The project : Transformation agenda for low carbon cities

- A European collaboration of six European cities including Amsterdam, Copenhagen, Genoa, Hamburg, Vienna and Lyon and thirteen partners *working together to improve their policy and programs to lower carbon dioxide emissions*.
- The project dealt with the energy transition of cities under the umbrella of Smart Cities and Communities

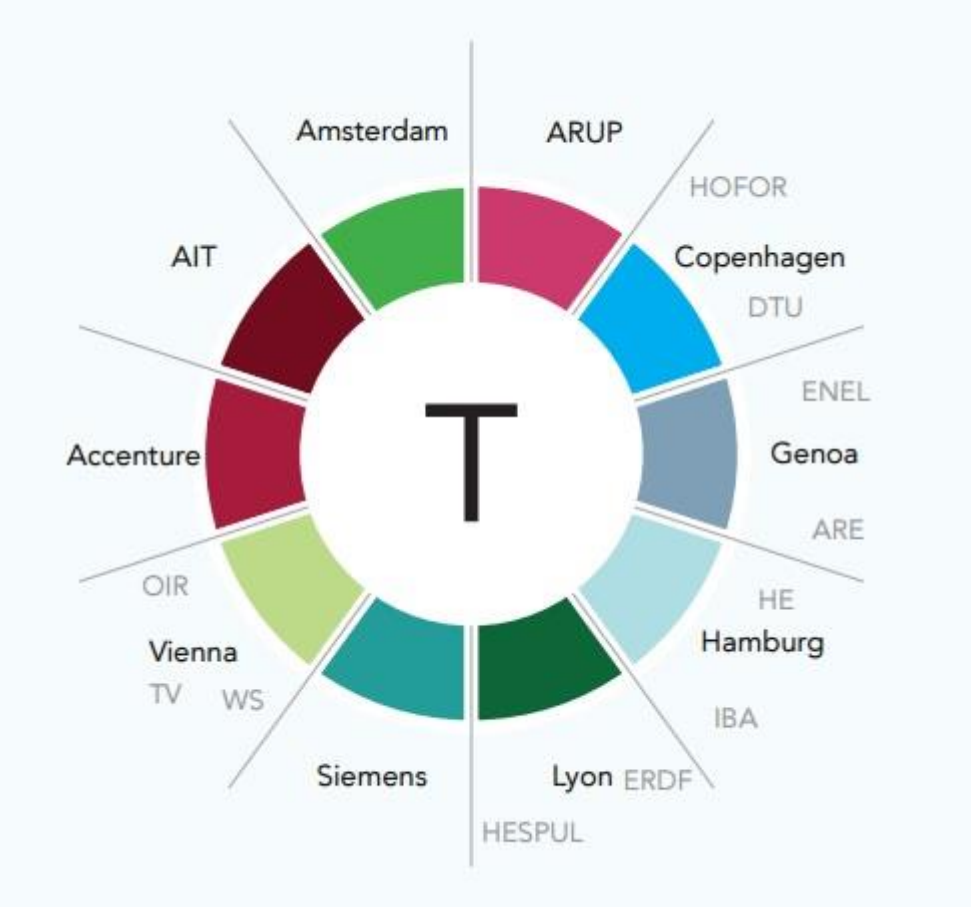
Project Partners

Cities

- City of Amsterdam
- City of Copenhagen
- City of Genoa
- City of Hamburg
- City of Vienna
- Grand Lyon

Energy and grid companies

- I.R.E. Agenzia Regionale Ligure
- Electricité Réseau Distribution France
- Enel Distribuzione S.p.A.
- Hamburg Energie GmbH
- HOFOR (Greater Copenhagen Utility)



Commercial partners

- Accenture
- Hespul Association
- OVE Arup & Partners International Limited
- Siemens AG Oesterreich

Knowledge partners

- AIT Austrian Institute of Technology GmbH
- Danmarks Tekniske Universitet
- IBA Hamburg GmbH
- Österreichisches Institut für Raumplanung

Objectives

- To start with ***a clear outline*** of each of the participating cities.
- To ***describe the context*** per city in terms of climate, energy assets, ambitions, targets and main possibilities in terms of energy efficiency, flows, production.
- To describe in the same time the ***current status of city planning, energy planning tools, and existing energy data***.

