Smart Cities
A Holistic Approach

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Cities are complex webs of interlocking systems facing enormous social, economic and environmental challenges, particularly when it comes to their impact on climate change.

If current trends continue, urban populations are expected to reach 6.3 billion by 2050, yet by 2030, more than 60% of the space needed for their development will not have been created.

In response to current societal challenges, the concept of a smart city arose. Thanks to its potential for integration, ease of movement and flexibility, the idea quickly grew and went global. Urban areas – with their concentration of assets, knowledge and working populations – are catalysts for new models and governance tools, encouraging futuristic solutions for low-carbon economies and more sustainable lifestyles.

Despite the varying descriptors of smart cities (living labs, urban labs, happy cities, societies 5.0), the goal remains the same: to create resilient cities which, through sustainable measures, promote economic growth locally and guarantee the best quality of life for their citizens.

The concept of a smart city appeals to different generations and local and regional public organisations are keen to seize opportunities to think and act strategically and intelligently in their own cities, while promoting a better and deeper engagement with citizens.

The framework supporting a smart city has many components. From a knowledge perspective, the measures and interventions to be

considered include: the environment, circular economies, mobility, energy, buildings, infrastructure, services, technology, communication and people. At a partnership level, smart city projects tend to bring together syndicates and public/ private entities that specialise in varying fields.

However in practice, most smart city projects limit themselves to a few areas, typically technology, mobility or energy - the ones considered crucial to making a city *smart*. This insular management of key aspects tends to create segmented smart cities, developed using a narrow perspective which fails to integrate all the fundamental dimensions of a city and so doesn't maximise its full potential.

It is therefore of the utmost importance to adopt a wider holistic approach when designing smart cities. Better working relationships between those involved with energy, technology, mobility, environment, people and buildings etc will deliver greater benefits for all stakeholders and their respective agendas.

Holistic management paves the way for specialists to share their expertise in how to address the challenges of a city and its wider area and how to meet the needs of its inhabitants. Collaboration makes it easier to recognise limitations and requirements, plus identify and create opportunities at several levels. The result will be the development and design of measures and actions with a purpose; ones that will truly contribute to a city sustainable in every fundamental way - environmental, economic and social.

This 360o approach, being broader, more inclusive and ambitious, creates long-term viability for scalable pilots, extending smart cities to smart territories. This evolution will naturally occur when existing relationships and synergies among the core services, assets and values of a city and its region are identified and integrated, adding value to the strategic planning of a region. For example:

- Harness the relationship between industry, city and population – this provides the power to take advantage of the fourth industrial revolution.
- Identify natural resources and services in existing territories' ecosystems – it'll help ensure their integration, preservation and sustainable use throughout urban environments
- Advocate sustainable tourism – it will develop dedicated tools that respect local and natural values
- Encourage and integrate sustainable local farming
- Promote local economies and local/ regional businesses, considering the values and assets of each region
- Consolidate the sociocultural and inherent values within a given region.

An integrated, strategic management strategy will turn the concept of a smart city into a powerful sustainability management tool for cities and territories. However, if we are to learn from the varying projects in place - particularly when it comes to people engagement - a continual, long-term investment in human resources and funding is required. ●

Bibliography

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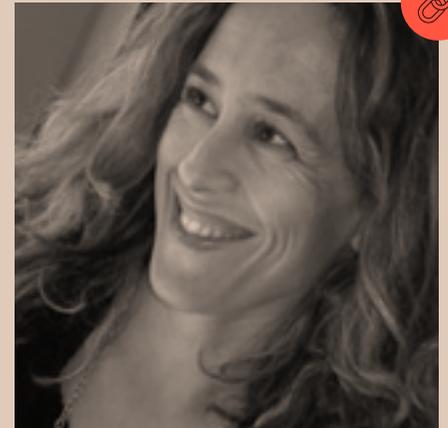
Ana Salgueiro has a BSc and PhD in environmental engineering from the Universidade Nova de Lisboa School of Science and Technology and over 20 years' experience in environmental engineering consulting. From 2001-2006, she worked in the licensing department of the Portuguese Environment Agency and from 2006 - 2011, Ana was head of the environmental risk and liability practice at E.Value. In 2012, she founded Ana Salgueiro - Consulting for Sustainability, focusing on sustainability and environment consulting for a wide range of organisations. Ana is also a Senior Technical Advisor to the Environmental Fund office and the Secretary General of the Ministry of the Environment and Climate Action on projects to mitigate climate change, decarbonisation and smart cities, plus she's taught at institutions such as Universidade Aberta, Universidade Nova de Lisboa and the University of the Algarve.