

e-Society and Construction of Urban Infrastructure in Smart Cities

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Evolution of the urban infrastructure from a technical/engineering artefact to a socio-technical system-of-systems has created a new discourse for planning, construction and management of such systems, which increasingly involves soft and subjective criteria. Most of these criteria (such as sustainability and resilience) are case-specific and context-sensitive. Evaluation of infrastructure projects from such aspects is hard and requires extensive amounts of urban data to uncover behaviour of physical assets, social fabric of the city, and feedback loops between the two. Advances in digitalization in smart cities, and emerging technologies such as the Internet of Things (IOT) are facilitating accessibility of the required data. Urban data, however, is not limited to what is collected by physical sensors and IOT; it also includes the extensive volume of inputs that end-users, who closely interact with components of the built environment, sense (as a human sensor network), and communicate through the plethora of online communication channels available to them. Following the lessons learned from open business models and user innovation in a variety of other domains, we have been trying to harness, organize and understand the (seemingly chaotic) data contributed by the e-society, regarding different aspects of the built environment systems. In this presentation, after contextualizing urban infrastructure in smart cities as a socio-technical system of systems, and highlighting complexities associated with such systems; some of the recent efforts in processing online social networks and social media data into actionable information for decision makers to handle the complexity will be reviewed, and the future steps will be discussed.