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# Smarter Urbanisation, Not (just) Smart Cities

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## 1. Smart Cities: The Concept

### 1.1 Multiple definitions

The 'smart city' concept is explicitly conceived as an instrument for accelerating economic growth in a region. 'Smart' is a term associated with technologies like smart cards. In this sense, smartness refers to a system's ability to detect information, recognize patterns, analyse implications and trends, predict system behaviour and operate in a network involving other systems. Smart technologies are already in operation in parts of everyday life in different ways, and especially in urban management in the developed world.

In theory, the smart city concept offers conditions for everyday work and life that lubricate business processes and technical innovation, and thus investment. Currently an aspirational concept in urban, it lacks a single definition. But there is actually a single determining ingredient without which a city cannot claim to be 'smart' easily at least for the Government of India's Ministry of Urban Development's website **(www.moud.gov.in)** which believes that, 'a smart city is one that uses information technology to solve urban problems'[1]. Such technology is expected to make a variety of urban management and governance processes speedier, more efficient, and responsive to changing conditions in real time. While other desirable values gather around this core in the supportive discourse, they are neither decisive nor necessary for a city to be called 'smart'. For instance, some observers claim that smart cities reveal a concentration of high value (smart) workers, sometimes called the 'creative class'. Enhanced livability is also often argued to be a characteristic feature of these cities, which are also claimed to be potentially more sustainable because their embedded ICT infrastructure can allow energy and resources to be managed and consumed efficiently. Many such claims refer sometimes to the actual achievements of a few pilot 'smart cities' (e.g. Singapore, Barcelona, Rio de Janeiro), and at others only to potentials.

*1: http://indiansmartcities.in/Site/about.aspx accessed February 26, 2015, 11.06 a.m.*

### 1.2 Context

The concept of 'smart cities' has risen to the agenda of international urban development discourse through its championing by the Organisation for Economic Cooperation and Development (OECD) and the European Union especially since the turn of the century. China's enthusiastic adoption of this concept in urban policy has also been important. The EU and member states have invested significantly in realising the economic and technical vision in a number of cities through research and policy related projects. Given its history and European origin, the pro-smart city discourse naturally takes it for granted that cities aspiring to 'smartness' already stand on a bedrock of basic administrative, infrastructural and informational efficiency for 20th Century needs, in terms of human resource and technical hardware as well as quality of services and built environment. In this context, smartening up largely means up gradation not invention anew. While bringing the concept to the Indian context it is important to note that the base conditions are entirely different. Our urban systems (administrative and infrastructural, especially) have not been up to even the 20th Century challenges.

## 2. Smart Cities in India: The Emergent Trajectory and Embedded Issues

### 2.1 Review of Previous initiatives towards smart cities

There have been several past initiatives in the country which can be considered the beginnings of the smart city idea. This section reviews a few of these initiatives in order to draw out the lessons that they offer for the current policy.

A. E- governance in cities : As discussed earlier, the single-most critical parameter of a smart city is the application of information and communication technology in the resolution of civic issues. There have been several e- governance

experiments under since the turn of the millennium. A review of several of these projects by TCS (2008) says, 'Indian governments have tended to adopt a silo approach to e –governance. Some implementation has taken place but has tended to be piecemeal and disjoint and hence tended to have little impact. This has prevented the benefits of IT to percolate to the grass roots level and has left the disjointed silos ineffective and (relatively) unused'. Similar findings have been reported by the evaluation of Jawaharlal Nehru National Urban Renewal Mission (JNNURM) where e-governance was part of the reform package compulsory for urban local governments. Raman (2008) in a case study of e governance in Bangalore concludes that there is a need to reevaluate what we mean by e-governance in the context of the developing world. She argues that IT can make small but effective changes in the way that the interface between various institutional structures can be developed or made more participatory rather than thinking of a broad based changes which are seen as a threat in the current power and information asymmetries. The view of the IT industry on the other hand is focused around the fact that in spite of being an acknowledged leader in the field of delivery of IT services, there is very little internal IT development in the country and the dispersal of IT is as low as 3.5% of the total GDP (TCS, 2008).The proposal for smart cities thus poses an exciting opportunity for the IT industry. On the other hand, the persistent issues that have dogged the percolation of IT in governance have been far from resolved. Some of these are to do with technical silos but there are more fundamental issues such as inability to include a large section of population that is digitally excluded, the information and resource asymmetries in society, unresolved citizenship issues etc. It would be necessary to understand how the proposal of smart cities has learnt from these lessons.

