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E-GOVERNANCE IS A CRITICAL SUCCESS FACTOR FOR ANY INDIAN SMART CITIES –STATUS, CHALLENGES AND ISSUES

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ABSTRACT

Government of India has announced to develop 100 Smart Cities in the country which is appreciated as a bold step in the context of sustain the economic growth and unprecedented urban growth that is being experienced. On an analysis of the literature available on Smart Cities, it reveals that one of the reasons you need Smart Cities has been Good Governance, while analysing the components proposed in a Smart City one of the critical component is Smart Governance. Over the past few years, the definition of “Smart Cities” has evolved to mean many things to many people. Yet, one thing remains common: part of being “smart” is utilizing information and communications technology (ICT) and the Internet to address urban challenges. One of the challenge today which is common across the ULB is lack of manpower and competence to manage & regulate the urban growth. One of the key areas of concern has been urban governance. Various mandatory reforms in urban governance have been proposed under the JnNURM Scheme of Government of India of which e governance was one. The implementation of e governance has been poor and not uniform across the country. While JnNURM was success story as up-gradation of infrastructure was the key performance area without much of hiccups and majority of funding being provided as Government Grant and in implementation as they were designed to suit to the governance system. There is emerging, a definite pattern of evolution of E-Governance in its functional aspect, if one takes its presence in different states of India or world, on a chronological order. The United Nations identified five distinct stages of E-Government evolution, Phase-1(1996–1999): Emerging with Basic Web Presence, Phase-2(1997–2000): Enhanced with Interactive web, Phase-3(1998–2003): Interactive graduating to Transaction web, Phase-4(2000–2005): Integrative and Transformative web, Phase-5(2005+): Smart City Governance web or well-connected web. India ranks very low in terms of e readiness index assessment done by UN. Out of the 23 reforms proposed under the JNNURM only one was e governance and out of 65 mission cities only 27 cities could achieve full e governance set up. When India plans to develop 100 smart cities which would certainly have major challenges in inter operability between the departments adopting ICT measures to improve efficiency, when we propose to implement maximum governance and less government, a sound e governance framework would be essential. In this context this paper shall assess the role of e governance in successfully implementing Smart Cities, its challenges and suggest a framework for implementing it.

Keywords: E Governance, E-readiness, Smart City, Smart Governance, and Urban Governance,

1. Introduction

E-governance has been the flavour of the last decade and one of the key performance parameters for each of the Government Department / Agencies has been implementation of e governance. Managing cities effectively and efficiently is critical and becoming more complex as population growth and economic development are taking place in urban areas. Today’s big challenges which each nation confronts, such as poverty reduction, economic development, climate change, and the creation and maintenance of an inclusive and peaceful society, will all need to be met through the responses of cities[1]. So too will the day-to-day

challenges of garbage collection, responding to the house on fire and larger disasters, and facilitating the provision of water, electricity, education, health care, and the myriad of other services that make life more productive and enjoyable. Urbanisation has now become a global phenomenon and certain future challenges are common across the cities. As most cities are becoming larger and more complex entities, the management and governance of city systems is inevitably also becoming more complex. One of future challenge for most city leaders therefore will be ensuring that the governance of cities remains as open and transparent as possible, and that citizens themselves remain engaged with its democratic processes. In addition, as



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cities increasingly outgrow their formal administrative boundaries, and awareness grows of the importance of national (or even regional) systems of cities, it will also be a future challenge for city leaders to build positive relationships with other tiers of government, and other actors within the metropolitan area. Multiplicity of governmental bodies has been a governance challenge in many of the cities. A single window for all services also becomes a challenge in this context while we discuss

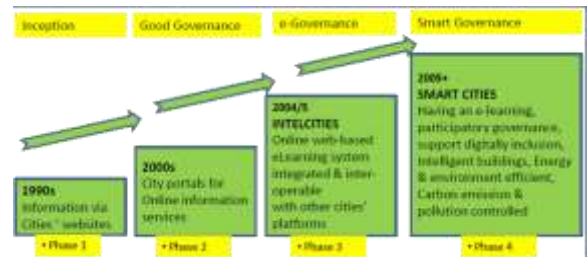
While cities are engines for growth, reforms at city level precisely in the Urban Local Body (ULB) level has not been so encouraging irrespective of efforts put during Jawaharlal Nehru Urban Renewal Mission (JnNURM). For the mission cities under the JnNURM out of the 65 cities only 27 could achieve full implementation so are as the reforms which were proposed under the scheme and 4 cities appeared in the “*no implementation*” category. In the urban local body context, implementation of e-governance has not been not been uniform, while some are at the level of only hoisting their websites providing certain general information, and on the other hand some have graduated to a level where they provide real time services through mobile telephony, track performance through GIS & GPS and other ICT based governance, online transaction, online monitoring and performance improvement systems.

