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Ristrutturazione, riqualificazione energetica, comfort abitativo, adeguamento antisismico, BIM

VELUX® Roofingreen® Logical soft

Pescara, 30 marzo 2017

Sostenibilità, innovazione e ricerca.

L’esperienza Italiana al Solar Decathlon

Architetto Giuliano Valeri

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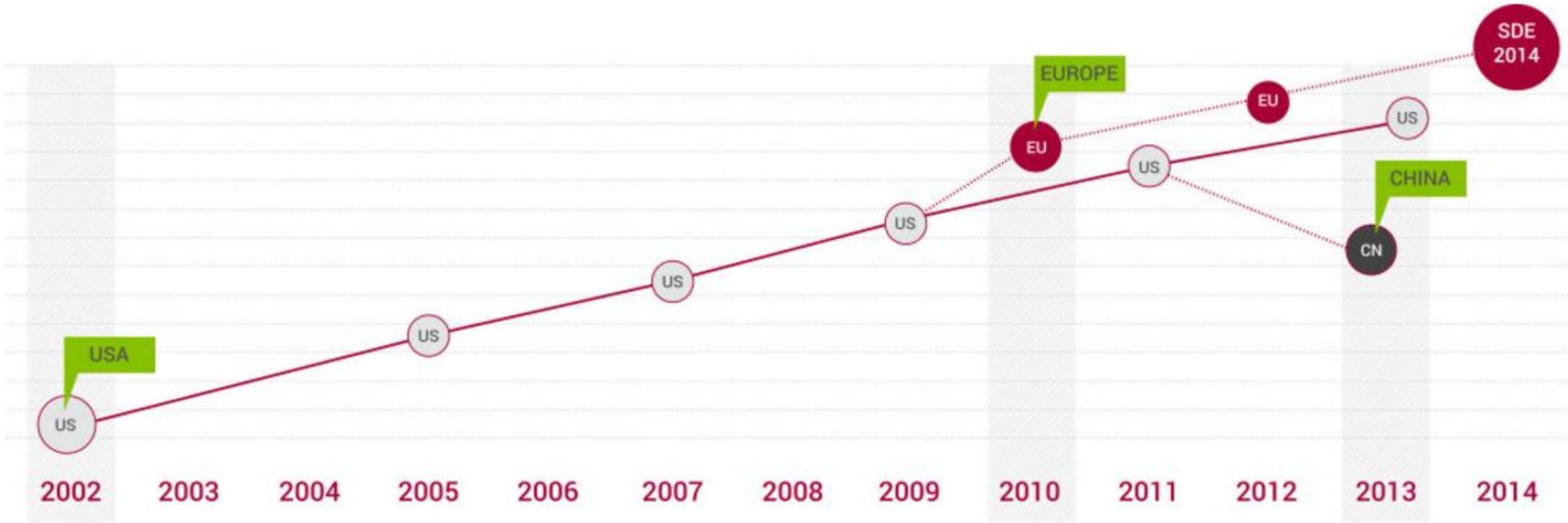
Solar Decathlon

Solar Decathlon

Solar Decathlon is an international competition organized by the U.S. Department of Energy in which universities from all over the world meet to design, build and operate a home energy self-sufficient, thanks to the use of solar energy, and equipped with all the technologies useful for maximizing efficiency. During the final phase of the competition, each team assembles and shows TO the audience their homes at the National Mall in Washington DC, undergoing ten trials, (from wich the name “Decathlon”).

Some numbers

Since 2002, the Solar Decathlon has involved 112 collegiate teams, affected the lives of nearly 17,000 collegiate participants, expanded to currently include 65 participating teams and nearly 10,000 students in three competitions around the world: Solar Decathlon Europe 2012, Solar Decathlon China 2013, and the U.S. Department of Energy Solar Decathlon 2013.



