



## Expert Opinion

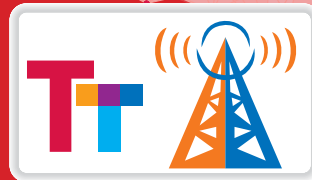
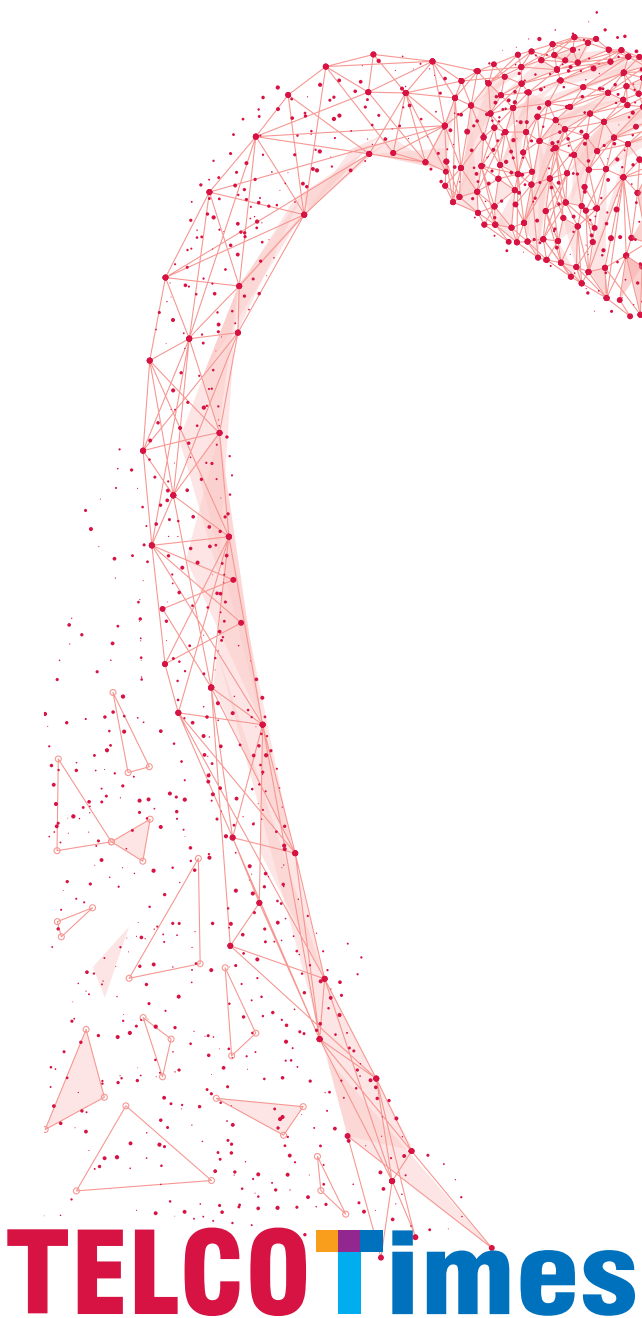
Mr. Tilak Raj Dua  
*Director General, TAIPA*

## Expert Opinion

Dr. P Sekhar  
Chairman of Global Smart Cities Panel  
& Micro Tech Global Foundation

# SMART CITY





5<sup>th</sup> Edition

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# TELCO Times





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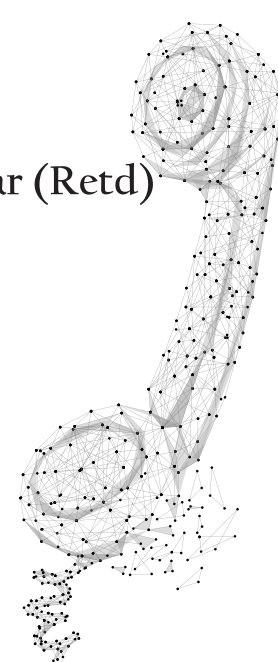
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# FROM EDITOR'S DESK

Dear Readers,

**W**e live in times where change is the only constant. In such a scenario, while brainstorming for the theme of the 5th edition of the magazine, I was intrigued by the concept of Smart-Cities and decided to go forward with it.

If I ask you to explain smart cities, I'm sure you will think of technology, sustainability, efficiency, or places like Dubai or Singapore will come to your mind and you are right. This edition seeks to delve into several elements which constitute smart cities, which you will learn more about in the articles, opinions and insights in the magazine. The fundamental aspect however remains technology. Technology of all kinds, especially telecommunication, is indispensable to human survival in this age.

Recognising the crucial role that telecommunication technology plays in progress of humanity, initiatives like "Digital India" and "Skill India" mission of Honourable Prime Minister Shri Narendra Modi, help the industry to thrive.

Lately, there has been a marked shift from traditional skills to emerging skill requirements with a strategic focus on technology-based skills to sustain the growth. These requirements, however, are not being actively met by the existing education framework creating a

disjuncture between demand and supply for skilled workforce in the industry. I take pride in informing you that, TSSC recognizing this need in the environment, has in conjunction with its stakeholders worked out Courses to be conducted in academic institutions to make the students industry ready.

I would like to acknowledge the contribution of my colleagues in the editorial and printing management of the magazine. Their help was readily available as and when I needed also thankful to the guidance provided by our CEO Lt. Gen SP Kochhar (Retd.).

Thanks to all the esteemed guests and telco experts for sparing their time in sharing their views and valuable thoughts with our readers. Sincere gratitude to all our esteemed partners for their continuous support in making this initiative a huge success. Finally, thank you for your readership, suggestions and constructive criticism, which has been very helpful for us in moving forward to new ideas and thought processes.

Time yet again, I am personally enjoying my stint as the Editor-in-Chief of Telco Times and grateful for your faith in me. With the insightful and very interesting opinions, articles published in the magazine, I hope your awareness, interest and contribution towards a smarter India increases.

**Manisha Chawla**  
Editor-in-Chief



“LATELY, THERE HAS BEEN A MARKED SHIFT FROM TRADITIONAL SKILLS TO EMERGING SKILL REQUIREMENTS WITH A STRATEGIC FOCUS ON TECHNOLOGY-BASED SKILLS TO SUSTAIN THE GROWTH.”

# BLOGS



I am happy to note that the Telco Times magazine regularly informs readers about the latest and the state-of-the-art information on Telecom and related areas. I look forward to receiving it and reading its articles. Interviews with eminent personalities are very informative and impressive.

I suggest that the Magazine also include and showcase some leading Universities and Institutions which provide degrees/diplomas in Telecom and other skills, both in India and abroad. It could also include some research articles as a matter of routine, to keep the reader updated on the latest and upcoming technologies in Telecommunications.

**Dr. Kumkum Garg,**

Dean Faculty of Informatics & Automation,  
Bhartiya Skill Development University, Jaipur.

I have always been an ardent reader of Telco Times. The way they delve into the telecom sector and reports on its dynamics is simply unparalleled by any measure. Not only it is immensely informative but the way the stories are written are hard hitting and to the point. The telecom sector in India is undergoing interesting times of disruption and with 5G and other emerging technologies such as AI, AR, VR and the like, making inroads, the digitization of the country will gain further ground.

