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Smart City & Challenges in India and Jaipur

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Abstract: Because of the Indian population shifts to urban territories from rural areas, policymakers are thinks about the overcrowding, pollution, budget limitations, aging infrastructure, resource constraints and the requirement for continuing growth. Indian government make plan for the development and construction of 100 Smart Cities to fulfill the demands of its rapidly growing. This effort will include construction of new municipalities and renovation of existing cities as the rural population shifts into urban areas from rural areas.. Smart cities have various overtake advantages & it a win – win situation for both, government & the citizens. Smart solutions can be helpful in controlling the ever increasing population in the cities. This paper focuses on the concept of smart city as the Government of India launched the smart city project for developing 100 smart cities in the country and also concentrates on the challenges as well as the key areas for development of smart cities in India.

Keywords: Smart city, smart economy, urbanization, technology transfer, 100 New Smart Cities; Challenges.

Introduction: India is the 10th, largest economy in the world, even though standing 2nd position in the global population. For the best economic growth, India still needs to be focused much more that have been consistently growing sectors like Telecom, Infrastructure, Industries, Hospital Tourisms, IT, Foreign Direct Investments (FDI), Research & Development under PPP model, Foreign collaborated Higher Education systems, Service Industries, e – Governance in a more better way. In addition to all these, building of "100 New Smart Cities" in India could be boosting of much more economic growth on par with other countries across globe like China (Meixi, Zhenjiang), Abu Dhabi (Masdar), South Korea (Sangdo), Singapore, Malta and Russia (Skolkovo).

*"*Smarter cities use the system of systems to their advantage when supporting the needs of each citizen through social programs, healthcare and education." – IBM Smarter Planet.

"Today, cities are in competition – same as companies. They are looking for ways to create jobs, drive profitable growth and productivity, become more efficient and - most importantly - increase t he quality of life for residents. At Cisco, we are proud to partner with the City of Hamburg and Hamburg Port Authority to foster innovation and help embrace the opportunities offered by the Internet of Everything," – CISCo for Smart City.

According to the State of World Population Report, for the first time in human history more than half of the world's populations were in urban areas. Besides this according t o Global Health Observatory (GHO) which is part of World Health Organization (WHO) revealed that by 1990, less than 40% of global population lived in a cities, but as of 2010, more than half of all people lived in an urban area. *By 2030, 6 out of every 10 people will live in a city, and by 2050, this proportion will increase to 7 out of 10 people*. India is also not exception in the urbanization, the urban population which was 2.96 billion in 2000 has been estimated to be 3.77 billion in 2010.

Concept of smart city: Smart Cities is the one of the most buzz words along with its sister technologies like Internet of Things (IoT), Mobile Robots, Big Data Analytics (BDA), Human Augmentation and Cloud Computing. The phrase "Smart Cities" has emerged in the past few years, yet conferences, companies, citizens, and cities around the globe have become enamored with the concept. Smart cities concept is the new

paradigm shift in the new urbanization principles as well as post internet era. All the business corporate houses, software developers, practitioners, national politicians, policy makers, architects, builders, academicians, researchers and last but not least city dwellers are collectively running behind to construct 'Smart Cities'. " The use of Smart Computing technologies to make the critical infrastructure components and services of a city – which include city administration, education, healthcare, public safety, real estate, transportation, and utilities-more intelligent, interconnected, and efficient".

The vision of the Smart City concept is to improve the capabilities and simplify numerous problems of the city through optimized energy consumption, carbon emission mitigation, maximum recycling, smart transportation, 24×7 services for inhabitants and intelligent security.

The three core functions of Smart Cities are:

- Collect: information about current conditions across all responsibility areas (power, water, traffic, weather, Buildings, etc.) _
- Communicate: information, sometimes to other devices, sometimes to a control center and sometimes to servers running powerful software.
- Crunch: data, analyzing it to present information, to perfect (optimize) operations and to predict what might happen next.
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Objectives of the Study:

1. To study the concept of smart cities.
2. To study the key areas for the development of smart cities.
3. To explore the challenges faced during the development of smart cities.

Research Methodology: This current study has been exploratory in nature where pertinent information has been gathered from various secondary sources of data, such as, journals, books, websites, reports, etc.

India's Smart City Project: India is witnessing a rapid pace of urbanization, which is expected to continue in the coming decades. According to recent studies, by 2030:

- 40% of India's population will be living in urban areas.
- 68 cities will have a population of more than 1 million.
- 70% of net new employment will be generated in cities.

