Gainsays for Transformation of Udaipur as a Smart Cities

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Abstract— A smart city is a development vision to improve quality of life by using information and communication technologies to improve efficiency of services and meet the needs of common people. Information and communication technology (ICT) is used to enhance performance, quality and interactivity of services, to reduce cost and resource consumption and to improve contact between citizens and government. The objective of building smart cities is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions. This paper focuses on the sustainable and inclusive development of Udaipur as a smart city.

Key words: Smart city, Smart economy, Smart solutions, Urbanization, Information and Communication Technology (ICT)

I. INTRODUCTION

Most cities of India don't have a master plan; therefore unplanned urbanization is a great concern. The first step towards creating smart cities is urbanization of cities especially for provision of infrastructure and services provided. A planned urbanization is also very much required at places which are neither rural nor urban. Such peri-urban areas require government attention for their development. Thus, there is a need for planning to precede growth and redevelopment of cities along with providing better services to city residents.

Recognizing that India is at present, travelling towards urbanization and movement of its citizens from villages and smaller town to urban areas, Finance Minister Arun Jaitley set aside Rs 50,802 crore for the creation of 100 Smart Cities in the maiden budget that the government presented to Parliament in February 2017. The vision of this plan is not only building new cities from the ground up but also modernizing older cities.

The topic of smart city has no defined limits, but still, looking towards Wikipedia's definition, it says, "A smart city is an urban development vision to integrate multiple information and communication technology (ICT) and Internet of things (IoT) solutions in a secure fashion to manage a city's assets – the city's assets include, but are not limited to, local departments' information systems, schools, libraries, transportation systems, hospitals, power plants, water supply networks, waste management, law enforcement, and other community services".

But rather than this the next line of Wikipedia completes this definition, which says, "The goal of building a smart city is to improve quality of life by using urban informatics and technology to improve the efficiency of services and meet residents' needs". "Using urban informatics and technology" is the most vital key factor for building a smart city. Information and Communication Technology (ICT) provides easiness for city officials to interact directly with the citizens and the city infrastructure and to monitor what is going on in the city, how the city is evolving, what is the rate of development and how to enable a better quality of life to community. Through the use of sensors integrated with real time monitoring systems, data are collected from citizens and devices - then processed and analyzed. The information and knowledge gathered are keys to tackling inefficiency. While ICT can be an enabler on a normal day, its smart use and real time coordination can prove to be lifesaving. A topology of Smart city functions is shown below in Table 1:

Smart Economy	Smart Transportation	Smart Environment
Entrepreneurship	Smart Traffic Solution	Sustainable resource management
Productivity	Smart Parking system	Smart waste management
Innovative spirit	Transportation availability	Pollution free environment
Flexibility of labor market	Apps for information	conserving natural resources
Smart Governance	Smart Living	Smart People
Public services	Better healthcare conditions	Level of qualification
Social services	Individual safety	Open mindedness
Involvement in decision making	Education facility	Employed
Political strategies	Tourist attraction	Social and ethnic plurality
Smart support	Cultural facilities	Moral Values

Table 1: Smart city functions

II. LITERATURE REVIEW

Various definitions have been put forth for smart cities. Some of them have been highlighted below.

"Smart Cities have been characterized and defined by a number of factors including sustainability, economic development and a high quality of life. These factors can be achieved through infrastructure (physical capital), human capital, social capital and/or Information and Communication Technologies (ICT) infrastructure" – European Commission

"The Smart City is a process, or series of steps, by which cities become more "livable" and resilient and, hence, is able to respond quicker to new challenges. Thus, a Smart City should enable every citizen to engage with all the services on offer, public as well as private, in a way best suited to his or her needs" – Department of Business Innovation & Skills, UK

"A city that monitors and integrates conditions of all of its critical infrastructures – including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings – can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens." - The U.S. Office of Scientific and Technical Information

"Smart City is a high-tech intensive and advanced city that connects people, information and city elements using new technologies in order to create sustainable greener city, competitive and innovative commerce and an increase in quality of life with a straightforward administration and maintenance system of city" – Barcelona City(2011)

There is no universally accepted definition for smart city that means, different people have different views regarding a city to be called as "Smart City". As well as there is no method or unit to measure development in smart cities. It can just be analyzed through developing the four pillars of institutional, physical, social and economic infrastructure.

