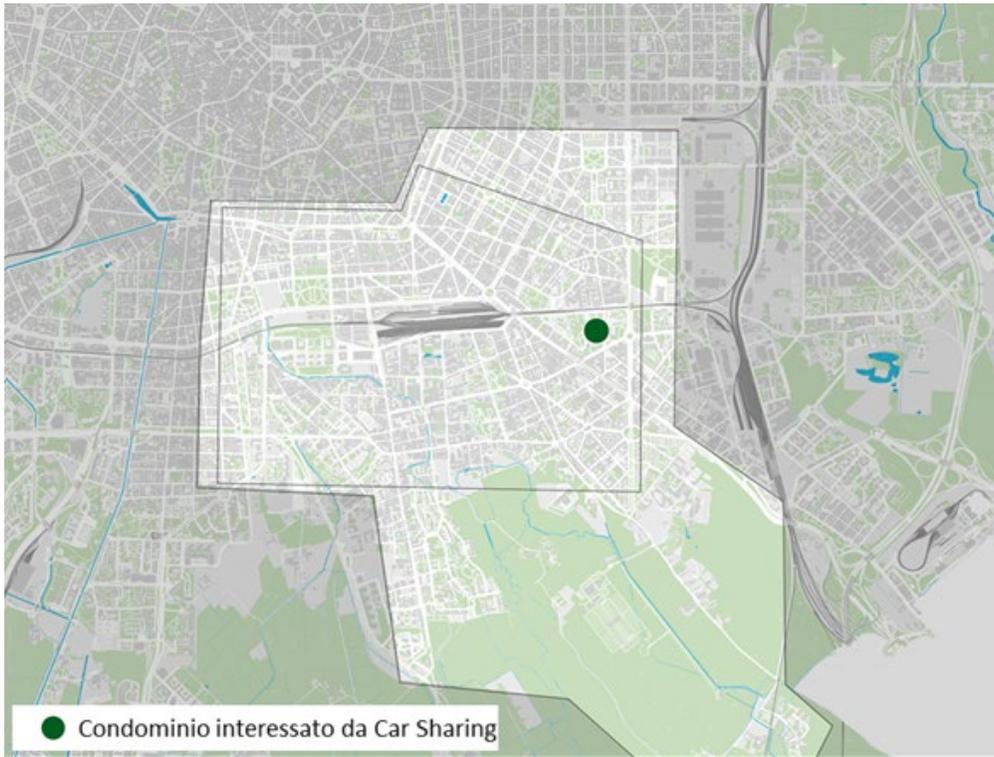
E-LOGISTIC CHARGING POINT
VIA MAESTRI CAMPIONESI





PROJECT GOALS

- 1) Enhancement of the e-car sharing offer in the area thanks to the recharging points offer
- 2) 2 e-vehicles for condominium car sharing
- 3) User and operator based relocation system