The publication effortlessly keeps pace with the changing times and reports on aspects that are not only pervasive but also those that are anticipated to garner attention going forward. The futuristic vision that it brings to the table is extremely important for all stakeholders involved in the segment. The magazine also covers the opinion of industry bigwigs and change makers which are extremely inspirational and insightful.

Telco Times had really been able to carve its niche in this highly cluttered media market and I wish them all the best in sustaining this equity in the coming times. Look forward to even more beautifully crafted articles, analytic stories and interesting reporting that touches upon everything telecom.



**Mr. Rajan Mathews,**

Director General Cellular Operators of India (COAI)



Nowadays, we are living in a virtual world and in an arena of simulation. Keeping connected and updated with enormous information available online at times needs authenticity and veracity. The Telecom sector is growing at a significant pace and advancements in this sector are of paramount importance. The Telco Times magazine's coverage in the matter is undoubtedly praise-worthy. The articles industry-connect, interviews, latest trends in telecom sector and progress made in skilling of youth in line with PMKVY scheme of Government of India is really complimented upon. TSSC is doing great work in paving way for a skill youth.

The editorial team of Telco Times is congratulated for their untiring efforts in bringing out this magazine and best wishes for future editions as well. Keep good work going!!!

**Dr. MP Poonia**  
Vice Chairman, AICTE

# FROM CEO'S DESK



In the 21st century, we made a swift move from smartphones to digitalization to smart cities, I daresay that yesterday's technology gets outdated today.

The history of telecommunication and development of its industry is as impressive as it is exciting. One sees its titanic growth from peripheries to the major determinant of human discourse in the past few decades. It is thus, an important force to be reckoned with. Humanity has gained significantly from telecommunication and continues to do so with its evolving forms. Today, we confront challenges like that of scarcity, poverty, unemployment, endangerment of environment among other things, we

can rely on technology, especially telecommunication to come to our aid.

The youth are the future of the country and empowering them with the right skill sets is important not only for a brighter future but also to mitigate the present challenges. Having said that, technology and its positive impact is not just for the youth, it is an inclusive phenomenon which enables all.

Technical education lies at the epicentre on the initiatives for the same as positive impact in one sector is not exclusive and has a domino effect.

TSSC on its part, is playing a very significant role in training programs for skill-based education. We are very much aligned with the flagship program of our Hon'ble Prime Minister of 'Skill India' and 'Digital India' as well and in creating a viable ecosystem by implementing an "integrated approach" by prioritizing initiatives that can have a catalytic effect to develop competency based framework of world class excellence for skill development and quality assurance of personnel in the Telecom sector.

As you are aware that Indian telecom Industry is going through a sea of change during these days with a marked shift from the traditional skills to emerging skill requirements with a strategic focus

on technology-based skills. TSSC has already taken a step towards fulfilling the emerging requirements of the Industry by partnering with key stakeholders in order to bring the latest content to the forefront. In our pursuit for the absolute best we have certain offering which may bridge the aforementioned gap and garner higher employability and acceptability for our students. Some of the prime technologies being offered by TSSC are Cyber Security, IoT, AI, Big Data and so on and so forth. The theme of this edition of smart cities is the perfect embodiment of the all-encompassing nature of technology. The Indian effort towards smart cities is an applaudable one for sustainability. Connecting information technology to the management of a city has revolutionary potential, the tone has been set for another exciting ride.

The *zeitgeist* is of technology.

Lastly, I would like to extend my heartfelt appreciation to TSSC staff for their loyalty & support towards the organization. I am certain that our team will continue to reach new heights of professional excellence & achievements due to their dedication and hard work, each of them put in every single day.

Lt. Gen Dr. SP Kochhar (Retd)  
CEO TSSC



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9. Tele Embedded Hardware Developer
10. Grass Root Telecom Provider
11. Tower Technician
12. Mechanical Assembly Operator
13. Solar Panel Installation Technician

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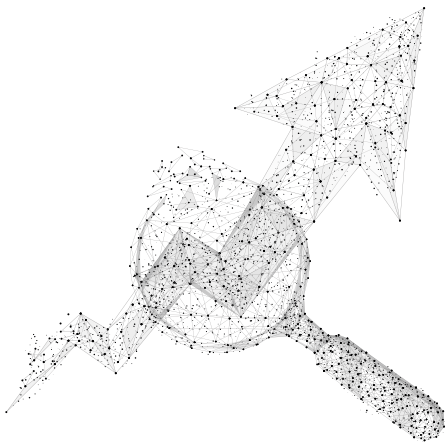
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# SMART CITY



## WHAT IS SMART CITY?

**S**mart cities at the simplest level can be described as a city that makes use of information and communication technology for governance, administration, and dissemination of information with the public. It entails integration of the various public utilities services such as water supply, garbage management,

electricity supply, postal services, public transportation services with information and communication technology for labour saving, cost-effective, energy-efficient transactions and information sharing. Smart cities involves marrying the traditional infrastructure and modern communication infrastructure.



## WHY 'SMART CITY'?

The purpose of smart cities is to ease the management of a city's public utilities by usage of technology to a whole new level of distribution through Internet of Things, Artificial Intelligence, 5G technology and block chain networks- as the name suggests in a smart way. For example, the Delhi Metro mobile application in smart phones to check transit routes, time and costs, paying of municipal bills online, are all elements of a smart city.

Technology is used nearly all over the world in its industrialised form to organize information, aid data transfer and information flow within an organization, technology can be used to process, track and organize records, which is already done by public utilities. In smart cities however, innovative usage of information and communication technology for sustainability is pivotal to evolve existing processes and integrating structural frameworks to increase efficiency of a population. To illustrate, overcrowding in parking lots can be mitigated through smart sensors which navigate free spaces, ultimately saving time, human effort, energy and reducing wastage, which though a very small and seemingly insignificant achievement, when added up to individuals in millions can add up to huge net figure of reduced wastage, increased efficiency, saved time energy and human effort.

Humanity is endangered and plagued with various issues, which can be efficiently addressed through technology, which is the ultimate goal. It is very evident that smart technology will have a resounding influence in shaping our future communities and organization of daily lives.

The need of the hour is for smart cities as the world is facing several challenges and unsustainability. Without Telecommunication and other technology linkages, the individual sectors of development would be isolated specks and when integrated through technology, new achievements

# WHY SMART CITY



and heights are reached, reducing wastage and human effort with more efficiency. Telecom interconnects them and helps them to be connected and communicable. It is like the nervous system of a human body. Telecom has today become all pervasive technology cutting across all Industrial vertical, thus having a far larger impact on the political-economy and life of the consumer.

Some tangible benefits of adopting smart city deployments are:

### INCREASING THE QUALITY OF LIFE FOR RESIDENTS OF THE CITY:

This can be achieved through improved infrastructure, increased safety & security, investment in public transportation, reduced pollution, etc. An increase in quality of life has a direct impact on net migration for a city. Businesses and individuals typically move to cities for the quality of life, leading to increased revenue base for a city.

### INCREASING THE TAX BASE OF A CITY:

With an increased quality of life, technology investments will aid cities by increasing net migration, resulting in an increased tax base (business and individual). In addition to increased collection of income taxes, smart cities typically see a pronounced increase in sales tax revenue and property taxes (both from increased home ownership & increase in property value).