It is estimated that, on average, about 75% of the global economic production takes place in cities, and Indian urban areas will also follow the trend and account for nearly 70% of the country's GDP by 2030. By 2020, housing shortage will reach about 30 million dwelling units, 200 million new water connections will be required, 250 million people will have to be given access to sewage, 160 GW of power generating capacity will have to be added and the number of vehicles on our urban roads will increase by 5 times. Utilizing Smart Cities experience and technology accessible around the world, India can drive the much-needed transformation to a nation of Smart Cities. This ought to be continued along two streams: The first includes : modernization and overhaul of existing cities, where the focus will be on developing and implementing practical solutions that can work ideally with legacy systems and infrastructure. The other stream will include the creation of new Smart Cities from the ground up by leveraging international best practices.

In each case – as evident globally – along with requisite investment in all aspects of urban infrastructure, investment will be required in adapting ICT-enabled management systems and data-driven analytics and decision making in urban planning and operations.

Smart Cities require a holistic approach focusing all three pillars of a Smart City namely *Infrastructure*, *Operations* and *People*. For India, Smart Cities are the need of the hour to achieve significant progress and create a thought leadership position in the global economy.

Urbanization and economic development are two sides of the same coin. In 1800 just 2% of the world's population was urbanized. By 1900 this had ascended to 13%; in 2000 the figure had come to 47%; and in 2008 it passed 50%. On current patterns it is estimated to be 60% in 2030; 70% or even 75% in 2050. According to the McKinsey Global Institute's extensive study of global cities5, 80% of global GDP is generated in cities with 50% in the 380 major cities of the developed world and 10% in the largest 220 cities of the developing world. In 2025, these top 600 cities will still be generating 60% of the growth in GDP but their membership will have shifted East with an estimated 100 new cities entering the rankings from China alone, where the urban population is expected to rise by 200 million, to over 800 million. Some 235 million households earning more than $20,000 pa (at Purchasing Power Parity rates i.e. adjusting for the different cost of living) will live in the emerging economy cities, compared to 210 million in developed region cities. This growth of a global urban middle class, with correspondingly high expectations of public services and the quality of the urban infrastructure and environment, will have a profound impact on the market for smart city services.

Government should focus on following key areas for developing smart cities in the country:

1. **High quality streets and public spaces:** Well-planned streets and public spaces that shape the urban structure help support local economy, connectivity, culture, creativity, and future developments. A decent road system functions well for vehicles and public transport as well as for pedestrians and cyclists; at least half of the land to be used for public space; 30% to be allocated to streets for building well connected grids and 20% to squares, parks and open spaces.
2. **Mixed Urban Uses and limited land-use specialization:** Mixed land-use planning helps create employment opportunities in local areas, promote the local economy, reduce car dependency and commute, encourage pedestrian, cyclist and other non-motorized transport , reduce landscape fragmentation and green-house gas emissions, provide closer public services, support mixed communities and local economies, promote safer communities and create attractive neighborhoods.
3. **Connectivity:** The purpose behind expanding connectivity is to create access to jobs and services for all and to boost local economies. This encourages walking, public transport, and ICT-accessibility.
4. **Waste management:** Waste collection modeling and consistent supply to energy generation.
5. **Energy and Resource Efficiency:** This requires managing growth addressing consumption and resource exhaustion, through strategic planning, policies and measures concentrated on buildings, appliances, and transport and agricultural, industrial and services industries. By utilizing resources in a sustainable manner, assisted by smart technologies cities can minimize impacts on the environment and be responsive to the needs of the poor and vulnerable.
6. **Smart grids or energy networks:** Demand management, electronic vehicle support, energy efficiency program, and renewable energy integration.
7.

Smart city in Jaipur context: Jaipur, the capital city of Rajasthan, has a rich and colorful past dating back to the time it was founded, in 1727. Its cultural heritage and unique sights have made it a popular destination for tourists domestic and international – the "Pink City" attracts over 40 million tourists each year. The city authorities were under pressure, facing an urgent need to improve the quality and efficiency of services

provided to both visitors and the city's 3.5 million residents. The Jaipur Development Authority (JDA) came into being with the mandate of providing benefits and improving the life of the citizens of Jaipur.

