

EXPO NEWS

28th
Convergence
India Expo

6th Smart Cities
INDIA EXPO

24-26 MARCH 2021
PRAGATI MAIDAN, NEW DELHI

NEW DELHI | 26 MARCH 2021

DAY 3

MESSAGES



Shri Ajay Prakash Sawhney, IAS

Secretary
Ministry of Electronics & Information Technology
Government of India

The 'Digital India', 'Make in India' and 'Smart Cities' initiatives of the Government of India have created new opportunities for the country and will transform it into a digitally empowered economy and a global manufacturing hub. In a smart city, traditional city services and infrastructure are transformed by the integration of digital technology. New age smart city technologies such as artificial intelligence and block chain will accelerate future growth by transforming the Indian economy into self-governing entities.

I am glad to know that the Exhibitions India Group (EIG) and India Trade Promotion Organisation (ITPO) are organising the 28th Convergence India 2021 International Exhibition and Conference during March 24-26, 2021 at Pragati Maidan, New Delhi. Trade shows such as Convergence India and 6th Smart Cities India 2021 expo promote specific

ideas and working models in the country. I am convinced that organising this important trade show will produce concrete and tangible results.

The Key theme of the Exhibition is relevant in the context of advancement in Information and Communication Technology (ICT) and vision of Digital India on three key areas- infrastructure, governance and services on demand, and digital empowerment of citizens. I congratulate organizers for providing a platform for Industry leaders and policy makers to interact, exchange information and contribute to the growth of the ICT sector.

I extend my best wishes for the success of 28th Convergence India 2021 expo and 6th Smart Cities India expo at Pragati Maidan, New Delhi during 24-26 March 2021, My greetings to the organizers & participations and I wish the Exhibition & conference all success.



Shri P. D. Vaghela

Chairman
Telecom Regulatory Authority of India

I am pleased to know that 28th Convergence India & 6th Smart Cities India expo is being organized by the India Trade Promotion Organization (ITPO) and Exhibitions India Group (EIG) from 24th to 26th March 2021 at Pragati Maidan, New Delhi.

Digitalization of various essential services including education, finance & banking, health and civic services has resulted in the convergence of delivery networks as well as consumer

devices. It has led the development of global-scale digital platforms which can deliver virtually any service to any person and at any place through the Internet. At the same time, the convergence of services, networks, devices and development of converged service delivery digital platforms have increased the risks relating to market concentration and 'winner takes all' approach. This necessitates the review of the policies, laws, rules, regulations and

procedures for the ICT sector.

In order to manage the ever-increasing population in the cities, it is important that infrastructure in the cities are upgraded and managed by using Information and Communication Technologies (ICT) to make them sustainable in the long run. A smart city needs smart governance and smart businesses. A smart city should effectively leverage technology, infrastructure, public policy, and citizens' engagement to create an urban environment that fosters economic growth and productivity, innovation, social mobility, inclusiveness, and sustainability. ICT-enabled smart infrastructure will surely help a city to become smart and sustainable.

The Telecom Regulatory Authority of India (TRAI), on its part, is committed to nurture growth of telecommunications and broadcasting sectors in the country and enable them to play a leading role in the global digital society. One of the key goals of TRAI is to create a fair and transparent policy environment that creates level playing field, encourages equal opportunities and facilitates fair competition.

I am sure that this forum will further propel the innovation and growth in the sector.

My best wishes to organizers and participants of this international exhibition which promotes innovations and convergence in the telecom sector.



Shri Nagendra Nath Sinha, IAS

Secretary
Ministry of Rural Development
Government of India

WELCOMING AN ERA OF VISUAL TECHNOLOGIES IN INDIA

EXHIBITOR CORNER

Visual Technologies is one of the leading suppliers and System Integration companies in the Broadcast, Education, AV and Security Surveillance industry. VTI is the distributor for more than 45 global and Indian brands for their professional Audio/Video Broadcast Equipment.



Subsequently, over the years, VTI has diversified its activities into Design, System Integration & Configuration and commenced undertaking Turnkey Projects. VTI aims to become a one-stop-shop for all Professional Audio/Video requirements. VTI has designed, assembled, commissioned systems and supplied





Shri Pradip Kumar Das

Chairman & Managing Director
IREDA

I am pleased to note that the India Trade Promotion Organisation and Exhibitions India Group are organizing the “6th Smart Cities India” and the “28th Convergence India” expo from 24th-26th March 2021 at Pragati Maidan, New Delhi, for holding deliberations and networking, to pave the way for a cleaner and smarter economy.

The Smart Cities Mission was launched by Shri Narendra Modi, Hon’ble Prime Minister in 2015 to address the governance and infrastructure concerns of the growing urban population and to promote quality of life in cities. The Govt. of India has mandated that 80% of the buildings in the smart cities need to be energy-efficient with a ‘Green Building’ design and 10% of the Smart City’s energy requirement should come from solar energy. Indian Renewable Energy Development Agency Ltd. (IREDA) has an important role in achieving these objectives of the Smart Cities Mission and to make our cities zero polluting and self-sustainable.

IREDA under the administrative control of Ministry of New & Renewable Energy (MNRE) is the only dedicated institution for financing Renewable Energy (RE) & Energy Efficiency (EE) projects in India. Since, its inception the company has played a catalytic role in developing market for financing RE & EE projects. The activities undertaken by IREDA are akin to the activities of a Green Bank.

IREDA has over the years sanctioned loans to projects in Renewable Energy & Energy Efficiency sector aggregating to Rs. 92,062 crore, disbursed Rs. 59,180 crore and as such supported more than 16,365 MW of RE capacity in the country as on 11th March 2021.

Hon’ble Finance Minister, Smt. Nirmala Sitharaman in her budget speech 2021-22 announced equity infusion of Rs. 1,500 crore in IREDA. With the additional equity, IREDA would be able to extend additional loan facility of Rs. 12,000 crore. The additional equity will also help IREDA in borrowing at lower rate of interest, thus lowering the interest rates for developers. It would enable financing of around 4,500 MW of additional RE projects worth Rs. 18,000 to 19,000 crore. It will generate employment of 13,500 jobs per year and reduce emissions of 85.5 lakh tons of CO2.

IREDA in its expanded role and operations, will be happy to contribute in the Smart Cities Mission and looks forward to working together with other agencies in this regard.

I wish for the event to be a grand success.

DSNG and OB Vans to both private and public sectors. It is also amongst the few ISO/IEC 27001:2013 & ISO 9001:2015 certified company in the Broadcast Industry in India, dedicated to providing its customers with an uncompromising level of service and long-lasting support.

1. For Educational Institutions, Smart/Virtual Classroom and Web Studio Solution will serve as a perfect tool for making a profound and positive impact on the student’s learning curve. The solution offered by our company features professional-quality equipment and a digital video network for high-level video recording and transmission. Our solution in the field of educational programs has many possible uses, including Lecture Capture, Live Online Teaching, Streaming of Live or Recorded Content, Talk Shows, University Bulletins, In house or Outdoor Events & other AV Requirements.

2. These days meetings are being held over video conferencing platforms, conferences are going virtual and employee training is being provided via webinars. But unfortunately, there are not enough hardware platforms available in our country to support these software collaboration tools. VTI has taken a strong step ahead in this direction and has launched a new range of Video Conference PTZ Cameras and Speakerphones under the PROAV brand, with the latest wireless and USB Technology to support any software-based video conference and webcast platforms. These devices are ideal to be used in various environments, like meeting rooms, boardrooms, classrooms and studios.


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INNOCENT-007/21



SHRI DURGA SHANKER MISHRA, SECRETARY, MoHUA, SETS THE TONE AT THE CITY LEADER'S CONCLAVE ON DAY 2 OF THE 28TH CONVERGENCE INDIA AND 6TH SMART CITIES INDIA EXPO 2021



- Opening Session on 'Building Better Cities' witnessed pioneers and cross-domain experts on building resilient cities
- Launch of Knowledge Paper 'Road to Sustainable Smart Cities: Challenges, opportunities and emerging trends' at the Opening Session by KPMG in India
- Day-long City's Leaders Conclave included various City Administrators, including Smart City leaders from various Indian cities and several industry experts.

New Delhi, 25th March, 2021: After a successful day of in-person networking on day one of India's largest technology and infrastructure event - the 28th Convergence India and 6th Smart Cities India Expo 2021 - Day 2 marked the launch of the City Leader's Conclave, with the inaugural session on 'Building Better Cities.'

The Guest of Honour, Shri. Durga Shanker Mishra, IAS, Secretary, Ministry of Housing and Urban Affairs, Govt. of India, paid a tribute to the Late Shri. Prem Behl, Chairman & Managing Director, Exhibitions India Group, and



expressed appreciation for being part of the 6th Smart Cities India. He referred to the 6th Smart Cities India as the key platform for all technocrats, stakeholders, and city leaders to come forward and learn from each other and collaborate on the best practices they can highlight to build better cities.

Speaking on 'Building Better Cities' at the City Leader's Conclave, he said, "The first learning is that cities are for people, for its citizens, and not just for corporations and bureaucrats. Citizens have demonstrated that they can come together to think, aspire, benchmark, and create targets for what their city needs to do and what will be best for citizens. The main learning from Smart Cities is to identify how to get more from less and how to make cities more inclusive."

He further said, "There is no definition or specific explanation of Smart Cities. A Smart City is a city which is able to provide the best services to its citizens, in terms of

liveability, and one that can provide a conducive liveable environment, wherein citizens can realize their highest potential."

The conference session was graced by the presence of a stellar line-up of eminent speakers, including Mr. Nilachal Mishra, Partner and Head of Government Advisory, KPMG in India; Dr. O.P. Agarwal, CEO, WRI India; H.E. Andre Aranha Correa do Lago, Ambassador, Embassy of Brazil, and many more, who shared their vision and ideas.

Delivering the special address, Dr. O.P. Agarwal said, "Delhi's population is not just growing but leaping. The largest and biggest cities in the world are going to be in India. Cities do not just have to accommodate the growing population, but also have to facilitate the quadrupling of the population. There is no one else to learn from, but we will have to fight our own challenges."

Drawing a striking resemblance

between India and Brazil with regards to the similar challenges and perspectives, H.E. Mr. Andre Aranha Correa do Lago said, "Cities in India need to find their own answers, and with the wide diversity in India, each city needs its own solutions. The solutions for the cities in the north of India cannot solve the issues of the cities located in the south of the country."

The occasion was also marked by the launch of a Knowledge Paper by KPMG in India, titled – "Road to sustainable smart cities – Challenges, opportunities and emerging trends." This paper hopes to serve as a set of insights into the longer term nature of urbanization in India to help the various stakeholders introspect and prepare for the next generation of inclusive urban development programmes in India. It has attempted to evaluate the smart city programme across key aspects, ranging from simplified governance to complex

programme implementation. Elias George, Partner and Head – Infrastructure, Government and Healthcare (IGH), KPMG in India, said, "The knowledge paper findings reveal that, while considerable headway has been made in attaining the objectives of the programme, further interventions are required at the regulatory, policy & programme management and design levels. It is hoped that this document will be of practical use for the key actors involved in the smart cities programme, to critically evaluate its status across these domains, and to undertake further reforms and corrections as may be warranted."

The COVID-19 pandemic resulted in widespread turbulence across the world. As part of an emergency response to the pandemic, the Indian government leveraged the pioneering Smart Cities Mission (SCM) to enable cities to effectively leverage technology in improving citizen services and the overall quality of life. To deliberate on these challenges and the future roadmap of Smart Cities and learnings from them in India, various Smart City CEOs and other industry leaders gathered at the City Leader's Conclave. Some esteemed panelists include Dr. Charu Malhotra, PhD (IIT-D), Indian Institute of Public Administration; Dr. Garima Mittal, IAS, CEO, Faridabad Smart City; Mr. Aditya Singh, CEO, Bhopal Smart City Ltd.; Mr. Ashish Kumar, CEO, Jabalpur Smart City Ltd.; Mr. Gaurang Rathi, IAS, Varanasi Smart City; Ms. Jayati Singh, IAS, CEO, Gwalior Smart City Ltd.; Mr. Nitin Sangwan, IAS, Ahmedabad Municipal Corporation, and many more.

Hosted by India Trade Promotion Organisation (ITPO) and Exhibitions India Group (EIG), 28th Convergence India and the 6th Smart Cities India Expo 2021, scheduled from 24-26 March 2021 at Pragati Maidan, New Delhi, supports the Government's vision of transforming India into a digitally and sustainably empowered economy. Convergence India is at the forefront of India's digital revolution, while the Smart Cities India expo is a reflection of India's emerging modernization and development landscape. The combination of these two leading expos, supporting India's Digital & Smart Cities Missions, delivers an event to accelerate technological innovation, opening with key discourses on the growth of India's digital economy and enabling entrepreneurship as a driving force for socio-economic development.



IN CONVERSATION WITH



Harish Singh Negi
Founder, Pratikshat Solutions

Pratikshat Solutions (PSL) was formed with the sole purpose of providing affordable and high-quality solutions to its customers. Since its inception, in a span of 8 years, Pratikshat has delivered several prestigious and key projects not just across India but around the world.

PSL specialises in IoT, Smart City projects, Custom Application Development and IT Consultancy. With a dedicated team of developers, support, sales and service personnel and with more than 15 years of experience in the field, PSL comprises a talented and hardworking group of professionals.

Harish Singh Negi, the founder of Pratikshat Solutions, tells us what makes them one of the best companies to have emerged in the past decade.

How do you differentiate your company from the other players operating in the same segment?

Our primary focus has been on providing efficient, low cost and high-quality solutions. We try to achieve the same by building customised products to suit the requirements of the customers rather than going for readymade products.

How do you foresee the Indian market for your product profile?

IT has a vast scope in India. Under the present Government initiatives, the focus is on connecting everything digitally and bringing more accountability. The core of PSL is IT. We have evolved with the changing times over the years. Whether it is IoT devices or applications, we see a huge scope in the Indian market.

We provide end-to-end solutions, starting from the development and implementation to operations, maintenance and support.

What are Pratikshat's future expansion plans for India and international markets?

We are developing innovative new products for the Indian Railways, which, we believe, will be a revolutionary stance. We are also focusing on electric charging stations — a concept that is quite new in India and is yet to gain popularity and commercialisation. On the global level, our key targets have been the Middle East and East African countries.

What does the government need to do to expand the market and help penetrate overseas markets?

The Indian Government has taken several incredible initiatives for start-ups. However, their results are yet to be seen in the market. Tenders should be made available in such a way that new start-ups are also provided with a chance to participate. Start-ups have huge potential, but what they lack is the pre-requisite turnover,

which makes them ineligible for most Government tenders. The majority of the Government projects are won by big companies and not by start-ups.

What is your strategy to reach out to your customer base to position yourself as a credible organisation in their minds?

Our key strategy has been to place ourselves in the shoes of the customer, to understand their issues and demands. We want to provide solutions based on a comprehensive understanding of their problem. We strive to ensure that they get true value for their expectations. With customer satisfaction as our goal, we seek to prefer highly scalable solutions that can fit with business growth.

What are your key products based on IoT?

SLEM - Smart Lighting cum Energy Management

SLEM is a smart lighting-cum-energy management solution for enterprises. SLEM provides a levelled control with auto and manual mode feature. It provides real-time and analytical reporting too. SLEM helps to reduce

energy consumption and facilitating better energy management. Currently, the SLEM system is used by the Indian Railways (Northern Railway) at some of their stations.

DOWS - Displacement of OHE wire system

DOWS (displacement of wire system) is a Smart IOT device that provides information on OHE wire, both real-time and analytical report. It helps in finding out the issues with OHE wires. Thus, the authorities can be alerted in advance so that proper measures can be taken on time. It can be placed on Electrical LOCO, Tower Wagon, etc. The system is under the testing phase and is likely to be launched soon.

