

Post

Smart cities



“Technology around a smart city will create jobs, citizens will become more productive, life will be more efficient”

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Smart cities is one of the main topics at the [ITU Green Standards Week](#) that is taking place this week in Madrid. Sekhar Kondepudi is one of the panelists that has taken part in the discussions. He is an Associate Professor of Smart Buildings and Smart Cities at the National University of Singapore and he is currently a Vice-Chair for the Focus Group on Smart Sustainable Cities at the ITU. We had the opportunity to interview him to understand his personal opinions about the matter.

When does a normal city become a Smart City?

It is likely that there is no “normal” city today. In many cases, there is some form of “smarts” or “intelligence” in every city. Reason is that technology is now become very pervasive –just as an example, smart phones are almost everywhere– even in remote places in India and Africa. However, pockets of smart technologies do not make it a smart city. In my opinion, Smart Cities are well managed, integrated physical and digital infrastructures that provide optimal services in a reliable, cost effective, and sustainable manner while maintaining and improving the quality of life for its citizens.

What are the essential requirements for a smart city ?

- A “smart city” must have technology underpinnings / foundation which enables the connectivity between the different activities / attributes of the city life. These technologies need to be reliable, scalable, and standards based to allow for interoperability.
- It must have sufficient information / data / metrics about the different aspects of a city (for example health, transport, energy use, environmental quality, air pollution, water quality etc).
- The smart city must be reliable, environmentally sustainable, secure & safe for its citizens, flexible – to allow for dynamic changes in its infrastructure.



- The “Quality of Life” of its citizens / society is a critical aspect, so a city which maybe “smart” yet does not maintain or improve the quality of life of its citizens, has not met its real goal.
- A smart city will be constantly tuning itself, honing the individual efficiencies of the different vertical infrastructure operations such as real estate, industry, utilities (energy), water, waste, education, healthcare and mobility.
- However to achieve a higher order of optimization, these very seemingly “independent “ vertical infrastructure silos will need to coordinate with each other in order to making living more convenient and comfortable while at the same time balancing the fragile environment.

In which way are smart cities profitable? In an economic, ecological or citizens’ well-being point of view?

There are three key pillars: Societal, Economy, and Environmental. All of these must co-exist for a successful Smart City. If we have a city which is good for the environment and the society (citizens) but runs a budget deficit or is not viable economically, there is a problem. How can it become economically viable –Technology will create jobs, citizens will become more productive, life will be more efficient (better transportation for example will save time and therefore will be more time– less time in traffic jams) and the citizens can be more planned. Improved productivity and efficiency will hence lead to greater job creation, lower prices – leading to increased purchasing power and this cycle will overall lead to improved viability. I will caution that it will not be economically viable / profitable from day 1. This will take some time and as a society or government, we must be prepared to make the necessary investments and have a long time horizon to realize the benefits.

What are the first steps for a city to become a smart city?

Establishing a Dedicated Core Team of the different Stakeholders –from Government, Academia, Industry, Financial institutions, Citizens etc.

- o Creating a Vision, Timeline
- o Study other cities, their successes and failures– lessons learned
- o Start to measure / monitor– collect data to gain a fundamental handle on what are the most pressing issues. This will lead to an understanding of the different issues / problems / pinch points affecting the city
- o Develop a Project Plan with appropriate activities to implement including resource (people and financial) allocation

What are the features that all smart cities will have within the next 10 years?

This is a very difficult question to answer, since it is not like a telecom product or router with a defined set of features / specifications. The end specifications / features of a smart city will vary from one city to another based on many variables such as geography, culture, climate, location, size, economy, industry etc. It is better to look at the following characteristics that Smart Cities will have in the future . Actual smart cities will be some permutation and combination of the different attributes in the graphic below.



When will be facing the consolidation of real smart cities?

There are many smart cities today which are pretty much ready – for example Songdo or Masdar in the case of new or Barcelona and Amsterdam in the case of existing cities. However in the case of new cities, success will be only when the smart city becomes “mainstream” and population migrates to live there. For example, currently Songdo is only 10 – 15 % occupied, despite its technologically superior offerings –primarily due to the economic macro factors such as the real estate market in Korea– a factor which a “smart city” cannot control. In my personal opinion, by 2025, we will start to see more “Songdo or Masdar” like cities but they will be fully operational only in 2040. So we MUST have a long term horizon.

What are in your opinion the most interesting projects of smart cities today?

There are too many good projects out there to count. Each of them have good aspects and some not so good, so it is difficult to say one is better than other. There are different parameters or dimensions that one can look at including Technology, Environmental, Governance, Cost etc. Common examples which are often quoted include Songdo, Masdar, Tianjin, Singapore, London, San Francisco, Amsterdam, Barcelona.

What is most important in a smart city: public or private involvement?

Both –a smart city will not be successful unless both public and private involvement and commitment is there. The concept of PPP (Public-Private Partnerships) is critical. Since private companies will not participate unless there are financial incentives for them or potential / possibility to make money, the construct or framework agreement of such PPP activities must be crafted carefully. The Public portion can help get things kick started when the risk is the highest and Private can take over and operate / run it once the city gets going. In many cases, Private will ensure efficiency on the operation of a smart city, since in many cases, public agencies are not motivated or even trained / knowledgeable to keep costs down and maximize profit – leading to a lack of efficiency and wastage of money and resources.



Are there currently enough consolidated standards to build a smart city?

Not really – there are many standards efforts around “smart cities” but they all look at the city from a different “lens” or view point. The ITU will have the ICT lens, the IEC and ISO a different lens. So, it is important that the different Standards Organizations start to collaborate and work across a comprehensive view of a Smart City, but the problem is so large that a true consolidation may not ever happen. At a minimum, each Standards body / organization must be aware of what other key standards bodies are doing in the topic of Smart Cities and if they feel appropriate, they can leverage it, or not. Standards are important to allow interoperability and a sense of consistency and less “one offs” o Users / Consumers of these standards such as Cities, Governments, Private Industries etc will use these standards as they decide to move forward as per their own plans / priorities. They will need to be able to interoperate across multiple dimensions and hence the need for standards. Some extra effort may be needed on a customized basis to create interoperability layers (for example in the software parlance – APIs or “glue logic”).

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