Aproach - Definition of a Smart City and a Smart Energy City (SEC)

- A Smart City is: “A liveable, resilient city, which is inclusive, climate friendly, insight-driven and fosters innovation and a sustainable economy.”
- The Smart Energy City, as a core to the concept of the Smart City, provides its users with a liveable, affordable, climate-friendly and engaging environment that supports the needs and interests of its users and is based on a sustainable economy.
- The Smart Energy City ***is highly energy and resource efficient***, and is increasingly powered by renewable energy sources; it relies on integrated and resilient resource systems, as well as insight-driven and innovative approaches to strategic planning. The application of information, communication and technology are common means to meet these objectives.
- The Smart Energy City leverages the Smart City Vision as ***a tool to help set the trajectory for an overall smarter city development***. This development will encompass all social, economic and environmental aspects of sustainability, using these aspects as an overall goal of both the Smart Energy City and its key elements.

How

- Based upon stakeholder co-creation
- Providing cities instruments and tools to arrive at smart energy plans and executable projects.
- Strategy and operations will be brought together, just like different levels of scale: city, regional, neighborhood.
- Service design thinking will be tested to make way for new ideas and opportunities.

The project delivered :

1. A plan for two or three golden interventions in in each of the cities, to reduce more CO2 through radical steps. We call it ***the Transformation Agenda***.
2. Ready to carry ***out Implementation Plans for Smart Urban Labs*** (a targeted neighborhood) in each of the participating cities, containing projects and business cases.
3. A ***Smart Energy City Handbook***, that contains methodologies how to arrive at a transformation agenda and an implementation plan for your own city, based upon the learning's in the Smart Urban Labs. The handbook combines Performance Indicators for measuring smart city progress and a collection of ready to use financial and and stakeholder (co-creation) models.
4. A Prototype for ***a Decision Support Tool***, a tool which shows in an integrated way the effects (CO2 , energy, time, finance, space) of decisions made in energy plans. We offer a prototype starting with some of the most important components like energy, waste, mobility and water and a description of work for the further necessary development of the tool.
5. A signed ***Memorandum of Understanding*** between participating cities, committed cities, the EU and relevant industries, knowledge institutes and commercial partners on the implementation of all TRANSFORM results in order to realize the set ambitions and to ensure ongoing research.
6. TRANSFORM will deliver recommendations to the EU Smart City Agenda 2015+.

Key elements and indicators

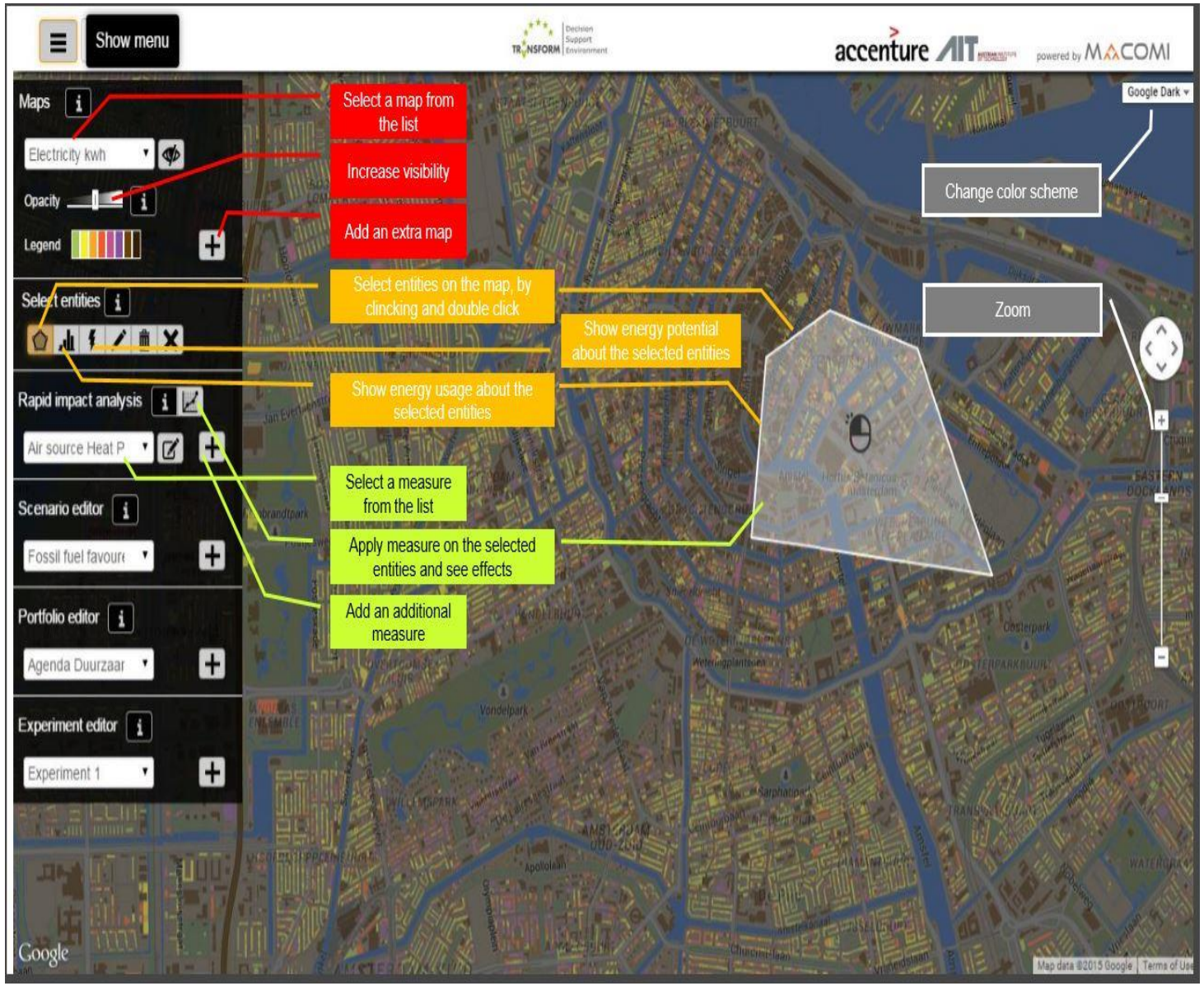
- The definition of the Smart Energy City is broken down to a number of key elements, which need to be achieved for a city to develop into a Smart Energy City.
- Each key element is defined and then broken down into a number of Key Performance Indicator categories (KPI's).
- The indicators within each subject describe a qualitative development (in 4 levels), such as the development of a strategy.
- This exercise should be driven by each individual city, as the definition and KPI's were developed to be used as a tool for each city to work towards becoming a Smart Energy City.