While we discuss about the e governance as a concept, there is emerging, a definite pattern of evolution of E-Governance in its functional aspect, if one takes its presence in different states of India or world, on a chronological order. The United Nations identified five distinct stages of E-Government evolution,

- Phase-1(1996–2000): Emerging with Basic Web Presence, Enhanced with Interactive web,
- Phase-2(1998–2003): Interactive graduating to Transaction web,

- Phase-3(2000–2005): Integrative and Transformative web,
- Phase-4(2005+): Smart City Governance web or well-connected web. India ranks very low in terms of e readiness index assessment done by UN.

Figure 1 Evolution of e-governance (Administrative Staff College of India)



If e-governance status of the country judged at global level then one cannot find any considerable change in the growth. Because since 2010 to 2014 fluctuations were found in India’s ranking in e-government global index, as it was 119th in 2010 followed by is has fallen to 124th in 2012 and constitutes 118th position in 2014, which can’t be said good improvement. Whereas a neighbour country Sri-Lanka have achieved better growth as acquired 74th position in 2014 compared to 115th in 2012. Urbanization has emerged as a key policy and governance challenge in India in recent years **Error! Reference source not found.**

When India plans to develop 100 smart cities which would certainly have major challenges in inter operability between the departments adopting ICT measures to improve efficiency, when we propose to implement maximum governance and less government, a sound e governance framework would be essential. In this context this paper shall assess the role of e governance in successfully implementing Smart Cities, its challenges and suggest a framework for implementing it.

2. E- Governance is core of Smart City



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The Intel Cities Project promoted the notion of 'e-city governance', regarded as 'good governance' in which urban government uses advanced ICT to exercise its powers given by the citizens based on a new organisation and relationships with the stakeholders and the

Local community - a coherent interdisciplinary conceptual framework for public policy and practice, which links e-government with e-democracy, invites citizens participation in local decision-making and bridges the academic-practitioner-policy divide.[2]

Reviewing the literature shows that the concept of Smart City has been developed in three main areas: (i) Academic, (ii) Industrial, and (iii) Governmental. On an analysis of Smart City literature on three parameters Why to build, What to build & How to build Smart Cities, [3], it is learnt that Governance has been a concern while answering the Why to build and what to build in Smart Cities. Similarly, while word to word analysis was made of definitions, ICT was used in almost all the definitions, Governance also dominated as a concern and requirement in the definitions. And a combination of both states what e-governance actually looks forward to.

In the Indian Smart City features, Institutional Infrastructure has been identified as one of the Pillars of Smart Cities in India. Similarly framework of Smart Cities proposed by EU and British Government also identified Governance as a core of the Smart City Framework.

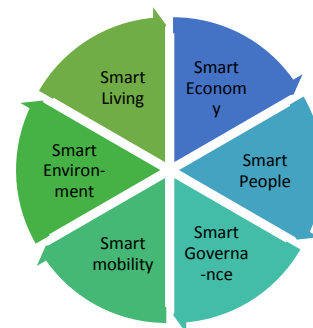
Cities in the western part which are today aspirant to be tagged as Smart Cities are implementing *smart and innovative* means to improve quality of life and enhance competitiveness. Various measures are being taken to provide transparent, efficient, *innovative and responsive government* through adoption of various Information and Communication Technology (ICT) tools **Error! Reference source not found.**

Western world which are ranked as one of the best cities of the world, are outcome of 10 years of conscious efforts by Government at

Federal, State and local level as Governance is interconnected. They have gradually moved from good governance to smart governance. The evolution has been introducing and upgrading through ICT infrastructure and services.