### REDUCING ENVIRONMENTAL IMPACT:

One of the biggest benefits of smart city deployments is in reducing the environmental impact by a city. Reductions in energy costs (from using more environmentally friendly lighting solutions) to reducing pollution (with a robust public transportation system). The benefits of reducing the environmental footprint of a city results in more people calling a city 'home' for longer period of time.



# Smart Cities ALL OVER THE WORLD

Nearly all urban cities have some elements of smart cities, but innovation in each city is a huge factor, which is the measurement of how communities utilized and benefited from smart technology. Due to the concept being

relatively new, no predetermined definition is there or fixed criteria to be met, so in that sense there are several places which are considered smart while others are in the process of being so. Thus, many cities are in different stages of innovation.

## SOME EXAMPLES OF PLACES RECOGNIZED AS INNOVATIVE OR SMART CITIES ALL OVER THE WORLD

Dubai(UAE), Singapore, Barcelona(Spain),Amsterdam(Netherlands),San Diego(USA),Tokyo(Japan), London( England, UK),Seoul (South Korea)





# SMART CITY MISSION IN INDIA

**S**mart Cities Mission is an urban renewal programme launched by the Government of India in 2015. The objective of the mission is to develop 100 cities, by making them citizen friendly and sustainable by 2020. The responsibility of accomplishing this mission is of the Union Ministry of Urban Development in collaboration with other state governments.

The Government has not adopted the approach of “one-size fits all” and has a model which is inclusive and flexible. The MoUD has adopted a competition-based method for selecting cities for funding and used an area-based development strategy for the first time. Each city has to formulate and develop its own concept, vision, mission, plan of smart cities that is appropriate to its local context, resources, and level of ambition, and combining all, the states develop their very own SMART CITY PROPOSALS which are submitted to the Smart City Council (which is an international body which provides all stakeholders the relevant information about the Smart Cities development in India. The aim of the India Chapter is to provide latest update about what is happening on the smart cities development front, gather and disseminate resources, collate industry data and showcase achievements in this segment.) Cities compete at the state

level and then the state level winner competes at the national level for the Smart city challenge. Only cities obtaining the highest marks in a particular round are part of the mission. Among the projects in SCM are affordable housing, integrated multi-modal transport, creation and preservation of open spaces, and waste and traffic management, among others. The projects focus either on a particular area of the city or the entire city.

The Union government agreed to give each of the cities Rs 100 crore every year for five years, with an equal contribution coming from the state government and the urban local body combined. SMC is carried out through a SPECIAL PURPOSE VEHICLE (SPV), registered under the Companies Act, 2013, instead of through a municipal corporation, and also encourages private investment.

As per the most recently available report, the SCM saw a big implementational surge in the last financial year (2018-19), with over 2,300 projects worth around 91,000 crore tendered. Nearly 72 per cent

of these projects (over 1,600 of them) worth around Rs 51,000 crore are under implementation or done. The Centre for Monitoring Indian Economy believes that if this momentum is maintained, the SCM projects could see a faster completion. The big achievements in the last fiscal are a three-fold rise of projects tendered, and another three-fold rise in projects completed.

The duration of the mission is five years. Since the first 20 smart cities were announced in January 2016, the first lot of “smartened cities” should be ready by 2021.

## SOME CHALLENGES

- Technology challenges with coverage and capacity.
- Digital security.
- Legislation and policies.
- Lack of confidence or reluctance shown by citizens (lack of clarity around benefits).
- Funding and business models.
- Incorporation of existing infrastructure for energy, water and transportation systems.



# Case Study of Smart City in India

## GURGAON

The glitter of Gurgaon encourages several dreamers the dream to live in a city that is also called India's Singapore. When we talk about this city, it has been said to be the mirror reflection of India's growth but unfortunately the scenario is upside down. In May 2016, the numerouno city of Haryana and NCR was denied the honor of being called a smart city and losing its position in the list of 100 potentially smart cities released by the Ministry of Housing and Urban Development to a neighboring city, Faridabad. Gurgaon's non-inclusion was a huge embarrassment for the State Government of Haryana who

show off the city to be its huge asset. And, in attempts to overcome this embarrassment, he claimed to the press, that state government will work on making this city "super" smart, a notch above a smart city.

Decades of mismanagement, haphazard plans of development and infrastructure, unavailability of basic public utilities such as a proper transportation system, water supply, electricity supply, health facilities etc. are the factors that facilitated in robbing off Gurgaon its place of pride in the list of smart cities.

ENLISTING A FEW ISSUES THAT GURGAON RESIDENTS FACE AND THE REASONS FOR THE SAME –

- Shortage of Public Transport
- Bad Roads
- Water Supply
- Electricity
- Traffic Issues



## WHAT'S NEXT?

# SUPER SMART CITY

Currently, Faridabad and Karnal are Smart Cities but corresponding work as per the given parameters has not even started there. But many things have started in Gurugram because of GMDA such as,

Underpasses at National Highway 8 were proposed, planned and started. The traffic situation at Rajiv Gandhi Chowk and Signature Tower has improved. The HERO HONDA flyover has recently been inaugurated which is supposed to divert a lot of traffic. The work at IFFCO Chowk is almost complete. Some of it is held up because a petrol pump located there can't be removed due to a stay from the court. That's why one of its carriageways is not complete. So, all the traffic bottlenecks have been taken care

of. RERA (Real Estate Regulation Authority) has started functioning for real estate problems. It has two units. One is for Gurugram and another for Haryana, which is based in Panchkula. The biggest achievement was starting Gurugram Metropolitan Development Authority (GMDA).

Earlier, Gurugram was managed from Chandigarh. Now, all problems of Gurugram will be solved in the city itself. 500 Buses will roll out, when the full fleet of buses are on Gurugram roads, local traffic will come down. Today most people drive their own cars and scooters. Vehicles will become fewer once the Metro is expanded. The problems of real estate companies were heard too. Within the parameters of law, some

were allowed to pay in installments, policy was framed to ensure their work is not stalled. Others were given an extension of two years beyond the license period of five years, otherwise they would have been ruined. There were problems arising with two giants namely, Maruti and Hero. But, now understanding has been developed on both sides. There have been 4 amendments in labor laws due to which companies started protesting but they have been made to understand that they should get the facilities on humanitarian grounds.

Source:  
Gurugram News (ET Telecom)





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# FIBRISATION AND SHARED INFRASTRUCTURE

## A KEY TO ACHIEVE SMART CITIES VISION

Telecommunication has emerged as a key driver of economic and social development in an increasingly knowledge intensive global scenarios. The Indian telecommunication sector has undergone a revolutionary transition in the last two decades to become the World's second largest telecommunication market with around 1.2 billion subscribers connected through 5 lakh mobile towers and 20 lakh BTSs.

Now, 5G and other emerging technologies such as IoT, M2M, AI, VR and AR etc. extensively help in safeguarding the human race on the planet by ensuring sustainability of the overall ecosystem. Smart cities will use integrated multiple information and communication technology (ICT) and Internet of Things (IOT) solutions to manage the city's assets. This will require the network of fibers to provide the next level of telecom network connectivity and creation of shared infrastructure.

