



1ST INTERNATIONAL CONGRESS
ON
ADDITIVE MANUFACTURING
BOOK OF ABSTRACTS

IWAM 22



SEPTEMBER 30, 2022

1ST INTERNATIONAL CONGRESS

ON

ADDITIVE MANUFACTURING

BOOK OF ABSTRACTS

IWAM 22

Bragança - Portugal

September 2022



EDITORS

João Rocha, Instituto Politécnico de Bragança, Portugal

João Eduardo Ribeiro, Instituto Politécnico de Bragança, Portugal

Jorge Santos, Instituto Politécnico de Bragança, Portugal

Rui A. Lima, Universidade do Minho, Portugal

Instituto Politécnico de Bragança 2022

Campus de Santa Apolónia

5300-253 Bragança - Portugal

ISBN: 978-972-745-310-8

<http://hdl.handle.net/10198/23947>

Book cover: Jorge Santos, Instituto Politécnico de Bragança

Technical Support: Clarisse Pais, Instituto Politécnico de Bragança

The Importance of Smart Cities and Urban Policies for the Interior of the Country

I. Lopes^{1,*}, P. Oliveira¹

¹Instituto Politécnico de Bragança, 5300-253, Bragança, Portugal

(*)*Email:* isalopes@ipb.pt

ABSTRACT

Smart cities are an emerging concept around the world, a smart city is a city that mobilizes and uses resources, namely social, cultural, financial, natural, information and technology, to efficiently improve the quality of life of its inhabitants, workers, students and other visitors.

Although the concept of smart city is not consensual, there are some aspects that are common to the various definitions, namely, environment, use of information technologies, knowledge and sustainable urban development.

The use of the "smart" concept captures innovative digital transformations driven by new technological capabilities. However, other social factors besides smart technologies are central to smart cities (Smith, 2022).

In Portugal we have cities and towns with very different attitudes and degrees of maturity regarding urban intelligence (Neto, 2022).

There is no direct correlation between urban intelligence and its geographic location. Urban intelligence does not depend on whether the city is located further to the coast or further inland, it depends on the dynamism, creativity and innovation of each city, in the implementation of good solutions.

Urban intelligence is increasingly dependent on the Internet of Things (IoT) and this is the new technological period that will eloquently change the way people, cities and "things" interact (Lopes et al, 2017).

Thus, this work aims to identify possible projects that Municipalities can adopt/implement, so that cities become smarter, which will imply a better quality of life for those who visit them and for those who live there, which can contribute to the development of the interior. from the country.

INTRODUCTION

Defining what smart cities are smart cities and measuring levels of sustainability, quality of life and well-being are topics that are not yet consensual. Despite the various existing indices and rankings, there is still no standardization of indicators that establish what, after all, smart cities are.

However, there are some indicators, most cited and that seem to us to be a decisive area of action:

- Municipal Management;
- Economy;
- Environment;
- Mobility;
- Safety;
- Education and Health.

Urban intelligence as a public policy is an “hat” that involves fields of action, within the different areas of activity, ranging from education (a bet on STEAM education), to energy efficiency (city energy consumption), to the management of water, waste, control and monitoring of road traffic (traffic congestion), pollution levels in the city, noise levels, measurement and regulation of parking lots, control of public lighting, automation and health of public buildings , among other actions.

In Portugal there has been a remarkable number of projects implemented by the Municipalities in recent years, taking technologies to cities. However, for a project to be interesting, it must have a positive impact on society, that is, on citizens.

The Portuguese Municipal phenomenon does not present uniform or common characterization lines to the universality of existing Municipalities. Indeed, Portuguese Municipalities, as local phenomena that are, and a fortiori, the bodies that represent them, end up reflecting the vicissitudes and constraints of the physical and human environment in which they are integrated.

Thus, of the 308 Portuguese Municipalities it can be said that the coastal municipalities assume legal and hierarchical primacy, more than that, due to their population and financial nature. However, also small and medium-sized cities in terms of smart cities are not behind the large ones and have enormous potential to assert themselves in this concept of cities. Living in a city in the interior of the country is without hesitation a “smart” concept.

Inland, with all the obstacles inherent to its location in an area of low population “density”, the resilient way in which these municipalities overcome all these contingencies is remarkable.

RESULTS

Most of the projects already implemented in the cities were the initiative and dynamics of the Municipalities, however, there are more ambitious projects, which can only be achieved with a clear involvement and funding from the State.

Many of the municipalities in the interior of the country, and especially the smaller ones, no matter how much effort they can devote to new projects, without external support, they do not have much room for manoeuvre.

Community funds are a good way to access support. It is essential that these can include initiatives for the development of smart cities in an integrated and explicit way.

Some examples of projects to be implemented according to the area of activity are:

MUNICIPAL MANAGEMENT	ECONOMY
Online services; Management and access to open data; Platforms that integrate various services; Management of donations, for example during a pandemic;	Tourist information platforms, online reservations and city maps; Coworking spaces and actions to encourage startups; Incentives for the development of the creative economy;
ENVIRONMENT	MOBILITY
Programs for waste management;	Smart traffic lights;

Management of energy efficiency in buildings; Public lighting (LED);	Monitoring of carbon dioxide emissions; Real-time information on the location of certain vehicles;
SAFETY	EDUCATION AND HEALTH
Video surveillance and image analysis; Cybersecurity; Technological GPS location systems;	Implement STEAM education at school; Creation of STEAM Labs; Digital platforms: Monitoring of pandemics; clinical material management. Health programs for healthy living; Remote monitoring of the elderly; Real-time information on the concentration of people;

Table 1 - Identification of projects by area

CONCLUSIONS

The degradation of the quality of life of citizens residing in large cities will certainly lead to a utopian return to their cities, towns and villages from which they originate, inverting the direction of migration from the interior to the coast, which occurred in the last century.

Digital transformation starts with transforming the relationship between the back office and the front office. Cities, regardless of their size or region, will be able to find the agents and themes of change that allow this transformation to take place.

This transformation is increasingly being felt and it is clear to see that mayors are more aware of the impact of smart cities on urban life. The search for territorial rebalancing with the bet on new models of development of a city is adapting them to the new challenges (from demographic to environmental) and with the duty to make them smart cities, without losing their identity.

Smart cities are the latest form of urban planning and of great importance for cities in the interior of the country. This transformation could reverse the direction of migration from the interior to the coast and contribute to the much-desired territorial cohesion.

REFERENCES

- Smith, E.: “Are smart cities excluding marginalized groups?”, <https://www.devex.com/news/are-smart-cities-excluding-marginalized-groups-96581>.
- Neto, M. C.: “Smart City, uma moda que veio para ficar”, <https://www.oeiras.pt/-/smart-city-uma-moda-que-veio-para-ficar>.
- Lopes, I. M., Oliveira, P.: “Can a small city be considered a smart city?”. *Procedia Computer Science* 121, (2017), pp. 617-624.