

## A Study on Smart Cities and Their Economic Growth

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**ABSTRACT:** The Indian economy is characterized by urbanization. In the current scenario a large number of people live in urban areas; technological progress is seen in everyday life of the individuals and every day we see new solutions for communication, transmission and storage of data; environmental changes in every activity today is characterized by the impact on natural resources; economic growth is calculated in terms of the gross domestic product. By smarter, it is understood to use smart solutions to make the world work efficiently. The smart city means to infuse intelligence in all activities for improve the quality of work and of life, to reduce cost and to improve the efficiencies. This paper highlights on analysing the concept of the term smart city and its importance and impact regarding the education of its citizens, the implying ICT in the production processes, the urban traffic and the inhabitants' mobility, the use of smart solutions in health or referred to the relation between the city government or administration and its citizens.

**Keywords:** smart city; smart economy, indicators; local development; economic development

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### I. INTRODUCTION:

In the 21<sup>st</sup> century, most of the earning population living in the rural areas has migrated to urban areas in search for a job and so exploring the development and evolution of cities has become a crucial task. The challenge of developing the backward cities in an urban area is an important step. According to Dahiya, B (2014), cities are considered as the highest forms of economic and sociocultural achievements in human civilization and the location of non-primary economic activities. At present, cities are production centres for goods and services for both internal and external consumption. Cities embody a sense of unique human entrepreneurship, economic dynamism, and evolving multiculturalism—all aided by the incessant technological progress that we see unfolding every day. There is vast scope for innovation in informal economic activities. Local businesses struggle to keep up with fast-evolving market conditions and new, tech-savvy competitors. Local entrepreneurs, keen to start new, small businesses, lack access to local or non-local customers. Relatively large, transnational corporations seem to benefit from social media rather than their smaller, local counterparts.

In today's digital world, the economic losers seem to be those who are unable to capitalize on the modern ICTs. Today's city is a high-speed communication hub with strong modern information and communication technologies' (ICTs) infrastructure that connects the city with cities all over the world in real time. The smart city approach requires a combination of smart efforts to improve the quality of life, promote socio-economic growth, and protect the environment from degradation. The major role of developing smart cities include smart energy, smart buildings, smart transportation, smart water, smart waste, smart services, smart physical safety and security, smart health care, and smart education. ICT based concepts such as big data, open data, data accessibility and management, data security, mobile broadband, ubiquitous sensor networks are essential in smart and sustainable cities and are predicated on an ICT infrastructure to improve quality of life and promote overall sustainability. The globalisation and rapid urbanization trends have felt a need for strategic and innovative approaches to urban design, planning, management and governance. Rapid and unplanned urbanization has led to growth of slums, sprawl, housing and infrastructure shortages, social segregation, and exclusion. Accompanied by motorization, it has caused congestion and hazardous air pollution.

The International Telecommunication Union (ITU)'s Focus Group on Smart Sustainable Cities (FG-SSC) defines a smart city as "A smart sustainable city is an innovative city that uses ICTs and other means to improve the quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social and environmental aspects." The UK Department of Business, Innovation and Skills considers smart cities a process rather than as a

static outcome, through which citizen engagement, hard infrastructure, social capital and digital technologies “make cities more liveable and resilient and, hence, able to respond quicker to new challenges”. Accenture defines smart city as a city that delivers services to citizen and businesses in an integrated and resource efficient way and enables innovative collaborations to improve inhabitants’ quality of life and support the growth of the local and national economy.

The year 2000 was characterized by a large widespread of the Internet in everyday life of the organisation and by ICT diffusion among citizens (Ishida, T. (2000); Schaffers, H., Ratti, C., and Komninos N. (2012)). These researchers add on to say that the newness of topic, the accessibility and affordability of the Internet and digital devices fostered the increase of papers labelled “Digital City”. Ishida, T (2000) in his study defines Digital City as “an arena in which people can interact and share knowledge, experiences, and mutual interests” Sorrentino, M., and Simonetta, M. (2013). Ishida’s studies have been very important for the development of Digital City topic, because they have paid attention to how a city could summarize different aspects (such as data and information, e-services, etc.) of urban everyday life on the Internet in order to facilitate people in their decisions-making process. Moreover, the Digital City idea is strictly linked with the use of ICT in public administrations and with the e-Government practices, regarding both central governments and also local governments such as municipalities and city councils and administrations. Adopting an e-Government policy a city starts a transformation path towards a digital city.