The inception of the smart cities concept came in the picture with the widespread problems seen due to rapid urbanization and threat for sustainability of human race on earth. At present, nearly half of the world population lives in cities and the number is projected to grow to more than 6 billion by 2050. More than 30 per cent of India's one billion plus population lives in cities. The projection indicates that the urban population will be close to 600 million by 2031 in India



**Mr. Tilak Raj Dua**  
Director General, TAIPA

and many metro cities will emerge by then.

Human population uses 75 percent of the resources and accounts for two-third of all the energy usage and greenhouse gas emissions. Undoubtedly, the existing cities are plagued with population explosion, high level of population, traffic chaos huge scarcity of houses, inadequate water supply, poor waste disposal management, etc.

Hence, it is significant to develop 'smart' city solutions enabled through ICT which are both efficient and sustainable which will eventually help in building economic prosperity and social wellbeing.

With the election of Prime Minister Narendra Modi in 2014, urban-led economic growth in India was firmly framed around a vision of 'Smart Cities', a concept which promotes the integration

of Information and Communication Technologies (ICTs) in cities to improve economic growth, quality of life, governance, mobility and sustainability. Given its current policy importance, the smart cities have the potential for transforming the urban development in India. With the emergence of the Smart Cities in India, the vision and concept of the Smart City has shifted over time; and has been evoked in different ways to serve different purposes.

The Hon'ble PM of India has an ambitious vision of developing '100 Smart by modernizing the existing mid-sized cities. Smart cities will have a mix of ICT and Advanced technologies backed with telecommunication services for providing various services.

### FIBRISATION- THE KEY FOR ACHIEVING SMART CITIES

Fiberization of existing telecom infrastructure has the potential to bring substantial social and economic benefits to governments, citizens, end-users and businesses through increase in productivity and competitiveness, improvements in service delivery, and optimal use of scarce resources like Spectrum. The upcoming cities will be built based on readily available optical fibre cables, next generation telecom infrastructure and technologies. The deployment of small cells required to cater to the next generation of technologies like 5G would also double. Fibre is necessary to enhance the broadband penetration in the country which still lags when compared to its global counterparts. Fibre is critical to drive various broadband technologies and future telecom solutions. Currently, less than 25% of the telecom towers are fiberized as compared to the global counterpart such as China, USA and Japan wherein more than 80% of the telecom infrastructure are fiberized.

The national Digital Communications Policy have also emphasized on fiberization of 60% of the telecom towers





by 2022 which would require streamlining of issues and challenges such as

1. Alignment of central government policies at the State level
2. Implementation of the policies and procedure
3. Online Single Window Clearance
4. Difficulties and Inordinate delays in obtaining RoW permissions
5. Exorbitant RoW Charges – For instance in case Delhi the cost of obtaining RoW permissions ranges from Rs. 5 lacs to Rs. 7 lac (over half a million Rs. for just one km)
6. Thefts and vandalism such as fiber cuts

Fiber would be crucial to transform cities to smart cities. BharatNet is unique as it aims to connect 2.5 lacs Gram Panchayats with fiber. This will help realize the Government's agenda of Broadband for all. The services offered under these various Government programs will give a fillip to the increasing digitally savvy Indian population.

The Industry regulator has also realized this and have launched a 'Common Duct Policy'. The common duct policy is being formulated under the concept of 'Dig-Once' wherein the concessionaire / selected private entity would lay the common duct and share it with the stakeholders on a non-discriminatory basis. This is expected to accelerate the

laying of fiber by overcoming the barrier of digging frequently to lay fiber which is not only time-consuming due to various regulatory barriers but also causes inconvenience to public at large.

The government is also in discussion with the stakeholders for formulating a common duct policy which will play a key role in laying of fiber and connecting the unconnected.

The government ambitious programs of Digital India and Smart Cities aims to transform India into a knowledge economy and digital society which will require services to be delivered in real time such as remote education, health services, banking, etc. For achieving growth, knowledge and economic progress connectivity to internet through broadband is mandatory. For bandwidth of the order of Gbps, radio technology is inadequate to meet these needs due to spectrum scarcity. The most suitable option is optical fibre connectivity.

Thus, fiberization becomes essential to meet the demands and improve performance over existing wireless services. More fibres will require to make network smarter to deliver smart solutions.

### SHARED INFRASTRUCTURE

The 'sharing' business model of tower companies is incepted and adopted in India. Under this model, the towers are shared on a non-discriminatory and transparent basis. The concept has advantages such as efficient use of capex, improved aesthetics, faster rollouts, energy savings, and better coverage quality etc. The business model is a Harvard Business School case study and is being emulated globally.

This model can be synergised across the infrastructure segment like roads, water ways and EV charging points etc. which can significantly reduce down the capital expenditure, operational expenditure and most importantly will ensure faster roll outs of infrastructure across the verticals for the benefit of citizens.

**CONCLUSION:** IN A NUTSHELL, FIBRISATION AND CREATION OF SHARED INFRASTRUCTURE WILL BE SIGNIFICANT FOR EMERGING TECHNOLOGIES LIKE 5G, IOT, M2M, AI, VR AND AR ETC. TO TURN SMART CITIES INTO A REALITY FOR SUSTAINABLE DEVELOPMENT, BETTER EFFICIENCY, RESILIENCE, SAFETY AND WIDER SUPPORT FOR CITIZEN'S ENGAGEMENT AND PARTICIPATION. ULTIMATELY, FOR SAFEGUARDING THE EXISTENCE OF HUMAN RACE ON THE PLANET.





## Improving living experiences of 3.25 lakhs citizens

# KAKINADA SMART CITY

Company Name: Sterlite Technologies Ltd.  
Category: Citizen Network Impact  
Solution: Kakinada Smart City

### SHORT DESCRIPTION FOR CITATION

Improving everyday living, through real-time governance and efficient delivery of citizen services, Sterlite Tech's Smart City applications are improving the standard and quality of life of over 3.25 lakh citizens of Kakinada.

These Smart City features are today helping the local administration in improving mobility and situational awareness and to enhance public safety and security, with the introduction of data-driven decision-making.

Sterlite Tech's Kakinada Smart City project features state-of-the-art Centralised Command and Control Centre, integrating 330 Surveillance cameras, 380 Wi-Fi Access points, 610 Smart lights, 10 Face recognition systems, 30 Public Address systems, 24 Emergency Calling Box, Disaster managements, 12 Environmental sensors, and other applications.

Honourable Chief Minister Shri N Chandrababu Naidu has graciously inaugurated the Kakinada Smart City project in December 2018.



## LONGER DESCRIPTION

Kakinada Smart City Corporation had selected Sterlite Tech as the lead implementation partner in 2017. Today, the various ICT implementations in the Smart City are improving the everyday lives of over 3.25 lakh citizens of Kakinada. Through real-time governance, efficient delivery of citizen services and data-driven decision-making, Sterlite Tech's Smart City applications are helping us in improving mobility, situational awareness, public safety and security.

Kakinada today has the **most advanced Command Communication Centre in India**, along with **many technology firsts** like horizontal Internet of Things platform, LoRa based City-wide Wireless Sensor Network and Disaster Management System.

The Command Communication Centre brings the various smart city application, such as CCTV surveillance, Wi-Fi, automatic number-plate recognition, face detection, waste and disaster management, to one screen, enabling timely response by the administration.