B. Review of Existing Smart cities: As the idea of smart cities has taken off, certain cities in the country have nominated themselves as smart. These include private as well as public city development initiatives.

Amanora Park is a residential township near Pune located over 400 acres of land and being developed by a private developer under the Private Township scheme. The developer claims that it is a smart city with the following features- smart metering of water, electricity, gas; all distribution systems centrally controlled and monitored; video analytics; integrated communication grid and environmental and social sustainability. The project has acquired lands from 200 small and marginal farmers whom it claims to have resettled and trained as contractors in viable businesses. Amanora Park is a site that is based upon speculative real estate interests and the smart features are an add-on to make it more attractive for those who have the money to invest as home buyers or as commercial proprietors. It is clear that it is an exclusive residential and commercial development; it has no place for either the resettled farmers except as service providers or any new migrants. Terms such as industry and labour are out of place in this development. Thus it tries to create a model of a city that is largely sanitized and has no primary economic activity.

Naya Raipur – conceptualized as the new capital of Chattisgarh , situated at a distance of over 17 kilometres from Raipur – is similar to the conception of Amanora Park though developed by the State. Developed by Naya Raipur Development Authority, the city is spread over 8000 acres of land, displacing 41 villages, some of which have been resettled within the city complex with houses given through central government programmes. As the fourth planned capital city in India, Naya Raipur currently houses various state department offices and transports the officials from the old city to the new but expects the population of residents to rise to 45,00000 in another ten years. The city sees itself as green with over half the land reserved for afforestation, roads, public spaces etc, 23% as institutional area and 30% as residential and commercial area. It has signed a contract with Intel for its development as a smart city.

Both these developments reflect a similar trajectory – they conceptualise the city as a planned, exclusive development and seek to bracket it from the unruly forces that are at work in most Indian cities. This bracketing is done by Amanora by adding all its smart features to a price of an apartment or commercial outlet and keeping people out by pricing while Naya Raipur attempts to do this via more traditional methods of displacement of the villages.

Both these experiences allude to the fact that the way in which current new cities are being thought of using state or private capital are really cities that are glorified real estate developments and hold very little idea of 'city ness' as a settlement in congruence with the settlement pattern of a country and imbued with all its contradictions.

### 1.1 Analysing currently emerging ideas of smart cities

In this section, we analyse the various features of the smart city proposal. Firstly, it should be admitted that the idea of smart city seems to be still under evolution and nowhere near a project definition. It is a concept under debate with the MoUD consulting state governments and institutions over the last year and various proposals are being presented before the government. This, thus, is currently a field ripe for lobbying and advocacy. The IT and real estate industry are at the forefront of the proposals being presented, sensing a business opportunity of over Rs 100,000 crore. In addition, various state governments are also expected to add to the opportunity.

**A. Selection of cities:** The Prime Minister had made an announcement of 100 smart cites as part of the election campaign. This seems to be the magic number around which the development of the programme rests but whose basis is not clear. One can also presume that one can begin with 100 and move on. A review of the cities (complete list in Appendix 1) selected for the tag of smart cities also reveals an interesting pattern. All these cities are located along the major urban

corridors or have potential to develop as satellite towns of existing cites where transport connectivity, manufacturing and smartness are expected to be the features of largely green field city developments. There is thus, some strategic thinking in the location of cities. The idea of green field development in a dense country, however will pose issues of displacement of people from land and livelihood. Besides the issues of just compensation and the ethics of such development, one needs to also consider the impacts of such large scale appropriation of agricultural and forest land and its implications for the future.

