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Review Paper on "Smart City Concepts and Challenges"

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Abstract: *As the India's population shifts to urban territories, policymakers are pressed for answers to overcrowding, pollution, budget limitation, again infrastructure and the requirement for continuing growth necessary so, Indian government has launched the smart mission in June 2015 with the aim of providing a better quality of life to citizens in 100 cities of the country. This paper describes the main features of mission and attempts to explain the challenges in the way forward .This paper is based on geographical, environmental, economical and social constraints of each city, next to presenting dimensions the let smart city a 3D concept and highlight some smart city models. Its gives an overview of smart city characteristics: Smart economy, Smart Environment, Smart Governance, Smart Mobility, Smart Living and Smart Human Level. This review paper further evaluate the title of planned smart city project to determine how many of them can be categorized as smart. The mission is implemented by the ministry of urban development (MoUD). Smart city mission will be operated as centrally sponsored scheme (CSS). Therefore, nearly Rupees one lakh crore of government/state funds will be available for smart city development.*

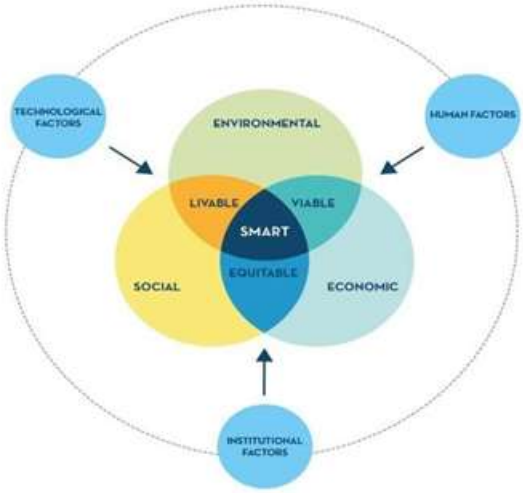
Key Words: *Key words: Smart Cities, Smart Economy, Smart Environment, Smart Governance, Smart Mobility, Smart Living, Smart Human Level, 3Dconcept*

I. Introduction

Most Cities of India do not have master plans therefore; unplanned urbanization is of great concern especially for provision of infrastructure and services. Most peri-urban areas are "no governance" areas as they are neither rural nor urban. As cities expand, the peri-urban areas, which are mostly unplanned areas, are brought into the cities' jurisdiction. Thus, there is a need for planning to precede growth of cities, as retrofitting and redevelopment is a much more difficult exercise. A smart city is a community that is efficient, sustainable & livable. The term smart city has become more and more popular in the field of urban planning. Smart cities can work as a tool for controlling the rapid urbanization and various problems caused by the ever increasing urban population. The implementations of the smart technologies can increase the value of the city. Smart city concept introduces new practices and services that highly impacts policy making &planning.

Many definitions of "smart city" exist, and "smart" approaches have been understood differently by different people and sectors. A few definitions take note of that smart cities are those cities with "smart (intelligent) physical, social, institutional and economic infrastructure while ensuring centrality of citizens in a sustainable environment;" refer to key characteristics defined by distinct factors (e.g., smart economy, smart mobility, smart people, smart environment, smart living, smart governance); and concentrate on the vital utilization of new technology and innovative approaches to improve the efficiencies and competitiveness of urban areas. Smart Cities are the integration of information technology, telecommunications, urban planning, smart infrastructure and operations in an environment geared to maximize the quality of life for a city's population. Cities are built on the three pillars of Infrastructure, Operations and People. In a Smart City, not only is each one of these pillars infused with intelligence, but more importantly the pillars work in an interconnected and integrated fashion to utilize resources efficiently. For instance, a Smart City'spower.

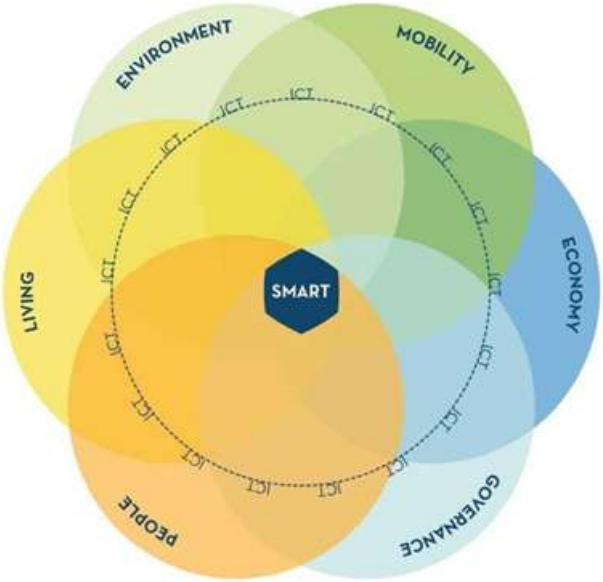
Sustainable development model



Smart development model

Smart city action fields :-

- Smart Governance
- Smart Economy
- Smart Mobility
- Smart Environment
- SmartPeople
- SmartLiving



Smart city action field

II. Literature Reviews

1. Smart Cities in context to Urban Development by Sejal S Bhagat, Palak S Shah &Manoj L Patel (2014) Infrastructure plays a major role in the urban development. Some cities have fully grasped the possibility of becoming "Smart City". Smart Cities can be identified and ranked along the six main axes ordimensions.

