

The opportunity offered by the dialogue with prestigious research structures such as the European Energy Research Alliance (EERA) is an opportunity to set up common scientific activities for SITdA, the Italian Society of Architectural Technology. Important public organizations, research centres and universities are affiliated to EERA and set their own scientific focus on policies and practices related to the development of innovative technologies for energy efficiency. In the presentation of the Special Issue on the theme of smart cities, the presence of the contributions related to the EERA research activity, includes scenarios of great interest for scientific cooperation within the European Strategic Energy Technology Plan and aimed at reducing emissions of greenhouse gases and the promotion of new energy technologies.

Both EERA and SITdA are related to scientific communities oriented to complementary research fields as well as to sustainable urban and territorial strategies, in which the energy factor is linked to the urbanistic field and to the climate responsive and energetically efficient settlement principles, identified as qualifying elements for resilient cities and characterized by a reduced degree of environmental vulnerability.

One of SITdA most important mission is to promote scientific dialogue in the field of technologies. From this point of view, in the urban context the theme of smart cities is relevant among those in which we note the combination of technological innovation and governance of resources and territorial development strategies. The start-up phase of the Joint Programs - JP on Smart Cities presented in Special Issue of *Techné Journal* represents a significant moment for the dissemination of highly qualified research contents on energy efficient cities that interact with European culture of smartness and reduction of impacts and fossil energy consumption.

It should be noted that the theme of smart cities has evolved extensively in recent years through interesting declinations and evolutions for scenarios in which urban centres will be conceived as complex entities that can self-adapt and self-regulate through the continuous flow of information, according to feed back loop processes.

The smart cities in the contemporary age are the mirror of the instauration of the innovative relationship between people, urban spaces and new digital technologies. From ICT - Information and Communication Technology - with the purpose of collecting, processing and transmitting information, we have moved on to the pervasive digitalization of the world around us. This approach represents a threshold of technology that breaks away from conventional visions, addressing a turning point towards the future of the digital revolution.

Urban development in the digital age leads to a decisive rapprochement between safe, efficient and renewable energies with

information technology and the built environment. Digital technologies lead directly to the definition of a new intangible urban infrastructure composed of data and information, intangible elements that heavily affect the urban physical system. It is a subject that is always less a frontier and that will become an integral part of the contemporary habitat. The physical places will be integrated with data and information, with lifestyles and innovative concepts in the use of material and energy resources. The smart city is an intelligent city especially for the communities that live there. Intelligence is pervasive, thanks to the use of devices and strategies aimed at overcoming environmental, social and economic criticalities, in which the quality of housing is guaranteed by the diffusion of new technologies.

New systems of relationships are triggered within smart cities, such as those between urban density and energy efficiency, but also those of distributed renewable and interactive energy systems, conceived within broader strategies of urban energy retrofitting of existing buildings. This objective is integrated with one of the most important European strategies on Nearly Zero Energy Buildings, provided for in Directive n. 31 of 2010 and being implemented within the technical policies of the member states. In the field of energy efficiency are included the new concepts of Hybrid Buildings, that are innovative in environmental behaviour and in their changes regarding the management and processing of information flows. The complex urban system is then measured by new methods for the assessment and management of consumption and energy efficiency at the urban scale where the themes of smart energy are expressed as a new European frontier in the field of applied research, expanding to the regional contexts with interoperability and appropriate smart city networks.

Urban intelligence is therefore placed at the service of housing quality, with conditions of well-being, security and urban governance. The transformation of our cities into smart cities is therefore implemented with the progressive integration of new digital services and technological infrastructures within the territory. This is the result of the intersection between human capital and social capital from which emerges an intelligence that, to be capable of future must inevitably be collective.