REGLER - Smart Controller

REGLER is a Smart IOT controller, which is useful for enterprises as well as individuals for the operation of almost all their electrical devices. It supports RF, Wi-Fi, Bluetooth and LAN-based communication network. One can control and monitor the device activity via mobile and desktop too.

Dexter - Environmental Sensor

Environmental conditions have a major impact on our well-being, comfort and productivity. DEXTER is a perfect solution for the study of environment-related activities across the city. This box consists of high-quality sensors that are used to measure various factors present in the environment or affect our surroundings so that further actions could be taken by the people or the government to keep our environment safe, clean and healthy. It includes monitoring environmental phenomena, such as weather and storms, volcanoes, air quality, agriculture systems, forest and ecological systems. Dexter is accurate and small, making its use very practical in remote areas where manual sampling is impossible. It is also ideal for microscopic applications.

VULPIX - ECB cum PAS

VULPIX is an efficient combination of Emergency Call Box (ECB) and Public Address System (PAS). It is a two-way audio-video communication system, and either one can be used as per the need. It blends the key features of both critical components into one mega-device, which provides a seamless, full-proof solution for any kind of emergency.



IN CONVERSATION WITH



P. Jayakumar
CEO - Toonz Media Group

Could you tell us about embracing new technologies/concepts in the aftermath of the pandemic? What are the innovations undertaken/implemented by the organisation?

The pandemic has essentially compelled all of us to think globally in every aspect. Even though physically we might be forced to stay put, from a practical point of view, it has brought the world closer through collaboration and technology.

From the business point of view, there is a lot more focus on technology integration, process efficiencies and reduction of lead times. Business organizations are now focusing on investing in business continuity plans, such as improving organizational agility and upskilling employees to meet the needs of a transformed work environment. For companies like us, in the entertainment industry, the need for remote collaborations for creative ideation has also never been so high.

At Toonz, our studios had to be shut for a while given the government and health protocols. We took up a massive asset transfer operation in response to the lockdown to shift the machines of our artists from the studios to their homes. We also had in place a well-

formulated Business Continuity Plan, so that we were prepared to meet any further unforeseen disruption. So far, we haven't had any major challenge concerning managing projects and meeting deadlines.

In terms of innovations undertaken by the organisation, Toonz Media Group came up with two new digital initiatives in the last year. One is in the area of content distribution and the other in the area of creative learning.

Toonz already has a very strong digital presence. We operate around 18 YouTube channels globally, with more than 15 million subscribers and a monthly viewership rate of 350 million. Besides this, we have also partnered with leading OTTs and video-on-demand platforms across the world for distributing our content. Content consumption patterns during the pandemic convinced us that this was the right time for us to launch an OTT of our own. Thus, at the beginning of 2021, we launched MyToonz, an exclusive OTT platform for kids and family entertainment. MyToonz includes a vast library of Toonz's original productions and co-productions, as well as licensed properties. All MyToonz programming is compliant with

international safety standards for child viewing. MyToonz library is also available on all the leading VoD platforms as well as mobile play stores, such as Samsung, LG, iOS, Android, Google Play, Roku, Apple, Amazon Fire TV and Airtel. We are positive that MyToonz will be a game-changer for Toonz and will essentially consolidate our position, as a top kids' content provider in the digital space.

We are also planning to launch an e-learning platform for creative learning soon. This initiative has come as a direct response to the prevailing circumstances, where e-learning has taken centre stage and has redefined education as we know it. It will be a highly agile online education platform that will carry over the legacy of our two-decade old Toonz Animation Academy, which is a pioneer in animation training in this part of the world.

What are some of the challenges & roadblocks faced by your industry today?

India has a thriving entertainment industry, catering to a huge audience in India and abroad, and employing millions of artists and technicians at different levels. The kids' entertainment industry, in particular, is also booming in our country, thanks to the growing focus on the role of leisure, play and entertainment activities on children's mental and physical development.

India has the largest youth population in the world and is therefore one of the biggest markets for kids' entertainment.

Despite these huge demographic advantages, we have not been able to fully leverage its benefits for the kids' entertainment industry in India.

The animation industry in India, in particular, has seen a meteoric rise in the past twenty years. However, India continues to be an outsourcing hub for animation, just like other IT and ITES industries. We have started making inroads in animation IP creation in the last few years. Still, only a handful of major animation studios in this country have taken that road so far. International clients continue to use India as an outsourcing hub, but we are losing out a large portion of new work generated to competitive industries in countries like Canada, Russia, etc. These countries have a conducive tax and business environment that is being fiercely promoted by the governments.

There are various other issues as well affecting the Indian entertainment industry in general, like piracy, lack of uniform media policy for foreign investment, content regulation, price regulation, cross-media ownership rules and lack of empowered regulators.

Policy advocacy for your sector

Given that the majority of the future jobs in the AI era will demand a combination of technology and creative skills, the Animation, Visual effects and Gaming and Comics (AVGC) sector is critical to India's media and entertainment industry growth. The Government of India has already rolled out a series of programmes to promote training





and skill development in the area of animation, gaming and emerging technologies like Augment Reality and Virtual Reality. The Ministry of Information and Broadcasting has also started drafting a national AVGC policy.

Beyond this, providing labour specific tax incentives to make the industry more competitive globally can go a long way in attracting foreign investment and boosting international business collaborations in this sector.

Some countries like France have a localisation policy, where a percentage of content aired on TV should be locally produced and a similar policy in India can provide a further boost for the domestic AVGC industry. SEZs (special economic zones) for animation and gaming, developing centres of excellence in this area, etc. could also be part of our policy formulation.

How can your solutions/ technologies/ideologies be leveraged for a better tomorrow?

The core purpose of Toonz is to entertain the world. We want to bring smiles to kids and families and create content that kids will watch, enjoy and cherish. In the

last one year, content consumption, in general, has skyrocketed. The demand for kids content has also never been so pressing before. With kids all over the world staying home, there has been an urgent need to keep them positively engaged. Content is now being seen as a source of not just entertainment but also education and inspiration.

There is a lot of emphasis currently on edutainment, particularly in the area of social and emotional learning. This is one area that kids completely missed out on during lockdown, with schools remaining shut. Peer group interaction, as you know, is very important for kids, especially smaller kids. So there is a lot of demand for content that focuses on this. There is also a lot of demand for interactive, immersive and gamified content that can propel kids to involve in some kind of activity. This kind of non-linear story-telling, that infuses exploration, gaming or problem solving into the storyline is particularly suited for VOD platforms. The pandemic has also interestingly created a lot of interest in content suitable for co-viewing - programming that the whole family can sit together and enjoy.



Our content development strategy is propelled by such international trends. But in general, the overall focus for Toonz remains, as always, on creating value-oriented shows with a global appeal. Shows that have multi-cultural characters and universal values. In the

last one year, Toonz Animation produced 5000 minutes of 2D and 3000 minutes of 3D animation content. We have in our pipeline several exciting projects. And we are proud to say that all of them have extremely diverse and relevant content that uphold universal values.

STREANN MEDIA: CAPTURE. PLAY. MONETIZE

EXHIBITOR CORNER

With +100 innovative features, this technology company is changing the way people enjoy content worldwide. In an unprecedented era of digital disruption, Streann brings to India its multi-platform versatility to empower content providers to bring stunning experiences in all formats and devices.

After being recognised as the best platform of the year at the prestigious NAB Show in Ve-gas, Streann has consolidated its position as an industry leader for helping content providers distribute, engage, and monetize content.

Streann’s integrated solution has proved to be a great fit for challenging clients, such as NBC, Disney Radio, CurdledTV in the United States, as well as for clients in India, like Krayon OTT and HiFlix.

These are the top three innovations that Streann will present at this year’s Expo:

1 The latest innovations in digital advertising. If you want to launch your Advertising-supported Video on Demand, Streann’s robust platform converts your content library into a money-making machine, through unique data and monetization features.

2 Streann will be presenting the latest engagement tools, including chat, polls,



About Us

Streann Media® is the most innovative and interactive OTT streaming platform in the world. With Streann, content providers can build the next Netflix or Spotify, with more than 100 proprietary features for distribution, engagement and market-first monetisation technologies. Established in 2014 in Miami, Florida, the company has earned several industry awards, ow-ing to its user-friendly and all-in-one solution and its presence in 141 countries.

games, and user-generated content features for content providers.

3 Our new turnkey Direct-To-Consumer Solution (D2C) is a smart way to quickly and cost-effectively build, launch, and manage, a world-class OTT experience in less than 30 days.

Streann looks at the future of content like no one else. Its user experience and monetization platforms allow media companies to take a huge leap in technology.

“We are thrilled to be participating at the Convergence India Expo, as it is a huge step that positions us as leaders in media innovation. We are honoured and determined to keep pushing the boundaries of the industry further,” commented Gio Punzo, CEO, Streann Media.

TELECOM SECTOR SKILL COUNCIL

INDUSTRY SPOTLIGHT

Telecom Sector Skill Council (TSSC India) is a Non-Profit Organization, registered under the Societies Registration Act, 1860. They are an industry-led apex body, jointly set up by the Cellular Operators Association of India (COAI), Indian Cellular and Electronics Association (ICEA), and National Skill Development Corporation (NSDC), to ensure adequate availability of skilled manpower to boost growth and productivity in the Telecom sector. The Indian Telecom sector has emerged as one of the greatest economic success stories, registering a consistent overall growth rate of more than 35% over the past decade in terms of subscribers. India is fast becoming a manufacturing hub for the Telecom infrastructure equipment.

With m-governance, m-commerce, m-education, m-gaming, m2m communications & many such new innovations, telecom will increasingly permeate the lives of common Indians. The Indian

Telecom success story would continue with 5G networks and smartphones, besides focusing on the under-penetrated rural markets. This dynamic sector, employs close to 2.8 million people directly, and almost another 7 million indirectly, making it one of the largest employment generating sectors in the country. At the current rate of growth, it has the potential to generate almost an equal number of job opportunities over the next ten years. This gave rise to the need for an organization to lead skill development and chart the human resource requirement in the telecom sector value chain. TSSC endeavours to create a human resource pool of the right size & quality to meet the evolving demands

of the telecom industry. TSSC has laid a very strong foundation of reliable certifications of trained and skill manpower. The council has started designing high-end courses such as Cybersecurity, IoT, AI, AR/ VR, Drone Technologies, Application Development, Big Data, 5G and Blockchain for academia to fulfil the emerging requirements of the telecom industry. TSSC has partnered with key stakeholders to strengthen the quality of training programs and assessments to help provide better placement opportunities for candidates. TSSC has been designing a curriculum related to drone technology. However, a skill gaps still exist among the workforce, and different modules have been worked on by the council to reduce

in association with training partners having capability to bring expertise in skilling the youth, has been in motion. These centres will help in skilling on new technologies, innovations incubation, entrepreneurship & manufacturing. TSSC intends to set up a Centre of Excellence with an objective for quality teaching, training, and advisory services in the field of telecom to cater to the new challenges in telecom sector. TSSC, with the Centre of Excellence, aims to promote skill development by enhancing human capital through training programmes for all stakeholders in the sector which may include policy makers, regulators, students and the industry. The first initiative in this direction was to train the trainers who would later train the beginners, and build the human capital required in the development of telecom sector. TSSC would empanel such exclusive partners across the country, which would help expand to each corner of the country and replicate best practices. These centres would also be supported by an array of TSSC’s other centres/partners.



the skill gap for the youth to become skilled and get employed. In alignment with the vision of Skill India Mission, opening of Centre of Excellence,

SOLVING COMMUNICATION ISSUES FOR ENTERPRISES

EXHIBITOR CORNER



***astTECS – Pioneering Unified Communication with Open Source**
The Global Unified Communication and Collaboration (UCC) has taken on a whole new meaning and significance with the recent outbreak of the pandemic. The impact of the pandemic has

forced businesses to adopt remote working on a global scale, leading many companies to embrace the Work-from-Home policy. This transition has led to a massive increase in the demand for cloud communication solutions to ensure business continuity through transparency and collaboration.

With a strong focus on understanding customer needs and delivering world-class communication solutions, the *astTECS team constantly innovates and works on technologies that can deliver new features and service models, which can leverage communication resources to maximise sales and staff productivity.

‘The Pandemic has accelerated the growth in the direction of the cloud for Telecom solutions. *astTECS has reworked most of its products to suit the cloud infrastructure during this period.’ – **Dr Devasia Kurian, CEO, *astTECS**

*astTECS integrated portfolio of cloud communication solutions deliver seamless connectivity, security and automation, which results in improved customer engagement and efficiency, augmented employee productivity, accelerated deliveries, reduced costs and higher revenue potential.

***astTECS Cloud Solution**

*astTECS Cloud-based Contact Center Solution is a robust platform for all sizes of businesses built on Open-Source Asterisk Technology. Our cloud solution is the best omnichannel solution with a work from home option, and all advanced call centre features to help clients enhance customer experience and improve ROI.

*astTECS cloud solutions can be set up in a few hours, without any hassle, and only with a mobile phone, a PC and an internet connection. It is easily scalable, customisable and manageable even for remote or distributed workers. It can operate with a nationwide single number and domestic calling with PSTN. The solution can be integrated with any third-party software and has advanced analytics and reporting tools.

*astTECS cloud solution has various product models to suit every business size:

- a) *astDial is an App-based Mobile Call Center Solution, perfectly suitable for start-ups, small businesses and call centres. It only requires a mobile phone, a sim card, and an internet connection for the setup. It enables an agent to operate from anywhere.
- b) *astDial Plus is an advanced Mobile Call Center Solution, which requires only a mobile phone, a sim card, and an internet connection to be set up. It has an inbuilt CRM, best suited for small call centres and businesses with more than 10 agents.



- c) *astTECS VICI Dial Cloud Solutions is a complete Call Center Solution, which can be operated from the office or home. All it needs is a mobile phone/landline/PC and an internet connection, which makes it apt for businesses and call centres with more than 20 agents.
- d) *astMonitor is the world’s first VICIdial Agent Monitoring Android-based application. Call centre agents can now be monitored by a simple lightweight application. It takes less than 5 minutes to be set up and can be easily downloaded and installed free of cost from the Play Store.

***astDial Reception**

*astDial reception is a cloud solution that enables management of inbound calls from anywhere and at any time with a smartphone. When a customer calls a dedicated number, it is forwarded to registered mobile numbers of agents, allowing them to receive the calls from any location. The solution also has an IVR to receive calls, which are then routed to a concerned department. The solution ensures 24/7 services and reduces any chances of any missed business calls, for the admin is notified of any missed call and a call back is arranged instantly. It eliminates the requirement of one’s physical presence in the office to receive any business calls or hotel bookings. The solution also provides features for recording, reporting, SMS and email notification for receiving privileged customer service.

***astTECS**

Make Calls directly from your CRM, Helpdesk Application or any web page with *astTECS Click to Call

FREE OF COST on Asterisk PBX

Install extension from Chrome Web store
Install extension from Firefox Browser ADD-ONS

www.asttecs.com

***astTECS Click to Call Extension**

*astTECS Click to Call Web extension provides an extended feature to the existing phone system by allowing users to dial numbers visible on the browser with a single click. With the extension, the team can perform outbound calls to numbers present on multiple platforms such as CRM, Help Desk, Google Sheets or any web page just with a click. It eliminates the process of manually dialling a number and, in turn, reduces dialling errors and saves time. The *astTECS Click To Call Web Extension is available on the Chrome Web Store and Mozilla Add-Ons, and it can also be installed on Google Chrome, Mozilla Firefox and Microsoft Edge browser. The *astTECS Click to Call browser extension works well with Asterisk PBX running as the communication server software and can be installed free of cost.

