Preface

This collection of papers is about the energy dimension of a smart city. Its goal is to mark a boundary around the concept of "city smartness", considered with regard to the energy issue and the town planning point of view. From another perspective, the aim of this collection of writings by the main Italian research groups in the field of urban sciences, is to define how the new concept of a smart city can successfully open a new understanding of urban systems and progress towards a new style of management for our metropolis.

If we have been able to see and participate in the smart city debate, one that has been spreading all over the world during the last 2 or 3 years, it is possible to argue that the main factors of this new concept regarding human settlements are energy and technology.

The technological dimension of the smart city movement is inherent to the city itself and represents the engine that moves the urban system in its spatial and temporal development. But today's main issue is energy. Technology without energy is simply useless. It is no exaggeration to say that energy is the main challenge for the future of our cities as well as for human beings. At the same time, cities are the places where this challenge must be played out first, because cities are the main wasters of energy on the earth.

The planning of a smart city will be greatly different from the canonic urban planning of our current cities. Furthermore the energy dimension has to constitute the first issue to be considered in a new planning process. The new urban planning has to consider energy as a starting point and a goal to achieve, at the same time. Technology must be considered as a part of the planning process from the beginning. Technology, in order to know its needs, to understand and to drive urban system towards new, sustainable, and balanced conditions, has to be "adopted" and not merely "added to" the city, as we tend to do today.

Italy is a country particularly exposed to energetic problems for three main reasons:

- The geographic location of the country determines a particular vulnerability to climate change and consequently the need for large amounts of energy;
- The country has no primary energy resources available (Italy imports from abroad more than 80 % of its energy requirement);
- Due to a public referendum, no nuclear plant is available on national territory.

This study has an explicit concern about a city's energy. Again, energy has to be considered inside the urban planning process as well as inoculated within the new idea of a future city. We need new methods, new processes, and new tools to manage the urban system in order to drive it towards a smart dimension. From this concepts arises the idea of this volume which is structured along three main issues: the relationship between energy and city (in its different dimensions), a methodological aspect of energy's contribution to the urban system management, with a special focus about ontological issues, a review of case studies which describes some practices, procedures, and tools of urban planning. At the end this essay could be useful to students of urban planning, town planners, and researchers interested in understanding where the city of the future will go and what the energy contribution to this evolution will be.

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