**B. Benchmarks:** The Ministry of Urban Development has prepared benchmarks/metrics spanning 12 areas for smart cities. These metrics include transport, spatial planning, water supply, sewage and sanitation, solid waste management, storm water drainage, electricity, telephone connectivity, wi-fi connectivity, fire preparedness, education, health care and a few others. The parameters are defined at a fairly high level in comparison to the UDPFI guidelines used for planning in Indian cities. (Comparison given in Appendix 2). Further, it may be interesting to note that even the cities heralded as No 1 on the smart city grid do not achieve these comprehensive benchmarks. These raise questions about their achievability and fund requirements. The list of benchmarks does not define a minimum, critical set of parameters that would entitle cities to be called 'smart'.

**C. Route to Becoming Smart:** The Union Budget 2014 allocated a sum of Rs 6275 crores towards the smart city programme. Further, the MoUD suggests a pooling of resources from varied schemes and other routes for the smart city project, which requires cities to present a financial plan along with their proposals. These suggestions include – a) user charges b) land based taxation or sale of land c) issue of municipal bonds, based on credit rating system and d) using public private partnerships. With such pooled resources, it is estimated that the smart city project could represent a significant business opportunity .

**D. Actual contours of projects yet to be defined:** There is considerable confusion about what kind of project the smart city is envisaged as at present. From the initial proposals for 100 smart greenfield cities, recent news alludes to three kinds of projects- greenfield, retrofitting and redevelopment. The scale of these developments extends from 50 acres to about 1000 acres. Thus the scale of land has been brought down significantly and there is some acceptance of the ground realities. This also means that at the lower end a developer can also project a much smaller development as a smart city in order to reap a whole lot of benefits.

## 3 Apprehensions

**3.1 Lack of clear definitions, and of rational analysis:** A variety of actors associated with the state and industry have sounded cautionary notes about the lack of clarity in the Indian government's definition of smartness, and the potential of the concept to yield elite enclaves[2]. At root, it is not clear whether the emphasis is meant to be on 'smart' or on 'cities'. There are contradictory indications on this count. The MoUD website definition cited earlier leans clearly towards the former, though nowhere is a rigorous justification of this approach presented. The same MoUD's Draft Concept Note on the other hand, sketches a wider definition that appears to put the focus on 'cities' instead of IT based smartness[3]. It recognizes that smartness in a broader sense must apply to institutional frameworks, and transportation systems and even hints at participatory governance. However, by refusing to work its way through real challenges and obvious impediments it perhaps preempts its own operationalisation. As it stands, the 'smartcities' is presented as a glamorous solution without a clear

*2: For example, see a recent report in February 18, 2015 edition of Business Standard. Downloaded February 18, 2015. URL: http://www.businessstandard.com/article/economypolicy/gatedcommunityorinclusive questionsoversmartcityproject115021700951_1.html*

*3: http://indiansmartcities.in/downloads/CONCEPT_NOTE_-3.12.2014_REVISED_AND_LATEST_.pdf last accessed March 2, 2015 5.26 p.m.*

definition of the problem that is being addressed. Not just the problem, the solution itself – parameters of what outcome counts as a 'smart city' for the state – has not been defined yet in a coherent and comprehensive manner, which can dilute regulation of private capital's envisaged role.

**3.2 Policy making:** Putting the horse before the cart? In a rational policy making process, one begins by identifying and understanding the problem in all its complexity before a solution is identified. Even assuming that somebody sitting in New Delhi can come up with a single solution for the task of making diverse Indian cities more 'competitive' engines of economic growth (though that assumption has proved unreasonable even for individual sectors like housing, leave alone the full complexity of cities), a reasonably rational approach would involve a few necessary steps. A sensible problem description would identify differences across urban contexts in the country, the variety of challenges, and of real stakeholders, as well as of resources and opportunities at hand in each kind of situation. Following a number of exercises in scenario building for the future, a range of possible solution approaches would be identified or developed, out of which specific choices could be fashioned in particular cases with reference to their actual context[4]. Such a process would also examine the cost-benefit tradeoffs for solutions as well as their scope for unintended consequences, and envisage the different demands (including institutional capacity of ULBs) for each stage of implementation. There is no evidence of such systematic thinking in the announcement of the smart cities proposal. The political urgency with which the smart cities concept was put at the centre of the Budget 2014 speech probably left no time for such a rational process.