Smart cities are defined from the various interest points of the different group of people involved. From the definitions of Smart Cities available, one aspect which is clear is use of ICT in all facets for development. In a ranking study of European medium-sized cities [4], a smart city is defined as a city well performing in a forward looking approach to its six characteristics, such as economy, people, governance, mobility, environment, and living.

Figure 2: EU Framework



Smart aspect of any facet of a city is described by use of ICT element in it. The concept of smart city includes the notion of governance. According to Forrester Research, smart governance is the core of smart cities initiatives (Belissent, 2011), therefore it has become paramount to better understand such concept to draw its boundaries and single out its components (Misuraca et al., 2011).

Little literature on smart cities addresses issues related to governance[5]. Smart governance depends on the infrastructure that should be *accountable, responsive and transparent*[6]. This infrastructure helps allow collaboration, data exchange, service integration and communication [7].

Looking at the limited literature which is available, it is understood that the cities which carry a tag of “Smart City”, “Intelligent city”, “Wired city” etc.were outcomes of development of city



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infrastructure, services, governance etc. utilising smart components which rely on ICT. Considering the fact that, definition of a concept describes the important elements which builds it. From the definition of Smart Cities, percentage of occurrence of terms “Governance” & “ICT” is more than 37%. Therefore, two things are evident that - core of a Smart City is Smart Governance and Smart Governance utilising ICT.

One of the key aspect of Governance is people participation in the process and ICT plays a convenient role of an convincing enabler. The smart cities have adopted ICT as tools to bring in efficiency in the system. With adoption of new efficient smart systems and technologies in every aspect of infrastructure, these cities have made overarching improvements in Governance set up which has been a crucial factor for success of such cities. While India is poised to develop 100 Smart cities in the country, this paper makes an attempt to conceptualise the importance of smart governance in the context of developing smart cities in the country.

3. Quality of Good e-governance

There is a big difference between the terms E-government and E-governance. The Government is the body that controls governance through making acts and laws. Whereas governance is a broader term that deals with the service delivery and way of working. “E-government” commonly refers to the processes and structures pertinent to the electronic delivery of government services to the public[8]. In addition, the term “E-governance” can be perceived to be contextually inclusive of electronic democracy and electronic government. In this context, e-democracy refers to the processes and structures that encompass all forms of electronic communication between government and the citizen, such as information, voting, polling, or discussion, thereby enabling citizens to participate in the government’s policy making[8]. To improve the status of e-government United Nations

defined 5 stages of e-government implementation given as follows[9] :

- a) **Emerging:** Initiatives taken in the sector of governance by developing electronic platform for service delivery to the citizens/people. It involves official government online presence that is to be established through a few independent official sites. These websites contains limited Information which are basic and static.
- b) **Enhanced:** The capabilities service delivery of government sites increase and information becomes more dynamic through regular up-gradation. It makes governance more powerful and attracts people trust on electronic platform.
- c) **Interactive:** At this stage, government improves governance through interaction with people by providing stuffs online just like forms of particular tasks, providing tender details online, budget of the working year, balance sheet, e-mails and contact details of officials, make appointments and requests through web, complaints handing through web, etc. which saves a lot of the precious time of people.
- d) **Transactional:** Under this stage, to improve accountability and transparency of government through effective governance, government provides services to people of paying their taxes and other chargeable stuffs online in short conduct financial transactions online with government.
- e) **Seamless:** This stage claims full integration of e-services across administrative boundaries. Which includes complete integration of e-functions and services across administrative and departmental boundaries and a saturation line develops after which major focus is to be on improving efficiency of e-governance.

The Organisation for Economic Co-operation and Development (OECD) has provided a definition of good governance which unfolds



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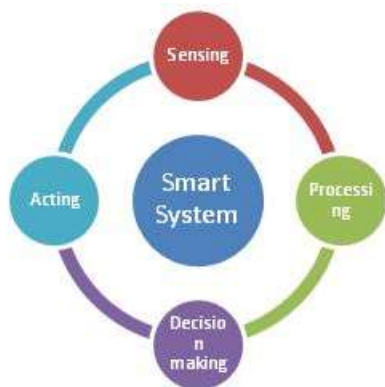
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along a number of dimensions. According to such organization, good governance is *participatory, consensus oriented, accountable, transparent, responsive, effective & efficient, equitable&inclusiveand follows the rule of law*. It assures that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making (OECD, 2001). The concept of good governance is based on five pillars: *openness, participation, accountability, effectiveness and coherence*.