### **Objectives of the study**

- To understand the concept of Smart City System.
- To find out the various economic role of cities.
- To know the impact of the information age to the growth of Smart cities.
- To study the current thinking on smart economy and smart cities.

## **II. METHODOLOGY**

The research methodology used for the research is secondary data. The data was collected from various research journals, websites, and articles to ensure detailed understanding of the subject authenticity of information. Some views and opinions of the teaching faculty is obtained to elicit the points in the paper.

### **Smart City System**

According to Batty M, Axhausen KW, Giannotti F, Pozdnoukhov A, Bazzani (2012), A Smart City System comprises of six key building blocks: (i) smart people, (ii) smart city economy, (iii) smart mobility, (iv) smart environment, (v) smart living, and (vi) smart governance. These six building blocks are closely interlinked and contribute to the Smart City System. However, Vinod Kumar, TM (2015), gives prominence to ‘smart people’ because without their active participation and involvement a Smart City System would not function in the first place. A Smart City System will risk its efficient functioning without Smart People. As urbanization challenges continue to grow and further consolidation of the Information Age takes place around the world, it will become increasingly critical to utilize all possible ways to improve urban living along with social inclusion, economic development, and environmental sustainability. Smart People considered to be the fundamental building block of a Smart City System have proved to have certain advantages such as having a high Human Development Index Vinod Kumar, TM (2015), a smart city integrates its universities and colleges into all aspects of city life, attracting high human capital, for example knowledge workers. A smart city maintains high Graduate Enrolment Ratio and has people with high level of qualifications and expertise. Smart people are actively involved in their city’s sustainable development, its efficient and smooth functioning, its upkeep and management, and making it more liveable.

### **Economic role of cities**

Urban India has grown at an unprecedented rate in the last two decades. The contribution of urban areas to the national GDP is expected to increase from about 63 % in 2009–2010 to about 75 % in 2030. This 12 % increase in the urban share of GDP in 20 years is only possible with high investment in human resources for industrial skills, urban environment with highly efficient infrastructure as the benchmark for smart cities in India and the ease of doing business. The Government of India launched its Smart Cities Mission with focus on ‘sustainable and inclusive development’ in order to ‘create a replicable model which will act like a light house to other aspiring cities’ Government of India (2015). Under the Mission, the core infrastructure elements of a smart city would include adequate water supply, assured electricity supply, sanitation, including solid waste management, efficient urban mobility and public transport, affordable housing especially for the poor, robust IT connectivity and digitalization, good governance, especially e-governance and citizen participation, sustainable environment, safety and security of citizens, particularly women, children, and the elderly, and health and education. The mission has indicated an illustrative list of Smart Solutions to be supported such as e-governance

and citizen services, waste management, water management, energy management, urban mobility, and others, such as telemedicine and tele-education, incubation/trade facilitation centres, and skill development centres. Further, the Smart Cities Mission focuses on four strategic components of area-based development that are: (i) city improvement (retrofitting), (ii) city renewal (redevelopment), (iii) city extension (greenfield development), and (iv) pan-city initiative in which smart solutions will be applied covering larger parts of a city. With an initial endowment of Indian rupees 3205 crores The Economic Times (2016) Budget (2016), the Smart Cities Mission 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 parts of the country Government of India (2015).

### **Information Age and Smart Cities**

During the 1990s, the world witnessed a digital explosion in the use of Internet and the Web. As the practice of using e-mail spread, along with the advent of graphics-based Web browsers, Internet and the Web became part and parcel of people's daily lives. As large amounts of information started to be uploaded and made available on the Web, a series of search engines were designed and put to use. The ever-increasing usage of the Internet and the Web has come hand in hand. With the invention, development, and utilization of ICTs, a large number of inventions have been made in the refinement of ICTs, such as personal computers (PCs), laptops and notebooks, far-away-Xerox (FAX) machines, digital and three-dimensional (3D) printers, scanners, and photocopiers. Wireless local area network (WLAN or Wi-Fi), teleconferencing, videoconferencing, and Web conferencing including 'webinars' (Web seminars), webcasts, peer-level meetings have become ordinary terms. Internet technologies support real-time, point-to-point communication that has transformed information flows, giving rise to new fields, for instance telemedicine.