***astDictate**

*astDictate is a solution that allows one to dictate each phone call and track the phone record. It can record, replay, edit and manage files by pressing numbers on your telephone keypad. When the recording is completed and saved, *astDictate will send the voice files automatically to the team for transcription. *astDictate is an ideal solution for anyone who needs to remotely record dictations like Medical practitioners, legal professionals and other businesses. It is easy to operate for day-to-day use and supports a flexible recording format – GSM, WAV, etc. It supports all traditional PSTN lines/PRI, GSM and VoIP, where recordings are saved and can be retrieved at a later date for amendments.

INTRODUCING WORLD’S MOST SOUGHT OUT ECO-FRIENDLY PRODUCTS

EXHIBITOR CORNER



SARC Projects Pvt Ltd has been established and running for the last 6 years since 2015. It is a start-up company in line with the idea of ‘Make in India’. SARC has a head office in Gurugram, Haryana, along with 6 circle offices to control pan-India operations.

We are proud to introduce ourselves as one of the leading companies for Telecom, Supply of Transmission Rack with AC & DC aircon, all types of IP-55, 65 & 66 Cabinets for telecom, all sizes of DCDB, AC for Data Centre and other cooling projects. We have the pleasure of introducing the world’s most sought-out eco-friendly products and air vent/solar/telecom/PEB Projects in India. Being one of the leading companies of globally acclaimed ventilators and solar power in our country, we are equipped with the latest machinery and equipment and have indigenously developed and manufactured these products under stringent quality checks at every stage of production to give products the best performance standards. We have in-house manufacturing capabilities and outsourcing to complete almost all types of sheet metal cutting dies and allied products. We offer high-tech in-house manufacturing and services at our factory.

In its endeavour towards Total Quality Management, the company regularly updates its Quality Systems and is proud to be an ISO 9001: 2015 & MSME certified company. SARC also offer operations & maintenance of outdoor sites, Optical Fiber for Copper to FTTH/FTTX, Installation & Dismantle of BTS, Microwave, AMC of AC, DG and Tower maintenance throughout India.

Needless to say, SARC is one of the companies today to have a dedicated team of research, design, production, marketing and installation professionals to offer the best products both in terms of quality and performance. Our after-sales service team further guarantees total customer satisfaction for life.

With all the above credentials, we are confident to satisfy all your exhaustion-related requirements by offering high-quality solutions and services.

PV PORT & STORE – FUTURE OF PORTABLE SOLAR ENERGY IN INDIA

EXHIBITOR CORNER

Despite the fact that it seems improbable to achieve the target of 40GW solar capacity from grid-connected rooftop solar by 2022, we have seen tremendous growth in solar rooftop projects due to growing awareness among residential, commercial and industrial consumers in India. In addition to it, the government of India & MNRE have launched 'Phase-II' of grid-connected rooftop solar projects under which CFA (Central Financial Assistance) will be provided for residential consumers. And for the implementation of Phase-II, DISCOM & its local offices are appointed as nodal points for the ease of process for residential consumers.

In recent times, because of the reduced cost of solar projects, we have witnessed an increase in the acceptance of solar energy among end consumers. It has always been a topic of discussion that a net-metering system without battery a bank is more cost-efficient than a system with a battery bank, but this situation is now changing with the reduction in battery costs. If we take the ideal situation, a net-metering system without storage capacity supports the loads in day time only when there is ample sunlight available, but during the night when there is no sunlight, consumers have to switch to grid supply. As a result, consumers are not able to enjoy the full benefits of owning a solar system. But in the case of a system with storage provision, the consumer not only can run their loads using solar

energy during the day time but also store enough energy, which can be used to support the loads during the night time, resulting in a reduced dependency on grid supply and making the system more beneficial.

A solar system with energy storage provision provides several extra benefits to residential consumers, such as availability of clean and reliable power, non-dependency on grid supply and availability of backup power in case of power cuts, etc. Thus, the government is now focusing more on development & implementing a storage-based system to support the demand for electricity in the country.

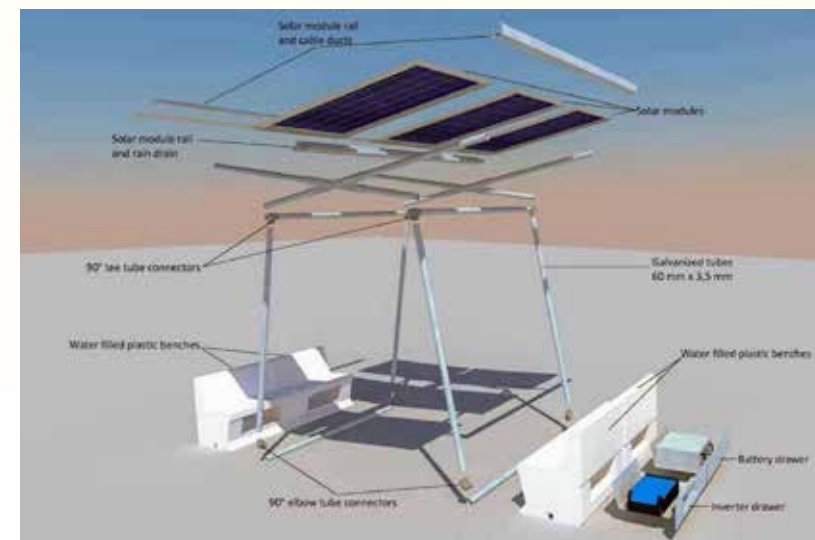
In this regard, Servotech Power Systems Limited is always committed to providing cost-efficient, reliable and

environment-friendly solutions to its customers. We have understood the need for an energy-storage-based system, and to support residential consumers, we have partnered with German Development Cooperation Agency (GIZ) for the development and implementation of the PV Port and Store, which is an ideal product for residential consumers to enjoy the benefits of solar energy. The PV-Port is developed and manufactured by Servotech in India, under the supervision of German Engineers, and meets all global standards and technical requirement of CEA, MNRE and DISCOMS.

The PV Port & Store is the future of portable Solar solution in India. It is a standard plug-n-play grid-interactive photovoltaic

'THE PV PORT IS EXPECTED TO BE MARKETING MAINLY TO RESIDENTIAL CUSTOMERS. THIS PRODUCT HAS ALREADY BEEN DISTRIBUTED TO A VARIETY OF HOUSEHOLDS AND GOVERNMENT OFFICES THROUGHOUT THE COUNTRY, AND THE COMPANY IS NOW RAMPING UP ITS PRODUCTION AS DEMAND INCREASED FOR STORAGE-BASED PV SOLUTIONS INCREASES. THIS WILL NOT ONLY ASSIST RESIDENTIAL CUSTOMERS IN ADOPTING SOLAR POWER BUT ALSO THE GOVERNMENT IN ACHIEVING ITS 40GW GOAL.'

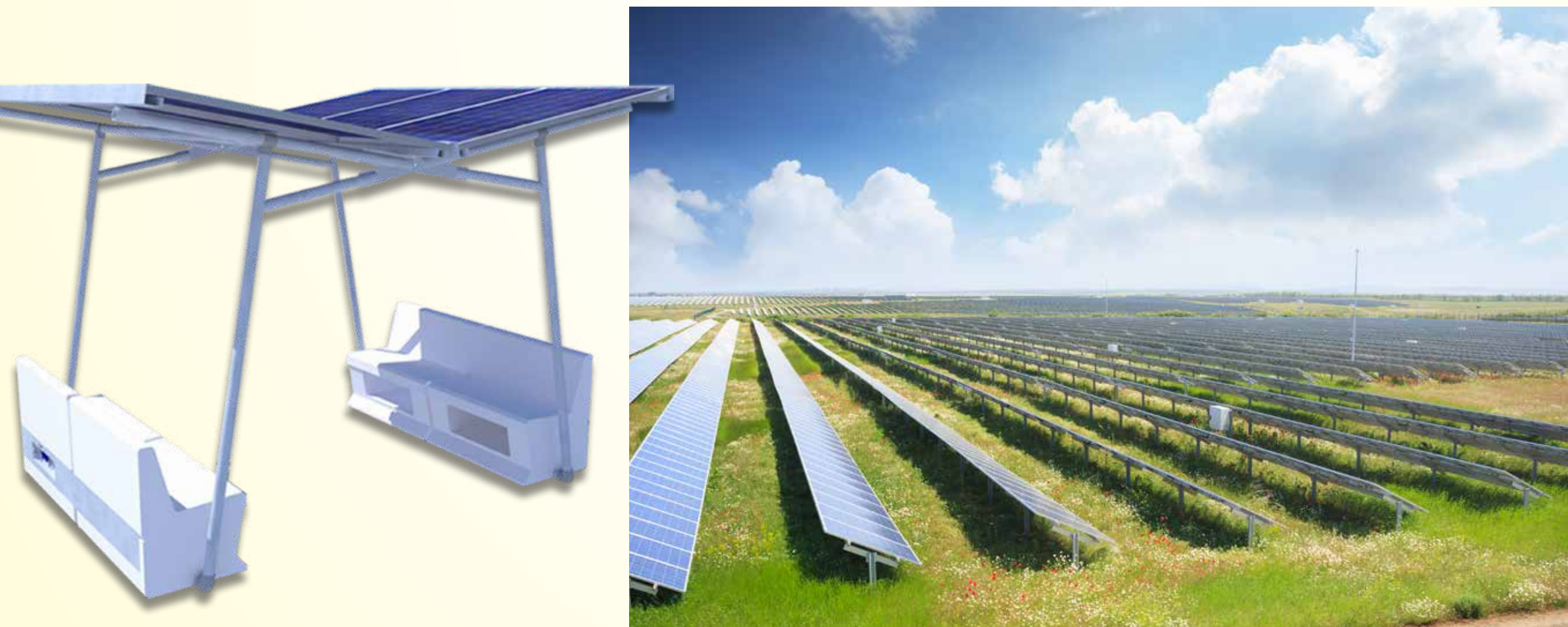
MR RAMAN BHATIA, MANAGING DIRECTOR, SERVOTECH POWER SYSTEMS LTD.



over quality and price, lengthy processes for net metering, roof rights (tenant vs landlord), alternative usage of roofs, operation and maintenance. The PV Port & Store has many additional features when compared to the existing rooftop solar system. It comes with a sprinkler system, which can be used to sprinkle water (in automatic/manual mode) to clean the solar panels. The system is also designed to offer a reminder to the consumer on a weekly basis to clean the system. It also has two rotomoulded benches, one containing all the electronics, i.e., inverter & batteries in a cavity (pre-assembled from the factory), which is surrounded by water, and the other bench has cavities to offer room for installation of batteries, with potential future capacity increase. The water in both benches is filled on-site, allowing easy transport of the system. The PV Port & Store offers several benefits to its users, such as Cost Saving (save electricity expenses up to 50%), Low Maintenance, Reduces Carbon Footprints, Longer Shelf Life and Subsidy Support from DISCOM.

In conclusion, The PV Port & Store is an ideal product for residential consumers, considering Indian climatic conditions. It is a futuristic design, which has the capability to interact with the DISCOMs network and whenever required, it will be able to support the DISCOM by pumping power stored in the batteries back into the grid (it can be enabled remotely upon request and depend on DISCOM policy).

system with a system size of 2 kWp and battery storage designed for 100% self-consumption. The PV Port & Store is a standardised, portable 2 to 2.5 kWp PV system with electrical storage (lead-acid and Li-ion batteries), which is to be mass-produced for residential applications (UPS and AC load). The electrical storage will vary in capacity, depending upon the application – ranging from 1 kWh lead-acid to 4.8 kWh Li-ion. It is a Plug-n-play and portable system, and its AC output can be directly injected into any AC socket at the household circuit level. Thus, the installation of the PV Port system can be done by homeowners themselves or by local electricians. The system can be installed anywhere, i.e., roof, parks, malls and other public places. It is designed and developed to support residential consumers to adopt solar energy and overcome several hurdles, such as selection of a reliable installer, concerns



ITI LIMITED

EXHIBITOR CORNER



28th Convergence India Expo commenced with its grand inaugural ceremony and a well-thought series of conferences on 24th March 2021. ITI Limited (a Govt. of India Undertaking) has also participated with a complete in-house state-of-art product line on display, which was well-received by all the visitors from all walks of life. Shri P D Vaghela, IAS, Chairman TRAI had kindly consented to be the Guest of Honor and inaugurated ITI Limited stall and appreciated various products manufactured by the ITI Limited. Shri Ravikant, Principal Advisor, Brig. Mukesh Bansal (Retd.), General Manager MSP NZ, and Brig. B C Sharma (Retd.), General Manager R & D, were in attendance.



LAST MILE CONNECTIVITY AND INTERNET EXCHANGES CRITICAL TO RUN THE INTERNET EFFICIENTLY



Raunak Maheshwari
Executive Director, Extreme Labs

INDUSTRY SPOTLIGHT

With life and businesses being disrupted due to the ongoing pandemic, access to the Internet has become a basic necessity. The use of the internet has pervaded all aspects of our lives, including personal communications, social connect, entertainment, education, digital assistants, payments and much more, due to which the availability of the Internet has now become a necessity. Given

the limitations of mobile data, it is imperative to identify the kinds of network services that are required for seamless and ubiquitous internet access.

Time and again, countries with well-developed Internet services like Japan, South Korea, the USA, Europe and Latin America have shown us how both mobile data and cable broadband form important parts of the digital ecosystem. In a country like India where a good chunk of the population comprises youngsters of less than 35 years of age, what we need is active and integrated efforts from both the government and industry.

The lack of an online service ecosystem and an increase in the usage of mobile data and fixed broadband did not help the matter. Although the adoption of fixed broadband picked up pace in the last decade, it really gained momentum during the pandemic. With an increased broadband demand, it has become necessary to address the challenges cropping up in other parts of the economy. First and foremost, the last-mile connectivity other than co-axial cable in rural, semi-rural

and small towns have been non-existent, and in tier-II towns, only a small percentage of the last mile is geared for high capacity.

Now, more than ever, there is a need for wireline providers to heavily invest in FTTH to re-move bottlenecks and for telecom companies to invest in increasing capacities to meet the connectivity demand of wireline broadband, which gives rise to huge requirements of neutral and critical infrastructures like data centres, Internet Exchanges, etc.

Internet Exchange is basically a neutral local network where a carrier, ISP or network operator connect and exchange traffic. It plays an important role in democratising access to content for ISPs of all sizes. Since they provide the cheapest path, networks ensure that their configuration gives priority to traffic and Internet Exchange.

Even though NIXI was established in 2003 to set up Internet Exchanges across the country and improve connectivity, it has been largely unsuccessful in its efforts to enable wireline broadband. Until recently, its participants were still charged for

the difference in data download and upload apart from port charges, and non-ISPs were not even allowed to participate. This changed with the entry of private players in 2013, but it was limited to one city and one data centre. Private players started Internet Exchanges in 2013, where initially they were based in one data centre in Mumbai. In early 2016, Internet Exchanges started making it easier for ISPs to connect with multiple DCs from one city and replicating the model in multiple cities. This led to the fast-paced growth of the traffic from the Internet Exchanges that were committed to open operations in multiple cities.

The government can play its role in the last-mile connectivity by opting for a fresh look at the regulations. Though the National Digital Communications Policy of 2018 is ambitious and looks forward to seeing India emerge as a hub for cloud and content, the removal of AGR will further reduce costs and make wireline Internet more affordable. Also, the removal of entry fees from VNO licenses will boost the participation of alternative wireline and service providers to get involved and compete with the stalwarts. These regulatory reforms will provide India with the much-needed push towards the growth of wireline broadband, enabling seamless access to the internet.