Since a city is viewed as a system of its urban systems, before understanding what constitutes a smart city it is necessary to understand what makes a system smart. A smart system should possess three basic capabilities – sensing, processing and decision making, and acting

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Figure 3: Smart System



Similarly, a Smart Governance should also required to Sense, Process, Decide and Act. It is also called **“Organise without Organisation”**

e-Governance aims at providing citizen centric services and ensuring increased transparency in the service interaction with various Government Agencies

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Smart Governance is about using technology to facilitate and support better planning and decision making. It is about improving

democratic processes and transforming the ways that public services are delivered.

Smart City governance should attempt to achieve two important operational objectives:

- i. Minimise manual interaction
- ii. Interpret the actions as per regulations and law
- iii. produce effective decisions - i.e. make the best use of information to optimize decision making ; and
- iv. provide adequate incentives - i.e. given that all individuals act in their own self-interest, provide the incentives that produce the best/desired outcome.

Smart Governance includes political and active participation, citizenship services and the smart use of e-Government.

The local governance of cities is always a delicate issue, for mainly it requires careful political and sensitive government that would be able to work on three different levels:

So it is not simply bringing down e-governance to a city only, but reinventing e-governance in a proper way to serve a city smartly. The following aspects are critical:

- i. Smart governance develops good mechanism to run and manage, and develop smart organizational issues and legal aspects, thus making sure that the responsibility sharing within Smart City.
- ii. It includes services and interactions which link and, where relevant, integrate public, private, civil and national organizations so the Smart City can function efficiently and effectively as one body.
- iii. ICT plays a major role in this, as it depends strongly on proper infrastructures, hardware and software, enabled by smart processes and interoperability.
- iv. Data sharing is a critical issue, and hence connected governance bodies should be able to connect and share, in addition to the sharing of public data with the citizen.



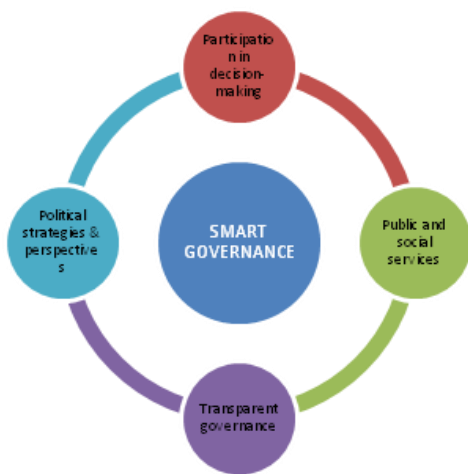
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- v. Smart governance includes transparency and e-government in participatory decision-making.
- vi. Citizen Participation is key and Crowd-sourcing is important as citizens join to develop ideas for smart applications. In general, engaging citizens is very crucial.

Smart Governance therefore shall focus on the following indicators:

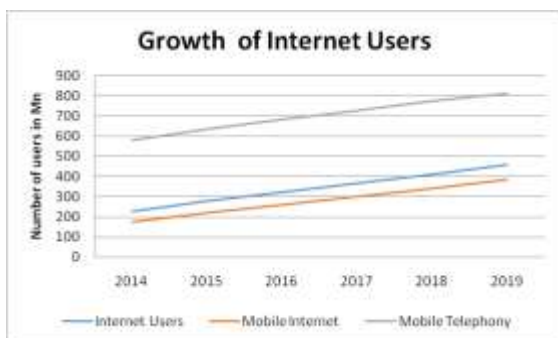
Figure 4: Smart Governance



4. Status of e Governance in India: proposed Smart Cities

As per the recent market statistics Indian Internet users, Mobile Users and Mobile internet users and their respective growth profiles till 2019 is presented below:

Figure 5: Growth profile of Internet Users(www.statista.com)



The above figure states that Mobile telephony and its internet usage is going to rapidly increase, hence it gives an indication for authorities to focus on m governance.