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Madrid 2012 – Med in Italy

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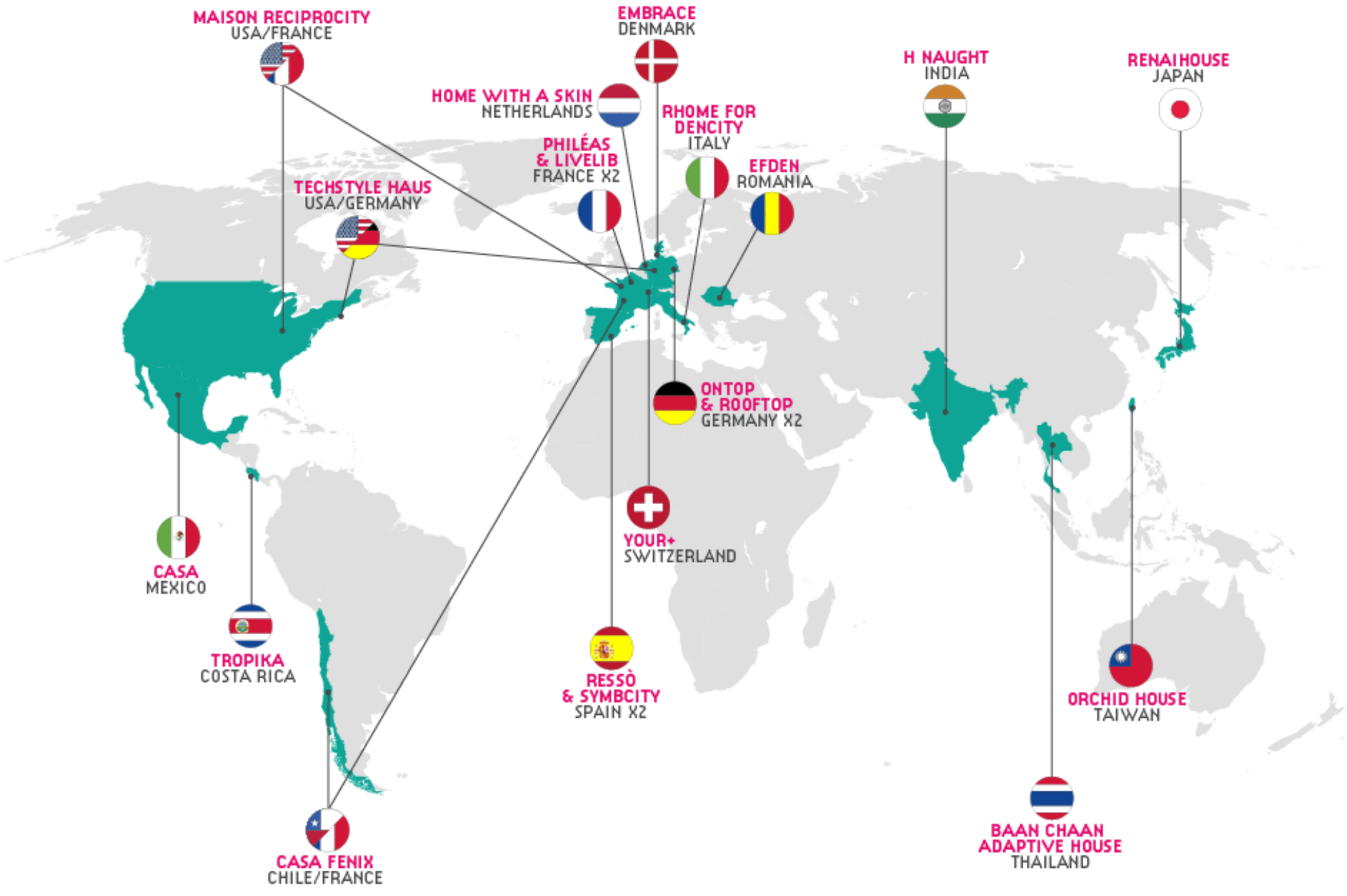
COMPETING TEAMS

The Organization crew has selected the 20 best projects that come from 16 countries and 3 continents.
The Teams have 18 months to conceive, design, build and transport their zero-energy prototype to La Cité du Soleil® in Versailles.



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10 CONTESTS

The Decathlon is based on a careful evaluation of 10 contests with a total of 1000 points. The prototypes are open to the public and evaluated by a jury of experts, all from their specifically related fields.

The 10 contests are as follows:

ARCHITECTURE

assess design coherence, flexibility & maximization of space, technologies and bioclimatic strategies.

ENGINEERING & CONSTRUCTION

evaluate functionality of the house structure, envelope, electricity, plumbing and solar system.

ENERGY EFFICIENCY

consider excellence in systems and house design, while looking for reduction of energy consumption.

ELECTRICAL ENERGY BALANCE

measure the houses' electrical energy self-sufficiency and efficiency and assessment of their energy balance.

COMFORT CONDITIONS

consider the capacity for providing interior comfort through the control of temperature, humidity, acoustic, lighting and quality of interior air.

HOUSE FUNCTIONING

evaluate the functionality and efficiency of a set of appliances that must comply with the demanding standards of present-day society.

COMMUNICATION & SOCIAL AWARENESS

assess the team's capacity to find creative, effective and efficient ways of transmitting ideas that define the teams' and projects' own identity.

URBAN DESIGN, TRANSPORTATION & AFFORDABILITY

evaluate the relevance of the housing unit's grouping proposal and regional positioning, with regard for social and urban contexts of the project.

INNOVATION

estimate the innovative aspects of houses in preceding contests, focusing on changes that impact value, performance or efficiency.

SUSTAINABILITY

measure the team's reactivity to environmental issues, including its efforts to attain a maximum reduction of negative environmental impact.

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COMPETITION TIMELINE

The Competition will take place in 2014 from June 14th to July 19th in the Park of Castle of Versailles. This date will mark the successful conclusion of 2 years of hard work by 800 Decathletes.
The prototypes are the product of joint effort & collaborative spirit. Here are some major milestones.