These technologies enabled by Sterlite Tech have helped the **district administration during the recent Phethai cyclone**. The Municipal Corporation has effectively used this platform to keep citizens updated through **live warning messages** on Public address system and Variable messaging screens across the city during the cyclone.

The Smart City surveillance has helped the **Police Department in detecting crimes and ensuring faster resolution rates**.

**Health officials** have started using public address system to send messages regarding **precautionary measures against dengue** and other diseases. This has helped citizens to remain vigilant, informed and connected with health officials.

**Kakinada Municipal Corporation (KMC) officials** have started using variable message display system to create awareness regarding their initiatives, important government messages like Anna Canteen, rainfall information, etc.

With the deployment of more than 350 Wi-Fi access point across school, parks, important junction, smart road and other important places, **citizen are able to access IGB of free internet per day**, enabling them to remain connected in places with weak mobile internet signal. Students are using free internet for learning and education.

## INTELLIGENT KAKINADA

With the deployment of **video analytics**, automatic alerts are sent to officials regarding wrong parking, congestion detection and unattended object detection, which enables them to implement control measures in real-time. This is enabling the city to become more intelligent and safer for citizens.

**Enabling Tax Collection:** Government data is analysed by system automatically and list of top ten tax defaulter, tax collection trend ward-wise is sent to key officials, reducing the need for manual intervention/tampering of data. This enables respective departments to take actions efficiently.

With the deployment of **Smart lights**, there is now centralised control for 600 smart lights which turn on/off based on the intensity of light. Earlier, KMC officials had to send people to turn lights on/off. With smart lights deployment, KMC's operations have eased, enabling energy conservation.

## ABOUT STERLITE TECH

Sterlite Technologies Ltd [BSE: 532374, NSE: STRTECH] is a data networks solutions leader that designs, builds and manages smarter digital networks globally. It provides end-to-end network solutions for global telecom companies, cloud companies, citizen networks and the defence. With innovation at its core, its technological solutions are developed at Centre of Excellence for broadband research and Centre for Smarter Networks for next-generation network applications. The Company has manufacturing facilities in India, Italy, China and Brazil and two Software Delivery Centres. For more details, visit [www.SterliteTech.com](http://www.SterliteTech.com), Twitter, LinkedIn, YouTube

Mr. LK Pathak  
Sterlite Technologies Ltd.





# SMART CITY

## is not just about Technology



**Mr. Mukesh Verma**

*Global Head Sales ZTE Sales & Services*

A SMART city depicts a city where ICT is used to connect every Thing & every One. By connecting each other, oceans of data gets generated & this huge data created, is then used to improve city services and infrastructure as well as improving citizen's environment and quality of life. Well, there are some differences from country to country, and civilization to civilization. For me, a smart city means an urban center which is safe, environmentally green and efficient. All utility services, such as power, water, electricity and transportation, are managed and maintained very well by using advanced technologies and networks.

Technology Innovation is happening at a very high pace & it is changing the traditional ways of all aspects of our lives- be it how we live, how we travel, our society and environment, and the city where we live, making our life easy & process oriented.

Transforming a city SMART, signifies that there will be improvements to various services, such as solid waste management, road- footpath, street lights, markets, traffic signals, parks, play grounds, graveyards-cemeteries, community centers, gymnasium, library, mosquito control, food & sanitation, EPI (Environmental Performance Index) & disinfection activities, AQI (Air Quality Index), city beautification activities and so on. What's more, it's an introduction of advanced technologies into all aspects of the city & the way its citizens live. However, the growing population and transportation are major challenges, which make it difficult to build a SMART city.

Transformation requires changing of the culture, bringing new talents, re-training people and changing the way any entity, be it people, organization, administration or government, actually thinks and operates. It is like moving away from a culture where failure is not acceptable to an understanding that you can take away learning from failing to a better outcome. These kinds of culture changes are very big changes.

### BUILDING BLOCKS OF A SMART CITY: 5G TECHNOLOGIES

The first & foremost step is to connect everything & everyone. For same, 4G & 5G network plays a crucial role. 5G technology powers the next level of connectivity for industries and society.

Government Regulatory bodies, OEM and, Service providers are jointly working on 5G technologies and how

they are going to power all smart city networks.

### BLOCKCHAIN TECHNOLOGY

Blockchain is transforming the global digital economy. Integrating Blockchain technology into smart cities can play a paramount role in connecting all the smart city services at the same time that can boost security and service transparency.

Blockchain technology can be used in self-executing contracts or smart contracts; these are agreements between the various parties involved. Smart contracts allow for trusted and transparent transactions without the need for a mediating third party. This makes the process easier, cheaper, safer, and much faster.

Blockchain technology can help in billing and transactions processing, handling facilities management, or facilitating smart grid energy sharing.

Sensors

Sensors are going to be embedded in every physical device that makes up the Internet of Things ecosystem- from fitbits/ smartwatch to connected cars, everything in the smart office & home, meters, traffic lights.

Sensors are collecting & transmitting almost everything where touch is involved data to the cloud. The network of connected things (IoT), interconnects all the devices making them work together.





### INTERNET OF THINGS (IOT)

The Internet of Things (IoT) is what keeps everything in the city connected. It's the spine of the city which allows each movement and connects each dot.

IoT offers advanced connectivity of smart devices, wearables, smart home appliances and services, medical devices, connected vehicles, smart entertainment, smart buildings, smart public mobility, smart agriculture, smart city infrastructure, and all systems and services that go beyond machine-to-machine (M2M) communication.

Everything that is a part of a smart city needs to be connected to each other so they can communicate with each other as part of a whole. The IoT provides the body of communicating devices that provides seamless communication providing smart solutions to every situation and problems.

### Artificial Intelligence (AI)

The huge amount of data generated by a smart city would be useless without using Artificial Intelligence (AI) to process it in order to generate information and value. AI processes and analyzes data generated from Machine-to-Machine (M2M) interaction in the context of a smart city, smart stores, and city infrastructure.

AI can play key role in almost all the smart city applications- from improving

traffic to smart parking management to the safe integration of autonomous ride-share cars and shuttles.

Moreover, the use of AI allows city management to have a precise understanding of how the city is working. AI can help in autonomous public transport route planning, power grid management, smart traffic management, drone delivery, autonomous postal services, or healthcare facility units, just to mention of few of numerous applications within the smart city context.

### ROBOTICS

Robots can add and help in city, work, health, and social life in the smart cities of the future. Integrating robots in urban spaces is rapidly transforming some of the most technologically advanced cities in the world into real smart cities. Cities such as Dubai, Tokyo, and Singapore are examples of how robots in the real world can co-live with humans.

The human-robot collaboration needs to take into account two things: How robots work and how humans decide to use robots.

In 2020, Japan is going to introduce robot taxis for the tourists travelling to the country for the Olympic Games. Smart chairs are going to be ready at the airport for the Paralympians. And social robots are going to interact with humans

in 20 different languages. Robots with the function of social translators are going to help foreigners communicate with the locals in Japanese.