SUSTAINABLE DRINKING WATER MANAGEMENT FOR SMART CITIES AND PUBLIC PLACES BY OASIS

EXHIBITOR CORNER

Say no to one time use plastic, Drinking Water Fountains have become very popular over the last decade and everyday people are realizing the health benefits a fountain can have. Simply placing your water bottle in the alcove on the fountain gives you full access to purified water that is beneficial to your health. Water is the healthiest substance and clean drinking water provides an alternative to sugary sodas.

Drinking fountains are first and foremost a matter of convenience. They are a perfect for any environment where it is at public place, school, gym, hospitals and parks. The machines are ideal, compact and suitable for space conscious environments. The machines are easy to use at public places.

Drinking fountains provide a greener option to the litter that is caused by plastic water bottles. Thousands of plastic bottles are thrown away every day in the ocean and can be mistaken as food by birds and fish. This can result in them dying from ingesting plastic.

Today Oasis Drinking Water Fountains are making drinking water accessible to the able bodied, wheelchair users and children alike in 40 states in our country. A decade long persistent effort by Oasis on the merits of adopting safe, hygienic, sustainable drinking water practices, drinking water fountains have been widely accepted in airports, metro stations, shopping malls, fitness centres, multiplexes, hospitals, petrol pumps, IT campuses, corporate houses, museums, places of worship and public parks. Oasis products are compliant with international certifications such as NFS, ADA, UL, Water Quality Association, GRIHA which prove their versatility and acceptance across all markets and conditions across the globe. Oasis drinking water fountain which save water by 50%, real time cooling and R600a Gas save energy by 30% as general technologies in market. Oasis follow international guideline for drinking water management.



Show Case for Expo

Drinking water management at Smart Bus Station and park: - Oasis is committed for water management at public place. Here in Smart city expo, Oasis is presenting smart bus station which is having multiple basic need required these days. That makes bus shelter convenient and user friendly.

Bus stations have access to water for filling and drinking, which is accessible for differently abled, so we kept the accessible India campaign in mind. Apart from Drinking water amenities Oasis Bus station is having mobile/ Laptop charging station. As water is essential for good health and Oasis is taking care hydration at public place and keeping environment free from one time use plastic for greener approach to environment, so we are adding one more healthy habit by providing bicycle on rent for roaming locally. Hope this approach of Oasis will support one step towards green environment. All the cooling/charging /lights, energy will be from solar system planted on bus station.

We are presenting drinking station with sitting arrangement

for public parts as well, Hope this will help to reduce the once time plastic from environment, while we took similar approach towards water conservation and energy conservation at this level as well.

USP of the Bus Stations

- 1 Save water
- 2 Sustainable energy through Solar Panel

- 3 Promote Re-filling of bottle water concept
- 4 Charging point for mobile and laptop
- 5 City map
- 6 Dustbin
- 7 Smart cycle with charging port in bus shelter
- 8 LED Display
- 9 CCTV and WIFI accessibility.

LDRA – LEADING THE WAY IN SOFTWARE TESTING SINCE 1975

EXHIBITOR CORNER

LDR was inception in 1975 by Prof. Michael Hennell in the UK, and we started to operate in India by 2010. When it comes to embedded software testing, verification and validation, LDRA is the trust-ed partner across the entire safety, security and mission-critical embedded ecosystem.

LDRA is a pioneer in providing embedded software test and analysis tools with advisory services that enable customers to achieve compliance with international safety and security process standards. We intend to bring in a culture of practising safe and secure embedded software development from the concept phase to deployment across transport, defence, industrial, semiconductor, energy and medical market segments. We are backed by a robust technical workforce, products and specialised services to exceed the expectations of customers and of all other stakeholders, thereby building a safe and secure environment.

LDRA, as a company, practices the culture of 'giving back to society'. And we follow this culture with our efforts and active contribution to global and national standards of development, research and innovation. In fact, LCSAJ (Linear Code Sequence & Jump), the famous software analysis method used to identify structural units in code under test, was devised by LDRA's founder Prof. Michael Hennell. We also have a strong pedigree of representing various standard committees, such as MISRA C, MISRA C++, ISO 26262, and DO-178C, including national committees such as BIS TED 14 and TED 28.

While India is becoming the centre of innovation and product



development, the majority of the global companies are gradually shifting their R&D and product developments to our country. Backed with a talent pool, strong Intellectual Protection laws and government initiatives and policies, such as Make in India, Digital India and Atmnrirbhar Bharat, India is all set to be the heart of the global product development scenario.

Adopting international industry standards and awareness programs to develop world-class products is the key to helping manufacturers cater to global markets. Indian companies should be encouraged to develop products keeping international markets in mind. Otherwise, very soon Safety and Security-conscious clients would prefer foreign brands over Indian brands. A lot of focus is given to strengthen the Bureau of Indian Standards (BIS), our national standards body, and more efforts are required to build indigenous product certification capabilities, conforming to the global standards.

We are focusing on three areas at Embedded Tech Expo 2021: People, Process and Product.

People: We aim to upskill people by providing affordable and high-quality technical training on:

- Coding Standards (MISRA, CERT)

- Secure Coding in C
- Standards – ISO 26262, DO-178C, ARP 4761/4754A
- 360° Requirements Traceability
- Fundamentals of Software Test, V&V
- Object Code Verification

Process: The aim is to support companies in their journey towards certification by providing advisory services such as Risk/Safety Assessment, Gap Analysis and much more.

Product: We are demonstrating LDRA's software testing, verification and validation capabilities that will help software designers to comply with international standards, such as ISO 26262 (Automotive), IEC 62304 (Medical), DO-178C (Avionics), IEEE 12207 (Space), IEC 60880 (Nuclear), IEC 60730 (Consumer Electronics), EN 50128 (Railways) and IEC 62443-4-1 (Security). LDRA tools also support achieving compliance with software coding standards such as MISRA C/C++/AC, HIS, CERT C/C++/JAVA, AUTOSAR C++, JSF++ AV, HIC++ and provide a platform to customise coding standard.

Our technical capabilities include 360° Requirements Traceability, Object Code Verification, Static & Dynamic Analysis, Unit/System/Integration Testing, Target Testing for Embedded Systems, Data Flow & Control Flow Analysis, Code Review, Quality Review, Design Review and much more.

LDRA tools and solutions are utilised by almost all prestigious armed and space projects across India. As an industry leader, we are a part of major indigenous programs, including fighter jets, UAVs, missiles, underwater technology, network-centric warfare, SDRs, onboard

communication systems and RADARs armoured vehicles, rifles, space and nuclear programs.

Other prominent works involving the private sector include:

- Automotive Electrical Systems – Vehicle Tracking System (VTS), Battery Management System (BMS), infotainment, connected cars & Digital Cockpit Systems (DCS), etc.
- Medical Devices – anaesthetic monitors, infusion pumps, smart infusion monitors, etc.
- Industrial Systems – energy meters, electric metering, HVAC systems and controls, etc.
- Semiconductors – compiler libraries, device drivers, boot loaders, ECU modules, etc.
- And elsewhere – fingerprint identification systems, electronic voting machines, railway signalling, banking systems (currency processing/counting), etc.

We recommend that every embedded tech company must follow key software considerations as the first step towards global certification, followed by a continuous focus on a standards-based design & development approach.

- NIST Cybersecurity Framework
- NIST Framework for Improving Critical Infrastructure Cybersecurity
- Top 10 Secure Coding Best Practices by SEI CERT
- NASA's Power of 10: Rules for Developing Safety Critical Code
- Microsoft's Security Development Life Cycle
- CWE's Top 25 Most Dangerous Software Weaknesses
- IEEE's Avoiding the Top 10 Software Security Design Flaws
- NIST 8151: Dramatically Reducing Software Vulnerabilities

'EMBEDDED TECH EXPO HAS BEEN ONE OF THE PIONEER SHOWS FOR ENGAGING END-TO-END STAKEHOLDERS OF EMBEDDED PRODUCT DEVELOPMENT. PARTICIPATING AT THE SHOW IS A PART OF OUR CONTINUOUS EFFORT IN CREATING INCREASED AWARENESS FOR BUILDING SAFE AND SECURE PRODUCT DEVELOPMENT ACROSS MULTIPLE INDUSTRIES'

HIMALYA BANSAL, BUSINESS DEVELOPMENT MANAGER, LDRA INDIA

NAPINO DIGITAL SOLUTIONS: IDEATION TO VALUE GENERATION

INDUSTRY SPOTLIGHT

The Indian government recently approved a PLI (Production Linked Incentive) scheme to support domestic manufacturers operating in 10 key sectors, including the electronics manufacturing sector. The funding is intended to help make India more competitive on a global scale, but ultimately it also helps manufacturing companies advance and maintains the services they offer to their OEM customers. Electronic OEMs focus on selling high-quality products in high volume at a competitive price and on time, but there are many stages in the supply chain that can derail that objective. The robustness of your supply chain is just as important as the quality of your manufacturing facilities, test processes and quality assurance procedures. All these aspects need to be finely tuned to produce high-quality products and respond to changes in demand. In recent times, brands by choice want to focus more on branding, sales and market requirement mapping while letting experts work on technical concepts, prototyping and rollout of fully tested and validated products. This is where a design and manufacturing partner like Napino, a truly global ODM, can help bridge the gap.

Napino that started with a humble beginning in 1997 is now India's leading Electronics System Design and Manufacturing company (ESDM), with a production volume of 20+ Mn units, an annual turnover of USD 200+ Mn and a strong 7000+ workforce. Our portfolio includes 25+ IoT products in-vehicle telematics, cameras, smart speakers, location and environmental trackers, wearable devices, modular IoT gateways and access products for media and telecommunications. Additionally,



we have a wide range of offerings in the automotive and EV segments. We cater to several IoT product companies and tier-1 automotive companies across India, the USA and Europe. Napino's vast manufacturing setup is spread across 7 manufacturing facilities, consisting of state of the art SMT assembly machines, 3D AOI machines, Class 100,000 clean rooms and antistatic workstations. Napino runs in a total of 12 SMT lines and 14 assembly lines with environmental and highly accelerated stress-testing chambers to ensure quality and certification for products, which must meet specific standards for automotive, industrial, telecommunication and medical applications.

Napino launched a new division – Napino Digital Solutions (NDS) – in 2020, with the vision to support customers in their digital transformation journey. Digital transformation means using technology to change the way we do just about anything. At a business level, it means capturing information concerning everything we do and turning that information into actionable insights, which results in improving

quality, saving costs and driving sales, along with other measurable impacts. To carry out digital transformation, you need sensors, gateways and other hardware to capture information from the environment using IoT technology stack. Napino is focused on delivering not only high quality and cost-competitive designs but also support mass manufacturing, testing, validation and certifications. In addition to best-in-class tools and equipment, it also leverages software, such as the manufacturing execution system (MES), which brings together all key elements, a smart supply chain with smart services and smart innovation to deliver smart products.

NDS is launching two innovative products in March 2021.

Smart Tags leverages Bluetooth Low Energy (BLE 5.0) – the fastest growing technology for IoT devices. The primary application of the BLE Tag is to provide commercial advertisements and indoor location-based services. This device contains an RGB LED that flashes to showcase battery level and generates real-time notifications. The transmission power range of the tag is up to +8dBm and the soft-packed Li-Po battery can last up to 2 years. A tag can also act as a beacon sensor or a tracker and find application in smart workplaces, asset tracking, attendance management, indoor positioning, people counting, etc.

Intelligent Edge Gateway supports multiple connectivity standards, including Bluetooth Low Energy (BLE 5.0), Wi-Fi and Ethernet. This gateway operates on DC power with

onboard storage and communicates over standard MQTT protocol. The gateway captures the data from any designated BLE devices and uploads it to a cloud platform or a remote server, using standard Wi-Fi/Ethernet connectivity. Gateway finds applications in multiple industries and verticals, ranging from enterprise setups, such as smart workplace, retail, cold chain monitoring, supply chain management to industrial setups in mines, factories and warehouses.

Additionally, Napino also offers a product called Smart Tracking & Environment Monitoring (STEM). STEM enables you to seamlessly manage and monitor various environmental parameters, such as temperature, humidity, location and pressure. The device is certified for usage in multi-modal transportation such as Air, Land and Sea. This device can be integrated into any platform or application over standard protocols, such as MQTT or TCP/IP. STEM comes with an IP65 rating and is completely designed and manufactured in India. The devices are available both for one-time usage and for rechargeable battery operations based on the end-usage application. To support data transfer, it can use BLE or Wi-Fi for short-range and 2G/4G/LTE for long-range.

Napino Digital Solutions is exhibiting at Smart Cities India Expo 2021, Pragati Maidan, New Delhi, and demonstrating its IoT design, manufacturing capabilities and its latest products and solutions.



A CASE FOR GLOBALISATION: TRANSFORMA INSIGHTS

INDUSTRY SPOTLIGHT

What does a global pandemic do for globalisation?

The COVID-19 pandemic will result in more globalised services and reconfigured supply chains, and both changes will benefit India.

The COVID-19 pandemic has acted as a force of change for many enterprise sectors and the change in functions that might otherwise have taken decades. This rapid shift has created challenges and opportunities.

In this article, we unpick some of the medium-term impacts that COVID will have on globalisation where we expect that the net effect will be to expand markets for services and make these more global. On the other hand, supply chains for physical goods will become more fragmented and less global.

Both of these dynamics will have a huge impact on technology adoption. Services will drive the adoption of cloud-enabled solutions to support global capabilities, whilst there will be an increase in the need for technology to track, manage and enable more complex physical supply chains.

Remote working and globalisation

The first and the most obvious impact of the pandemic is that it has been proved that a lot of work that has historically been undertaken at a workplace can, in fact, be undertaken just as well (if not better) from home.

Clearly, there is a broad swathe of employees that must be physically present at their workplace (ranging from refuse collectors to healthcare workers, and bar

staff and waiters). There is another group of employees for whom the formalities of web conferencing have proven to be a significant hindrance to creativity, and these include advertising executives and product designers.

But for a broad range of administrative and other staff between these two extremes, working from home seems just fine. Once employers realise that much work can be undertaken by employees at home on a long-term basis, then they might see that there is a benefit for those jobs to be relocated overseas to locations such as India.

More interesting from a Transforma Insights perspective is the acceleration of adoption of remote models in manufacturing and operations support. This is not a new concept: for many years Ericsson has run global Network Operations Centre (NOC) facilities in India, supporting networks worldwide. Remote monitoring and maintenance of assets have been a fast-growing area for some time, for example, Signify (formerly Philips Lighting) manages the lighting on the bridges in New York from an India-based operations centre. But the pandemic has accelerated these trends, and also extended the reach of such remote techniques.

In short, the pandemic has both pushed the boundaries of what could be termed 'a service', and also enabled the performance of more services remotely. The 'services' part of the economy has just grown and become more global and, in doing so, represents more opportunities for Indian companies.

Supply chain diversity and resilience

On the flip side, supply chains for physical goods so far have been relatively unaffected by the pandemic. In the medium term, however, the pandemic is likely to impact supply chains in two main ways. Firstly, companies will place a greater emphasis on the diversity of supply chains so that any future market-specific disruptions can be more easily absorbed. Secondly, companies are likely to reassess the risks associated with supply chains that include China as a critical location, although the desire to limit supply chain bottlenecks will not be limited to China by any means. On 24 February 2021, the US Biden administration issued an executive order requiring federal agencies to conduct a 100-day reviews of supply chains for semiconductors, pharmaceuticals, electric vehicle batteries and critical minerals used in manufacturing products, such as cars and weapons, aiming to 'get ahead' of any future supply chain problems. India can expect to be a net beneficiary of many such reconfigurations.