COMPETITION

ASSEMBLY	OPEN TO THE PUBLIC	DISASSEMBLY
11 DAYS	18 DAYS	5 DAYS
June 16, 2014	June 28, 2014	July 14, 2014	July 19, 2014

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The Problem

In this moment, when we start writing, the estimated world population is of 7.213.964.000 people and it is considered to reach **9 billion of amount within the 2050**. The 72% of people will live in big cities and to survive they will need nourishment, water and energy.

Besides we need to consider that the **45% of energy consumption is due to construction industry, especially the residential part of it.**

August 20th 2013 way the Earth Overshoot Day, that was the day the consumptions of natural resources made by the human being started exceeding the production the Earth could make avaiable for that year.

The big world cities deal everyday with the problem of the degeneration, not only for the architectural and urban aspects, but most of all in social issues. A degradation that grows with the progressive increase of the population and the masses impoverishment.

In many metropolis all over the world the representation of their degeneration is identified by the slums and buildings decay. Cities as Sao Paolo, Caracas and Hong Kong are only few example.

Rome, the eternal city full of beautiful ancient remains and roman heritage, shares the same aspect with other metropolis about urban degeneration. Our work try to give an answer to big city issues, through the elaboration of a r**eplayable settlement method** with recognisable values, that can bring to the regeneration of existing cities.
The project designed for Rome urban areas is taken as an opportunity to deal with the global condition, that it's easier to explain with the description of a local act. We want to convey people the idea of **"thinking globally by acting locally".**

Historical and future world population estimates (in millions)