The first step of e-Governance in India was the Computerization of Government Departments[10]. Present e- Governance initiatives will be encapsulating the finer points of Governance for instance Citizen Centricity, Service Orientation & Transparency. In year 2006 the GoI has launched National e-Governance Plan (NeGP) with various Mission Mode Projects (MMPs) to automate essential mundane tasks[11].

In India at ULB level E-Governance setup has come into picture with launching of e-Governance as a part out of 23 reform parts proposed under JnNURM and National e Governance Program. A service level benchmark were established with considering customer or citizen service delivery as main priority, deals with all 8 main as well as certain sub-main functioning's between government, business, citizens and employees. But when the things comes upon implementation, after completion of the project out of 65 mission cities only 27 cities were found which could achieve full implementation of the project. Which means still they have not achieved full implementation of e-governance.

India is having four-tier system of government as central government, state government, urban local government and panchayat raj, which can be said mega, macro, meso and micro level of government and governance too. If e-governance status of the country judged at global level then one cannot find any considerable change in the growth. Because since 2010 to 2014 fluctuations were found in India's ranking in e-government global index, as it was 119th in 2010 followed by is has fallen to 124th in 2012 and constitutes 118th position in 2014, which needs to be categorically assessed and improvement should be targeted in the areas on lacunae. A neighbour country Sri-Lanka

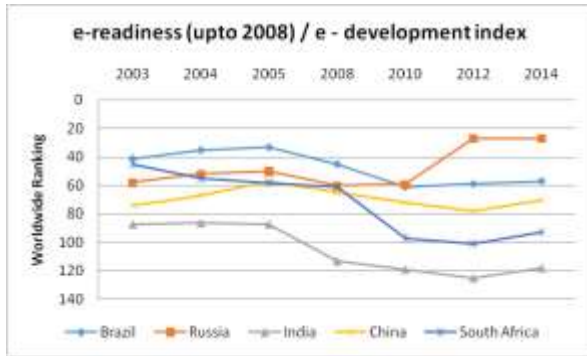


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has achieved better growth as acquired 74th position in 2014 compared to 115th in 2012.

Figure 6: Ranking of India wrt to BRICS nations on e-readiness / E development index (UN, 2003-2014)



As stated above one of the aspect of good governance is based on *openness*, Open Government data(OGD) is being perceived as one of the tools to increase transparency and participation by citizens.

OGD introduces a new approach to publishing government data and helps bridge the gap between government and citizens. It represents the ability of all stakeholder to have full and free access to public data and opens up the opportunity for people to evaluate the performance of various administrative institutions. [9]

Some of the features stated by UN on Open Data are:

- Existence of datasets in government portals including sectoral datasets for education, health, finance, social security, labor and environment
- Existence of dedicated portals for data publishing such as open government data catalogues
- Availability of datasets in various technical formats particularly in those formats that enable accessibility
- Number of different government agencies that provide datasets
- Guidelines by government agencies describing how to make use of datasets

- Availability of datasets on location information such as maps Availability of public channels to propose new datasets

*Cities of the future will need to view **technology** as an **enabler** for the provision of efficient and transparent services to citizens. By including e-Governance as part of its agenda for mandatory reform, the JNNURM has contributed to the use of IT in some ULBs. However, an area that did not receive enough attention under the JNNURM was the development of standardised e-tools that can be adopted by ULBs across the country, e.g. online birth and death registration systems, GIS-based property tax information systems, and municipal accrual-based accounting systems.*

Most ULBs discharge similar functions and there is no reason why common e-applications cannot be developed and promoted by the Government of India.

Recommendations[12]:

- The Committee recommends that the Ministry of Urban Development, Government of India take the lead in promoting the use of smart technologies in Indian cities by bringing together the stakeholders within and outside of government for knowledge sharing on city-specific technologies. Over time, the Ministry should look to putting in place a framework for city technology planning which links up with the city's master/development plan and covers aspects like data security besides improving governance.*
- The Committee recommends that a dedicated Municipal Information Unit be set up within the RPMC to collect, collate, and analyse comparable data on municipal services and finances on an annual basis. The data generated should be available in the public domain. Instruments of e-governance, mobile (phone) governance, GIS, GPS, GPRS, etc., can be very powerful in improving governance.*