*4:Such an approach is already a part of the state's urban policy repertoire. Transform (2005), a Comprehensive Transportation Survey for Mumbai Metropolitan Region commissioned by Mumbai Metropolitan Regional Development Authority (MMRDA), takes such a systematic approach and offers a matrix of 6 shortlisted scenarios (and not a single fixed solution) that are meant to guide situated planning action at every particular moment in time. Executive Summary available at http://embarqindiahub.org/sites/default/files/pdf_6.pdf as on March 3, 2015 at 10.06 a.m.*

Naturally, the Ministry of Urban Development (MoUD) has struggled to operationalise the concept into a viable policy statement that is both reasonable as well as consistent with the explicit and implicit intent of the Budget proposals. This explains some of the changes in emphasis. Apparently, it has been left to the consultations with state stakeholders over the last few months to put back some of the logic that should have been foundational.

**3.3 Who holds the lever? :** Urban local bodies, state governments, real estate developers, information technology companies are the key actors in smart cities and all have agendas that are uncoordinated and competitive. Thus, real estate companies see smart city as a mode to add value to land and locate it in places where land values are already high while information technology companies seek to pool efforts and replicate technology application across places. In the absence of a clear framework of decision- making; this can lead to outcomes that are patchy. The problem is aggravated by the scanty public resources allocated to the smart city programme; the current budget allocation works out to be about 62.75 crores per city .The programme thus depends on its ability to leverage public private partnerships Given the experience of past infrastructure programmes such as JNNURM, it is likely that only certain components of the smart city project which are of interest to private capital may get followed through by PPP while other aspects, where returns on capital are uncertain may get neglected.

**3.4 Possibilities of creating exclusionary spaces :** The emerging contours of the programme indicate that that programme is likely to create cities or parts of city that are going to be highly exclusive, where working classes and poor will be kept out by virtue of sheer pricing or through physical surveillance. The programme declares 'inclusiveness' to be a benchmark, but in spite of the mention of the term, there is also no clear operationalisation of the avowed commitment to

'inclusiveness' in terms of guidelines related to the process of creating smart cities or of characteristics of the outcome. Retrofitting and redevelopment will need to guard against what has been called 'splintering urbanism' right in the middle of the existing city (Graham & Marvin, 2001). The world over privately financed infrastructure has tended to create cities marked by highly unequal levels and quality of infrastructural provision.

**3.5 Bypassing the real challenges:** Urban governance in India is far from democratized and currently has emerged as a domain for control of land, using informality as its primary instrument. This clearly involves a collusion between the local state and capital. The poor are exploited as an instrument in this form of collusion. The smart city project represents the attempt of a different kind of global capital seeking to enter the city through the backing of more centralized forces. It could result in a shifting of actors at the local level; however it may not leave any room for the poor at all. The most fundamental challenge in contemporary urban governance is that of the incomplete citizenship of the poor and the smart city project only seeks to bypass the same rather than confront it. If urbanization is being envisaged as the growth engine for the country, it will need to generate viable working and living opportunities for the over 200 million circulatory migrants in the country. An enclaved urbanization may produce smart cities that are irrelevant to the country's real needs.

## 4 Agendas for advocacy

The key advocacy theme could be organized around redefining the term 'smart' in relation to real challenges so that socially necessary goals are incorporated into the 'smart city' conception. A few specific points that would be worth pursuing are given below.

**Smart Governance**

• There is a tremendous scope for real smartness in the decision- making and governance processes in cities. If smartness can be seen as an ability to govern intelligently and fairly, including an ability to sense issues, study and analyse them, identify systemic responses to the same, link resource sensibilities to prioritization, effective implementation and contracting systems, supervision and assessment of programmes in terms of outputs and outcomes; build and learn from the links in the ecosystem; smartness is the need of the hour. It is also an attribute that is increasingly getting lost in a clamor of competitive stakes and processes and in an emphasis on technicism rather than genuine expertise. We need smartness in urban governance desperately. Such smartness would refrain from instant solutions and utopias that sell dreams and generate despair.

