

Preface

This book is partially derived from the outcomes of the research project entitled *The smart region between Turin and Milan: mobile services as drivers of spatial innovation towards Expo 2015* (developed by the Politecnico di Milano, Dipartimento di Architettura e Studi Urbani (DAStU) in collaboration with Telecom Italia) which were the starting point for the development of this publication. This research project shares the criticisms brought against the concept of urban smartness (such as the risks of an excessively technocratic and market-oriented approach to city management and planning and of an increasing social segregation in city use), but it acknowledges the potentials of the smart city concept for urban development (such as spatial regeneration, economic and social innovation, environmental sustainability). Within this context, it investigated the use of Information and Communication Technologies (ICTs) for the representation, promotion, management and dissemination of an integrated system of services; it explored the spatial impacts of digital services at different scales (local, urban, regional); and it sought to understand how a system of mobile services can encourage new spatial uses and new collective behaviour in the quest for a better quality of places. Consequently, this book offers:

- an original exploration of the relationship between ICTs and spatial planning, expanding the concept of urban smartness from the usual scale of buildings or urban projects to the regional dimension;
- a related critical analysis of international case studies with the purpose of verifying the opportunities afforded by new digital services not only to improve urban efficiency but also to foster the evolution of urban communities through the quality enhancement of public spaces;
- valuable insights for scholars and for local administrators and operators involved in smart city projects.

The research applied its reflections to the spatial configuration of the Northern Italy mega-city region's sector between Turin and Milan: a wide area where the recent completion of the infrastructural bundle (motorway and new high-speed railway) is producing significant physical and socio-economic changes. Considering the Italian context, in light of a smart concept that to date has been

mainly restricted to the urban scale, Milan is investing significant efforts and resources in smart city projects, also in relation to the 2015 Universal Exhibition. Many initiatives have been directly launched or supported by the municipality, while others have been promoted by the mega-event management company Expo 2015 Spa at different scales: the local scale of the Expo site, the wider scale of the Milan metropolitan area, and the world scale of the Internet. According to this scenario, the book suggests the redefining of well-known spatial and conceptual references, which are taken from the disciplinary debate in the fields of new media and urban studies, and which may be related to the Internet structure (based on nodes and hypertextual connections activated by the nodes themselves):

- the *smart city* concept can evolve into the *smart region* concept (identified by an area dimension), which refers to the metropolitan region between Milan and Turin selected as the spatial context of the research because of its specific features and potentials for innovation;
- the *Internet of things* concept can evolve into the *Internet of places* concept (identified by a network dimension), which refers to the integration of physical and digital services and represents the specific issue explored within the spatial context of the smart region through adoption of this experimental approach to certain urban functions important for innovation of the metropolitan region (for instance, university campuses);
- the *urban node* concept can evolve into the *urban digital node* concept (identified by a point dimension), which supports the development of the *Internet of places* concept from the scale of urban functions (such as university campuses) to a wider spatial scale by intercepting different categories of users (inhabitants, students, city-users).

Within this framework, two pilot projects were implemented in order to identify the relationships among the different scales considered by the research project (local, urban and regional). Adopting the reference to the system of university campuses within the potential smart region between Milan and Turin, the first pilot project concerned the Città Studi university campus in Milan. This was chosen in order to explore the Internet of places concept by optimizing access to university facilities through the use of mobile services, thereby enhancing the campus itself as a complex of urban digital nodes. The second pilot project sought to develop the Internet of places concept from the university campus scale to the urban scale by applying it to a more extensive area of Milan comprising the Bovisa university campus and the 2015 Expo site. Specifically, this second focus, which concerned the development of an *Urban Digital Nodes (UDNs)* network, had the following goals:

- to identify the best localization opportunities for the UDNs through an urban planning approach;
- to define the functional components of these UDNs, which could be aggregated in different ways in order to mix physical and digital site-specific services and increase the social inclusion of different categories of users (inhabitants, students, city-users);

Several case studies, which inspired the localization methodology and the functional components of the UDNs, divide between selective inventories of immaterial services and new technologies, on the one hand, and different scale spatial projects on the other. The most significant of these case studies are the following:

- at the local scale, the Living Lab in Malmö;
- at the urban scale, the Idea Store public libraries in London and the 22@Innovation District in Barcelona;
- at the regional scale, the smart city-regionalism plans in Seattle.

In regard to the two pilot projects of the research, these were selected with the purpose of verifying in concrete cases:

- if ICTs are really able to modify the uses, organization and planning of urban spaces and how they could concretely stimulate urban regeneration processes (as in Barcelona) and urban services innovation (as in London and Malmö);
- how the urban smartness concept can be extended to the regional scale (as in Seattle).

From this perspective, the case studies consequently made it possible to compare the theoretical ICT potentialities for spatial change and innovation with their real outcomes (which do not always correspond to the original goals), as well as to identify ways to improve current practices on the basis of the two research pilot projects.

The book finally discusses how the proposed UDNs could be integrated with other kinds of innovative places related to the current boom in knowledge-based, new manufacturing and sharing economy (and society) favoured by ICT development. In parallel, it ends with some reflections on potential extensions of the experimental approach of the Internet of places concept from an urban to a regional context.

Some issues of this book have been frequently discussed with Andrea Bragagnini (Telecom Italia).

information campus project nodes system
 technological smartness facilities
 Barcelona use perspective between only
 accommodation innovative digital Città
 UDNs global instance European
 research space relation first because hand
 people internet concept planning new
 physical user building areas ICT mobile
 social Expo local scale Milan
 university networks UDN public
 context area city sharing starting quality
 components users region study cities
 places environmental regional metropolitan

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