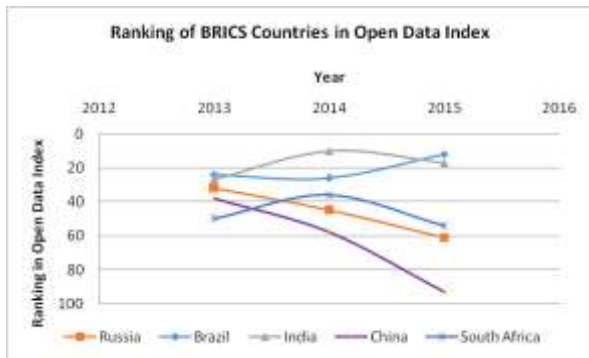
The status of India in the world ranking in Open Data Index has been better than that of E governance index. The profile of BRICS countries is stated below:



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Figure 7: Ranking of Open Data Index 2013-15 (www.index.okfn.org)

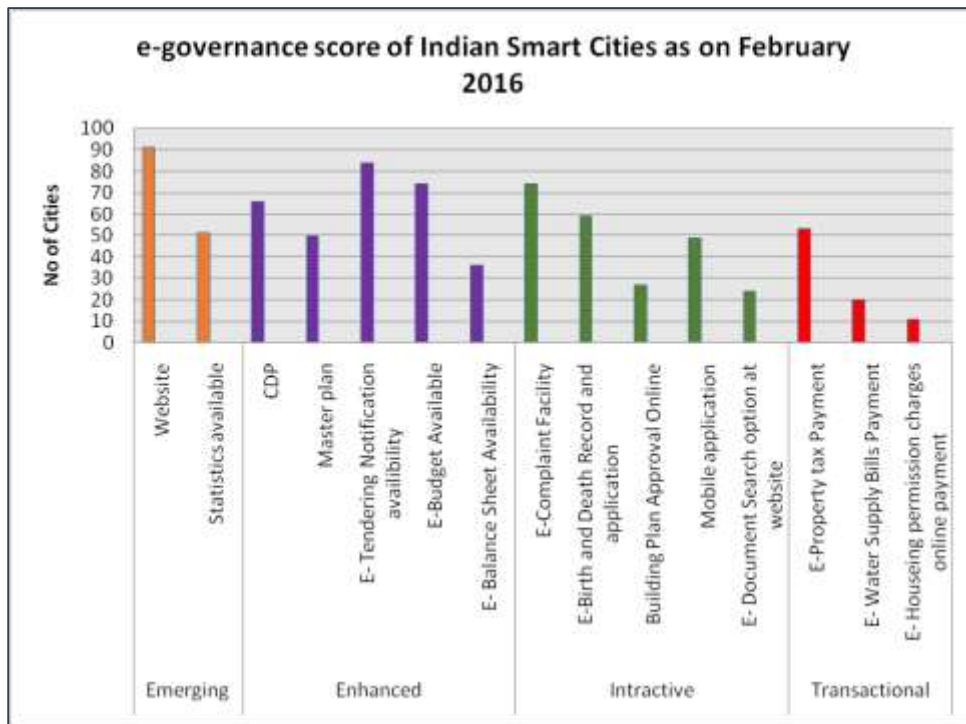


When things comes across third tier of government as urban local government, Indian government is focusing on development of SMART Cities but still poverty, unemployment, basic needs especially *equitable distribution* of physical

infrastructure as well as services etc. are the major areas of concerns un urban areas. Over the past few years, the definition of “Smart Cities” has evolved to mean many things to many people.

To understand the present scenario of proposed 100 Indian Smart Cities in the arena of E-Governance an analysis is has done which states the e governance in the proposed Indian Smart Cities based on our own analysis and data available on web platform. This analysis includes comparison of local government services provided to citizens on electronic platform. These services and information have been compared with all five stage of e-government towards improving governance electronically. The figure shown below indicates comparison of cities status with stages.:

Figure 8: E-Governance performance of Indian Smart Cities

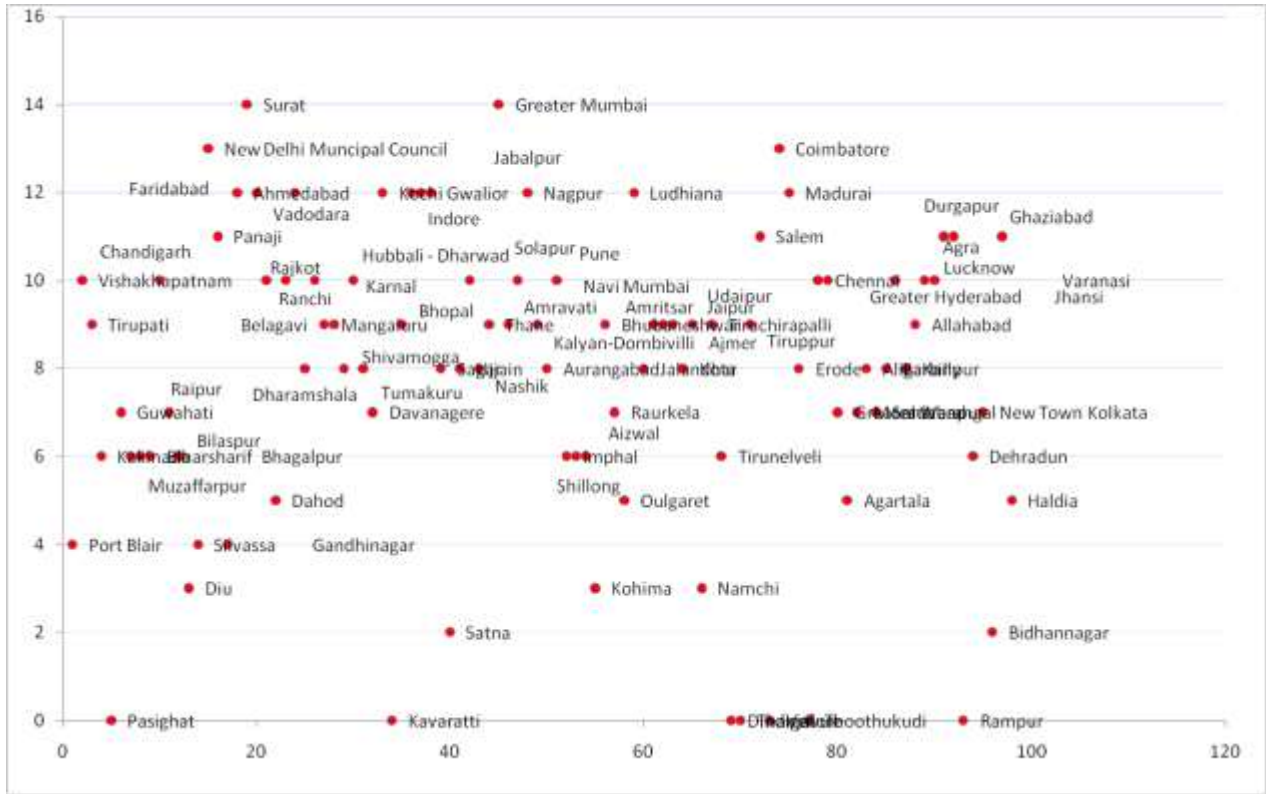




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Figure 9: Position of Indian Smart Cities based on their E government parameter



The analysis is workout based on e-governance status of the cities in terms of parameters shown in the table below along with the total cities successfully implemented the parameters considered.

Table 1: Egovernance Status of 100 Smart Cities

Phase	Parameters	Cities Qualified	Cities Lacks
Emerging	Website Presence	91	7
	Statistics	51	47
Enhanced	CDP	66	32
	Master plan	50	48
	E- Tendering Option	84	14
	E-Budget Available	74	24
	E- Balance Sheet Availability	36	62
Interactive	E-Complaint Facility	74	24
	E-Birth and Death Record and application	59	39
	Building Plan Approval Online	27	71
	Mobile application	49	49
	E- Document Search option at website	24	74
Transactional	Property Tax	53	45
	Water Supply Tax	20	78



	Building Permission Charges	11	87
Seamless	Integration of all e-services throughout administrative boundary.	Challenging task to achieve at city level as the administrative jurisdiction is dedicated to different governing bodies i.e. utility facilities like gas, electricity etc. are provided and charged by separate department/agencies which could be governmental or private..	