Smart City- The Urban Intelligence of India by Mrs. S. Selvakanmani(2015): The key building blocks of smart city are:

1) Smart Transport Network
2) Smart Business Management
3) Smart Governance
4) Smart Healthcare Services
5) Smart Building Management
6) Sustainable Green and Energy Management

Smart City and the Applications by Kehua Su, Jie Li, Hongbo Fu (2011): This paper chiefly concentrates 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 city are:

1) Construction of a Wireless City
2) Construction of Smart Home
3) Construction of Smart Transportation
4) Smart Public Service and Construction of Social Management
5) Construction of Smart Urban Management
6) Construction of Smart Medical Treatment
7) Construction of Green City

The Smart City Cornerstone: Urban Efficiency by Charbel Aoun (2013): This paper shows a five stages approach for changing over our urban centers into more efficient and sustainable places to live.

1) Setting the vision
2) Bringing in the technology
3) Working on the integration
4) Adding innovation
5) Driving collaboration

Smart cities: Researches Projects and good practices for the cities by Rocco Papa, Carmela Gargiulo, & Adriana Galderisi (2013): The concept of smart city is giving the answer for making the cities more efficient & sustainable. It is quiet popular in the policy field in the recent years. During the 1990's the development of the information technologies was at the peak level & people felt that new technologies can produce new forms of productions, markets, society organization, industries, business districts, residential districts & so on. The term smart city has become more and more widespread in the field of urban planning. Urban planners could give the fundamental direction for making cities smart by using smart devices and smart concepts.

Smart Cities- Absolute Must for Smart Times by Sanjay Bhatia (2016): The full form of smart is:

S – Specific
M – Measurable
A – Achievable
R – Realistic
T – Time Bound

III. ADVANTAGES AND DISADVANTAGES OF SMART CITY

Advantages and disadvantages of smart cities are described below:

A. Advantages

1) Smart City technology will enable better services to its citizens,
2) Reduce resource consumption,
3) Reduce energy consumption,

4) Help cities streamline their operation,
5) Improved waste management,
6) Improve operational efficiency - as cities will be able to track its assets,
7) Enable efficient asset allocation and situation management,
8) Reduce greenhouse emissions, and
9) Able to better serve its citizens without human intervention.

B. Disadvantages

1) Smart City Technologies rely on constant monitoring and analysis of data for smooth operations. This constant monitoring can have negative ramifications on citizen morale as the technology can be considered an intrusion of privacy. These privacy concerns are legitimate. Data that can be used to find a parking spot can also be used for surveillance.
2) Smart City cannot overcome issues such as bad building location and sub-standard architecture.
3) Smart City will not fix basic urban problems in existing cities such as haphazard growth patterns and poor neighbourhood design.
4) Retrofitting existing legacy city infrastructure to make it smart.

IV. RAJASTHAN'S SMART CITY PROJECT

In 1800, 3 percent of the world's population lived in cities. By 2007, more than half of the world's population lived in cities. By 2050, 75 percent of the world population will live in cities.

Udaipur is now selected among first list of Top 20 Cities to be developed as Smart Cities in India. announced this list of First 20 Cities which will be assigned with the budget.

Rajasthan was the first state to submit Smart City plans last. The state sent proposal for development of Ajmer, Jaipur, Kota and Udaipur as Smart Cities but only Udaipur & Jaipur turned out to be the winning cities.

Urban Development Minister Venkaiah Naidu, on the same date declared the first 20 cities to be undertaken under the 'smart city mission'

Among the potential 20 cities, Udaipur stands as one of the exceedingly potential city that would witness a 'smart growth'. Prime Minister Narendra Modi, in one of his speeches mentioned that it's the "smart citizens" of the city that would make it one and stand as the base of growth. Undoubtedly Udaipur amidst level headed and wise citizens but an approach that deals with the vision that beholds Udaipur as an utterly developed and enhanced city is necessary.

The Smart Cities Mission of the Government is a bold, new initiative step towards urbanization. It is meant to set examples that can be replicated both within and outside the Smart City, catalysing the creation of similar Smart Cities in various regions and other parts of the country. The core infrastructure elements in a smart city would include:

1) adequate water supply,
2) assured electricity supply,
3) sanitation, including solid waste management,
4) efficient urban mobility and public transport,
5) affordable housing, especially for the poor,
6) robust IT connectivity and digitalization,
7) good governance, especially e-Governance and citizen participation,
8) sustainable environment,
9) safety and security of citizens, particularly women, children and the elderly, and
10) health and education.