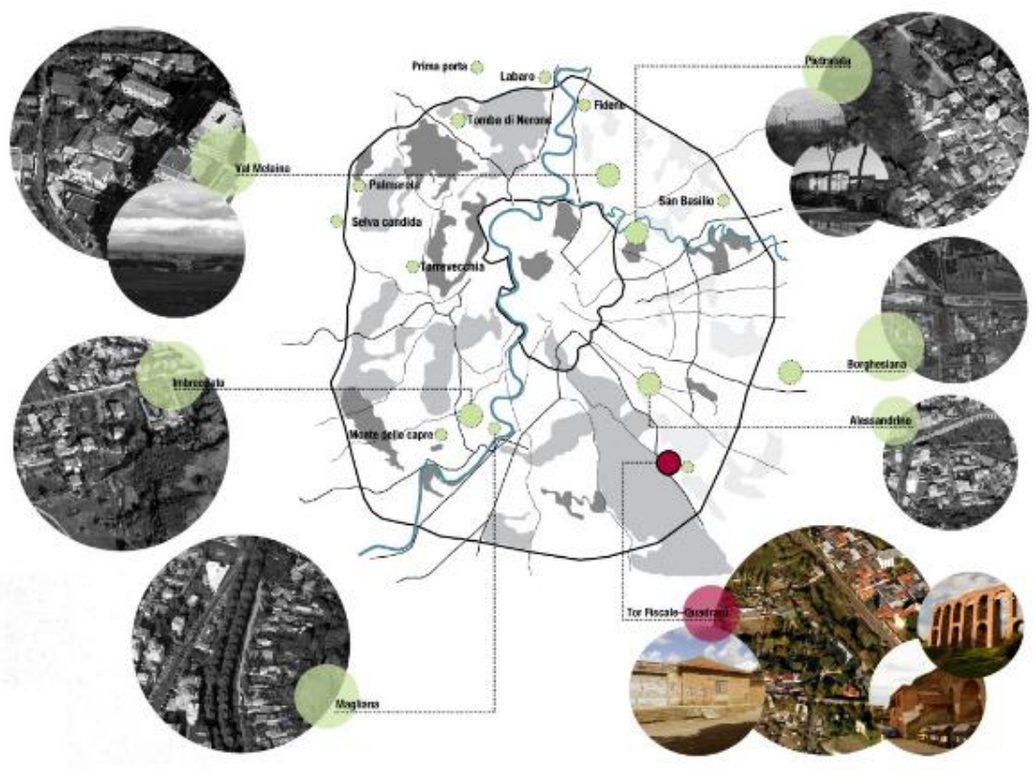
791.000.000 year 1750

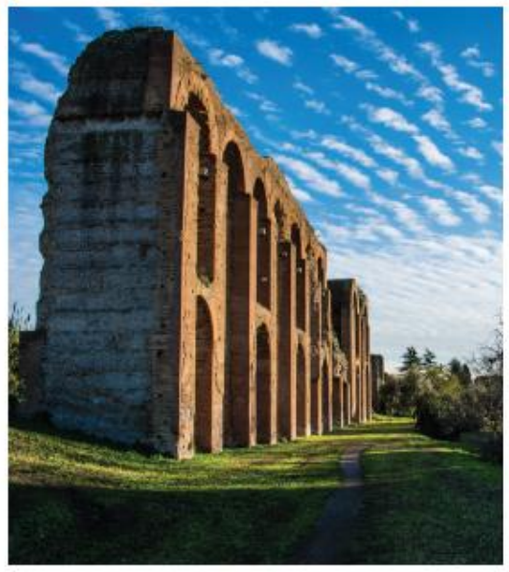
1.262.000.000 year 1850

2.521.000.000 year 1950

8.909.000.000 year 2050

from: wikipedia.it





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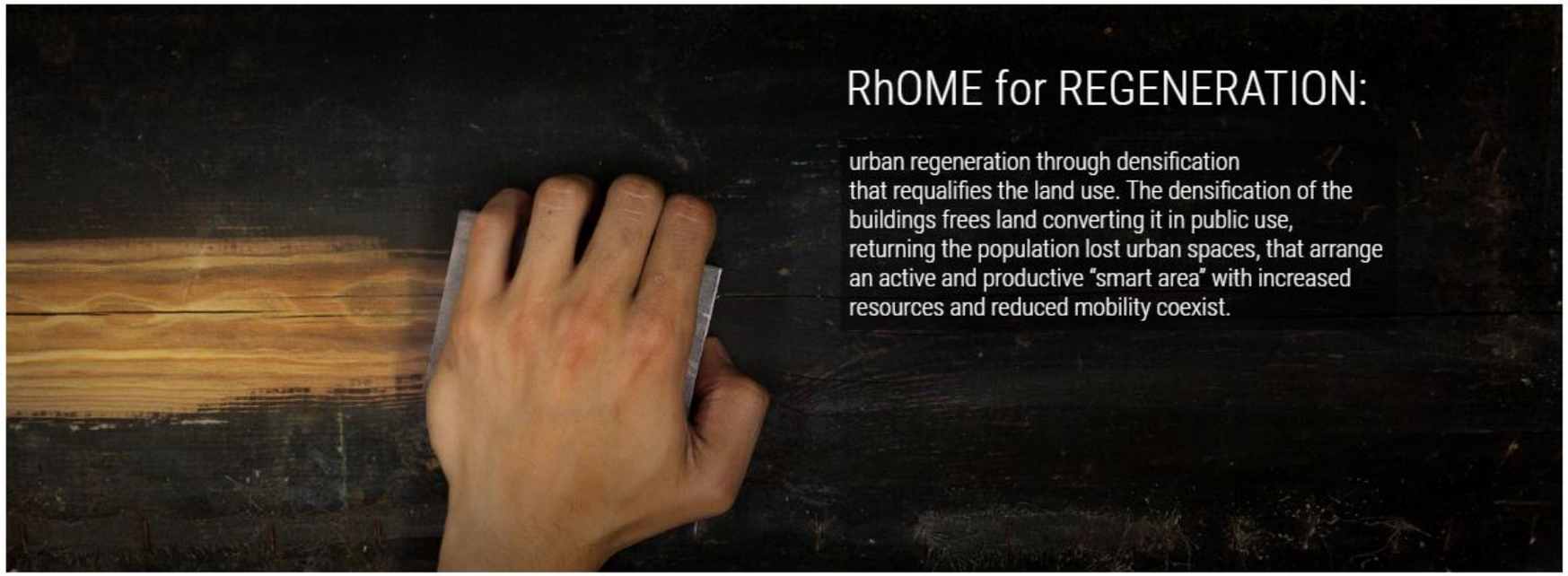
RhOME in ‘5’ R

RhOME is the practical application model of **five mainstays**
(inspired to Smart City philosophy).



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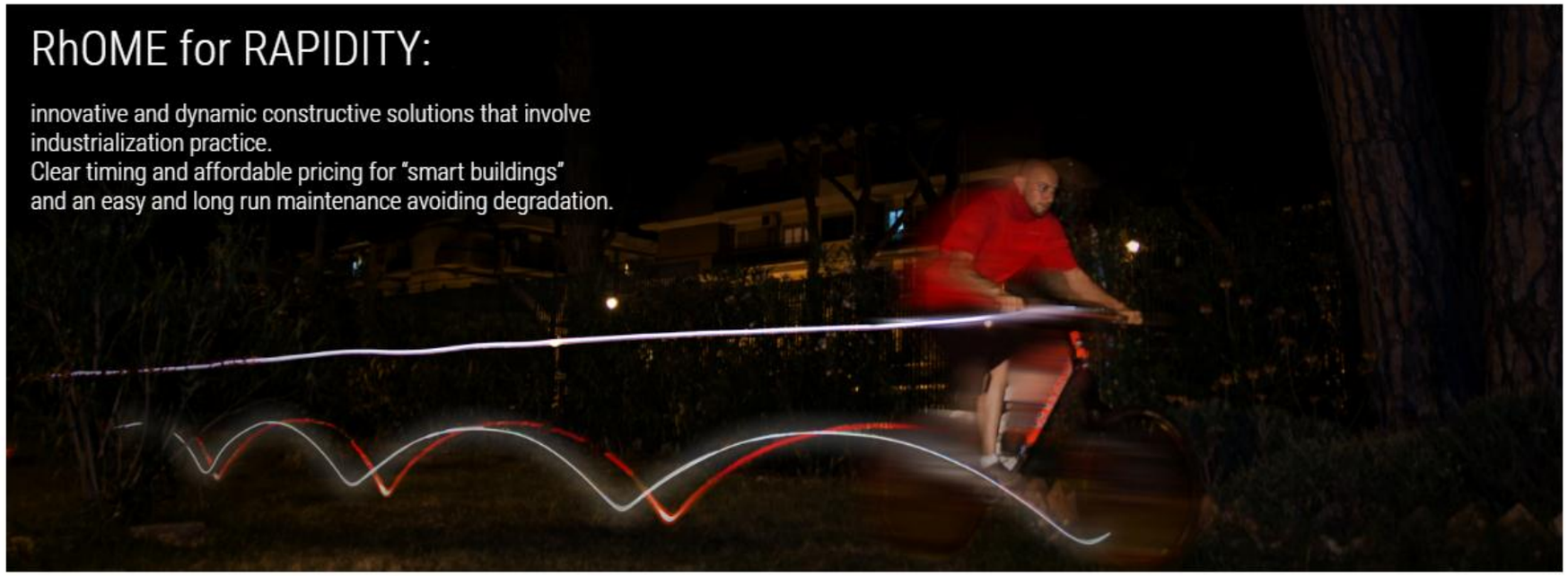