5. What are key challenges of Governance in the Indian context

In the Indian context, with increased urbanisation and growing importance of cities in national economy and development, conventional methods of governing the city with *top down approaches* have proved to be restrictive and inadequate. There has been an increasing demand for avenues for participation in urban governance, to increase transparency in civic management, modernizing administration, improved service delivery, etc.

The need to adopt new systems and methods of governing the cities that are inclusive and facilitate active and effective the participation all stakeholders is being increasingly realised. There is also a realisation that the existing capacity of the urban local bodies is limited and need to be enhanced systematically, which only will contribute to good urban governance.

In the Indian context, there many governance issues pertaining an ULB which has been highlighted and discussed in various reports and one of the reforms suggested has been to implement e-governance.

The High Power Committee Report on Urban Infrastructure and services suggested the following:

JnNURM had suggested 23 reforms out of which e-governance was one. The Governance of Smart Cities should not be

different from other cities, considering basic good governance practices.

However, that of Smart Cities would require a different way of thinking of practicing the governance and not the governance principles themselves. As ICT would be a primary tool then good governance might be affected in two ways:

- i. Ability of the governing body to use new technologies in order to govern in a way to benefit from the advantages of ICT such as accuracy, speed, availability of resources and sharing data and networking, and
- ii. Governance needed for managing ICT-driven applications, and related issues.

6. Issues

For successful development and implementation of e-governance, certain issues should be short out that become barriers in the growth of e-governance discussed as follows:

- a) Non-uniform pattern of development of e-governance among the Indian cities, not fulfilling scope of laying all of them on a single platform (proposed in JNNURM and could not be implemented). This non-uniform development is further lies between the cities of the same states. Karnataka puts all his proposed Smart Cities on a single development platform, which should be brought up to national level



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initiative with taking all the cities together.

- b) Digital divide comes up as a major issue while e-governance performance evaluation is consider. India is a country where great level of diversity lies, so bringing non-technology friendly people along with technology friendly people is a considerable issue but the mobile telephony and internet use penetration gives an indication that Indians would happily adopt the change provided, where the economical and societal benefits are present.
- c) 31.16% of Indian population is resides in urban areas but still finding skilled person to grab the job opportunities is difficult there. Similar kind of problems were faced by Cape Town in 2002. To overcome this issue they launched award-winning 'Smart City' strategy. But when this thing comes in Indian context still the economy and the high internet facility is further becomes issue.
- d) Faith on technology is the issue, which plays a key role in e-governance public participation. In India at transaction stage or when money comes in to e-governance this faith on technology lacks among people.
- e) To achieve transparency in urban governance, develop all bidding process and all the transactions should be made in paperless manner i.e. using ICT tool is still an issue.

7. Conclusion &Proposals:

- a) Interactive Websites with complete information about Cities.
- b) An integrated and systematic approach to Governance is completely missing in any of the cities of India ; Implementation is not citizen centric

and rather one sided and agency centric, focusing on service provision; e-governance, as a participatory process, structure and organisation, is not an explicit priority of any of the cities.

- c) The level of citizen's inclusion in e-Governance from the e-participation perspective is probably abysmally low. Providing access is a priority strategy of the authorities, yet only marginal population uses it.
- d) The level of public participation which was evident in supporting the respective city proposals in the Smart City Competition held by Government of India, ULBs are expected to sustain similar level of penetration to touch the general populace for their participation in the city decision making program.
- e) All the transactions G2C, G2B and G2G and vice-versa should be e-based only to the extent possible i.e. promoting paperless services, cashless transactions etc.
- f) All the promotional activities of ULBs should be on priority.
- g) ICT and technology up-gradation should considered to be priority agenda for any ULBs while deciding their budget.
- h) Efforts to overcome the impediments to e- Governance do not match existing strategies for investments; despite recognizing the need for more human development, hence minimizing the digital divide.
- i) Persistent approach by ULBs to reach out to people and community at large to adopt to the new paradigm of digital city- Change takes time.
- j) The analysis about the profile of Internet users based on PC based vis-a-vis Mobile platform states that Mobile telephony and its internet usage is going to rapidly increase, hence it gives an indication for authorities to focus on m governance.



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