<u>Full Length Research Paper</u>
Smart City Projects in India: Issues and Challenges

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ARTICLE INFORMATION	ABSTRACT
	India has seen massive growth in its urban population in the recent decades Government and policy makers are facing challenges such as increase in urban population from rural areas and huge gaps in infrastructure. Smart city would be a city with facilities like smart people smart technology, smart energy, Smart transportation, Smart IT and Communication and above all smart governance. This people is an attempt to focus on the key issues and the challenges to develop new cities or improve the infrastructure facilities in our existing cities which are over populated and not properly managed. Further, this paper also focuses on the challenges in financing smart city projects in India. Government of India has recently made the smart cities mission under which 100 smart cities would be made. Several initiatives are being led by the government of India to convert 100 cities into smart cities. The possible choices for smart cities financing could be PPP, Debt financing FDI and viability gap funding. The government could use PPP Route and could also encourage FDI for effective implementation of smart cities project in India.

Introduction
The rapid growth of India economy has placed a stress on physical infrastructure, Social Infrastructure and Institutional Infrastructure because all these 3 major areas already suffer from a deficit. Smart City could be a possible solution to all these problems. Smart city is mainly concerned with "Smart Governance", "Smart energy", "Smart environment", "Smart people", "Smart transportation", "Smart IT and Communications", "Smart building" and "Smart living" at large. Smart is not just about technology enabled, but also about power, water transportation, Solid waste Management and Sanitation. A Smart city's core infrastructure is information technology, where a network of sensors, Cameras, Wireless devices, data centers from the key infrastructure providing all important services. Shri Narendra Modi Ji Flagship Smart City projects were inspired by Gujarat International Finance Tec-City (GIFT) in the state of Gujarat, Which is a smart city still under construction influenced by the Chinese city, Shanghai. The Union Cabinet recently cleared the smart cities Mission under which 100 smart cities would be built.

With the urban population set to rise in the upcoming years India focus the challenge of mass urbanization. While the smart city is an area of opportunity for infrastructure companies and developers, its a long-term project that will need no less than 20 years. In India, given its demographics and diversity, unique challenges and opportunities exists for developing "Smart Cities" which attract increased investment, employ innovative technology, create environmentally sustainable solutions, grow operational efficiencies and amend the lives of urban citizens, many countries have shown interest already including Japan, which is keen on developing Varanasi as a Smart City and Singapore, which has indicated Andhra Pradesh's new capital as its choice. France, UK and the US are keen as well it is learnt.

Table 1. Following are the cities which being developed as a Smart City

Satna Ujjain	Nashik
Thane	Greater Mumbai
Amravati	Solapur
Nagpur	Kalyan Dombivali
Aurangabad	Pune
Plimpril Chinchwad	Imphal

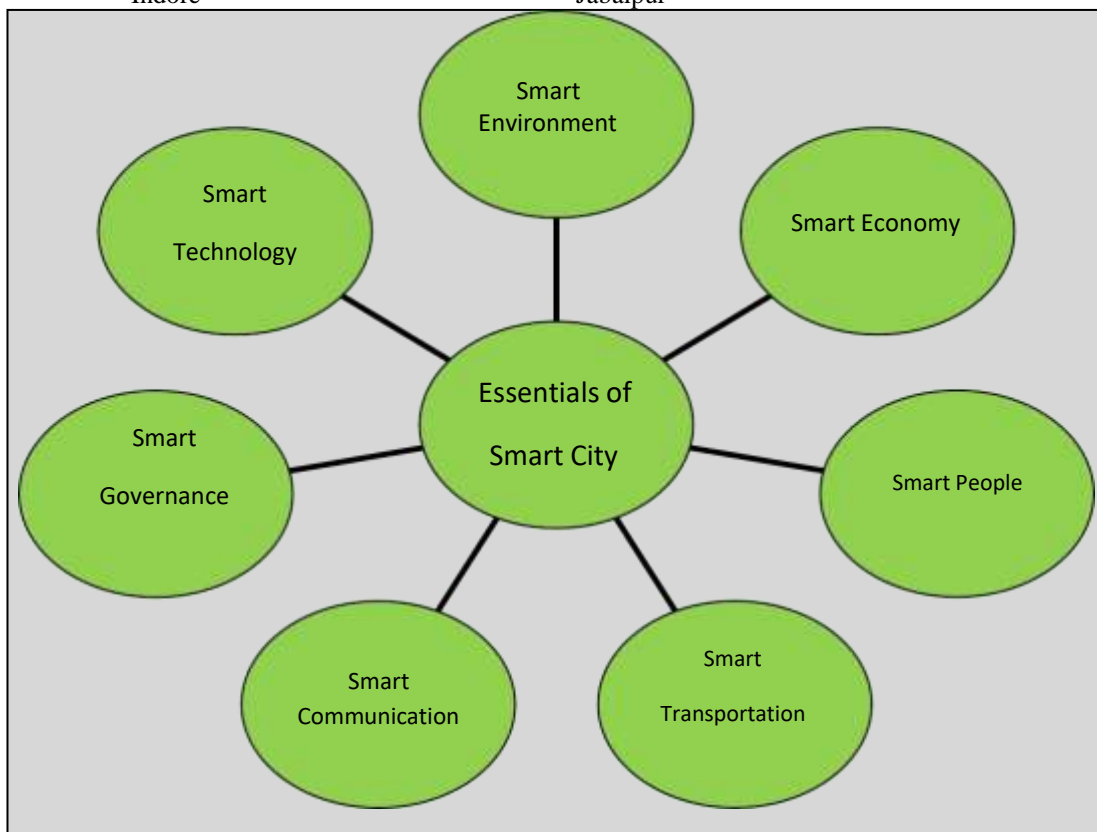|	
Shillong	Aizawl
Kohima	Bhubaneshwar
Raurkela	Oulgaret
Ludhiana	Jalandhar
Udaipur	Kota
Ajmer	Vadodara
Rajkot	Dahod
Karnal	Faridabad
Dharamshala	Shimla
Srinagar	Jammu
Ranchi	Mangaluru
Belagavi	Shivamogga
Hubballi Dharwad	Tumakuru
Davangere	Bengaluru
Kochi	Trivandrum
Kavaratti	Bhopal
Indore	Jabalpur