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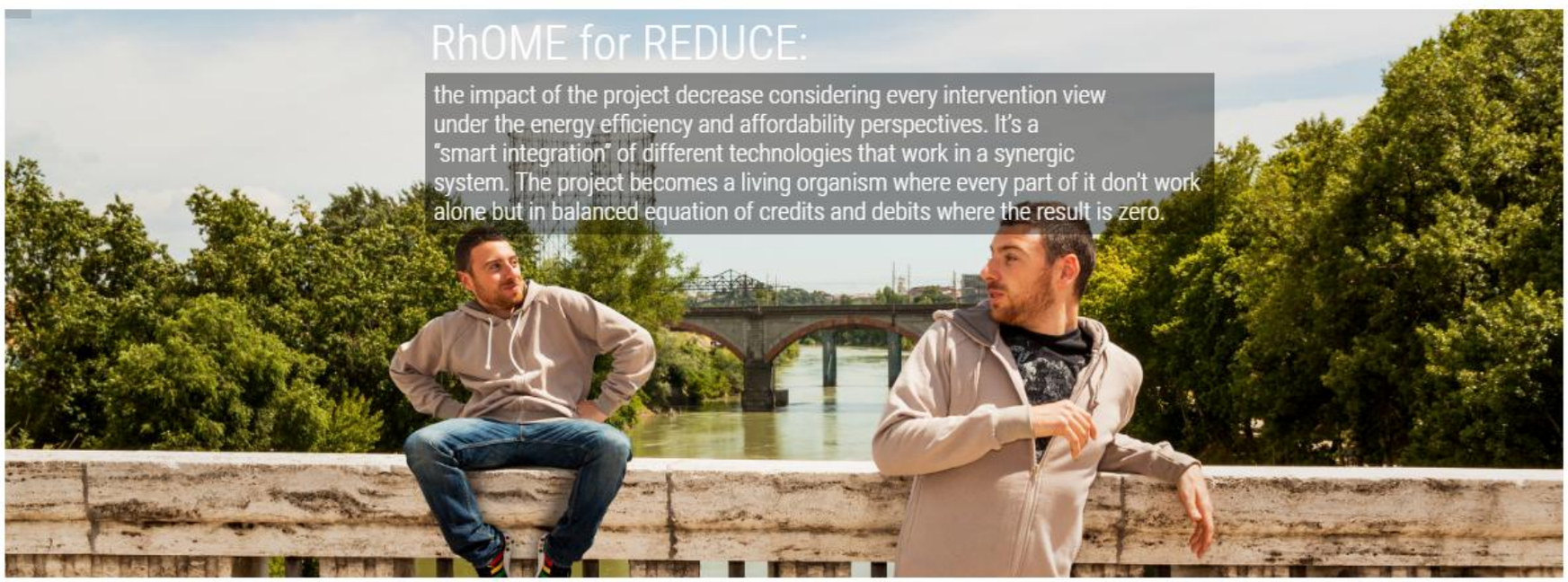

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Strategy

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Why being less when you can be MORE?
Or better...
Why being less when you can be RhOME?

MORE MASS, LESS WEIGHT
A "slightly heavy" house equipped with a system of dry construction, lightweight and fast to assemble, efficient from the point of view of energy because it has a robust heart and throbbing.

MORE PRODUCTION, LESS CONSTRUCTION
A structure which is constructively fast that involves skilled workers in the production phase at the factory for the technologically advanced components, in order to make it easier and faster assembly.

MORE SYNERGY, LESS ENERGY
A environmentally careful building which combines active and passive strategies along with technological innovation of the systems that partake and support eachother towards the single goal of reducing consumptions.

MORE INFORMATION, LESS AUTOMATION
A conscious control of the welfare of the house and of the comfort of the indoor environment. The house is not working independently but provides information to the user on how to help minimize the consumptions. An artificial mind aided by human consciousness and not the other.