• A key attribute of smart governance would be the simultaneous engagement of technical knowledge and traditional wisdom through a people-centered process of participation and institution building. Most of our cities in India are characterized by auto-construction and it is only through respect for these processes on the ground accompanied by an awareness of forthcoming challenges that we may be able to deal with emergent challenges such as climate change and sustainability. Diverse local solutions informed by a global sensibility rather than homogenous global solutions that exclude local complexity may be the -need of the hour. These can help to generate opportunities that local people can participate in.

**Smart urbanization before smart cities**

a) It is undeniable that urbanization is an emerging reality for which one needs to prepare. Such planning includes gaining realistic estimates of patterns of migration, their location, educating and skilling people and freeing them from distress, enabling infrastructure development at the growth centres and

fostering institutions that are democratic, decentralized and engaged in smart decision making. The current pattern of developing smart cities is evidently not aimed at creating an opportunity structure for a 'neo- urban class (distinct from an aspirational neo middle class) but rather excludes it and may create more barriers for urbanization.

b) New cities might be necessary but not as bracketed, exclusive developments but those that give genuine opportunities for employment and are livable. The case for new cities has not yet been made systematically. We don't know for sure, for instance, that the old cities cannot accommodate current and medium term future needs within their (sometimes already expanded) boundaries. However, assuming that there is a need for new cities, these must be seen as opportunities for doing much better than existing cities on key fronts: equitable allocation of land and infrastructure for housing and livelihoods for all sections of society, based on the needs existing (not idealised) realities suggest; systematic integration of the most.

c) Policy must protect all rural land performing essential functions from predatory urbanisation under the smart cities initiative. The smart cities proposal clearly envisages big changes of landuse from non-urban to urban and industrial uses. It is imperative that this be regulated scientifically as suggested by the Draft 'National Land Utilisation Policy', Government of India[5]. This document recognizes the competing claims on land, especially those of economic production, agriculture as well as the sustenance of natural water systems. It notes that India has 17% of the world's population on 2.4% of the global land area.

*5:http://dolr.nic.in/dolr/downloads/PDFs/Draft%20National%20Land%20Utilisation%20Policy%20%28July%202013%29.pdf*

*6:'There is a need for long term plans to meet the food security as well as livelihood issues. For this purpose, reasonable restrictions on acquisition and conversion of at least certain types of agricultural land should be introduced. As per the National Policy for Farmers, 2007 (NPF 2007), prime farmland must be conserved for agricultural use and except under exceptional circumstances the use should not be altered'.*

It therefore argues for a scientific land utilisation policy to protect land for food and water security as well as livelihoods[6]. This is because a range of landuses are in competition for agricultural and non-urban land including 'industrial or agro-industrial uses; Special Economic Zones (SEZs) or Special Investment Regions; highways; peri-urban development or outgrowth, integrated townships or theme cities, and mega projects (e.g. industrial corridors/power plants/ports)'. The documents notes that the current focus on industrial development can pose a threat to food, water and livelihood security.

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- *TCS(2008) : White Paper on E governance initiatives in India*

Annexure

The List of 100 Smart Cities proposed by the Finance Minister Arun Jaitely in 2014-15 Budget and allotted Rs. 7,060 Crores for making them as Satellite Towns.

