

Spoke 1 – Urban regeneration - City of tomorrow

Spoke 1 directly addresses the issue of the ecological and digital transition at the urban level through the definition of models and strategies for the regeneration of the city and for the innovation of processes and products coming from joint and living labs in which businesses and researchers, from the various Milanese universities, address key issues of sustainable urban development. We will start from the features of the different cities and from the information available to create an integrated and modular platform capable of connecting data relating to the environment and biodiversity with the needs and cognitive-behavioural aspects of citizens and with the strictly urban and structural aspects of the area in which to carry out the interventions. The objective is a multi-criteria design, participatory and able to enhance the peculiarities of the territory to create more sustainable cities, suitable for the needs of today's citizen. The economic assessment of the different elements, starting from the ecosystem services of green areas, up to the estimation of the effects of certain urban planning choices on human health will be fundamental not only for quantifying the value of regeneration processes, but also for identifying levers and models of financing interventions. This will be the basis of large urban forestry projects, of projects involving depaving and recovery of critical and abandoned areas that are located in different cities.

As part of the Spoke, a particular focus will be dedicated to the emerging problems of cities, such as those related to urban waste that can become a resource. A second key issue concerns energy choices and lastly, the issue of mobility and logistics will be addressed.

With regard to the issue of waste and scrap, the concept of a biorefinery integrated with the territory will be applied through the development of technological tools suitable for redesigning supply chains and enhancing the biomass. Both emerging chemical technologies and biotechnological approaches for transforming waste into new materials and molecules by fully applying the principles of sustainability and the circular economy will be considered.

At the energy level, Spoke 1's efforts will be aimed at fostering the development of carbon neutral districts and Positive Energy Districts (PEDs) through technical innovations, as well as innovative economic schemes and tools related to energy efficiency and the production and management of renewable energy to meet the needs of the twenty-first century: reduction of the flow of energy, materials and land occupation. The aim is also to protect communities from global warming and from the exacerbation of extreme events.

With regard to mobility, the ecosystem will focus both on the technological aspects of the new mobility processes and on the behavioural and social aspects, as well as on innovative policies, economic and management measures that can be implemented to support mobility.

Finally, it is important to highlight that although Milan represents the Spoke 1 laboratory, researchers and business will collaborate intensively at the national and international level to promote a sustainable and scalable urban transition in different contexts.

The strong point will be the collaboration with research centres and entities in Southern Italy with the aim of sharing technologies, innovation processes, feasibility plans and transferring actions to the territory.

Participants:

PUBLIC ENTITIES

PRIVATE ENTITIES

UNIVERSITY OF MILAN-BICOCCA* , POLYTECHNIC UNIVERSITY OF MILAN, UNIVERSITY OF MILAN	BOCCONI, ENI, EDISON, PIRELLI, THALES ALENIA SPACE ITALIA
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***Coordinator**