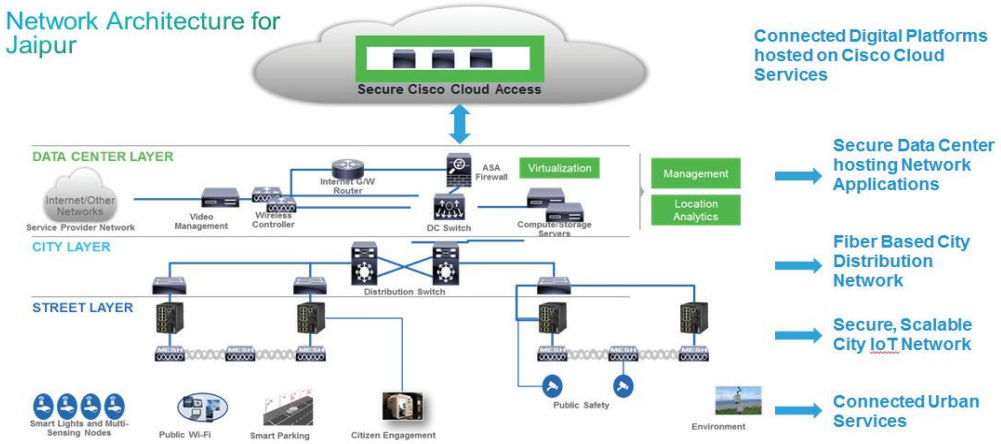
Challenge: Improve traveler safety & the tourist experience and the quality of life for residents:
With the city emerging as a hub and drawing such large numbers of visitors, the JDA knew it had to up its game. The mandate was twofold – increase quality and level of services and information access available to residents, as well as offer a stellar tourism experience to visitors. A further need was to focus on safety for visitors and residents alike.

Safety First*:* Having safety and security solutions in place would enable JDA to monitor activity and movement in high traffic areas. This was a key factor towards improving safety for specific audiences, such as female or solo travelers. It would also improve conditions for year-round residents and reduce the crime rates in the city.

Simplifying theTourist Experience*:* Jaipur, a city almost 300 years old, is rich with Indian history and culture. As such, generations of infrastructure have built upon each other within the confines of this city. Jaipur's transition into a Digital City includes simplifying the tourist experience. The challenge was to help tourists spend more time learning and seeing the culture and sights, rather than searching for locations within the maze of a city.

Digital Empowerment for Citizens*:* Another aim was to provide quality infrastructure and services to meet the ever-growing population and earn Jaipur a place as a metropolitan digital city. Jaipur was struggling to offer the kind of services to its citizenry that would make it one of the most desirable places to live.

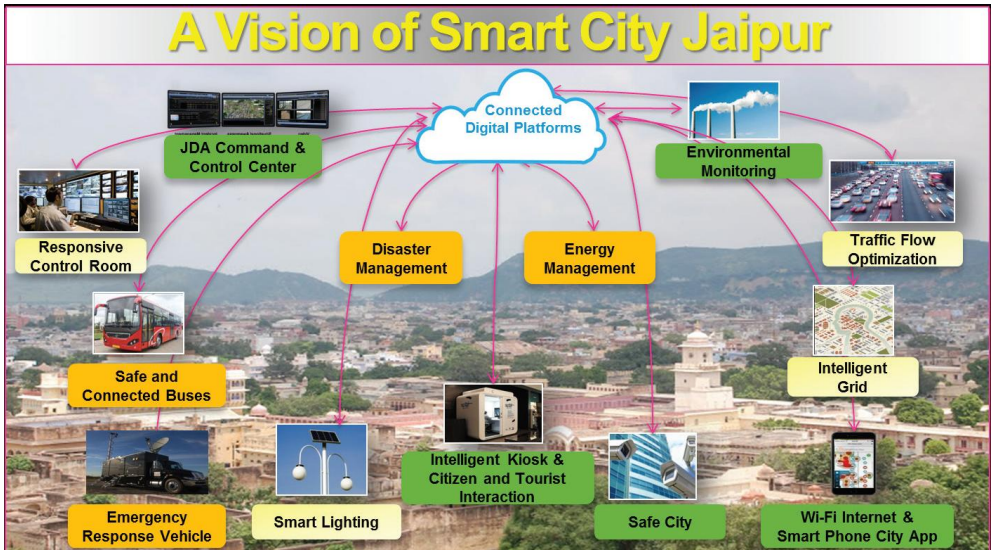
The JDA wanted to develop Jaipur into a Smart and Secure WiFi City. To do this, they needed to partner with a strong technology-provider who could manage such a large undertaking and provide quality, reliable implementation and solutions.