SALIEABS & DILOGY – INSIGHTFUL AUTOMATION

INDUSTRY SPOTLIGHT

At SALIEABS & DILOGY, we catalyse your journey of Insightful Digital Evolution by connecting the assets of the enterprise, leveraging deep tech of IoT and automation with guaranteed security. With our tailor-made solutions, we cater to the needs of a variety of industries, not limited to Smart Metering, Industry 4.0, Smart City, Smart Homes, Workforce Management & Safety and Wearable Technology.

Some of our IoT offerings include:

- A range of IoT gateways that connects the physical world to computer servers, offering a bridge between standard wired interfaces like MODBUS, RS232, 4-20mA, etc. and internet connectivity on LoRaWAN, Wi-Fi, GPRS, NB-IoT, 4G & LTE.
- Smart water and energy metering

solutions using connected water and energy meters for insightful analytics on consumption pattern and billing.

- Connected workforce solutions employing industrial safety wearables for workers, thereby enabling connected attendance, movement tracking, access control & safety.
- Jewellery Inventory Tracking & Authentication System (JITAS) – an RFID-based inventory solution for managing movement of items and stock counts in jewellery re-tailing.
- VeDIoT – Versatile Dashboard for IoT, a platform for IoT device management, data collection, processing and visualization, supporting device connectivity through standard IoT protocols like MQTT, CoAP, UDP and HTTP.
- Matic Homes – an IoT-based Home Automation solution that will enable the user to gain remote control access over



home appliances, like lights and fans. A typical IoT-based Home Automation system for controlling home appliances, allowing the user to automate, schedule and sequence home appliances.

We are non-exhaustively showcasing our IoT gateways, transmitters and a few of our applications of IoT in Industry 4.0, Jewellery Retailing, Smart Metering, Smart Homes and Industrial Safety. Apart from the data acquisition solutions, we also offer IoT infrastructure creation services for our clients that have no access to other connectivity options.

Our products and solutions find applicability and need at every stage of an industry from production management, stock maintenance, retail management and workforce safety. Hence, the reach and scope of our

solutions are wide and deep.

Sewage treatment plants, water supply corporations, automobile manufacturing units, jewellery manufacturers, jewellery retailers, construction sites, property builders, commercial kitchens and footwear manufacturing units are some of the industries we have already transformed using our IoT products and solutions.

Message from Raj Vignesh Navaneethan, Director & CTO.

'Industrial automation is an iterative process of optimising the algorithms of automation either by human analysis or by machine learning. Insightful digital evolution in an industry should go alongside automation for it to be evaluated and its efficiency to be enhanced. We are here to offer INSIGHTFUL AUTOMATION.'

NXTDIGITAL – FORGING A WAY AHEAD TOWARDS MAKING A DIGITAL INDIA

INDUSTRY SPOTLIGHT

The year 2021 commenced with a promise of hope, light and a newfound stimulus to the functioning of the World, as long-anticipated announcements on vaccines from the harrowing shadows of the pandemic started making headlines. Jumping on the bandwagon of this revived enthusiasm, we, at NXTDIGITAL Limited, have geared up for providing continued infotainment and entertainment to our subscribers. Building upon the foundational legacy of Hinduja Group's guiding principles, we endeavour to execute the philosophy of the Digital India initiative by collaborating with our group companies that operate globally in various business verticals, ranging from Banking and Finance to Information Technology Enabled Services, and provide a unique and holistic bouquet of integrated services to our customers. We intend to venture into expanding our digital line of products while implementing converged



media strategies, strengthening our relationships with our franchisees, driving cross-selling and aligning strategic partnerships across cities. We plan to focus on consolidating and growing our service subscriber base across video and broadband plans with OTT bouquets, with the help of the most valued partnerships with our LCOs, as they continue to retain autonomy in managing and monitoring the bundled selling.

With the fast-changing technological landscape, our customers' needs and media consumption patterns are continuously evolving. No longer can the broadcasters pivot their ambitions around reach during peak hours. New trends in digitisation have led to significant changes in content packaging and applicable tariffs, like the advent of OTT pay-TV

packages offered as à la carte services. Today's viewer demands a service differentiator in terms of the user interface, flexibility and technology. Therefore, we are preparing to innovate our offerings to dispense a one-stop seamless solution as an integrated service provider. While it is likely



that cable television will dominate the market over the next few years, satellite television and online video are the current growth drivers. The over-the-top (OTT) space is rapidly evolving in India, with new and innovative platforms entering the market on account of cheaper data bundles. The tremendous growth of these platforms is majorly driven by their unique position to offer personalised entertainment to consumers at their convenience. However, the market is still nascent. The ongoing price war between internet service providers and the commoditisation of data has made online video streaming more affordable than ever before. The pressing issue of competition and its regulation thereby needs to evolve to keep up with the growing complexities of a digitally converging TV broadcasting and distribution industry. There is an urgent need for a befitting oversight framework for online news and content at par with the traditional media platforms. The Ministry of Information and Broadcasting regulates news and entertainment content on TV and radio through statutory bodies, and therefore, it is important to bring the digital content under its purview as well, covering the online/digital media. It will give the government control over these platforms, as until now, there are no laws or autonomous bodies governing content on digital media. Our industry, like any other industry, faced the tremendous wrath of the Covid-19

pandemic. Due to restrictions on movement, our on-ground teams had to find innovative ways of approaching new accounts and servicing our existing subscriber base. The customer care and field services teams were rapidly equipped with remote support systems and essential services permission letters for easy access to societies for maintenance activities. On the back of key response initiatives during the lockdown, digital referral schemes for customers, employee engagement activities, rewards and recognitions were introduced to keep our subscribers and employees motivated. Faster and secure ways of payment transactions aided our franchisee partners



in keeping up with the lockdown regulations. I am beyond proud and thankful to our passion-driven LCO partners who worked against all odds to ensure the delivery of uninterrupted services to our subscribers.

In this age of Information and Communications Technologies (ICT), our LCOs across the country are looking forward to joining hands under the infrastructure sharing umbrella and reducing their operating expenses while staying relevant. In the subsequent years, with the advent of new and futuristic technologies, we are striving for rapid innovations to adapt to the domino effect of the ever-evolving industry by empowering our LCOs with Android solutions, which will help them as well as our subscribers to experience the best of digital technology. Today, NXTDIGITAL Limited has transitioned into India's only Pan-India Integrated Digital Delivery Platform Services Company, delivering services via satellite, digital cable and broadband. The organisation holds a dynamic vision for the future, with infrastructure sharing, identifying managed services, digital boutique and satellite media services as three big areas of growth. This could potentially mean a combined offering of cable, broadband, home security and cybersecurity, all of which are the needs of new-age aspirational customers of today.

RECTUS INDIA: WORLD-CLASS NETWORK SUPPORT AND NETWORKING SOLUTIONS

PRODUCT HIGHLIGHT

At Rectus India, our aim is to add value to your business by simplifying your IT Infrastructure and aligning it with your business goals. We work in tandem with your teams to align your specific needs to the right mix of products and services and, in turn, deliver more than just equipment and bring innovative, real-world solutions for all your IT needs. We are committed to providing each customer with the highest standard of customer service, and you can count on us to deliver the same.



Mimosa by Airspan

Get fibre-fast speeds for a fraction of the cost with Mimosa! Our fixed wireless solutions excel in PTMP links in urban, suburban and long-distance tower settings. Get blazing speed on every device on the network and the industry's best return on investment. Mimosa's Cloud offers easy link design, planning, inventory management and installation assistance. Accessible from anywhere, Mimosa Cloud gives you a single-pane-of-glass view of your entire network, helping your business perform at its best. Mimosa's robust and intelligent cloud platform comprises three key elements – Network Design Tool (NDT), Network Management System (NMS) and Mimosa's Install Mobile App.

EXTENDED FREQUENCY SUPPORT

Rise above the noise! Mimosa's suite of PTMP products offers extended frequency support for 4.9 – 6.4 GHz use, allowing you to escape congestion in the 5 GHz band.

HIGHEST SUBSCRIBER SPEEDS

Blazing fast! With subscriber speeds up to 700 Mbps, Mimosa's PTMP solution leads the fixed wireless space in terms of price and performance.

NO FIBRE, NO PROBLEM

No trenching is required. Delivers fibre-fast wireless connectivity, without delays and expenses of using fibre.

DEPLOY ANYWHERE

Looking to stream ultra-fast broadband from a fibre-fed tower or from a suburban MicroPoP? Or do you need to connect an urban MDU with blazing fast internet? Mimosa's suite of access devices is engineered to perform. Mimosa offers the best price/performance multipoint solution in the industry. Flexible configurations allow deployments in virtually any environment. Take advantage of Mimosa's unique extended frequency range, which enables devices to operate from anywhere with 4.9 – 6.4 GHz. Get out of the noise of standard Wi-Fi channels and into a cleaner spectrum (in areas where you have a license or your local regulations allow).

FiberGate - FG-2000G8B – GPON OLT



8 PON Port FG-2000G8B GPON OLT products are 1RU height, 19inch rack-mount products. The OLT is small, convenient, flexible, easy to deploy and delivers high performance. It is appropriate for it to be deployed in a compact room environment. The OLTs can be used for 'Triple-Play', VPN, IP Camera, Enterprise LAN and ICT applications.

We are using Broadcom + Broadcom Chipset made by Broadcom's aggressive investment in next-generation PON technologies. It meets the ITU-T G984/G.988 standards, Friendly RMS /Web/ Telnet/CLI management and CLI command style, similar to mainstream manufactures. It supports all the advance software functions, such as SNMP/Telnet /CLI/ WEB / SSHv1/v2. It also supports layer2 Switch, Multicast, DHCP and GPON Function. It has a Layer 3 feature, such as ARP proxy, 1024 hardware Host Routes, 512 hardware Subnet Routes, Support static route, Optional Support Dynamic route RIP v1/v2, RIPng, Optional Support OSPF v2/v3

and Support PPPoE/PPPoE+.

Security Management keeps OLT safe with Support IEEE802.1x, Radius, Tacacs+, Support DHCP snooping, DHCP Option82, Source Guard, Support Https and SSHv1/v2. It also supports IPv6.

FiberGate: FG-650-OTDR

An OTDR contains a laser diode source, a photodiode detector and a highly accurate timing circuit (or time base). The laser emits a pulse of light at a specific wavelength and this pulse of light travels along the fibre being tested. As the pulse moves down, fibre portions of the transmitted light are reflected/refracted or scattered back, down from the fibre to the photodetector in the OTDR. The intensity of this returning light and the time taken for it to arrive back at the detector tells us the loss value (insertion and reflection), type and location of an event in the fibre link.

Beyond this basic division, the features and options available for an OTDR should be carefully considered based on the intended use. One important consideration is the type of fibre you will test – multimode, single-mode or both. Another variable is the length of fibre that you will test. Products designed for long haul applications typically have higher dynamic range capabilities that would not be required for testing shorter fibre optic links, such as FTTA.

PULSE WIDTH

Setting the adjustable pulse width determines the duration of the pulse being emitted into the fibre link. Shorter pulse width is usually selected for shorter cable lengths since this will maximise resolution and minimise energy output. Short pulse widths are useful for evaluating segments of the cable that are closer to the OTDR. Since these shorter pulse widths will also produce shorter dead zones, you will have a greater ability to detect events close to a connection or splice. Longer pulse width settings may be called for when testing a longer cable run since more optical energy is required to produce sufficient backscatter at great distances from the OTDR.



DEAD ZONES

When the OTDR detector becomes saturated by a highly reflective interface in the fibre link, the recovery period for the OTDR translates to a distance from the event, known as a dead zone, which is essentially a portion of the cable for which no data will be available. Air gaps, bad splices, flat fibre end faces (connectors or the fibre end) and other incidences producing high Fresnel reflection are the usual causes of dead zones.

DISTANCE RANGE

The distance range setting on an OTDR controls the display range for the amount of cable to be presented on the screen. It also defines the rate of pulse emission, since each pulse must be returned to the detector before the next pulse is sent out.

Setting this parameter appropriately requires accurate documentation of the optical fibre link. If the OTDR has pre-set distance range settings, you should choose the shortest setting, which is still longer than the maximum fibre length.

AVERAGING TIME

In general, more accurate measurements are usually produced by averaging multiple repetitions of the same test. This same principle holds true with OTDR measurements. Longer averaging times translating into more repetitions of the same test will produce a measurement with an improved signal-to-noise ratio, but it would take more time. For conditions where accuracy and noise are less critical, a 'real-time measurement', with no averaging function, could be sufficient. However, for circumstances where distance and loss data must be as precise as possible, longer averaging times might be justified.



VULNERABILITIES FACED BY SMES

SPEAKER HIGHLIGHT

Unacademy learns a lesson about security

Edutech startup Unacademy disclosed a data breach that compromised 22 million user accounts in May 2020. Cybersecurity firm Cyble revealed that usernames, emails addresses and passwords were put up for sale on the dark web. Founded in 2015, Unacademy is backed by investors including Facebook, Sequoia India and Blume Ventures.

Police-exam database with information on 500,000 candidates goes up for sale

Personally identifiable information of 500,000 Indian police personnel was put up for sale on a database sharing forum. Threat intelligence firm CloudSEK traced the data back to a police exam conducted on 22 December 2019. The seller shared a sample of the data dump with



Nikhil Mahadeshwar
Chief Technology Officer, Skynet Softtech Pvt. Ltd. India

the information of 10,000 exam candidates with CloudSEK. The information shared by the company shows that the leaked information contained full names, mobile numbers, email IDs, dates of birth, FIR records and criminal history of the exam candidates.

COVID-19 test results of Indian patients leaked online

COVID-19 lab test results of thousands of Indian patients have been leaked online by government websites. What's particularly worrisome is that the leaked data hasn't been put up for sale on dark

web forums but is publicly accessible owing to Google indexing COVID-19 lab test reports.

First reported by Bleeping Computer, the leaked PDF reports that showed up on Google were hosted on government agencies' websites that typically use *.gov.in and *.nic.in domains. The agencies in question were found to be located in New Delhi.

The leaked information included patients' full names, dates of birth, testing dates and centres in which the tests were held. Furthermore, the URL structures indicated that the reports were hosted on the same CMS system that government entities typically use for posting publicly accessible documents.

User data from Juspay for sale on the dark web

Details of close to 35 million customer accounts, including masked card data and card fingerprints, were taken from a server using

an unrecycled access key, Juspay revealed in early January. The theft took place last August, it said. The user data is up for sale on the dark web for around \$5000, according to independent cybersecurity researcher Rajshekhar Rajaharia.

BigBasket user data for sale online

20 million users' data from the online grocery platform BigBasket is for sale on an online cybercrime market, according to Atlanta-based cyber intelligence firm Cyble. The data comprises names, email IDs, password hashes, PINs, mobile numbers, addresses, dates of birth, locations and IP addresses.

Hackers steal healthcare records of 6.8 million Indian citizens

Details: Enterprise security firm FireEye revealed that hackers have stolen information about 68 lakh patients and doctors from a healthcare website based in India. FireEye said that the hack was perpetrated

by a Chinese hacker group called Fallensky519. Furthermore, it was revealed that healthcare records were being sold on the dark web – several of them are available for under \$ 2000.

Local search provider JustDial exposes data of 10 crore users

Local search service JustDial faced a data breach recently – data of more than 100 million users was made publicly available, including their names, email ids, mobile numbers, gender, date of birth and addresses, said an independent security researcher in a Facebook post.