CONDOMINIUM CAR SHARING
VIA BACCHIGLIONE

Condominium:
via Bacchiglione, 21

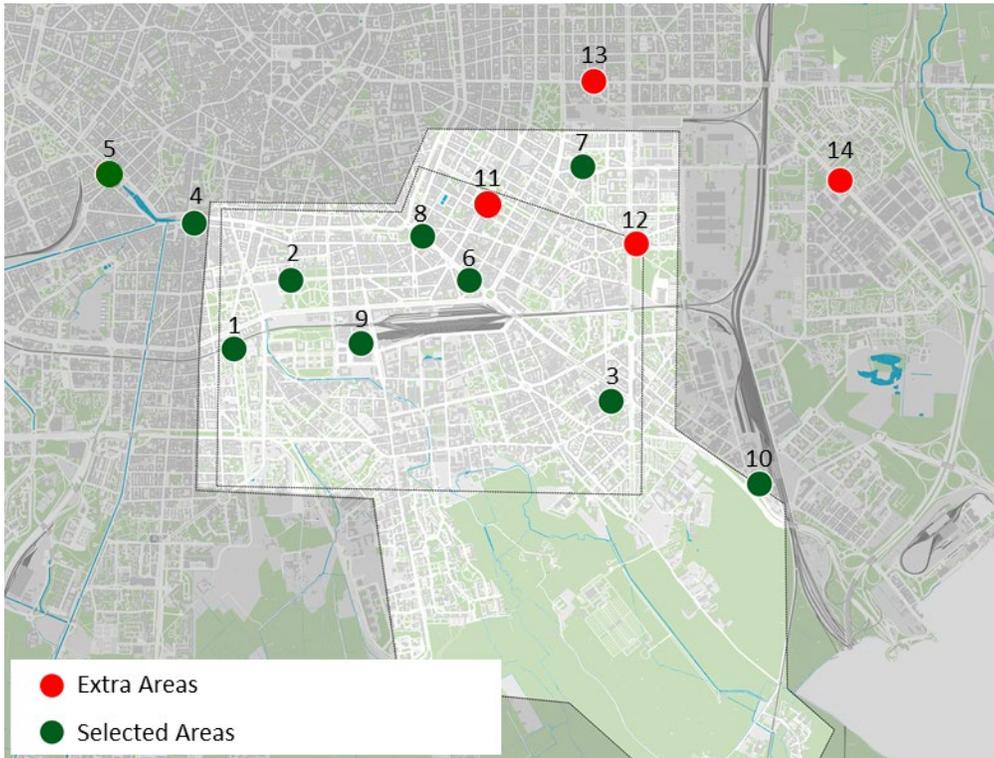
Results

- charging points installed
- 2 eCars in place
- 50 registered users
- New charging points inside the building area under evaluation



PROJECT GOALS

10 recharging stations with 60 recharging points (20 fast) integrated into Mobility areas

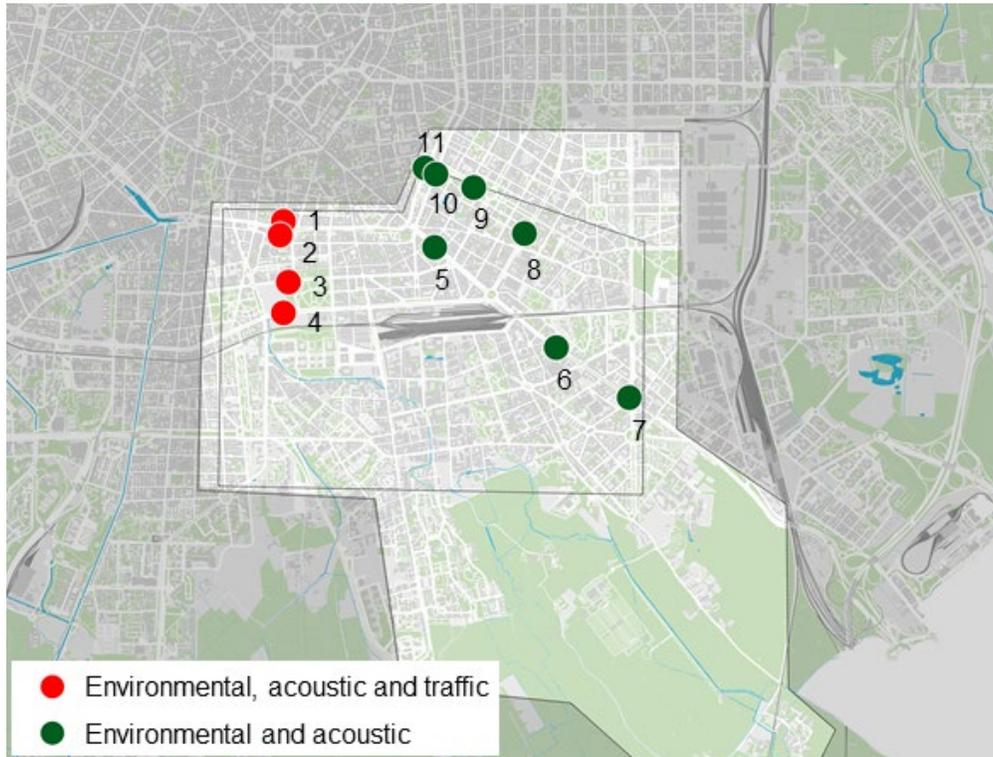


- | | | | |
|-----|-----------------|-----|----------|
| 1) | Aicardo | 11) | Libia |
| 2) | Bocconi | 12) | Cuoco |
| 3) | Corvetto | 13) | Grandi |
| 4) | Darsena | 14) | Mecenate |
| 5) | Darsena-Cantore | | |
| 6) | Lodi | | |
| 7) | Martini | | |
| 8) | Porta Romana | | |
| 9) | Ripamonti | | |
| 10) | Rogoredo | | |



PROJECT GOALS

From Humble to LED to Smart Lampposts (WiFi antennas, Environmental monitoring, Monitor traffic flows and speeds) for 20 lampposts
Lorawan network in the project area



SMART LAMP POST – CORSO LODI

- Environmental, acoustic and traffic sensors:
- 1) Viale Beatrice d'Este
- 2) Viale Bligny
- 3) Viale Sarfatti
- 4) Viale Toscana

- Environmental and acoustic sensors:
- 5) Corso Lodi (center)
- 6) Corso Lodi (periphery)
- 7) Piazzale Corvetto
- 8) Viale Umbria
- 9) Viale Lazio
- 10) Viale Monte Nero
- 11) Viale Emilio Caldara