This may sound like a science fiction movie. However, it's a reality soon to be experienced by many visitors in Tokyo. Dubai's smart city project includes working social robots in public services, pretty much in the same way the city of Rotterdam, in the Netherlands, is doing. Dubai is also using robots in surveillance and policy, and transportation systems, something Dubai expects to have at least 25 percent automated by 2030 toward its bigger goal in 2050.

Dubai's flying taxi was developed by German drone firm Velocopter and tested in Dubai's airspace in 2017. A humanoid police officer is also part of Dubai's plans. After the trial is completed, Dubai is going to be replacing 25 percent of its police force with police robots by 2030. Singapore hotels also use service robots to clean rooms and room service. Additionally, a current pilot is evaluating how robots can be used for pre-school education in a near future.

### VIRTUAL REALITY (VR) AND AUGMENTED REALITY (AR)

For the development of smart cities, technologies such as Virtual Reality (VR) and Augmented Reality (AR) represent a key component of the Industry 4.0 (a name given to the

current trend of **automation** and data exchange in **manufacturing technologies**. It includes **cyber-physical systems**, the **Internet of things**, **cloud computing** and **cognitive computing**. Industry 4.0 is commonly referred to as the **fourth industrial revolution**).

Both Virtual Reality and Augmented Reality require a massive amount of data and they need it fast in order to deliver the VR and AR experience on the move. For this, the importance of getting the 5G networks across the world ready is the first step to guarantee the success of these technologies.

"Simply put, we believe Augmented Reality is going to change the way we use technology forever." -Tim Cook, CEO of Apple Inc.

Once 5G network is in place, we can expect to live in a world that it was only possible in the science fiction realm just a few years ago and now, a reality.

### Cyber-Security

Since the sensitive personal data is generated & collected because of increased surveillance & policing, it is crucial & critical to safeguard the data.

Experts worldwide are concerned about the cybersecurity vulnerabilities in smart cities. The IoT provides extensive "surface area" for hackers to attack. Compromised security systems, medical monitors, and self-driving cars could pose serious life-and-death risks, and the consequences could be severe if bad actors shut down a city's power grid or water supply. Drones are also a growing area of concern.

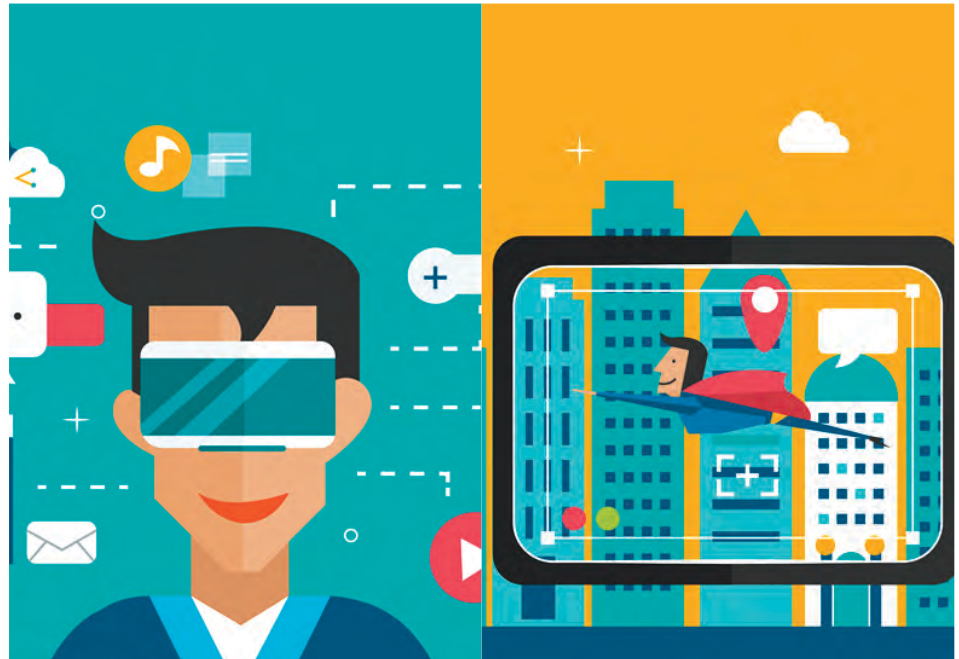
Cities need to prioritize their most sensitive assets and surround them with the most rigorous defense mechanisms. Mission-critical IoT applications should have high levels of security before they are adopted on a large scale. Cities will have to develop cybersecurity expertise and stay abreast of the constantly evolving threat environment. They will need to prepare for how to respond to breaches—including not only technical

remediation but how they will maintain calm and how they will communicate.

Smart cities create new business opportunities—and not only for technology companies. They are a canvas inviting innovation and new business

models from players in many other industries as well. We need to wait & watch and see how all these blocks best fit-in to provide humans the best of the SMART environment.

**Mukesh Verma**  
Global Head Sales ZTE Sales & Services



# SMART CITY STRATEGY

## for National Growth

**G**lobally urbanization is ongoing trend which need a strategy design in the form of planned smart cities for proper settlement of people for sustainable economic growth of nation. The social process whereby cities grow, and societies become more urban in India is occurring at a breakneck pace. Its cities are expected to grow from **460.25 million** people in 2019 to **583.04 million** by 2030. India has 40 cities with more than a million people, 396 cities with between 100,000 and 1 million people, and 2,500 cities with between 10,000 and 100,000 people. For many of the Indian states need to implement the smart city policy to translate into the desired outcomes such as more sustainable, more productive and better-governed cities – is debatable. A smart city of the ancient world would definitely be on a river bank, with good drainage system, plentiful water, road connectivity easy access to markets, entertainment et al. Fast forward into the modern era and the future, smart city is all things digital, on the banks of the digital highway! Key to the smart city is connectivity—fast, easy and always on. Be it lighting, safety of traffic on the roads, security of citizens via connected Closed Circuit Televisions (CCTVs), connecting buyers to market, fulfilling

needs of the modern population, healthcare and related services, the essence of a smart city is connectivity. That actually means robust telecom backbone. In fact, it's difficult to imagine a smart city without a telecom backbone. The role of telecom increases manifold in a smart city. The objective is not just people-to-people communications but creating an infrastructure that automatically responds to needs of citizens. Around the world cities use tele presence to connect every home, office and school through voice & video. Gone are the days of long queues, it's about delivering citizen services quickly and easily, in real time. Cities need to establish long-term plans and offer tailored financing models. New constellations of cooperation are needed, along with a combination of public and private funds. Financial, social and institutional innovations are equally important, such as new ways to think, organize and cooperate in order to meet human needs in a smart and resource-efficient way. Approximately five times the world's GDP will be invested in infrastructure in cities in the coming 30 years. It is vital that these investments are made in sustainable solutions. It is estimated that investments of **US\$2 trillion** (≈INR. 138.94 lakh crore, ≈1US\$=INR.70) are