1.Pune – Maharashtra
2.Mumbai – Maharashtra
3.Nagpur – Maharashtra
4.Nashik – Maharashtra
5.Aurangabad – Maharashtra
6.Bhivandi – Maharashtra
7.Calcutta - West Bengal
8.Durgapur – West Bengal
9.Haldia – West Bengal
10.Habra – West Bengal
11.Jangipur – West Bengal
12.Ahmedabad – Gujarat
13.Surat – Gujarat
14.Vadodara – Gujarat
15.Rajkot – Gujarat
16.Bhavnagar – Gujarat
17.Junagadh – Gujarat
18.Gandhi Nagar – Gujarat
19.Bhopal - Madhya Pradesh
20.Indore - Madhya Pradesh
21.Gwalior - Madhya Pradesh
22.Burhanpur - Madhya Pradesh
23.Jabalpur - Madhya Pradesh
24.Chennai - Tamil Nadu
25.Coimbatore - Tamil Nadu
26.Madurai - Tamil Nadu
27.Tiruchirappalli - Tamil Nadu
28.Salem - Tamil Nadu
29.Tirunelveli - Tamil Nadu
30.Bangalore – Karnataka
31.Gulbarga – Karnataka
32.Bidar – Karnataka
33.Bijapur – Karnataka
34.Badami – Karnataka
35.Pattadakal – Karnataka
36.Mahakuta – Karnataka
37.Thiruvananthapuram – Kerala
38.Kollam – Kerala
39.Kottayam – Kerala
40.Tiruvalla – Kerala
41.Ernakulam – Kerala
42.Cochin – Kerala
43.Thrissur – Kerala
44.Hyderabad - Telangana
45.Warangal - Telangana
46.Karimnagar – Telangana
47.Nizamabad – Telaganana
48.Nalgonda - Telangana
49.Guntur - Andhra Pradesh
50.Vijayawada - Andhra Pradesh
51.Kurnool - Andhra Pradesh
52.Chittoor – Andhra Pradesh
53.Kanpur - Uttar Pradesh
54.Allahabad - Uttar Pradesh
55.Lucknow - Uttar Pradesh
56.Jhansi - Uttar Pradesh

57.Faizabad - Uttar Pradesh
58.Varanasi - Uttar Pradesh
59.Jaipur – Rajasthan
60.Ajmer – Rajasthan
61.Bharatpur – Rajasthan
62.Bikaner – Rajasthan
63.Jodhapur – Rajasthan
64.Kota – Rajasthan
65.Udipur – Rajasthan
66.Ludhiana - Punjab
67.Amritsir - Punjab
68.Jalandhar - Punjab
69.Patiala – Punjab
70.Muzaffarapur - Bihar
71.Patna - Bihar
72.Gaya - Bihar
73.Bhagalpur - Bihar
74.Bihar Sharif – Bihar
75.Faridabad - Haryana
76.Gurgaon - Haryana
77.Panipat - Haryana
78.Ambala – Haryana
79.Guwahati – Assam
80.Tinsukia – Assam
81.Obalguri – Assam
82.Tangla – Assam
83.Goalpara – Assam
84.Bhubaneswar - Odisha
85.Cuttack - Odisha
86.Rourkela - Odisha
87.Sambalpur - Odisha
88.Balasore - Odisha
89.Shimla – Himachal Pradesh
90.Dehradoon - Uttarakhand
91.Haridwar - Uttarakhand
92.Roorkee – Uttarakhand
93.Jamshedpur – Jharkhand
94.Dhanbad – Jharkhand
95.Ranchi – Jharkhand
96.Gangtok - Sikkim
97.Pelling - Sikkim
98.Yuksam – Sikkim
99.Bishnupur – Manipur
100.Chandel – Manipur

**100 Smart Cities Program**

Government of India has announced an ambitious 100 smart cities programme. State capitals, and many tourist, heritage cities are expected to witness a rapid upgrade of urban infrastructure and online services to citizens, enabled by Information Technology.

NASSCOM is in dialogue with Ministry of Urban Development, Government of India, on the roadmap for proposed Smart Cities initiative and how ICT can help accelerate realizing this vision.

On the 14th of August, NASSCOM hosted a consultation workshop with Shri Shankar Aggarwal, Secretary, MoUD, and his team of officers, which was attended by a wide cross section of industry members led by President NASSCOM, Mr. R. Chandrashekhar. In this meeting, PWC presented a backgrounder and MoUD shared their vision and approach. Each Industry member presented their perspective, and technologies that can enable smart cities, and models for partnering with private sector.

The Ministry of Urban Development, as a first step, had convened a National Conclave of States and Union Territories on 12th September, 2014 for inviting suggestions on from State Governments, Urban Local Bodies on the Smart Cities programme. NASSCOM was invited to be a part of this conclave and shared its observations on the draft concept note, with the Ministry of Urban Development. This draft concept note is still a work in process and the latest version of the same may be seen at http://indiansmartcities.in/site/index.aspx.