V. UDAIPUR AS SMART CITY

If there be paradise on earth, it is here, in Udaipur, where the beautiful blue sky meets with the hills, where the symmetric beauty leaves you mesmerized, where you feel heaven is here. Udaipur is "City of Lakes" hemmed in by the lush hills of Aravalli. It is known for its fascinating blend of sights, irresistible traditions, beautiful horizons, and endless forts, gastronomic delights, accompanied with serene lakeshores. The region is blessed with numerous water bodies.

A. Challenges for Udaipur in becoming the Smart City:

1) Education

No doubt, there are many schools and colleges in Udaipur but these lacks in proper laboratory, furniture and space; there is shortage of regular staff too, librarians have not been appointed by the Educational Department, and neither do schools have proper counsellors. Toilets in some schools are without taps, playgrounds have restricted space as well as sports are neglected field. The student-teacher ratio is not maintained in proper way.

2) Healthcare and Medical facilities

Udaipur still lacks behind in providing basic healthcare facilities. People still have to run to Ahmadabad for serious operations. The number dispensaries are still very less in the city. Dispensaries are required near railway station, bus stand and other major areas. E-medicine facility should be started in order to provide home delivery of medicines as per the prescription. This method will definitely help senior citizen to get their medicines without struggling much.

3) Regulating Traffic

Nowadays, regulating the traffic has become a big challenge because the number vehicles are increasing day by day, which also leads to increase in number of accidents. But the reason behind accidents is that people don't follow traffic rules, neither do they wear helmets.

Traffic can be reduced to some extent by making sustainable solutions such as BRTS, Metros, and introducing/strengthening NMT Network.

By looking at the increasing traffic problems in the city, the decision is passed in favour for the construction of over bridge. The state government has recently approved the project of constructing an elevated over bridge road on Udaipole-Surajpole-Delhigate-Court Choraha route. The responsibility of plan has been handed over to the National Highway Authority of India(NHAI).

Once the project is completed successfully, Udaipur will witness the ease in traffic.

4) Solid Waste Management

Udaipur Municipality spends crores on purchase of garbage-lifting vehicles, bins, etc. but has failed to put in place the process of collection and segregation of garbage at household level. Bio-medical waste management is also not effective in the city.
The city is known for its natural beauty and beauty of lakes but this beauty is being destroyed by garbage been thrown everywhere.

5) Transport Services

Udaipur offers local city buses for all common routes as well as rickshaws. These city buses have numbers allotted to them. But the major problem that people face is that the exact timing of arrival and departure of these buses is not known to people. A mobile based application could be created to inform about the bus routes, shelters and running schedule of buses.
Switzerland is making efforts to make India a pollution free nation for which purpose the government of Switzerland has contributed by providing e-rickshaws to Udaipur. Switzerland Ambassador Andreas Baum visited Udaipur for providing e-rickshaws. E-rickshaws project is a part of step taken towards pollution free nation. In the first stage, 18 rickshaws were allotted to 18 selected people, in the second stage, will have more e-rickshaws running in the city.

6) Infrastructure

No doubt, Udaipur is witnessing a good infrastructure but a good infrastructure should always think about proper parking facilities. Since the number of vehicles are increasing day by day, proper parking need to managed. Udaipur is now focusing more on buildings with multi-storey floors but the ground floor and the first floor should be reserved for parking area, avoiding underground parking.

The housing board houses should be now converted into flat system, in order to provide better infrastructure to the city.

7) Safety and Security

Udaipur these days is dealing with major issues like chain snatching, eve teasing, theft, etc. Government need to take serious action against such type of crime. Criminals need to be punished in such a way that no other person can ever think of doing the same.

Udaipur has reportedly become the first in the country to have an all-woman police patrol wing, "smart lady cops". This would definitely help in stopping eve-teasing.

All the societies and colonies in Udaipur need to have cameras at the entrance gate and tight security is required. A helpline number should be available which works 24*7 for safety and security of women and children.

VI. CONCLUSION

Smart Cities are not a question of "if", but a certainty of "how" and "when". Information and communication technologies are key drivers of smart city initiatives. The integration various data components from sensors, GIS, GPS, Imaging, Automated recognizer, social networks, mining the data using the available software and hardware components in the cloud environment would offer better solution to manage the Governance, Transport network, civic amenities, health, energy and business in smart way with cost effective, maintain sustainable environment and benefit of the human kind.

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