SBI data breach leaks account details of millions of customers

An anonymous security researcher revealed that the country's largest bank, State Bank of India, left a server unprotected by failing to secure it with a password. The vulnerability was revealed to originate from 'SBI Quick' – a free service that provided customers with their account balance and recent transactions over SMS. Close to three million text messages were sent out to customers.

There are different types of vulnerabilities of SMEs. The assets used by SMEs are often vulnerable. Basically, there are two types of assets – digital and physical, which include their servers, client systems, computers, etc. There are also different types of servers. An SME can have a separate server for its internal reporting, which can be its in-house system that is used for Human Resource Management. It can even have separate servers for its client's systems, and even for a client, it can have bifurcated servers, let's say for B2B or B2C. All these things depend upon an organization's requirement. According to the requirement, an organization designs its IT infrastructure. The basic thing that SMEs need to understand is that the type of security needed for IT structure should be required by organisations.

Talking about digital assets, they include websites and web panels, which are used for internal and external purposes, such as maintaining attendance of employees, maintaining work reports of employees and serving clients. Different types of SMEs have different requirements for their web portals, which they give to their clients or the internal organisation for reporting.

There are different types of vulnerabilities in the network or



servers, such as DDoS attack, man in the middle attack, grout fall attack and buffer work flow attack. There are lots of attacks, which make these systems critically vulnerable. A successful attack can result in the loss of critical data, which may cause significant business loss, reputational loss and even financial loss.

During the lockdown, there has been increasing cases of cybercrimes across the globe. As people have adapted to the idea of working from home, organisations are now facing huge risks in terms of cyber threats. During the initial phase of the lockdown, some organisations were not ready for work from home scenario, and suddenly working from home became inevitable, for not working was not an option; however, there were technological loopholes, which have now been rectified, but SMEs have the responsibility to understand the types of vulnerabilities they have, for it's not a one time job – it's a continuous process. The very first level of vulnerability, according to me, is human error. An organisation can deploy any type of technology and use all kinds of resources that are required for security purposes, but there is always a possibility of human error? There can be a possibility of known and unknown loopholes created by the internal team or employees, so the solution is to always keep the information on a very need-to-know basis to specific teams and make sure that the information that you provide is limited to the team that needs it and

not anyone else. While the work-from-home situation can put your data at risk, as everything takes place online medium, which can create a potential risk of a data breach through social engineering, given that employees or other staff are not present in the office premises. In such a case, the chances of an attack increases. Using social engineering tactics, attackers can easily gain the information required by them for attacking your organisations.

Thus, Human Error is one of the weak links that make SMEs vulnerable to cyber attacks.

For organisations running a web portal, which can be a client-facing web portal or an in-house web portal for other login activities, OWASP identifies top 10 vulnerabilities – Injection, Broken Authentication, Sensitive Data Exposure, XXE, Broken Access Control, Security Miss Configuration, XSS, Cross Side Scripting, Insecure Deserialization, Using components with Known vulnerabilities and Insufficient Logging and monitoring. These are mobile and web vulnerabilities, which all SMEs be aware of, for they are very critical. So, if any application is exposed to one of these vulnerabilities, then it may let the attacker compromise your data by installing a shell and gaining complete access to your IT infrastructure. These are the levels of vulnerabilities that you must be cautious about which, for they can significantly affect your business by leading to data loss and reputational or financial loss. The attacker can also ask you for any

ransom amount by threatening to leak your confidential data online.

Next comes vulnerabilities concerning emails. Email Spoofing is one such attack, which can help the attacker gain confidential information by emailing your client and employees pretending to be you. Phishing is also possible. In this, the attacker may send phishing links using the email spoofing technique by pretending to be any superior colleague and can ask you to send confidential data, which when received can be sold by attackers to your competitors or they might even ask you for an extortion amount.

The network and server vulnerabilities need to be checked by the SMEs, based on their business requirement. SMEs should constantly be on guard against these vulnerabilities, for fighting against them is a continuous process for the betterment of their business.

So far, I talked about the vulnerabilities of your digital and physical assets. Now, digital assets include web portals, websites and applications, and physical assets include IT, network server, client system and hand-held devices that an organisation provides to its employees. SMEs must conduct VAPT services, which means Vulnerability Assessment Penitry Testing. The user needs to contain continuous VAPT services, depending on the results of the VAPT, and SMEs need to make changes at the development level of these digital assets. Once the changes have been implemented, they need to retest

them, using VAPT reports. Lots of companies make a mistake by using the VAPT once in 6 months or a year, and during this period, they simply give it version updates. They should also consider the VAPT for every version, for every time there is a change in the code, there is a possibility of being exposed to vulnerabilities.

Also, your server and client systems should have an active directory to track your users, so that there is no data leakage knowingly or unknowingly from your employees. SMEs also need to have a firewall, through which all traffic should pass, along with the IDS (Intrusion Detection System) and IPS (Intrusion Prevention System). It is important to be active and alert to monitor digital attacks and identify and block attackers' IP addresses. Traffic from unknown countries should be blocked. SMEs

should come up with critical policies on the firewall, using endpoint solutions and using DLP (Data Leakage Prevention). They should also use specialised solutions for different types of ransom attacks. For instance, Anti Ransomware Solutions. Organisations can also have solutions for mobile devices. For instance, MDM (Mobile Device Management) solutions, which allows you can control the usage of applications, including the data going out and coming in. There can also be a scenario wherein the personal mobile phone is used for office purpose. In such cases, there should be paid anti-hacking or anti-spying solutions to make sure that official data is not compromised. There are also threat intelligence tools that can be used by SMEs to monitor upcoming threats. SMEs should create a bug bounty program so that before any blackhat hacker

attacks your organization, an ethical hacker can alert you about the threats, and you can then offer the ethical hackers a reward.

Also, there should be regular audits at the system level, application level and network level. Always keep all type of versions updated, which creates fewer chances of your data being compromised. Always change the default credentials provided by asset handlers. Give limited access to users, and never give administrative access to them. SMEs needs to understand what are they dealing with. They have their office infrastructure and requirements, but the reality is that companies are completely dependent upon technologies. And while it's good and a step in the direction of the idea of digital India, we should also keep in mind to strive to become a digitally-secured India. As individuals of the country, we should own

the responsibility of securing our infrastructure and our devices, which will minimise the cybercrime rate of the nation. Because according to statistics, SMEs in India have faced a lot of different types of breaches and attacks, so if SMEs of our nation takes the responsibility of guarding themselves against cyberattacks, it can result in a significant decline in the number of cybercrimes across the country. Also, it would help SMEs can focus on developing their organizations and grow their business. India has a lot of talent in the security field. And our approach should be to prevent attacks instead of fixing things in the wake of an attack. SMEs need to hire a cybersecurity agency for preventive measures.

We are always hesitant to spend on security, but I think that it's time that we figure out what do we want to invest in for protecting our businesses from cyber threats.

EXPERIENCE UNIQUE BLUETOOTH CALLING WITH ALL NEW URBANLYF

PRODUCT HIGHLIGHT

New Delhi, Tuesday 23, 2021: Inbase, a leading name in the innovative and portable digital product market has expanded its Smartwatch segment by launching an all-new Smartwatch – Urban LYF. With the launch of this new product, Inbase will be strengthening its existing portfolio of premium smartwatch line-up.

The newly launched Smartwatch is a unique product, as it is one of the few smartwatches available in the market that comes with a 'Bluetooth Calling Feature', through which the user can make im-portant calls without pulling out their smartphone.

The new smartwatch is loaded with a plethora of features, which allow one to track their health by monitoring blood pressure, sleep, heart rate, step count, blood oxygen and ECG while letting one enable to create their own style statement, which inevitably makes Inbase's new smartwatch a real treat for fitness enthusiasts.

Urban LYF is available in 3 outstanding colour combinations and easily swappable straps, starting with Jet Black Case with Midnight Black Band, Silver Case with Frost White Band and Rose Gold Case with Pink Salmon Band.

Urban LYF:

The new smartwatch is equipped with a host of features, ensuring the best for users. It is an apt device to keep a check on daily health activities, i.e. to measure the vitals, heart rate, calories, ECG, sPO2, blood oxygen level, blood pressure

as well as steps taken accurately. The feature that makes this new smartwatch unique is that it comes with a Bluetooth Calling feature, which allows one to make important calls without pulling the smartphone out of the pocket, making the new wearable a one-of-a-kind device available in the market in its category. With its Bluetooth4.0 connectivity, the smartwatch connects swiftly with iOS and Android Smartphones.

Urban LYF is waterproof, as it's IP 67 certified, making it an ideal companion for your water-related events and sports. The smartwatch comes with a full-touch HD display screen of 1.75 inches with a 240*240 resolution, which brings out a crystal clear and colourful display output, and a single-touch sensor, through which every information about one's daily health and fitness activities can be tracked and accessed through the device or the app. Furthermore, one can even access their Social Media and Smartphone notifications. Urban LYF has an incredible battery life of 7 days without calling and 2 days with the calling feature in use. The smartwatch has an overall stand-up time of 15 days.

Features of Urban LYF:

- 1.75 inch Full Touch HD display screen with 240*240 resolution
- Bluetooth Calling Feature
- Calls, Social Media, Message and Weather notifications
- Magnetic Charging Method
- Heart Rate, ECG, Calories, sPO2, Blood Oxygen Level, Blood Pressure and Sleep measuring Sensors
- Camera & Music Controls



- In-built Alarm & Stop Watch
- Detachable Silicone Straps
- Access Calendar, Contacts & Calculator
- 15 Days Standby Battery
- IP67 Rating
- Supported App: Fundo

About InBase:

Inbasetech, a company formed with the sole purpose of enhancing the mobile experience through accessories that take consumers a step closer to enhancing the life of their product and staying in vogue at the same time.

People at Inbasetech celebrates life with passion, and they care about their gadgets as much as you do. Inbasetech is here to achieve an enhanced experience with technology, and bring to you products that match the needs of a diversified user base.

The brand strives to push the boundaries of innovation just to ensure a better user experience. From Cases and Covers to high-end lifestyle gadgets, the brand has brought in smart Bluetooth audio devices, TWS, earphones, power banks, Air pod accessories, car and bike mounts, tablet accessories, power adapters & cables all under one roof.

BUILDING INDIA AS A FINANCIAL SUPERPOWER WITH EMBEDDED BANKING

In India, Fintech has seen an exponential rise in the last few years. The Government's sustained efforts to drive and adopt digital transactions have significantly accelerated the process of financial inclusion of people. We have come a long way from a time when only 1 in 4 people had a bank account. Presently, the percentage of bank account holders in the country has risen to 80. This gives birth to a need for technologically sound infrastructure, involving various public-private partnerships, enabling the adoption of technology by legacy institutions and signalling the dawn of a new age in the Indian Banking ecosystem.

As the saying goes, every company will eventually be a fintech institution.

A recent report by RBSA Advisors stated that India has emerged as Asia's biggest destination for financial technology (fintech) deals. It left behind even countries like China by the quarter end of June 2020. The fintech market in India valued Rs 1,920 billion in 2019. It is expected to reach Rs 6,207 billion by 2025. While it is still at the tip of the iceberg in terms of growth, the industry will witness long-term robust growth in the coming years, with its openness to innovation and adoption of technology.

Companies that have such innovative products and solutions often take months to launch. They require financial integrations and regulation permissions to run their platforms. This means one thing: it is not possible to bypass the chaotic clutches of legacy infrastructure and broken documentation unless there are innovative solutions introduced to help these companies launch their solutions or products faster and at half the expense at the very least. Embedded Banking is making waves in this very aspect.

What is Embedded Banking?

In simple terms, embedded banking is connecting an entity that has finance and banking at its core to another entity that has a non-financial background. For instance, how Apple and Goldman Sachs



Rohit Taneja
Founder
Decentro

joined hands to roll out the Apple Card, introducing finance into a tech-driven ecosystem. Banking as a service is enabling this quantum leap, which is changing the way companies function and interact with consumers.

It helps companies recognise varied innovative services that they can provide to their customers, which can also give them a competitive edge in the market. With the power of API integration, embedded banking can help non-financial companies become a part of the fintech ecosystem.

Challenges that we need to address in Embedded Banking

When we talk about leaps in the financial technology domain, the mission remains straightforward – Financial Inclusion. A term that has been a focus in the last few budgets; and the country is working towards implementing and improving. In a broader sense, inclusion happens when financial products and services become easily accessible and affordable to the general population. These products help them manage finances and avail basic amenities irrespective of their background and earnings.



Even though financial services have evolved rapidly, thanks to the API access to companies to build better products, we still have a long journey ahead. This is mainly due to the lack of integration capabilities that puts these products at the heart of any business.

Let's rewind a couple of years.

The country is heavily dependent on cash for even the smallest transactions. Although Internet Banking is closely or remotely related to fintech advancement, the broken UIs and 10+ steps to perform possibly anything didn't exactly make things faster and smoother for customers. This hassle eventually forced people to remain offline with cash payments. The same could be extrapolated to lending and credit.

This is where embedded banking has a major role in play-acting: a connecting bridge between a fintech and a non-financial institution. It is the key that unlocks the reality of financial inclusion to everyone, even the marginalised. Surely, it's a long-term goal, but the interesting part is that we have already set out on that journey. One of the most common examples of it is the introduction of insurance for an app-based cab ride. A non-financial company can provide a financial instrument on top of its core services; thus, enabling an enhanced customer experience.

Fintech in Non-Financial Institutions

With the advent of UPI, payment links, and other digital payment methods we have seen an overnight

shift towards cashless payments and a digitised economy. Given the pandemic and social distancing norms, we all now look for a QR code even at a grocery store. Fishing out for cash and change is naturally the last option. We are looking at building a financial superpower by incorporating financial products and services at the heart of every sector of the economy. Some everyday examples can be:

HR tech: Manage payroll for employees, provide reloadable digital prepaid cards to track spends; give them credits/loans to tackle any unforeseen financial hiccups.

Trade & Logistics: Make payouts easily, streamline and track expenses at one place, issue and manage Fastags or reconcile payments easily.

E-commerce Platforms: Offer Buy-now-pay-later options to increase sales, accept payments via multiple methods or enable app-to-app payments via deep links.

Embedded Credit: Incorporate lending as a feature of your product. Any time a customer wishes to avail a loan, enable the same within your platforms. Expensive flight tickets? Provide a loan to your customers and increase customer loyalty and retention.

In conclusion

Embedded banking has immense potential, and the possibilities to explore are also countless. With the Government's initiatives, policies and regulations, along with the growing penetration of smartphones and the internet, India is heading earnestly in the direction of financial inclusion and advancement.

Many fintech companies and other start-ups are waking up to the benefits of embedded banking and the fundamental role of APIs. The API-led connectivity approach has put Banking API platforms like Decentro in a perfect position to enable banks to view themselves as a Banking-AS-A-Service (BaaS) Provider and companies to launch solutions that address the need of the market faster. For all we know, this could be the dawn of the golden era, marked by an equalized economy.

JHARKHAND- A LAND OF BOUNDLESS OPPORTUNITIES

EDITORIAL

Jharkhand is endowed with a rich cultural heritage, and bestowed liberally with bounties of nature.

The state is a kaleidoscope of past splendors and present glory. Jharkhand is one of the richest mineral zones in the world, and boasts of 40% and 29% of India's mineral and coal reserves, respectively. Due to its large mineral reserves, mining and mineral extraction are the major industries in the state.

The vision of Government of Jharkhand is advancement in skill development, which aims at helping the youth of Jharkhand in their skill development initiatives, and to create a complete labour market of skilled resources in the state.

As one of the emerging states of India, it has marked significant developments over the years, and the endeavour is to increase employability for the youth of Jharkhand. The State Government has initiated various schemes to raise employment by way of investing in skill development, providing social security and promoting self-employment. As a result, the development of skilled manpower is a thrust area that the state has been working on, and the results so far have been fruitful.