Further to this conclave, Ministry of Urban Development invited NASSCOM and few other stakeholders for the second round of industry consultation on the 22nd of September 2014. The finalized minutes of the consultation which was attended by a wide cross section of the industry may be seen athttp://indiansmartcities.in/site/index.aspx.

In course of this consultation, Ministry of Urban Development requested NASSCOM to develop the reference model on the architecture framework for Technology, GIS and Safe City for the 100 Smart Cities initiative.

NASSCOM has partnered with Accenture for developing the architecture framework for Technology, with Association of Geo-spatial industries (AGI) for GIS and with Orkash for the Safe City.

These frameworks would be developed by consultation with a wide cross section of Industry Members and Govt Stakeholders, during December 2014, and submitted to Ministry of Urban Development. NASSCOM and its partners would be reaching out to Industry members to delve deeper into, developing a blueprint for a digital master plan for Smart city, Technology solutions for Smart Infrastructure, Citizen Services, Business Models to help implement a Smart City in partnership with Private Sector.

An aerial view of Palava city. A smart city is one that completely runs on technology—be it for electricity, water, sanitation and recycling, ensuring 24/7 water supply, traffic and transport systems. Consider these scenarios: an office that's walking distance from home. A completely Wi-Fi enabled city. A smart card for cashless transactions that is also capable of facial recognition and acts as a key to enter your building with advanced security systems. The same smart card also allows you to operate the electrical equipment at home through motion sensor technology. All this with a promise of 30% savings on electricity and water costs. These features may appear to be somewhat futuristic, but are likely to become a reality in India in less than a decade, as the smart city concept takes hold. A smart city is one that completely runs on technology—be it for electricity, water, sanitation and recycling, ensuring 24/7 water supply, traffic and transport systems that use data analytics to provide efficient solutions to ease commuting, automated building security and surveillance systems, requiring minimal human intervention, and Wi-Fi-powered open spaces and houses that ensure always-on, high-speed connectivity. Smart cities can be horizontal or vertical, depending on the available space. Singapore is an example of a vertical smart city, while Masdar in Abu Dhabi is a horizontal smart city. The first-of-its-kind partially completed smart city project in Mumbai, which is expected to be completed in 2025, is Palava city by the Lodha

Group. It will span 4,000 acres, and cost Rs.14,000 crore. For Palava, the Lodha Group has a franchisee agreement with Maharashtra State Electricity Distribution Co. Ltd for 24-hour electricity supply; solar panels will power street lights. It has a tie-up with General Electric Co. (GE) for 100% water recycling, and automated water metering and billing to ensure transparency and zero water loss. It will run a fleet of CNG buses within Palava city and connect people to nearby Dombivali station and Navi Mumbai. The Lodha World School will offer all established Indian and international syllabi. And the Lodha Group is in talks with hospitals as well as several commercial establishments and multi-brand retail giants to set up shop in Palava. It has the potential to create 350,000 jobs by 2025. Information technology accounts for only 5% of the total project cost, says Shaishav Dharia, development director (Palava) at Lodha Group, adding: "The Lodha Group has also set up Palava City Management Association with citizens as members to deal with day-to-day issues, as well as a 311 grievance helpline number and 911 emergency helpline number for citizens, and a mobile app. Palava's smart technology also extends to 500 surveillance cameras that capture real-time data and in future will support facial recognition for entry and have panic alarms every 200 metres. A smart card given to all Palava citizens will allow cashless transactions at retail centres, access to bus service, public Wi-Fi within Palava's premises, building and commercial points entry, and information access from the Palava experience centre." The potential for smart cities in India is enormous—something that makes Prime Minister Narendra Modi's 100 smart cities goal an achievable one. "India's urban population will reach 590 million by 2030, living in at least 60 cities with a population of more than one million, requiring an investment of $1.2 trillion by the government for their development," Dharia says. The opportunity is huge for technology companies to cash in on. R. Chandrashekhar, president of software association body Nasscom, says, "Smart