**Dr. P Sekhar**

*Chairman of Global Smart Cities Panel & Micro Tech Global Foundation*

required reasonable period of time to build Smart Cities in the country. The country is on the cusp of a digital transformation and it is our collective responsibility to make sure that this metamorphosis is a successful one. For governments, the pressure is on to address the opportunities presented by smart city projects and to begin building infrastructures that can support massive population increases while still keeping citizens happy, safe and productive. As technology solutions evolve, and more and more of our economic and civic interactions incorporate some manner of digitalization, government bodies across the globe are looking at ways to digitally coordinate services and utilities. This is a huge challenge, and it has to be accepted that some networks and infrastructure will need to be upgraded. As a result, enhancing fibre optic networks to support smart city systems is more cost-efficient than new infrastructure. With the explosive demand of bandwidth optical fiber cable has become first choice for transmission and finds its place in various industries such as telecommunication, security and



surveillance, medical, banking, defense, etc. The fiber optics network that improves municipal operations and increases the quality of life for the community. A key way of developing smart cities is by enabling using fibre optic technology for local area development in the cities. Such fibre optic development will generate approximately 1 lakh skilled employment for a large segment of local population. Application of smart solutions will enable cities to use technology, information and data to improve their services. Integration of technology is a major challenge and implementation of technology across smart cities needs a lot of hand holding at the moment. To understand the dynamics of smart cities and to create a strong eco-system it is important that the workforce has advanced skill sets. Identification of skill gaps is a must which should be backed with, planning and developing skill sets through advanced skill training, up-skilling and reskilling. With the highest number of technical graduates in the world, every year millions of new skills need to be imparted to these educated, young engineers who need to be equipped to design technology solutions that enable smart cities. This climate could turn fueling a vibrant startup culture. So not only the talent available, but it could further amplify the country's manufacturing capabilities and its ability to scale up at an affordable price. Together, this manpower and IT prowess can ensure that India will show the world how mass-scale, flexible and affordable smart city infrastructure can be created and replicated anywhere across the globe taking a leadership role. The purpose of the Smart City development is to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology, especially technology that leads to Smart outcomes. It includes the transformation of retrofit and redevelops area and the development of new areas around the cities in order to accommodate the expanding population in urban areas. The significant effectiveness in



improvements will happen when city systems are both physically and virtually connected. The concept of Smart Cities has been defined in a number of ways. But all these definitions have some common elements. They include smart governance, smart infrastructure, smart basic facilities for the citizens, and above all, a truly interconnected system with seamless communication between sources. This concept has become all the more important with rapid urbanization, as a concomitant to rapid economic growth.

**Secured Governance advocates a pragmatic approach of taking Advantage of Valuation of Assets Created** This is not new. We all know when development takes place there is valuation in property. Who benefits from this? More often than not it is incidental and taken advantage off by land and property sharks. Imagine a model where this valuation can be ploughed back into the project and also benefit the people around. First the cost of the project is reduced and can actually be at minimal cost to the government if carefully planned. Conclusion It is good fortune that in India we have a renewed interest and massive governmental support for developing Greenfield smart cities and Brownfield smart cities. Several ministries like the Ministry of Urban Development, Ministry of Transportation, Telecommunications, Power, Education, Healthcare etc., have come to realize the potential of modern technology elements that will make smart cities a future prospect. The need of the hour is to make these departments

to start work together in sharing data that will make each other smart and also in creating a coordinating cell across all ministries that will oversee this coordinated effort. Also, the need of the hour is to understand the value of linked information and finding patterns within these links to make our cities smart. Sustainable smartness is possible only when we create physical and logical links between things that were not previously linked. New telecommunications technologies, sensor technologies, and ubiquitous availability of internet mobile applications will transform the way we consume all the information from our ecosystem. Apart from impacting the economy, this will bring in transparency in government and will also improve the velocity of businesses; improve the quality of life for ordinary citizens—even if they are not in the digital environment. Lastly, to implement an ambitious roadmap for this project, improved standards of secured governance and concerted action would be required to take these targets and goals from inspirational statements to actual development. We need a system to integrate economic interdependence in today's modern societies which not only decreases uncertainty regarding where risks begin and end, but also help in judicious planning and development of new empowered, transparent and interdependent Governance systems with higher degree of society participation in nation building Process. By Dr. P. Sekhar Chairman of Global Smart Cities Panel & Micro Tech Global Foundation

# Accelerators for smart cities-Startup SKILL ECOSYSTEMS

According to Deloitte, a city is smart when investments in Human and social capital, Traditional infrastructure, and Disruptive technologies fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.

Creating a smart city isn't just about creating the physical infrastructure - roads, clean water, power, and transport and also not only to just about technology-enabled. The big challenge will be to create self-sustaining cities, which create jobs, use resources wisely and also train people. Further a smart city's core infrastructure is also information technology, where a network of sensors, cameras, wireless devices, datacentres forms the key infrastructure providing all important services

In other words the 'smart cities' exist on the intersection of digital technology, disruptive innovation and urban environments

While disruptive technologies, data and talent have been recognized as critical components of a smart city by experts; helping governments develop smart city strategies, engagement with entrepreneurs and the venture capital community is nascent. This is an untapped opportunity. Governments are facilitating Startups being primary driver of job creation that is necessary for economic growth. Venture backed companies have been the main force behind technology innovation over the past several decades & in India the trend is fast picking. Thus, technology entrepreneurship and venture capital are also becoming critical components in the transformation from a traditional city to a 'smart city'.



Any initiative for smart cities while focusing on 'Make in India' is to be addressed with local solutions to local problems, and at a larger level, to develop skills among young innovators of India to gear up for the fourth industrial revolution. The stake holders need to understand the customer's problems and build a viable business model that could help solve those problems - and then go build it. Efforts are aimed for developing the skills of young innovators, mentoring innovators/ start-ups, accelerate technologies & create fundable start-ups that work towards developing smart cities and large corporations for solutions that make cities "smart, safe and sustainable" Some of the top Smart Infrastructure Technologies are commuter apps, connected vehicle infrastructure, advanced traffic management systems, Solar LED signs/

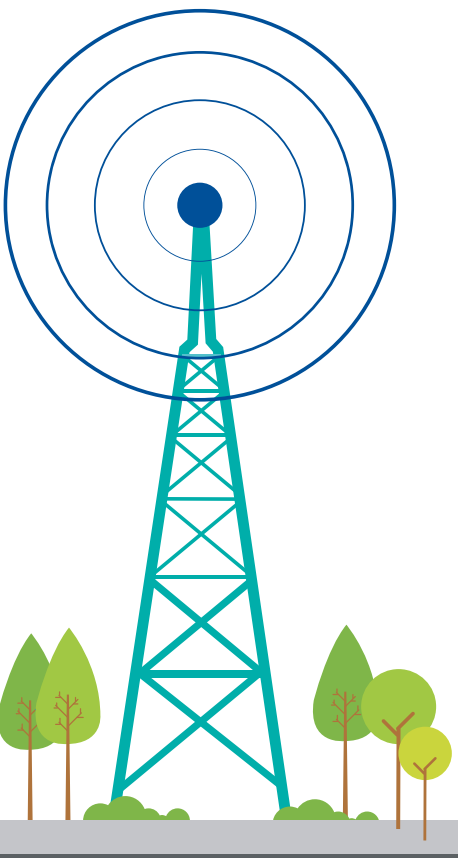
lights through multipurpose poles, Controllable traffic signals, Electric car charging stations etc

Government of Haryana has created a unique model in this direction where innovations are facilitated along with addressing skills on frontier technologies. In this quadruple helix model the Government, industry, academia & Civil participants working together to co-create future and drive structural changes far beyond the scope of what any one organisation or person could do alone. The quadruple-helix model allows us to combine knowledge and competence from all the four key players in a city context.