Symbiosis District

- Leed “Core & Shell” at Gold level (50% of energy locally produces, 50% from renewable sources)
- Mobility: shared e-vehicles (10 e-cars, 15 e-bikes), charging points (5), bike parking
- Lighting: LED lampposts, walking paths with LED
- Community: public square, Wi-Fi, charging points for smartphone
- Greening: trees, garden



SYMBIOSIS DISTRICT – PIAZZA ADRIANO OLIVETTI

Smart City Lab

- Energy Class: A1
- Functions: Start-up incubator · Coworking · Offices of the Public Administration
- Dimensions: total area – 4.000 sqm · Internal area – 1.600 sqm · Public Square – 1.000 sqm · Parking spaces – 530 sqm · Green spaces – 1.000 smq

SharingMi is a community that reward positive behaviours

Downloading the greenApes app and selecting Milan, it is possible to access a community of people who share ideas, concrete actions, tips for a more sustainable lifestyle.

The points earned are redeemable in prizes and discounts, offered by the activities participating in the project.

Results so far

Signups 1.550 | Stories shared 5.010 | 'Clap' sent 21.000

SHARE YOUR DAILY SUSTAINABLE BEHAVIOURS:



I'm going to the office by bike

For my lunch break: I've eliminated plastic dishes and bottles

I usually close water when I brush my teeth

I've planted herbs on my terrace



Diventa un cittadino sostenibile

Fare parte di SharingMi è semplice e gratuito. Registrandoti alla piattaforma potrai accedere alla community di persone che si stanno impegnando per migliorare Milano. L'applicazione ti aiuterà ad ottenere punti che potrai riscattare in premi per avere scelto uno stile di vita più eco-sostenibile.



Premia i tuoi clienti

Se sei titolare di un'attività che offre prodotti o servizi eco-sostenibili a Milano, iscriviti a SharingMi per essere visibile ad una comunità di persone che stanno facendo cose incredibili per migliorare Milano.

Per diventare partner, il tuo business deve offrire prodotti o servizi eco-sostenibili. Per esempio puoi essere un ristorante o un bar che usa ingredienti locali in negozio. Oppure avere un'attività che consiglia o vende biciclette o veicoli elettrici.

Più utili vendere prodotti realizzati con materiali naturali oppure offrire servizi di riparazione ritardi. Le attività di mercato mediano che sempre più consumatori oggi sono marchi etichette che formalino socio-ambientali - le aziende aderenti hanno l'opportunità di ottenere l'attenzione dei cittadini.



Diventa partner

Anche le aziende possono usare la piattaforma, proponendo sfide per i cittadini, o ai propri dipendenti. È un modo per connettersi con un pubblico più ampio raccontando il proprio impegno e azioni per ridurre l'impatto ambientale.



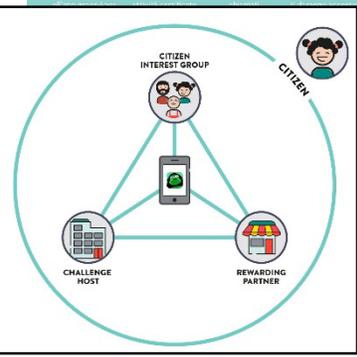
Condividendo per tutti i cittadini o clienti i risultati conseguiti nel raggiungimento di obiettivi correlati con il programma di responsabilità sociale d'impresa, in base al piano di progetto business. SharingMi ha gli strumenti giusti che aiutano i tuoi dipendenti a leggere meglio obiettivi personali, come migliorare la raccolta differenziata, promuovere

nell'attività casa lavoro sostenibile, incoraggiare il volontariato aziendale. SharingMi e greenApes hanno creato un'occasione che ti aiuta a sviluppare un approccio centrato sul tuo cliente, fornendo un'esperienza gratuita e coinvolgente per tutti i partecipanti. Per saperne di più, visita [SharingMi.it](https://www.sharingmi.it)



A Milano guadagni premi per le tue azioni sostenibili

Powered by greenApes - l'app che ha a cuore il pianeta - guadagnerai punti che potrai usare per riscattare eco-premi e sconti.