cities are a tremendous test bed for completely wired up habitation where from the outset all systems and services, and people are brought online-a fertile ground for companies to innovate and create new products and services, which can potentially be taken to other parts of the world. It is especially relevant at a time when entry barriers for solution providers, product developers and IT creators are much lower than ever before." Some companies, like Reliance Jio Infocomm Ltd, are already looking to tap into the potential. In its annual report in May, Reliance Jio said it was working on providing fibre-to-the-home to 900 cities and towns across India, which will be powered by 4G broadband speeds. For established cities, setting up smart technology in areas like water, power and transport takes longer as these cities were not built keeping technology advancement in mind. But greenfield cities coming up in and around metros-like Palava in Mumbai, the ones in Delhi-Mumbai industrial corridor, Dholera in Gujarat, Shengda and Dighi in Maharashtra-have great potential as smart cities, as technology can go hand-in-hand with building the city. Global tech giants view smart cities as an important source of revenue. Angshik Chaudhuri, executive director (smart plus connected communities) at Cisco Systems Inc., says, "The sectors where Cisco is focusing on for smart video and data analytics solutions are education, healthcare, energy and transportation. ICT (information and communications technology) savings in these sectors could go up to 25% by using these smart solutions." Among the smart projects Cisco is working on is the 1,500km-long Delhi-Mumbai industrial corridor. In Haryana, it is working on a project to connect all police stations in the state with an open source database—this will be made into an operative system across all the states in India gradually, says Chaudhuri. "We are also heavily engaged in smart city projects coming up in Kerala, in Greater Hyderabad and Greater Bangalore," he adds. Schneider Electric SA, a global leader in energy management, is also working on several smart projects in India.

Prakash Chandraker, managing director and vice-president (energy business) at Schneider Electric India, says, "Since our solutions are sustainable, work on open architecture and are modular, cost savings are around 30% in energy, 15% reduction in water losses, 20% reduction in travel time and traffic delay—and much more." A global industrial Internet consortium was formed two months ago comprising Intel Corp., AT&T Inc., Cisco, GE and IBM Corp. The consortium is a not-for-profit organization with open membership and is working towards supporting a common architecture for devices to talk to each other, thereby creating efficiency and cost savings from shared knowledge. Chaudhuri of Cisco says, "Currently, there are 450-600 million people in the middle class in India. This means that if we are unable to provide a smart retail solution that is less than $5 per month or Rs.200-400 a month, same cost or not 15% more than current telephone bill, then the solution is a failure. However, costs have to be also measured by increase in productivity and efficiency, as smart solutions become a part of everyday life." Swaraj Dhanjal contributed to this story.

***Read more at**: http://www.livemint.com/Specials/HucTFmqE2wflhIpVTcv0XN/Smart-cities-to-soon-become-a-reality-in-India.html?utm_source=copy*

Naya Raipur-the upcoming new capital city of Chhattisgarh-would be developed as a Smart City.

Located between National Highways NH-6 and NH-43, it is 17 km away in the south-east direction from the present capital city of Raipur.

The new city, where the Mantralaya and Secretariat had already started functioning, would be developed in 8000 hectares of area with world-class amenities. The Naya RaipurDevelopment Authority (NRDA) is developing and executing the project. The estimated cost of the project is between Rs 1,500 crore and 2,000 crore. The city- the first integrated township of 21st century-is expected to house about 450,000 people within a decade. Provisions have been made for its expansion and to upgrade infrastructure in the future.

A top level delegation from the state led by housing minister Rajesh Munat on Wednesday gave presentation before Union Minister for Urban Development and Housing M Venkaiah Naidu and top ministry officials for developing Naya Raipur as Smart City. The Union Minister and the officials appreciated the project.

"The Ministry of Urban Development and Housing had assured all financial assistance for developing Smart City," NRDA Chief Executive Officer (CEO) Amit Kataria said.

The minister and officials observed that Naya Raipur would become a model for other cities, he added.

The ministry had given in-principle approval for the Smart City project.

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