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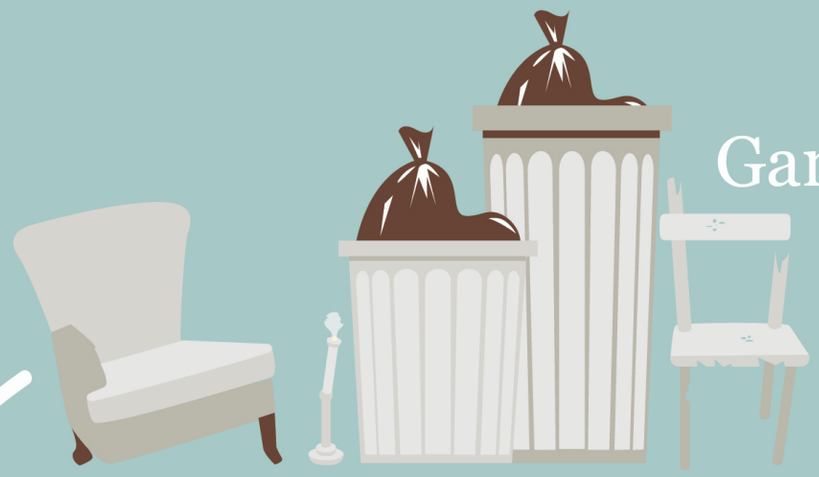
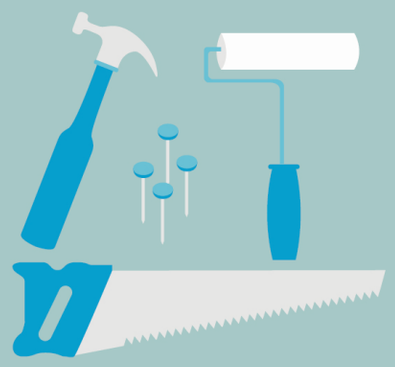
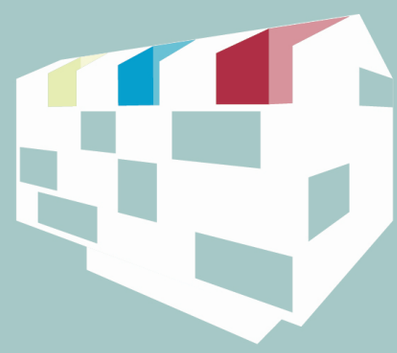


Garbage



FAB - LAB

one thing leads to
ANOTHER



RhOME

Old Garbage, New Objects

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Team

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The Project

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RhOME

a Home for Rome

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QUEST'AREA È PUBBLICA
DESTINATA
A PARCHEGGIO-CENTRO CIVICO
BONIFICATA
DAI CITTADINI DI TOR FISCALE

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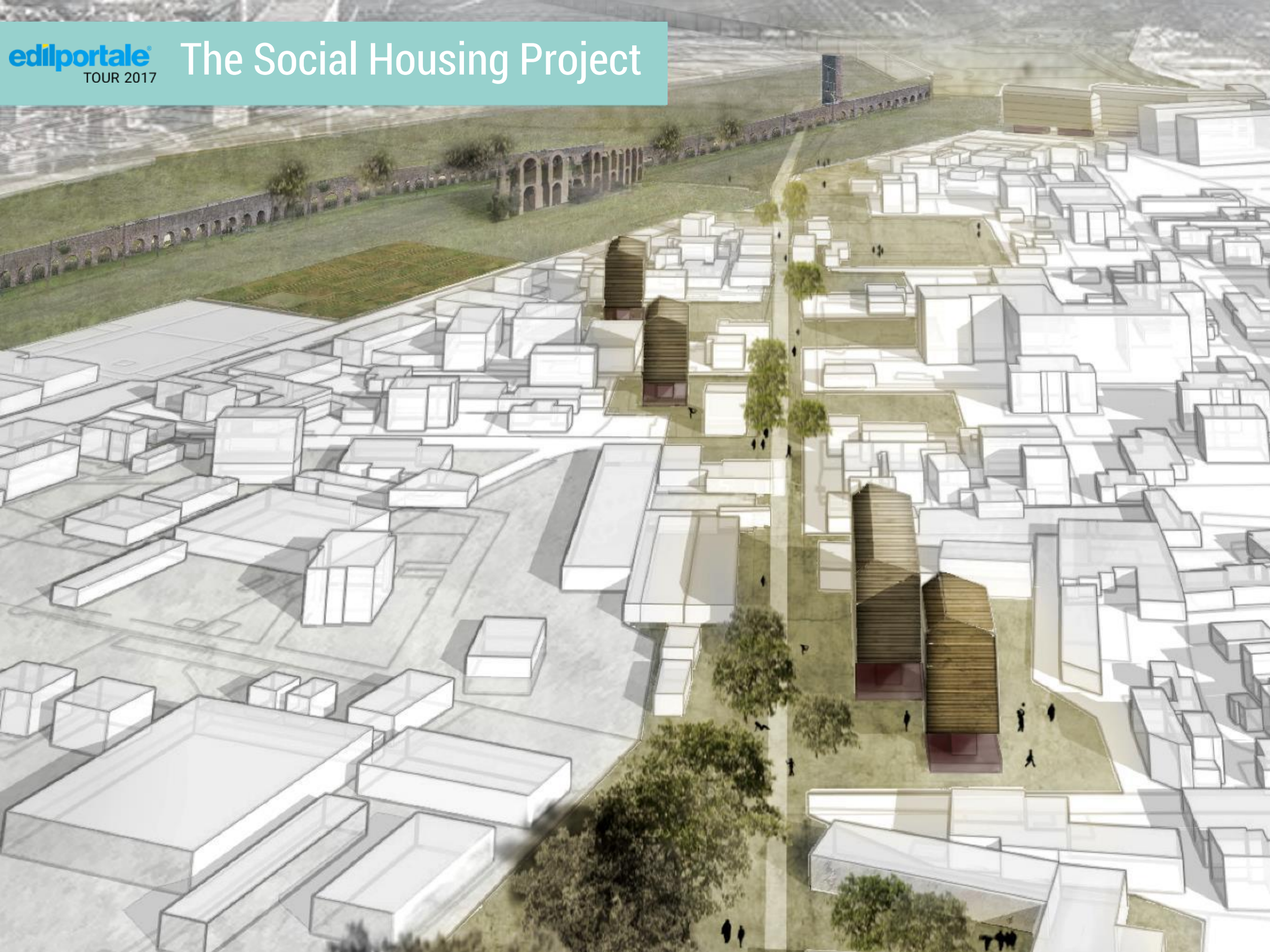
The Social Housing Project