1. SmartEconomy
2. SmartMobility
3. SmartEnvironment
4. SmartPeople
5. SmartLiving
6. SmartGovernance

Smart city is an integrated urban system. The Smart City vision involves the use of infrastructures like smart grids alongside various forms of renewable energy generations & building new systems of mobility based on the distributed network. A Smart city will be a city whose community has learned to adapt & innovate. The framing of the smart city is done by the planners, policymakers, executives, city departments, developers and industry.
The various steps taken by the leaders to make any city smart are:

- Decide what your City Should be – Determine its Brand
- Adopt Policies Conducive to Skills, Creativity, and Knowledge DrivenGrowth
- Optimize Around theCitizen
- Development and Application of Information Technologies to Improve Core CitySystems

Recognizing Talent: Skills, Knowledge, Creativity and Innovation Ability.

2. GIS Steering Smart Future for Smart Indian Cities by Anuj Tiwari & Dr. Kamal Jain(2014)
The concept of a smart city is a new one. This paper describes the smart city projects in India namely LAVASA: SMART HILL CITY & GIFT: GUJARAT INTERNATIONAL
FINANCE TEC-CITY. By 2050, the urbanization in India is expected to raise upto 70 percent compared to only 30 percent in 2011. According to the McKinsey Global Institute Analysis Report, India will have 68 cities with 1 million or even more than 1 million Populations, 13 cities with more than 4 million population & 6 megacities with population of 10 million or more by year 2030. A Smart City is the integration of technology into a strategic approach to sustainability. Smart city is a booming international phenomenon. According to the statics over 2000 smart city projects have been started or going on in Asia, Europe America & Africa.
The three pillar basic smart city model is used in this research paper. The Three main dimensions of this model are Economy, Environment & Society. GIS solutions can help the policy makers & planners for decision making purposes. Ultimately this paper helps to understand the use of GIS & its integration with various approaches to formulate, stimulate, interpret and validate the sustainable development of urban areas, steering a smart and sustainable future for smart cities.

3. NarmeenZakariaBawanyandJawwadA.Shamsi (2015)

The concept of intelligent city was born to provide a better quality of life for citizens. The key idea is the integration of information system services for each domain, such as health, education, transport, power supply, etc. These expectations induce massive challenges and requirements. This research aims to highlight the key challenges of ICT (Information and Communication Technology) regarding the adaptation of intelligent city. Realizing the importance of effective data collection,storage, retrieval, and efficient provision of network resources, research proposes a high-level architecture for intelligent city. The proposed framework is based on a hierarchical model of data storage and defines how different stakeholders are communicating and providing services to citizens.

4. The Smart City Cornerstone: Urban Efficiency by Charbel Aoun(2013)

This paper presents a five steps approach for converting our urban centers into more efficient and sustainable places to live.

1. Setting thevision
2. Bringing in thetechnology
3. Working on theintegration
4. Addinginnovation
5. Drivingcollaboration

Every city can become smarter. A smart city is a community that is efficient, liveable& sustainable. The aim of the smart city should be to reduce the energy wastage & give a better quality of life to its residents. Each and every city can be converted into a smart city by simply working on the backward sectors. By the end of 2020, analysts from Pike Research anticipate that annual spending on smart city infrastructure will reach $ 16 billion.

5. Exploring the Relationship between Smart City Policy and Implementation by Ellie Cosgrave &Theo Tryfonas(2012)

The implementations of smart technologies increase the value of the city. The government professionals and the stakeholders are facing various problems in achieving ambitious targets with limited resources. This paper finds the core themes within the field of smart cities & future city policies. The grounded model of smart city is used in this paper. The model has two core influencing features "challenges & opportunities" and "publicvalue".

6. Smart City and the Applications by Kehua Su, Jie Li, Hongbo Fu(2011)

This paper mainly focuses on the recent research on concept of smart city. The relationships between the smart city and digital city are also described in this paper. The various application systems for a smart cityare:

- Construction of a WirelessCity
- Construction of SmartHome
- Construction of SmartTransportation
- Smart Public Service andConstruction of SocialManagement
- Construction of Smart UrbanManagement
- Construction of Smart MedicalTreatment
- Construction of GreenCity
- Construction of SmartTourism

7. Urban Planning and Smart Cities: Interrelations and Reciprocities by Leonidas G. Anthopoulos and Athena Vakali(2011).

Smart cities are the emerging concept as they introduce new practices and services that highly impacts policy making & planning. Thus, now it is a necessity to understand the smart city's contribution in the overall urban planning.

This paper highlights the interrelationship between smart city and urban planning. The dimensions of the urban planning are:

- Environmental protection(Quality)
- Sustainable residentialdevelopment (ViabilityTimeline)
- Resources capitalization(Capacity)
- Coherent regional growth support (History &Landscape)

8. Conceptualizing Smart City with Dimensions of Technology, People, and Institutions by Taewoo Nam & Theresa A. Pardo.(2011)

This paper discusses how we can consider any city as a smart city based on the recent practices of making the city smart.

This paper focuses on the three main dimensions:

- Technology
- People
- Institutions

The elaborated conceptualization of smart city in this paper will contribute to the future studies. This concept is an organic connection among technological human & institutional components. Now a day, "smart" means innovative & transformative changes driven by new technologies. However, the social factors are also important in a smart city.

III. Conclusion

- Smart cities are the need of the century where everyone's interested in the superfast progress and at the same time there is a requirement that the progress becomes sustainable. Thus smart city is the ideal way in which a countryprogresses.
- Smart city concept can be used for transforming any city into a smartcity.
- Smart city have various overwhelming benefits & it a win – win situation for both, government & thecitizens.

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