Fig: 1 Essentials of Smart City

Essentials of Smart City :- For the Success of Smart City projects n India following features are essential.
a) Smart Environment - For creating a more livable and healthy environment, It is crucial that planned smart cities are environmentally sustainable. This will not only improve the air quality, but also reducing wastage of water, electricity, Fuel, etc. To add further smart environment mainly deals with
- Waste Management and recycling Technologies
- Sustainable resource Management for energy stressed cities.
- Effective control of pollution and protection of environment.
b) Smart Governance - The current governance structures do not have adequate people's participation. People do not get the feeling of ownership of the city. Therefore, there is a requirement of involvement of citizens in decision making processes. Involvement of the public in decision making and transparency in governance is critical for smart cities. Typically, the principle to be followed is "Governance by Incentives rather than Governance by Enforcement." This would imply the people as the right things because there are incentives to do so and not due to the fear of penal action.
c) Smart IT and Communication- (CISO) define "Smart Cities as those who adopt scalable solutions that take advantage of information and communication technology (ICT) it increase efficiencies, reduce costs and enhance the quality of life" The extensive use of ICT is a must and only this can ensure information exchange and quick communication. The ability to shop online or book tickets online or converse online is very powerful ways of reducing the need for

travel, thereby reducing congestion, pollutions and energy use. In a smart city, there is a requirement of smart metering communication and smart solutions for safety and security.

d) Smart Transportation- It would be appropriate for the urban transport policy to also fall within the framework on a national "Urbanization Policy". As India's population continues to grow, more cities will move to cities. India is anticipated to come out as the world's 3rd largest construction market by 2020, by adding 11.5 million families every year. Smart Buildings will save up to 30 percent of water usage, 40 percent of energy usage and reduction of building maintenance costs by 10 to 30 percent. About 67 percent of the rural population continues to defecate in the open and India accounts for about 50 percent of the world's open defecation. The Government of India and the world Bank have signed a USD 500 million credit for the Rural Water Supply and sanitation (RWSS) Project in the Indian States of Assam, Bihar, Jharkhand and UP

Literature review
U.S. India Business Council, (2014) conversed the opportunities and challenges affecting the growth of smart cities in India. Looking at the huge demography and diversity in India, it provides increased investment opportunites, adoption of innovative engineering, improved operational efficiencies and lives of urban citizens. The paper suggests making an effort to mitigate the risk to increase the competitiveness of financing opportunities in the smart cities. The instruments available to accomplish this goal are thoughtful planning, enhancements of credit, tax incentives, improved coverage and management organizations and innovative financial structures.

Achaerandio et al, (2012) emphasis on the need of vision, adequate financial planning, stake holder's participation and influential and strong leadership for the development of smart cities.

Egenhofer et al, (2013) emphazises on the objective of smart cities to accelerate investment and inventions.

Ryser et al, (2014) reconnoiters the belief of "Smart City" by comparing and companing a narrow with an eclectic understanding of "Smart Cities" and by placing the concept of "Smart City" into the context of certain city typologies engendered over the last few decades.

Objectives of the study
This paper is an attempt to discuss and state the issues involved in the flagship programme of Shri Narendra Modi Ji and the Challenges involved in successful implementation of strategies as far as smart technology, Smart environment smart transportation, Smart building and Smart people.