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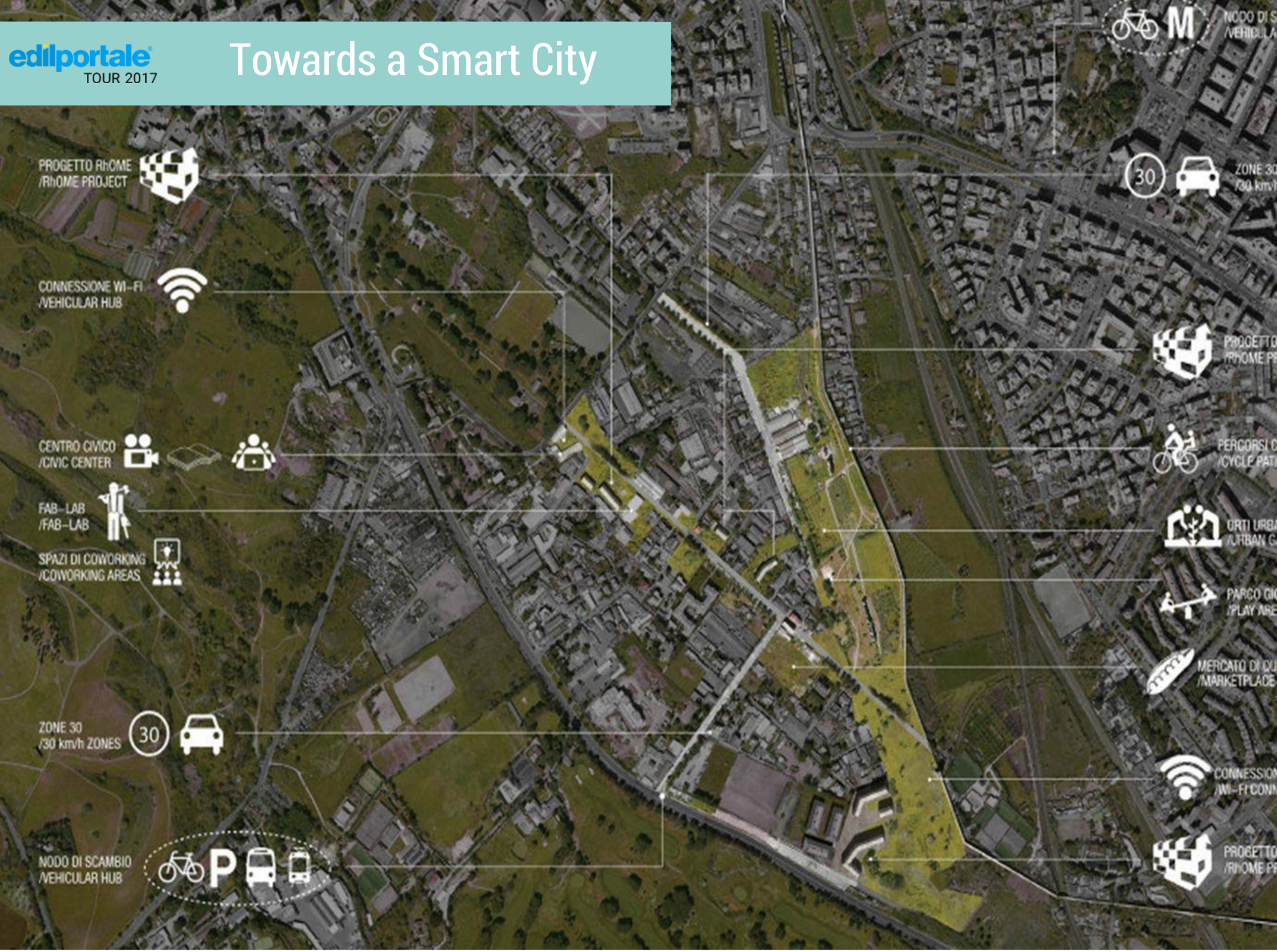
Towards a Smart City