Jaipur: As a smart city: All these initiatives by JDA to make Jaipur a smart city have received accolades from residents and are also highly appreciated by the millions of tourists who flock to the city. Tourism,

safety and security, and government services and information are all now better, faster and "smarter" in the city of Jaipur.

Cisco's technology solutions, strategic support, and trusted partner ecosystems deliver unmatched digital innovation opportunities for government and city organizations to create new revenue streams, improve access to public services and better community experiences, and create new operating models to drive both efficiency and cost value.



Challenges for Smart Cities in India: The India Smart Cities Challenge is a competition designed to inspire and support municipal officials as they develop smart proposals to improve residents' lives. Cities will compete in the first round – with the best proposals receiving funding from the Ministry of Urban Development.

The India Smart Cities Challenge is designed to inspire greater creativity from municipal officials and their partners, more involvement and inspiration from citizens, and the development of proposals that will produce concrete benefits in peoples' lives. People every minute from rural areas, the Government have introduced the 'Smart City Challenge', handing over the onus of planned urbanization to the states. In the approach to the Smart Cities

Mission, the objective is to promote cities that provide core infrastructure and offer quality of life to citizens, a clean and sustainable environment and application of 'smart' solutions. Those states that measure up to the guidelines and nominate cities could get funding of Rs 100 corer per year per city for the next five years.

Retrofitting existing legacy city infrastructure to make it smart: There are various latent issues to consider when reviewing a smart city strategy. The most essential is to determine the existing city's weak areas that need utmost consideration, e.g. 100-per-cent distribution of water supply and sanitation. The integration of formerly isolated legacy systems to achieve citywide efficiencies can be a significant challenge.

Financing smart cities: The High Power Expert Committee (HPEC) on Investment Estimates in Urban Infrastructure has assessed a per-capita investment cost (PCIC) of Rs 43,386 for a 20-year period. Using an average figure of 1 million people in each of the 100 smart cities, the total estimate of investment requirements for the smart city comes to Rs 7 laky corer over 20 years (with an annual escalation of 10 per cent from 2009-20 to 2014-15). This translates into an annual requirement of Rs 35,000 core. It is very

important to see how these projects will be financed as the majority of project need would move through complete private investment or through PPPs (public-private partnership).

Three-tier governance: Successful implementation of smart city solutions needs effective horizontal and vertical coordination between various different institutions giving various different municipal amenities as well as effective coordination between central government (MoUD), state government and local government agencies on various issues identified with financing and sharing of best practices and service delivery processes.

Providing clearances in a timely manner: It may be a significant challenge as everyone knows the level of corruption in our country. For timely completion of the project, all clearances should use online processes and be cleared in a time-bound manner. A regulatory body should be set up for all utility services so that a level playing field is made available to the private sector and tariffs are set in a manner that balances financial sustainability with quality.

Availability of master plan or city development plan: In our country most of the cities don't have master plans or a city development plan, which is the key to smart city planning and implementation and encapsulates all a city needs to improve and provide better opportunities to its citizens.

Technical constraints of ULBs: Most ULBs have limited technical capacity to ensure timely and cost-effective implementation and subsequent operations and maintenance owing to limited recruitment over a number of years along with inability of the ULBs to attract best of talent at market competitive compensation rates.

Capacity building program: Building capacity for 100 smart cities is not an easy task and most ambitious projects are delayed owing to lack and absence of quality manpower, both at the centre and state levels. In terms of funds, only around 5 per cent of the central allocation may be allocated for capacity building programs that focus on training, contextual research, knowledge exchange and a rich database.

Reliability of utility services: For any smart city in the world, the focus is on reliability of utility services, whether it is power, water, telephone or broadband services. Smart cities should have universal access to electricity 24×7; this is not possible with the country's existing supply and distribution system. Cities need to shift towards renewable sources and concentrate on green buildings and green transport to reduce the need for electricity.

Conclusion: We are really lucky to have our great visionary leader like Shree Narendra Modi in institution of 100 New Smart Cities. Even though it is 7060 Cr for the initial investment for set out Smart Cities, let we put hands together to make India more economically brighter. In addition, the global warming can be reduced in constituent of this Smart Cites. Let us hope soon India will provide Quality of Life (QoL) to its citizens on par with other Smart Cities like Barcelona, Helsinki, San Fransco, New York, Singapore. Welcome to the Future of 100 Smart Cities in India, with a positive way collectively and cheerfully.

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