Agriculture and allied sectors form an important component of Jharkhand's economy as a large proportion of population depends on it for their livelihood, and is the largest contributor in the rural economy. The state holds immense potential in areas like horticulture, fishery and animal husbandry. Rice is the major food crop of the state, covering 80% of the cropped area. The state's soil and climatic conditions support cultivation of ornamental plants, mushrooms, spices and tea. Owing to the cultivable land resources of the state, Jharkhand offers high growth potential for horticulture and forest-based products.

Although, agriculture forms an important component of Jharkhand's economy, services and



industrial sectors of the state have also made significant developments over the years. As forests and woodlands occupy a major chunk of the area under the state, it provides ample opportunities for the development of minor forest produce-based industries and herbal based industries.

The state has provided a large number of incentives to promote industries, especially MSMEs, and has been progressing fast on adopting best practices for strengthening an investor-friendly environment to boost investments, employment generation and welfare of the people. Knowledge and skill development are the key driving forces of economic growth and social development for any state. A skilled and high productivity manpower base is a critical enabler in the growth of agriculture, manufacturing, and services. The Government of Jharkhand is committed to facilitate overall growth of the state through skilling of its youth, promoting entrepreneurship and private investments for encouraging skill development in several sectors of the economy.

Jharkhand, a land of boundless opportunities which offers distinct advantage for investments and industrial development. The aim

of the Jharkhand Industrial and Investment Promotion Policy 2016 is to develop the state into one of the most preferred destinations for industrial investments. Several incentives have been offered by the state to spur the growth of industrial sector and promote entrepreneurship ecosystem in the state. It has immense potential for industrialization as the state is rich in vast mineral deposits. Measures like Jharkhand Investment Promotion Board, single window clearance, online payments, online verification, third party certifications, self-certification, time bound approvals, availability of information online, standard operating procedures for approvals, deemed approvals, etc. are being adopted by various departments of the Government.

Jharkhand Export Policy 2015 that had been formulated to facilitate and provide incentives for boosting exports from the state. The major export items from the state are iron and steel, auto components, mica, motor vehicles/cars, among others. The volume of exports from the state stands more than USD 1000 million during the recent years. Around 48% share in State's exports is contributed by iron and steel sector. The volume of

exports from the state is estimated to reach about USD 2000 million by 2021-2022 on the basis of speedy reforms being taken to spur industrial growth and promotion of export oriented units of the state in the coming times.

Building a high-class infrastructure is crucial for the effective functioning of the industrial sector, especially for manufacturing competitiveness. The state government is making serious efforts towards the development of infrastructure to promote trade, commerce and industry in the state. The state boasts of a good network of road, rail and civil aviation. The state has made significant strides in improving the quality of its social infrastructure during the last few years. Jharkhand is committed to providing education to all, and the concerted efforts of the government have resulted in the state to increase its literacy rate quite impressively over the past few years.

Going ahead, faster pace of skill development, setting up of more number of MSMEs, strengthening infrastructure, building strong entrepreneurship eco-system and sustainable agriculture sector could go a long way in pushing the growth of the state into higher trajectory.



EMERGING TRENDS ON E-WASTE MANAGEMENT

EDITORIAL

E-Waste is the Toxic Legacy of our Digital Age. Setting new benchmarks in maintaining the confidentiality of business data and offering highly efficient e-Waste management services, GreenWaves Environmental Solutions is the first authorised – by Pollution Control Board, Andhra Pradesh – e-Waste collection and handling unit of Andhra Pradesh. Interestingly, apart from a data destruction certificate, GreenWaves also sends a video of storage device disposal to its customers. We don't consider e-Waste as waste but as multiple resources. It's a tool for

social transformation, which gives paramount importance to the trust factor. Focused on collecting all types of recyclable e-Waste, GreenWaves has built an app called ReByte. The app with mere touches ensures safe and environment-friendly disposal of recyclable waste collected from a user's door-step and also provides reverse-logistics. Additionally, clients are given a chart, indexing the types of e-Waste, and are provided with assistance in customs clearance and filling of e-Waste's annual returns. Through continuous innovations and implementing cutting-edge recycling technologies, GreenWaves has created a niche for itself. It engages in end-to-end operations

– right from collecting electronic waste from various functional areas to storing and dismantling it. The company collects e-Waste from Corporates, Government, SMEs, Educational Institutions, Retailers and Individuals, among other sources. The dismantling process (including manual semi-manual and automatic) involves physical segregation of particles, such as plastics, glass, steel, non-ferrous materials, wires, gases and printed circuit boards, and hazardous e-Waste, such as tube lights, sodium vapour lamps and cartridges. All along the process, the safe handling of elements and safety of its employees are given the top priority. On the other hand, by passing

on the knowledge to its clients and the general public, GreenWaves is tirelessly creating public awareness. It regularly conducts workshops and several programs (E-Drives), in addition to framing creative portraits for inspiring people to utilise e-Waste in innovative ways. Furthermore, to impart knowledge on the importance of proper e-Waste disposal and the ill-effects of its mismanagement to every individual, the company has installed e-Bins in selected areas of Visakhapatnam for disposal and recycling of small electrical and electronic items.

Green Waves is working for Sustainable Women Empowerment through Eco Products

In today's world, we need to be pro-ecology in all aspects of life, and therefore, we at Green Waves are committed to providing you with reliable Environmental solutions. The company is dedicated to minimising electronic waste along with the promotion of efficient waste management, proper education through practical works and Green conservation. Green Waves works mainly on E-waste management and Zero Waste Management in the states of Andhra Pradesh, Telangana and Goa. We are also the authorised recyclers of the Andhra Pradesh Pollution Control Board. Improvement of social life is possible with a phase-wise implementation of sustainable flower-waste management in the city. As a part of the Zero waste management, our company has come up with a novel idea of converting floral and coconut waste into natural Eco products, flower manure and handmade soaps from flower powder. A pilot project on making dhoop sticks and manure from flower waste has been tested successfully with an all-woman staff. This project is being planned to be implemented on a large scale under the Women empowerment program. Paper and cloth recycling is also tested by our company. Our staff successfully made seed bands and seed rakhis using recycled paper for Rakshabandhan and is also working on making seed paper from the trash. Owing to such an exquisite range of service offerings and delicate methodologies, GreenWaves has won the National Awards for its excellence in e-Waste Recycling at Indian Industry Session (at 8th Regional 3R Forum in Asia and the Pacific). And yet another golden



'IN TODAY'S WORLD WE NEED TO BE PRO-ECOLOGY IN ALL ASPECTS OF LIFE, AND THEREFORE, WE AT GREEN WAVES ARE COMMITTED TO PROVIDING YOU WITH RELIABLE ENVIRONMENTAL SOLUTIONS. THE COMPANY IS DEDICATED TO MINIMISING THE ELECTRONIC WASTE ALONG WITH THE PROMOTION OF EFFICIENT WASTE MANAGEMENT, PROPER EDUCATION THROUGH PRACTICAL WORKS AND GREEN CONSERVATION.'

POTLURI ANIL CHOWDARY, MANAGING PARTNER, GREEN WAVES ENVIRONMENTAL SOLUTIONS

feather in its crown is the invitation it received from National Green Tribunal Conference to deliver a talk on e-Waste Management at Guwahati. On world environmental day, it was given the Seva Puraskar award by the Andhra Pradesh Pollution Control board for our great contribution towards sensitising the people on e-Waste management and for effective recycling of e-Waste. We aim to be the first company to provide an indigenous solution for e-Waste management to every individual. GreenWaves is well on its way to make this part of the world a better place to live in.

21ST YEAR OF 21ST CENTURY INDIA: PRIORITIZING SANITATION & HYGIENE*

EDITORIAL

The news about vaccines brings a sense of relief, and assuming all goes well, life could go back to 'normalcy' by mid-2021. COVID-19 has brought renewed focus on human health within sustainability and global development agenda, which so far appeared to have focused largely on the environment, pollution, climate change and social justice. Improved sanitation and hygiene, which have been the primary weapons to fight COVID 19, need further strengthening so that we remain resilient in the emerging world marked by uncertainty. There is a case for the following priorities to be addressed to ensure that we as a nation remain resilient and prepared:

1. Sustain the gains: The massive hygiene awareness and behaviour changes that accompanied COVID 19 have had a surprising positive consequence on the burden of communicable diseases. The leadership of one of the largest municipalities of the country shared that due to widespread adoption of hygienic behaviours by citizens, enteric disease and hepatitis (A & E) related hospitalisations dropped by over 68% & 80%, respectively. A pharma industry veteran also lamented the falling antibiotic consumption, a testimony that communicable diseases are indeed falling. This will



Dr. Nimish Shah Ph.D.
Managing Director, Toilet Board Coalition India

also have a positive impact on reducing the threat of antibiotic resistance, an area in which India has for long remained highly vulnerable. These gains are significant and health authorities must continue the pursuit of improved sanitation and adoption of hygienic behaviours, especially amongst slums, which remains highly vulnerable due to excessive population densities. The slum population in India is over 6.5 crores, with Maharashtra and AP, each accounting for more than 1 crore people living in slums. Improving infrastructures, services and operation & maintenance of public and community toilets remains one of the weakest links in the hygiene chain. There are several innovative and sustainable 'Made in India' models to serve the bottom of the pyramid in this regard, and rapid scaling of these is urgently warranted.

2. Fill the gaps: Situations in which large groups of populations mingle for long durations day in and day out makes people vulnerable and could kickstart infections, which can rapidly

assume epidemic proportions. Academic institutions and workplaces, with a massive workforce, a growing norm in India, can offer such high-risk situations. There has been a graded opening of offices combined with WFH options, and given the capacities of large organisations, they may be able to manage and contain the risks. Academic institutions, which are on the threshold of opening will need more careful considerations. A few days ago, IIT-Madras had to shut down after finding over 100 COVID 19 cases on the campus. Some of our institutions have over 10000 students across a single campus, and finding over 50 students cramped in one classroom is a norm. Recent research estimates that there are over 9 million toilets within academic institutions in India. Improving them, for cleanliness, hygiene and safety, is crucial to preventing the spread of infections. Disinfection of classroom surfaces, physical distancing and ensuring absence or isolation of infected students from classes are areas to consider as well. Presentism of infected students is a bigger concern as compared to absenteeism. The rapid adoption of digital learning has definitely helped manage the situation somewhat. The massive gaps that remain to be filled concerning sanitation & hygiene in academic institutions also present unique entrepreneurship and jobs & livelihoods opportunities.

3. Accelerate adoption of decentralized and circular economy models for waste & wastewater treatment: For decades India's metropolises have pursued centralised waste and wastewater treatment models. These are capex intensive, inefficient and leaky, leading to widespread contamination and pollution of water bodies and the environment, posing a constant threat of communicable diseases



and their spread. It is common knowledge that most large cities have an installed capacity that can barely treat 70% of the sewage it generates, and then operational inefficiencies further add to the volume of untreated sewage getting dumped into water bodies or the environment. Especially relevant to tier 2 cities and towns, where infrastructure is still evolving, is decentralised and circular economy models, which are low capex, far less leaky, value-generating and better contained to prevent the spread of infections. These models need to be promoted, especially within the context of smart cities. Technological developments over the last decade have opened up several options for decentralised systems that are highly efficient and also offer additional benefits in terms of energy or compost generation, which can build revenue or a value stream while addressing climate change and pollution threats

4. Set up a national infection control task force: A task force to work with science, technology, medical and global health fraternity and to keep an eye on upcoming threats, ecosystem perturbations and sectoral interdependencies will help respond swiftly with knowledge & insights and shape national, state, district and community-level responses to ensure that new epidemics are contained quickly and effectively.

Given its talent, start-up ecosystem, digital prowess and science & technology leadership, India has a unique health-cum-economic opportunity to emerge as a pioneer in tackling future pandemic threats.

**This article was originally published in Mint epaper*



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DEPARTMENT OF SCIENCE & TECHNOLOGY

EXHIBITOR CORNER

India is one of the top-ranking countries in the field of basic research. Science has come to be regarded as one of the most powerful instruments of growth and development, especially in the emerging scenario of a competitive economy. In the wake of recent developments and new demands being placed on the Science and Technology (S&T) system, it is necessary for India to embark on major science projects with relevance to our national needs, which will also be pertinent for tomorrow's technology conducive to India's national progress.

The Department of Science & Technology (DST) is playing a pivotal role in the promotion of S&T in the country. The department has a list of activities, ranging from promoting high-end basic research and development of cutting-edge technologies on the one hand, and to service the technological requirements of citizenry through development of appropriate skills and technologies on the other. DST accordingly develops S&T policies, strengthens human resources and institutional capacities, enables development & deployment of technologies, creates opportunities for societal interventions through S&T and establishes and engages in mechanisms of cooperation, partnerships & alliances.

Several of Department's activities are briefly presented below:

1. Fund for Improvement of S & T Infrastructure (FIST) in Universities and Higher Educational Institutions is currently operated in competitive mode of support for four basic purposes i.e. Equipment, Networking & Computational Facilities, Infrastructural Facilities and Maintenance.
2. Promotion of University Research and Scientific Excellence (PURSE) is a proactive measure of DST to

build the research capacity of performing Indian Universities.

3. Sophisticated Analytical Instrument Facilities (SAIF) have been established in different parts of the country to provide services of the facilities of sophisticated analytical instruments.
4. State S&T Programme facilitates states to achieve the specific S&T objectives at their level.
5. Policy Research Centers (PRC) have been supported by DST in institutions across the country to understand STI processes for making effective policies, strengthen them and link these evidences to policy making.
6. Centre for Human and Organizational Research Development (CHORD) conducts national surveys to generate and make available information on manpower and financial resources devoted to S&T activities.
7. KIRAN (Knowledge Involvement in Research Advancement through Nurturing) embraces women-exclusive schemes of DST to bring gender parity in S&T through various mechanisms.
8. Innovation in Science Pursuit for Inspired Research (INSPIRE)

is to attract talent to the study of science from an early age and build the required human resource pool for strengthening and expanding the R&D base and the Science & Technology (S&T) system of the country.

9. New Program of International Bi-lateral Cooperation Cooperation in Science & Technology supports joint projects with several countries. The highlights of International Multilateral and Regional S&T Cooperation include the BRICS Science, Technology and Innovation (BRICS STI) Cooperation; India-EU Science and Technology Cooperation; STI Engagements with the Group of Twenty (G20) countries.
10. National Mission on Nano Science & Nano Technology supports individual scientist-centric R&D projects.
11. Activities under Mega Facility for Basic Research include its support for Antiproton and Ion Research (FAIR), Darmstadt, Germany, experiments at the Large Hadron Collider (LHC) at CERN, Geneva, India-based Neutrino Observatory (INO), Madurai, Thirty Metre Telescope (TMT) Project, Laser

Interferometer Gravitational-Wave Observatory (LIGO) Project, Accelerator-based Research Facilities, etc.

12. Under Climate Change Programme, national missions on climate change under National Action Plan on Climate (NAPCC) are implemented.
13. Patent Facilitation Programme (PFP) provides financial support to Patent Information Centers established at various State Councils.
14. Natural Resources Data Management System (NRDMS) programme aims at promoting R&D in emerging areas of Geospatial technologies and applications.
15. National Council for Science and Technology Communication (NCSTC) largely aims at communicating and popularizing science and technology (S&T) to masses and stimulate scientific temper amongst them.
16. Science for Equity for Empowerment and Development (SEED) scheme supports several field-based programs with the application of S&T linked to directly benefitting the society. The Department of Science and Technology (DST) has played a significant role in fostering and



nurturing the fledgling startup ecosystem by steering it through its strong network of incubators supported by the National Science & Technology Entrepreneurship Development Board (NSTEDB). The last five years have been significant in bringing this to fruition.