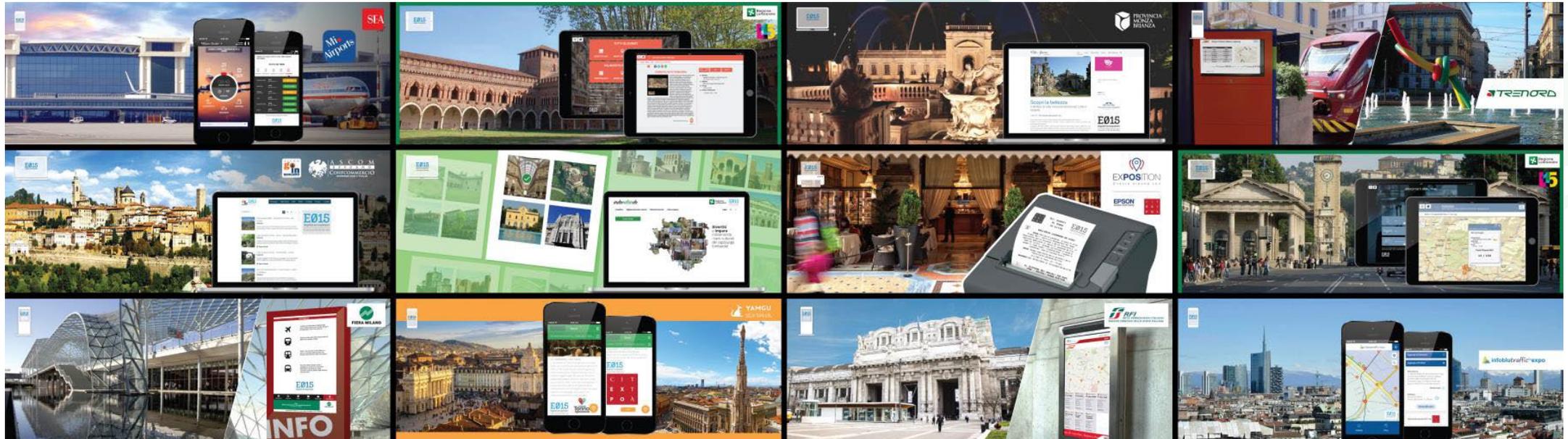
Who plays

- **Citizens and groups** (Social Street area Porta Romana-Vettabbia, amici Cuccagna, associations...)
- **Local shops:** 12 in Milan, 14 e-commerce
- **Business partner:** Fa' la cosa giusta, Legambiente, Cascina Cuccagna, PuntoCom, Milano Bike City, PinBike, T-12, Giacimenti Urbani, Area Porta Romana, Fastweb, Siemens, ...



PROJECT GOALS

Urban sharing platform based on open data aimed at managing data from a wide range of sources, including sensors, as well as traditional statistics. It is built on common principles, open technologies and standards.



BEYOND SHARING CITIES – MILANO STRATEGIES

 Unità Smart City

Milano



Comune
di Milano

Direzione Mobilità
Ambiente ed Energia



5 private buildings, 24.000 mq

Bando BE2 (10-15% of total costs),
potentially 300 retrofitted buildings



7 + 7 stations, 150 ebikes

PUMS 650 stations, 13.500 bikes in
total



60 charging points within 10
Mobility Areas

Disciplinare colonnine di ricarica
1.040 charging points
PUMS 43 Mobility Areas



175 sensors

1.273 sensors for Bastioni Area



Totale domande pervenute

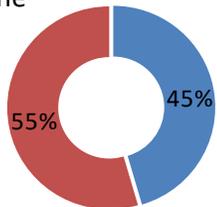
	totale	tipo A (Edificio - Impianto)	tipo B (Impianto)
Totale domande pervenute	90	33	59

Domande ammesse

Domande ammesse	55	25	30
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Domande in lavorazione

Domande in lavorazione	1	di cui	2018	36
			2019	54



■ Interventi tipologia A ammessi

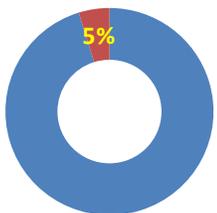
■ Interventi tipologia B ammessi

Contributo stanziato con Bando

Contributo stanziato con Bando	€ 22.250.000	€ 8.900.000	13.350.000
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Contributo prenotato

Contributo prenotato	€ 3.182.942	€ 3.031.090	€ 151.852
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95%

14%

■ Contributo prenotato per int. Tipo A

■ Contributo prenotato per int. Tipo B

Importo generato dai lavori

Importo generato dai lavori	€ 24.582.506	€ 21.547.831	€ 3.034.675
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88%

■ Importo generato da interventi tipologia A

■ Importo generato da interventi tipologia B

380 buildings
21M kgCO₂/yr
1.7 M trees



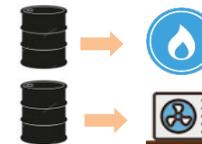
Istituti finanziari aderenti

5

BPM
CreVal
BCC
Unicredit
UBI (in fase di accreditamento)



Tipologia intervento sul generatore - passaggio da:



gasolinio a metano

9

gasolinio pompa di calore

1



CO₂ risparmiata (Kg/anno)

3.034.824



n° alberi compensativi
media di albero maturo 12 kgCO₂/anno

252.902

THANK YOU!

Roberto Nocerino

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For info

www.sharingcities.eu

www.milano.sharingcities.it