The consolidation of Information Age has been facilitated by the development of computer hardware and software industries, which have transformed the economies of cities and regions, particularly in the form of information technology (IT) parks and knowledge parks. Further, the Information Age builds on the continuing spread of—and facilitated by the progressive fall in the prices of—ICTs, massive investments in the extension of IT infrastructure across nations and the global spread of electronic literacy (e-literacy). Recently, the arrival of smartphone in recent years has re-energized the Information Age and the world of ICTs. A combination of mobile or cell phone and handheld computer, smartphone is credited with creating the greatest technological revolution since the Internet Harrison C, Eckman B, Hamilton R, Hartswick P, Kalaganam J, Paraszczak J, and Williams P (2010). On the one hand, smart digital devices including smartphones, tablet computers, and phablets are changing the ways in which people communicate, socialize, live, and work in villages, cities, regions, and nations. On the other hand, social media, which depends on mobile phone and web-based technologies, has aided the spread of smart digital devices and their usage around the world and, in turn, demands further extension of IT infrastructure and development of ICTs. All of this has led to a phenomenal growth in worldwide information flows on economy, society, culture, environment, and the like.

The notions of smart cities and smart economy have come when problems related to cities, their planned and sustainable development, efficient management, and effective and participatory governance abound, within the larger context of climate change National Geographic (2015) and global economic slowdown Weldon, D (2015). The smart city concept is built on a combination of ideas on how ICTs might contribute to improvements in the functioning of cities, improving their competitiveness, enhancing their efficiency, and finding new ways to tackle problems of poverty, social deprivation, and poor environmental management Harrison C, Eckman B, Hamilton R, Hartswick P, Kalaganam J, Paraszczak J, and Williams P (2010).

### **Smart cities and smart economy**

From the literature review, it is not clear whether a city is smart because of its smart economy or smart city is the reason behind the workings of a smart economy. A city is an urban area that presents itself as a homogeneous entity with a territorial boundary, with a definite administrative boundary, such as a Town Committee, Cantonment, Municipal Corporation, Municipality or Metropolitan Area defined by government on its discretion and is based on and supported by connectivity and linkages among its constituent parts. Smart economy, an essential building block a Smart City System is defined by Torres, L, Pina, V, and Royo, S (2005) as 'A city is considered to be Smart economy involves the knowledge economy, where innovation and technologies are considered as the most important driving force'. According to Zygiaris, S (2013), Smart economy is an ability to employ the existing resources for the development and implementation of innovative solutions. In today's economy, an increasing number of commercial transactions take place through the use of Internet. The development of digitalized, automated Transportation and Logistics Internet becomes important in the context of smart economy in smart cities Rifkin, J (2015). Such designed and managed Smart Mobility logistical network, within smart cities and beyond, has the ability to expand service areas of goods and services, which can give rise to more income and, therefore, more employment for smart entrepreneurs. A smart city, with a state-of-the-art medical facility having superior capacity, can diagnose remotely a disease through

telemedicine and save lives. It can decentralize diagnosis and initial treatment in distant cities and human settlements through ICTs and telemedicine. With regard to education services, smart cities can provide tele-education within city regions and beyond; in turn, this can also lead to reduction of transportation trips made within and from outside the city as well as to prevention of carbon emissions from such trips. Smart Governance includes factors like political participation, services for citizens as well as the functioning of the administration i.e., public and social services, transparent governance, political strategies and perspectives.

### III. CONCLUSION

Through this study, it is understood that the smart economy aims for and shows high ability to transform the smart city with the efficient utilization of ICTs in every aspect of its economic activities. Therefore, smart city with smart economy has a clear long-term economic vision, which is agreeable to civil society, public and private sectors, and other relevant stakeholders. The use of modern technology efficiently in our urban areas is an important part of modernization, growth and sustainable development. Our society today is more organized, smart and the information is situated in the centre of it. In our age the cities development depend on the use of more and more smart solution. For sustainable growth of society is essential to use efficiently the modern technology and natural resources. It can therefore be surmised that the notion of smart cities and its implementation could potentially contribute to the concept and practice of sustainable urban development that includes economic, environmental, and equity concerns.

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