What is the DSE (Decision Support Environment)

- Within the Transform program, an online integrated urban energy planning tool, the Decision Support Environment (DSE) was developed that supports cities by providing quantitative insights on possible sustainability measures that can be taken and implemented.

- The DSE utilizes city data and analytics to calculate the impact of multiple low carbon measures on CO2 emissions (such as district heating and retrofitting), energy consumption, renewable energy systems and costs.
- Through data, measures, targets and locations, the city is able to simulate multiple scenarios, completely customized to their areas of interest and targets.
- The aim of the DSE is to support private and public stakeholders, involved in urban planning, to go through a transparent and structured decision making process.

Value of the DSE



- The DSE serves as a common platform where ideas and proposals can be exchanged and analyzed in a transparent way.
- The security of the uploaded city data can be customized. It can range from the data being fully open, allowing access for everyone, to being completely secured.
- The DSE aims to contribute to the EU 2020 targets, and hence there are the key KPIs to analyze impact of possible sustainability measures for a city in the DSE.
- The DSE will help achieve your city's sustainability goals

Decision Support Tool

enables city stakeholders to make faster and better decisions within the city's specific context

Visualise
- Visualise and analyse the current energy performance of a city in detail

Analyse
- Analyze local or city-wide opportunities for improving city's energy performance

Define
- Define and implement a whole variety of detailed energy and emissions related measures at specific locations within a city

Simulate
- Simulate the short-term and long-term impact of these measures under a number of future scenarios

Get insight
- Get insight into which portfolio of measures will contribute the most to the city's energy and emissions targets

Genova results

- Genoa Transformation Agenda
- **Part A** The story (Status Quo Report, vision and quantitative goals): presents the general framework in each city, its SEAP, vision and goals;
- **Part B** Evaluation of the city's energy strategy and transformation process: In this section the city will assess its climate plan or SEAP comparing real and ideal development, by coupling two approaches: the Intake Workshop and the City Concept Assessment. Based on the results of these two approaches, the city will identify themes and strategic elements that need improvement to achieve energy and climate goal (i.e.the transformation process they will have to gothrough).
- **Part C** Improving abilities to implement – selected themes: the city describes the Transformation path it will have to go through to improve its energy strategy so as to meet its energy and climate objectives. This will be done at two levels: the thematic level (by detailing concrete measure on the 3/5 themes selected during the intake workshop) and the strategic level (as a result of the strategic working groups)
- **Part D** What has been achieved so far and impact on the city existing energy strategy: This section details the first steps achieved by the city to implement above detailed measures, as well as the plan of the city to use above outputs to improve their energy strategy.

- Genoa Implementation Plan (Mela Verde)

Figure 1: Genova's Municipi: Municipio VII Ponente

Figure 4: Mela verde area