CERIS : Civil Engineering Research and Innovation for Sustainability

Entrepreneurial, innovative and circular ecosystems in the aerospace industry as drivers for the creation of smart, green and integrated cities

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Summary

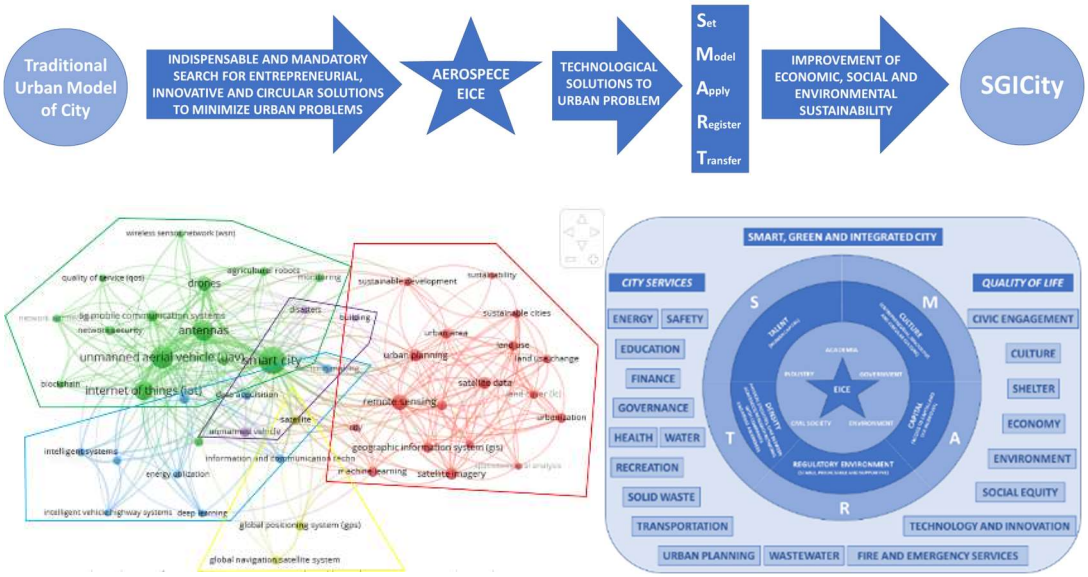
According to an estimate by the United Nations, by 2050, 66% of the world's population will live in urban areas giving rise to extensive sustainability challenges for which there is an urgent need to develop solutions. The implementation of innovative and circular technologies in general urban applications leads to a "smart, green and integrated" (SGI) lifestyle. The concept SGI emerged in the European program Horizon 2020 (which aims to find solutions to societal challenges) related to a European transport system that is resilient, resource efficient, climate and environmentally friendly, safe, and seamless for the benefit of all citizens, the economy and society.

The main objective of this doctoral thesis is to propose a "SGICity" urban model to guide the creation of municipalities that do not have traditional problems and that actively contribute to solve the extensive challenges of humanity – this model will focus on mobility. The aerospace industry is truly relevant in this scenario, as this industry develops several cutting-edge technologies and is involved with emerging solutions for data collection and urban mobility (e.g., unmanned aerial systems).

This research begins, through a systematic review of the literature, investigating some of the most researched technologies related to the role of green aerospace technologies in the planning and design of smart cities. It is known that transitioning to a SGICity urban model therefore requires product, business model and ecosystem innovation to solve the problems of inadequate economic viability and questionable ecological sustainability as well as being at a competitive advantage through the mastery of new technologies and pioneering the launch of these solutions. Thus, a framework with theoretical and empirical results is to be developed demonstrating how aerospace industry outputs – from entrepreneurial, innovative and circular ecosystems (EICEs) – can be applied to promote a sustainable urban model as the SGICity.

Keywords

Aerospace industry, urban problems, innovation, smart cities, aerospace technologies, green technologies.



Aerospace industry as driver for SGICities transition: green aerospace technologies in smart city planning and design – link with urban sustainability indicators (city services and quality of life).