

DISCUSSION PAPERS

## IDEAS FOR THE SMART CITIES OF THE FUTURE

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## Executive Summary





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## Executive Summary

Cities will undoubtedly be the dominant form of habitat throughout the 21st century. More than 50% of the world's population already live in cities, making them the main actors of resources consumption and of climate change acceleration. Our urban development model must therefore be modified over the coming decades in order to reduce the environmental and climatic impact cities generate, their ecological footprint.

Nonetheless, aside from the negative externalities, cities are also spaces which gather knowledge, innovation and capacity for action, since they are home to the centers of political, economic, civil and intellectual power and decision-making. As a result of all the above, cities have both the obligation and the potential to generate the required paradigm shift. Cities must begin to operate efficiently, improving their relationship with the surrounding region and placing citizens at the heart of their *raison d'être*.

It is vital that we tackle with decisiveness the way we make up cities, efficiently controlling and administering new dynamics with a holistic, integrating perspective. We need to develop smart cities, which incorporate all the potential offered by new technologies in order to improve their functioning and the quality of life they afford the citizens who inhabit them.

This paper reflects on key issues in the field of urban sustainability and attempts to answer the following questions: how can we reduce the ecological footprint of cities? How can we curb the growing social segregation which exists within them? How are we to ensure that cities are places of social cohesion and of opportunities for all their inhabitants?

The paper is divided into several sections, each one dedicated to a different dimension of what is known as "urban sustainability", providing a brief but clear and straightforward indication of those aspects which require immediate and intelligent solutions.

- From the perspective of the **urban development model** which has dominated urban planning policy over recent decades, we have seen processes based solely on the speculative criteria of short-term gains, leading to large-

scale suburban expansion, social exclusion and the irrational use of natural resources. Spain requires a change in its urban planning model: we must once again make cities more compact, combine uses in order to reduce mobility requirements, treat public spaces as a factor in urban competitiveness and achieve a model which guarantees housing as a right, not a commodity.

- One of the clearest consequences of this expansionist urban planning model is the **increase in mobility requirements**, along with problems in meeting all demands by means of efficient public transport services. The results of congestion in cities are numerous: increased energy consumption, air and noise pollution, higher accident rates and inadequate road safety, more public space occupied by vehicles rather than being available to citizens, degradation of the urban image, etc. A modern, efficient and productive city requires a system for the mobility of people based on high-quality public transport, offering energy savings and a commitment to clean technologies which do not pollute, and modes of soft mobility.
- The policies implemented by cities themselves to **mitigate and adapt to climate change** must encourage energy savings, using sustainable transport models and less consumption-heavy lifestyles, with a commitment to eliminating fossil fuels from residential properties and workplaces, promoting an energy mix with a high proportion of renewable energy and supporting urban planning policies and architecture which incorporate criteria to reduce energy demand per home and foster the recycling of materials and the prudent use of resources.
- Cities are our **major centers of consumption and waste generation**. A reduction in the ecological footprint of cities involves creating a more efficient urban metabolism, closing product cycles and extending their service life in order to maximize their potential usefulness. That means a widespread shift to more responsible consumption, which will in turn reduce waste. The reuse and recycling of land, materials and water must become one of the fundamental principles applied in building and maintaining cities.
- A modern and efficient city must be **socially sustainable**. And that means avoiding, curbing or reversing two trends seen in most cities: the social gap of the city according to income level and the inaccessibility and inability of many urban areas to fulfill the needs of certain groups (children, the elderly, the disabled, etc.). The solution to social segregation must involve cities with mixed neighborhoods from the demographic perspective, with a balanced distribution of amenities, types of housing and forms of occupancy. In this regard, the comprehensive refurbishment of established city areas has a fundamental role to play in the process of achieving social cohesion.
- The cities of the 21st century must become **digital cities**, leveraging the potential offered by new technologies in terms of a smarter and more sustainable urban structure. The application of new technologies in the shift to-

wards urban sustainability is vital because of their contribution in reducing energy consumption and the mobility requirements of people and goods, and as instruments which encourage new forms of relationship between citizens and urban agents, along with their essential role in developing good governance, in the form of “open government”.

This paper illustrates by way of example each of the sustainability dimensions analyzed by means of a case study which has won global recognition for its characteristics, with a brief presentation of good practice as achieved in the cities of Freiburg, Curitiba, Linz, Stockholm, Rotterdam and Boston. The link of each case to a specific dimension (urban planning, mobility, energy efficiency, waste and water management, social cohesion and the digital city) is based on a selection of the most significant facet in each city, although it should be stressed that all six cities have, to a greater or lesser degree, applied integrated policies in order to move towards urban sustainability, with consideration given to all the dimensions described.

Although we still have a long way to go, and the current economic crisis could delay the implementation of solutions in the medium and long terms, these global examples of good practice (from which Spain could learn a number of lessons) illustrate the correct path to follow in transforming the cities of the future by designing comprehensive policies, while also demonstrating that if the will exists, the shift towards a smart city model is possible.







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