Issues concerned with developing smart city projects
Under the flagship "Safe City project, the Union Ministry proposes USD 333 Million to make seven big cities (Delhi, Mumbai, Kolkata, Chennai, Ahmedabad, Banglore and Hyderabad) to center on technological progress rather than manpower. Ministry of Urban Development plan to invest more than USD 20 billion in the metro rail projects in coming year. The Government of India has approved a USD 4.13 billion plan to spur electric and by brid vehicle production by laying out an ambitious target of 6 million vehicles by 2020. Electric Vehicle charging stations in all urban areas and along all state and national highways by 2027. India has invested $ 1.2 billion so far and hopes to attract more funding from private investors and from abroad. Developing a new or green field Smart city with target population of 5 to 10 lakhs is likely to require financial investment ranging between INR 75,000 and 150,000 crores and may require 8-10 years for implementation. The Policy makers are enforcing now policies and procedures to ensure quick development of the city. However despite all these efforts, we haven't really achieved much. That's because there are certain challenges for smart cities that are yet to be addressed. Before any other initiatives the issues that have been hindering Smart City success should be first considered and fixed.

Insufficient funds
To develop a Smart City the Government needs some funds. In our country there is a scarcity of funds for the governments, this is a main issue for developing a Smart City.

Lack of if professionals
The people in our country are not so trained. They do not know to use the modern technology. In order to make Smart City, the people should know how to use the modern techniques

Inconsistent network connectivity
The Government of India have to built a network of roads and flyovers and also metros for transportation purpose. Railway Station should wave the internet Services through free Wi-Fi facility.

*Cyber security risk:*There is a risk of the data to be hacked by the criminals through computers and internet.
Lack of infrastructure; Lack of smart technology; Lack of smart people;Lack of transport facilities

Financing smart city projects in india

India is planning for 100 new smart cities and will also develop modern satellite towns around existing cities under the smart city program. Investments of around USD 1.2 trillion will be needed over the succeeding 20 years across areas like shipping, energy and public security to build smart cities in India. To attract financing, Policy makers should increase risk mitigation efforts to make their smart city competitive not just with other Indian Urban centers but with comparable global investment opportunities. Tools available toward this goal include planning, credit enhancements, tax incentives, concession agreements and upgraded reporting and data management systems. Above all else, policy makers should turn to assure a consistent, predictable, transparent business climate and both domestic and global investors with regular meaningful industry dialogue.

Challenges for smart city projects in india

1. To develop Smart Cities in India, there is a need to address challenges relating to political alliance, financing and stakeholder management. Greater alignment between and within government agencies will be required. It will also have to be ensured that all stakeholders have been included in the decision making process.
2. Land acquisition, foreign investment and other questions still remain unresolved. The prospects of heavy sums of private sector finance, either domestic or foreign will be a challenge.
3. The establishments that help cities manage electricity, water, waste, traffic flows, municipal operations and city services are becoming increasingly complex and can be expensive.
4. Building new cities and upgrading existing ones are fraught with challenges pertaining to integrated master planning, political alignment financing and stake holder management.
5. Successful implementation of smart city solutions needs effective horizontal and vertical coordination between various institutions involving institutions providing various municipal amenities as well as effective coordination between central government (MOUD), State government as well as local government agencies on various issues related to financing, sharing of best practices and sharing of service delivery processes.
6. It is easier to build new ones rather than transform old ones into smart cities.
7. Other Challenges for India include merging technology with law enforcement. There is no point in installing high tech traffic signals if its implementation cannot be enforced. India will also have to find ways of encouraging private investment for infrastructure required for a Smart City.

Future prospects and suggestions

India is planning for 100 new smart cities and will also develop modern satellite towns around existing cities under the Smart City program. The need for infrastructure development in India is unquestionably vast. However the sector faces a number of fundamental challenges, including need for new long term investors participate in funding projects. There are two parts of the development of a Smart City: Infrastructure (Communication, electricity, roads, Sanitation, Water assets among others) and real estate. In India, the foreign ownership and investment regulations for infrastructure and real estate are different. The government should consider classifying most Smart City development as "Infrastructure" to start with, such that for a Smart City development and same ownership, financing and taxation regulations apply to both the parts of the development. The Government is concentrating on encouraging Public Private Partnership (PPP) for successful implementation of the smart city project in India Financial and IT services sectors are on the priority list of the government to garner investments from leading companies such as Cisco, EMC, GE, IBM, Bajaj etc. in coming years. The real challenge before the Government is to build inclusive Smart Cities for all its residents, regardless of whether they are rich or poor. The big challenge will be to create self-sustaining cities, which create jobs, use resources wisely and also train people.

Conclusion

India's Smart City program hopes to revolutionize city life and improve the quality of life for India's urban population. Smart City would require Smart economy, bright people, Smart organization, Smart Communication, Smart engineering, Smart transit, fresh environment and bright living never the less, with mass migration leading to basic problems, like water shortages and overcrowding, the rate at which these cities will be developed will be the key. Several initiatives are being led by the Government of India to convert 100 cities into Smart Cities. Government to actively use PPP Route and Encourage FDI for Effective Implementation of Smart Cities Project in India. India has to now take important decisions in the context of creating Smart Cities. It has to determine if it desires to opt for making new cities or upgrade existing ones.

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