This physical model exists at Hartron Multi Skill Development Centre (HMSDC) at Gurugram. HMSDC consists of Hartron Innovation & Startup Hub where Startups being incubated with knowledge partners' NASSCOM & IAMAI under their 10000 startup warehouse & Mobile 10X incubation initiatives respectively. The Centre of Excellence in Internet of things CoE-IoT & AI with support from Ministry of Electronics & IT, GoI, United Nations Technology Innovation Lab (UNTIL) under United nations Office of Information & Communication and Technology (UN-OICT) & state facilitation to accelerate SD's 2030 mission of UN, Finishing labs for







upgrading skills & capacity building, CSC Academy under CSC-SPV initiative etc are co-located. Hartron under Deptt of Information Technology Electronics & Communication Haryana (DITECH) with start-ups & capacity building partners is building a sustainable self propelling eco system which can address challenges of the future.

Startups working together in a big spectrum starting from the grass root realities (CSC-Academy through Village Level Entrepreneurship) and International knowledge exposure (UNTIL) while creating a trained manpower on utilising, installing and maintaining product & services created by Startups is becoming a reality at HMSDC, Gurugram. The start-ups in such an ecosystem and in general are best positioned to bring disruptive technologies and business models to the market, delivering better, cheaper solutions to cities & also creating a big social impact.

The sector skill councils have also a major role to play in sustainable smart

cities. When technology and skill is being acting as vertebrae & discs of the smart city backbone and with buzz words like 5G, IoT, Bigdata, Blockchain, sensors, Industry 4.0 etc strengthening it, TSSC plays a vital role. To work at practical challenges a trained/ skilled manpower is required to understand, create and run the operations. The TSSC can build a model where it can collaborate with universities/ academia in or near the identified smart cities for creating accelerators. These accelerators can take the leverage of students, mentors from to local level having advantage to understand the local challenges. The SSC's can bring industry closure to this accelerator to mentor this ecosystem for practical and sustainable resilient solutions for smart cities. These accelerators can also further be linked to major hubs like the one created by Hartron at Gurugram in hub & spoke model for further strengthening the Smart Cities and addressing related challenges.

**Rajive Gulati**  
Head, Hartron Multi Skill Development Centre, Gurugram

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## GET JOB OF YOUR DREAM!

Indian telecom Industry is going through a sea of change during these days with a marked shift from the traditional skills to emerging skill requirements with a strategic focus on technology-based skills. These requirements are not being actively met by the existing education framework prevalent thus creating a demand/supply gap.

TSSC has already taken a step towards fulfilling the emerging requirements of the Industry by partnering with key stakeholders in order to bring the latest content to the forefront. In our pursuit for the absolute best we have certain offering which may bridge the aforementioned gap and garner higher employability and acceptability for our students. It is pertinent to note that this need cannot be fulfilled by college/school dropouts.

Colleges will be responsible for mobilizing the students, fee collection and provision of the physical training infrastructure. The faculty of these colleges may be trained as trainers for courses where feasible. TSSC will be the certifying authority for all courses and thereby ensure the requisite quality of training is achieved. All parties concerned will jointly endeavour for placement/ livelihood opportunities of the trainees.

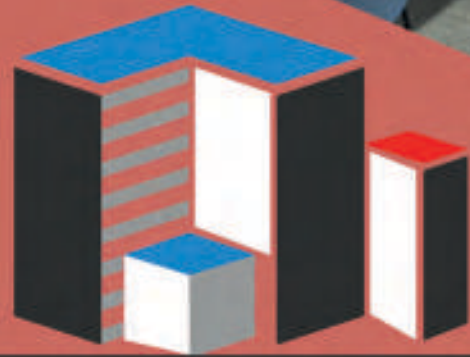
### SOME OF THE PRIME TECHNOLOGIES BEING OFFERED BY TSSC ARE AS UNDER:

-  Cyber Security/Information Security
-  Internet of Things (IoT)
-  Artificial Intelligence (AI)
-  AR/VR & Deep Learning
-  Drone Technologies
-  Application Development
-  Big Data
-  5G & Blockchain
-  Personality Development & Soft Skills



In order to benefit the student as well as colleges, TSSC has got into a strategic MoU with All India Council for Technical Education (AICTE) to impart skilling in colleges which would incorporate the summer internship requirements of technical college students.

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# GLIMPSES of TSSC INITIATIVES



CEO TSSC addressing audience at National Conference on Skilling in higher education organized by Telecom Equipment Manufacturer Association (TEMA)



TSSC partnered with LabourNet Services to enhance Skill development in the Telecom Sector



CEO TSSC delivered the keynote at launch of Data Localization in the Indian context by The Dialogue at Constitution Club



TSSC received SKOCH Award towards their immense contribution & enormous achievements in Skill India mission in the Telecom Sector



# GLIMPSES of TSSC INITIATIVES



To ensure necessary Skill Training & Skill Upgradation, TSSC partnered with TATA Strive for “Empowerment Coaching Program” to support in building a set of unique capacity and capabilities among the team members.



Team TSSC heartily congratulate the winners of Information network Cabling in India Skills 2018

# GLIMPSES of TSSC INITIATIVES



Mr. Chetan Chauhan, Former Test Cricketer & Hon'ble Cabinet Minister of Youth & Sports Welfare, Uttar Pradesh boosting the confidence of participants at India Skills 2018



Team TSSC at India's largest Skill Exhibition at Bhubaneswar. Mr. Deepraj Rana, host of Aap Ki Baat, DD National at TSSC stall at Skill Exhibition

# TSSC ECOSYSTEM

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- 598 Academia Partners
- 50 Industry Partners
- 19 Assessment Partners

## CENTERS

- Occupational Map including 4 sub segments
- 46 Qualification Packs
- 17 Physical Books



## STANDARDS

- Total Enrollment 751647
- Total Assessed 583538
- Total Passed & Certified 420809





# GLIMPSES of JOB FAIR



TSSC organized a Rozgar Mela at Kantabanji, Balangir. Great experience earned at the mela. The companies present were Reliance Jio, VR Enterprises & Karvy Data Management System



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A Rozgar Mela & Skill Exhibition were held at Balasore, Orissa. Great experience earned at the mela. The companies present at the mela were Karvy Data Management, Prash Enterprises & Reliance Jio.

# GLIMPSES of JOB FAIR



TSSC organized a Rozgar Mela at Indore. Great experience earned at Rozgar Mela



TSSC participation at Rozgar mela. The mela was a grand success with a huge footfall of candidates. Lot of top MNC's were also present at the occasion.

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# GLIMPSES of TELECOM MANTHAN 2018





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IRIS Corporate Solutions, also known as IRIS-Corp, is one of India's New Age Business HR services & Solutions Providers.

With corporate headquarters in Gurgaon and offices across India, IRIS-Corp provides innovative and diverse HR solutions to its clients.

### STRENGTHS



### SPECIALIZED SERVICES



- Skill Enhancement
- Employability Assessment



- Mid & Senior Level Hiring
- IT Staffing



- Leadership Development
- Business Enhancement Solutions

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