



**INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI  
SHORT ABSTRACT OF THESIS**

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**SHORT ABSTRACT**

The trend of Smart Cities has fascinated the ambitions of citizens and Governments worldwide. This race has led to the development of huge infrastructures embedded with Hi-tech services for the comfort of city dwellers. In many places, it was observed that the technology was adopted blindly without analyzing the prevailing conditions of the area or the requirements of the population. It resulted in the development of hi-tech ghost towns around the globe. After the completion of such hi-tech townships, policy makers face difficulty attracting occupants. It raises the question of whether to consider such hi-tech projects successful, where technology and environmental realms have attained a level of sanctity but failed to include a human scale.

A critical review of the literature on Smart Cities was done to understand their existing scenario. Researchers of Smart Cities have claimed that the smart city concept is specific to geography, demography, and local context. The insights of the literature review were compared with a series of existing smart cities to correlate the research published with the actual facts and fates of the smart city projects globally. The insights of the case studies have reinforced those of literature reviews, and the analysis found that a bottom-to-top approach is more fruitful than a top-to-bottom approach when planning Smart Cities. The preference should always be given to the end user and planned accordingly. It is very important to develop a framework to incorporate the requirements of the end users and systematically incorporate them when planning Smart Cities. With the same view, the research aims to develop a strategic design management model for designing user-centred Smart Cities. The objectives of the research are: 1. To introspect the requirement of the local demography to understand their expectations from the cities they want to live in. 2. To identify a set of parameters in which the user requirements can be categorized for systematic resolution through design intervention for the holistic development of Smart Cities. 3. To develop a user-centric innovation management tool that will help in designing/redeveloping any smart city.

In this research, a framework was developed to incorporate all facets of Smart Cities during the designing and developing stage. The research has followed a step-by-step method to first identify the issues and requirements of the city dwellers, followed by segregating the issues and requirements into suitable categories. These issues were

then dealt with using different design interventions per their categories. A sample intervention was done for all types of categories identified, forming the framework for designing an intelligent smart city.

All the proposed interventions were validated through 3D Modelling, Product development, grant of Utility patents, and grant of Design Patents (Registration), and user study data were also found to give significant improvement from the prevailing conditions when evaluated by the system usability scale. This framework will be very useful in developing a well-planned user - Centred smart city while covering all the facets of Smart Cities.