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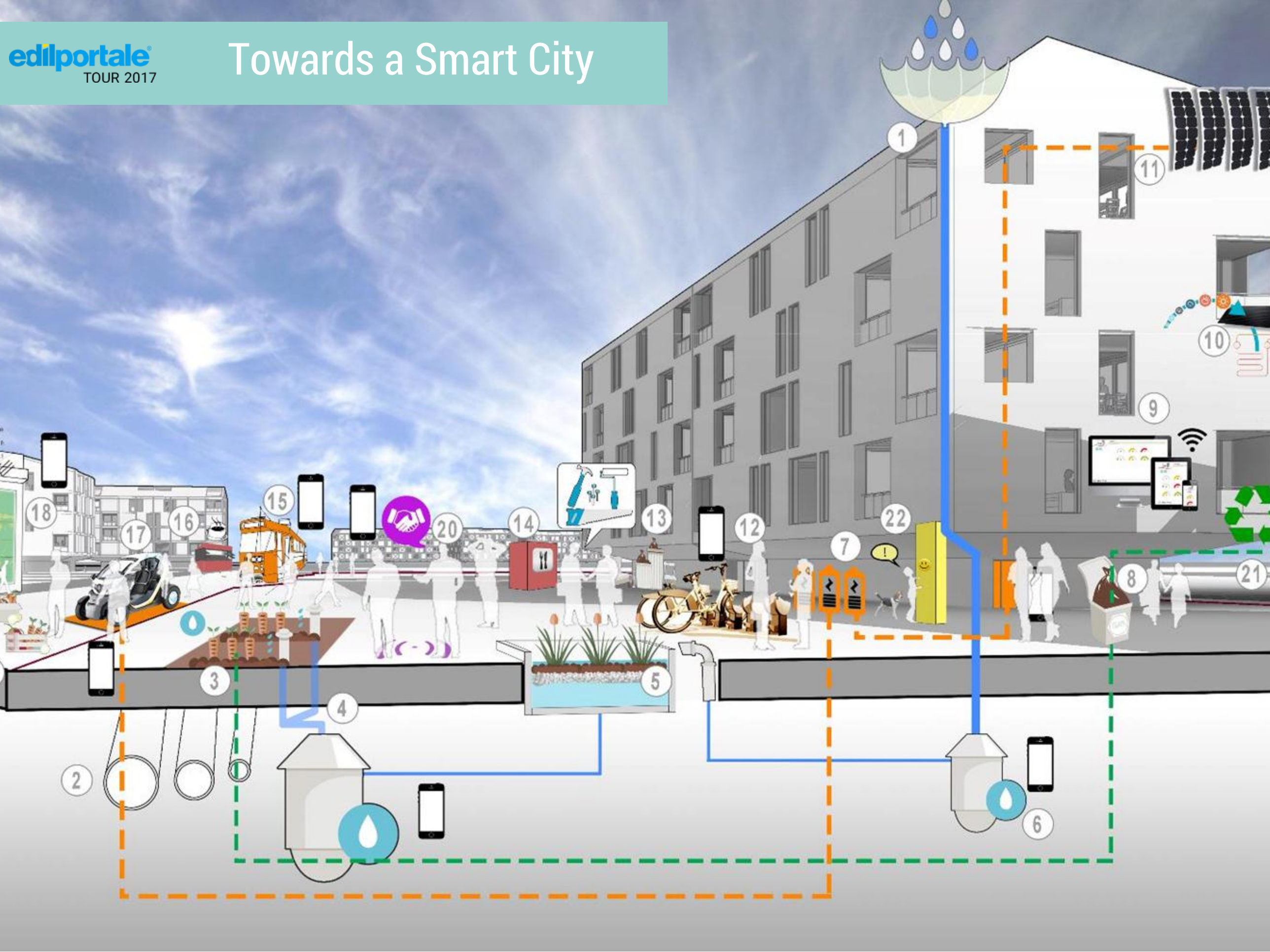
Towards a Smart City



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A new vision for urban life

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A new vision for urban life

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The building

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The prototipe

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10 Days for the construction

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Transportation

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Prefabbrication

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Assembly

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The House

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The House

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The House

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The House

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Comunication

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Comunication

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Live RhOME

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Live RhOME

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Live RhOME

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Result

Bottino dei premi di RhOME

vincitore SDE

Social housing

Lighting design

Architettura

Efficienza Energetica

Sostenibilità

Funzionamento della casa

Condizioni di comfort

Innovazione

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An Opportunity

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Our energy

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Thanks