Programmes like the National Initiative for Developing and Harnessing Innovation (NIDHI) initiated by NSTEDB, have been aligning its activities with the national initiative of Startup India and Stand-up India; playing a significant role in energizing the incubator-led innovation value chain. This activation process included a range of measures like establishment of a network of technology business incubators, scouting innovations, supporting ideas to prototypes, enabling the transition from being innovators to startups, provision of timely seed funding to the incubated startups, and support to scale up the startups through focused mentorship, partnerships, and networks. It has played a crucial role in strengthening academic-led innovation and startup ecosystem in the country over the last five years.

Besides, the nurturing of 3,681 startups under incubation through the network of 153 incubators created by DST, 1,992 intellectual property (rights) have been

generated. Further, in the last five years, the cumulative direct employment generation of 65,864 and Rs 27,262 crore of economic wealth creation have been the key highlights.

COVID-19 Initiatives - The collective strength and power of the NIDHI programme, the DST's incubator network and its startups, were tested successfully during the COVID-19 pandemic through the Centre for Augmenting WAR with COVID-19 Health Crisis (CAWACH) programme by supporting various solutions to resolve the crisis. These efforts have been distributed across all geographical regions of the nation.

To control the spread of the outbreak of covid-19 through artificial intelligence, data analytics for tracking and monitoring, and IoT-based solutions are among some solutions for which the Department of Science and Technology (DST) had successfully set up the covid-19 task force for mapping and extending necessary support. The task force mapped these technologies from R&D labs, academia, startups, and MSMEs. These solutions include diagnostics, testing, healthcare delivery solutions, protective gear and others. The task force identified promising startups that were close to scale-up, and required financial help for it.

As part of enabling rapid

development, manufacturing, and deployment of relevant technology options, the DST also invited two separate sets of proposals, one each under Science and Engineering Research Board (SERB) and Technology Development Board (TDB), for supporting scientific solutions and commercial manufacturing of both new and existing solutions.

In addition, the capacity mapping group consisted of representatives from DST, Department of Biotechnology (DBT), Indian Council for Medical Research (ICMR), Ministry of Electronics and Information Technology (MeitY), Council for Scientific and Industrial Research (CSIR), Atal Innovation Mission (AIM), Ministry of Micro, Small and Medium Enterprises (MSME), Startup India and the All India Council for Technical Education (AICTE).

Clean Energy Research Initiative (CERI) – DST aims to develop national capacities and capabilities in developing research-led competitive and cost-effective clean energy and energy-efficiency options for power and non-power applications. The areas of research are identified through stakeholder consultation based on national needs. The research spectrum

covers entire gamut of clean energy viz. smart grid, off grid, solar cells, energy storage, carbon capture utilization, building energy efficiency, cleaner fuels, clean coal and energy materials. It supports both upstream end of research where knowledge, more advanced than the current practice in the industry finds a space. It also envisages to successively enhance Technology Readiness Level (TRL) of promising options in partnership with industries and other stakeholders.

Water Technology Initiative aims to find out appropriate technological solutions through field level interventions to demonstrate technical, social, environmental and eventually economic sustainable solution for water challenges.

The Department of Science and Technology also nurtures 26 Autonomous Bodies (ABs). These include research institutions, specialized knowledge institutions, S&T service organizations and professional bodies. These institutions have a long and varied history and their variety of activities significantly contribute to the S&T eco-system of the country.



SMART CITIES: CONTINENTAL'S PERSPECTIVE

SPEAKER HIGHLIGHT

More than half of the world's population currently lives in urban settings, and it is estimated that another 2.5 billion people will move to urban areas in the coming decades. As the number of cars, 2-wheelers and pedestrians increases in urbanised areas, so does the risk of fatal collisions.

Around 1.3 million people die every year in traffic accidents worldwide. Further, the growing volume of traffic leads to increased vehicular emissions, congestions and an unsustainable ecosystem, impacting the lifestyle of people. Over 1.2 billion people spend over 50 minutes a day in a vehicle – a majority of the time in traffic jams, especially in Indian metropolitan cities. Moreover, the ageing of societies in certain countries leads to an increased number of elderly drivers.

To tackle the challenges of increasing density and complexity of urban populations, and given the innovative and emerging technologies, the concept of

Smart City is the ultimate rescue. The goal of a Smart City is to:

- Achieve sustainable development.
- Increase the quality of life of its citizens.
- Improve the efficiency of the infrastructure.

Realizing the dream of a Smart City requires multiple stakeholders, right from the government and city authorities to Public-Private Partnerships and citizen participation. The Indian government has been continuously promoting the development of Smart Cities. In August 2015, the Ministry of Urban Development unveiled the list of 98 cities that have been nominated by states, based on a state-level competition. However, there are certain challenges, which, as a nation, we need to overcome for the sustainable development of Smart Cities.

Another important component of Smart Cities is the use of advanced technology in all aspects, including mobility. The convergence of technology will revolutionise transportation, dramatically improving safety and mobility while reducing costs and environmental impacts.



Shantanu Sonar
Head of Driving Functions, Engineering-ADAS Systems, India Continental Automotive

Speaking of mobility technologies, the future is autonomous, connected and electrified. Concepts like Robo-Taxis, Personal Rapid Transits (PRT), Group Rapid Transits (PRT), Freight Rapid Transits (PRT), etc. would be a norm in smart cities.

What is Continental Doing?

We are already working together with several cities globally and supporting them with a range of 'Smart City' solutions, the aim is to make these cities even safer. With the overarching 'Vision Zero – Zero Fatalities, Zero Injuries, Zero Crashes', the intent is to make them more environmentally responsible and efficient and to meet the mobility needs of inhabitants. Thus, the idea is to democratise safety for end-users.

NCAP Regulations and Driverless Vehicles

Autonomous vehicles will become an integral part of mobility in urban centres, helping to reduce traffic congestion and increase efficiency. This evolution of autonomous driving will go through various degrees of Automation Levels as defined by the Society of Automotive Engineers (SAE) – Driver Assistance, Partial Automation, Conditional Automation, High Automation, and Full Automation. In other words, Advanced Driver Assistance Systems would be an enabler as well as a fallback for High Automation.

These vehicles could be great to deliver essential services or can be used for patrolling. They could create a new trend in shared mobility in the future. With a holistic approach encompassing SensePlanAct philosophy, Continental offers ADAS technologies, like Automated Emergency Braking, Adaptive Cruise Control, Blind-Spot Detection, Intelligent Intersection, Right-Turn Assist, Transparent Hood, and much more. All these intelligent technologies that make driving safer complies with NCAP global regulations and NCAPs customised regional regulations.

The technologies for autonomous vehicles, which Continental deployed in the self-driving shuttle CUBE (Continental Urban Mobility Experience), is ready for series production and is already in use worldwide. For example, in Singapore, it is currently being used in several pilot projects on manageable, public routes as well as in demarcated areas at company sites, university campuses or trade fairsgrounds.

City Fleet Management Systems

With many urban users preferring shared car rides, city fleet management systems can provide users access to shared mobility simply and efficiently, with easy administration for the fleet operator and excellent usability for users and operators. Continental has successfully tested this approach at locations in Asia, the US and Europe. In Kansas

City, Continental, together with Avis Budget Group, introduced a keyless rental experience providing seamless 'access and start' for customers in 2017.

Intelligent Intersection

Continental's Intelligent Intersection concept is a perfect fit for Smart Cities. It is an end-to-end solution comprising a sensor set for the intersection, powerful sensor (Radar, Camera, LiDAR) fusion algorithms that generate the environment model and Dedicated Short-Range Communication (DSRC) units, both at the intersection and in the vehicle. While the concept is integral to protecting Vulnerable Road Users (VRUs), such as pedestrians and cyclists (a.k.a. 'Intelligent Crosswalk'), it can also support drivers in complex intersection traffic scenarios.

Continental's first comprehensive Intelligent Intersection pilot is in the city of Walnut Creek, California, a 3D view of which was available to the visitors at CES 2019. The augmented reality demonstration manifested the real movement of traffic at an intersection. Further, the data collected by this Intelligent Intersection were evaluated, and the first results were presented during CES 2019.



The concept can enable the collection of information and statistics from intersections, which are often high-incidence zones. The collected information can be processed and analysed on the 'City Data as a Service' platform to determine critical areas so

that specific safety plans can be implemented to minimize accidents, contributing to Continental's Vision Zero.

CDaaS

Continental's City Data as a Service (CDaaS) platform is the foundation of Mobility Intelligence. Its purpose is to implement the mobility intelligence concept by mobility service delivery based on meaningful and enriched data with regard to time-to-market, quality and costs.

Industry Challenges and Roadblocks

Technology challenges, coverage, capacity, etc.: While we have successfully conceptualised the technologies required for Smart Cities, it is imperative for the technologies to adapt to the actual world and to get customised according to local market requirements.

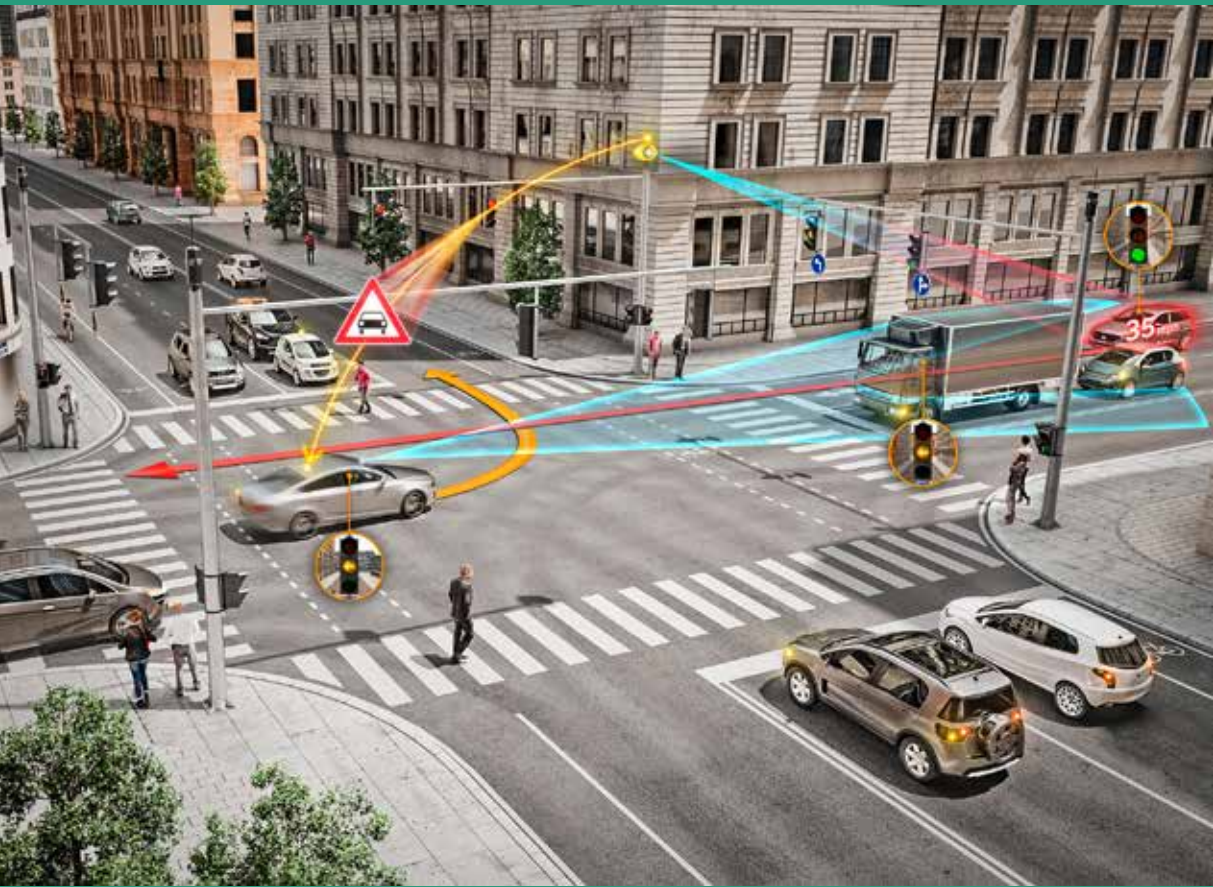
Digital security: Autonomous Mobility and Intelligent Infrastructure require secure connections, whether between vehicles or the surrounding environment. A comprehensive approach involving the three

pillars – Prevent, Understand and Respond – is the need of the hour. Features like quick Over the Air (OTA) update solutions can enable firms to react and install security patches to immunize their fleet against the attacks of nature.

Legislation and policies: Taking inspiration from policies across the world, India needs a strong regulatory governance framework regarding technical standards, data protection, open data and data security. Such policies will be crucial to ensure individual rights and establish sustainable smart cities.

Funding and business models: These projects need huge initial investment in the R&D phase, as the technologies are so new that the business model discovery is also due, which poses a challenge for many companies.

Existing infrastructure for energy, water and transportation systems: We need to strengthen our infrastructure for the successful implementation of Smart Cities. For example, the implementation of 5G technologies at a large scale would be crucial for this.



HOW CAN OTT PLAYERS GET THE BEST-IN-CLASS CONNECTIVITY INFRASTRUCTURE FOR CUSTOMER DELIGHT?

SPEAKER HIGHLIGHT

The rise of the Indian OTT platforms

Saying that the pandemic-led lockdown in India only fuelled the growth of the already booming OTT video streaming industry will not be an overstatement. People are now hooked to the OTT platforms for entertainment and the habitual attachment to the OTT platforms that increased during the lockdown will continue for the majority of them. As per a Boston Consulting Group report, the Indian OTT market, which is currently valued at USD 500 million is expected to reach USD 5 billion by 2023. And this cannot happen without the support of high-quality engaged & entertaining content.

Where is the content located?

Content Delivery Network (CDN) is the infrastructure through which OTT content is delivered to the end customer. CDN hosts the original content on a central server and then shares it remotely through caching and streaming servers located in the data centres across the globe. Hence, a reliable data centre connectivity with high capacity is required to deliver the highest level of user experience, which has become increasingly important for media companies to differentiate their streaming video offerings.

What are the current roadblocks in Data Center Connectivity?

Uptime and reliability are arguably the key consideration when choosing an optical fibre connectivity partner. A good choice of fibre connectivity means an optimized infrastructure and application environment that is capable of reaching the entire audience and serving customers better than competitors. On the flip side, poor connectivity can result in unstable connections and low efficiency.



Amey Sukhthanker
Head-Sales and
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Transmission Ltd.

The conventional Data Center connectivity option is to go with buried/underground optical cables. However, the underground cable is not so reliable with its history of constant cuts, lower uptimes, and difficulties faced due to RoW issues in case of altering the existing paths.

These data centres are expected to deliver 24/7 smooth operations. To do so, there are various external dependencies like stable and uninterruptible power supplies, proper ventilation, high-quality cooling systems, fire suppression, reliable backup generators, and connections to external networks. Theoretically, a data centre can be built at any location which has continuous power; however, the connectivity has a significant impact on the quality of service that the facility can provide to its customers.

Why Intracity Data Center connectivity is crucial for OTTs?

India has several important intercontinental submarine cables connecting it to Asia, Africa, and Europe. There are hundreds of Indian data centres, and the majority of these colocation facilities are located in and around Mumbai & Chennai followed by Delhi & Hyderabad. These data centres don't exist in isolation. They need to communicate with each other, share content and

provide backups and redundancy. With a speedy and reliable connection in place, physically separate data centres can more easily share resources and balance workloads.

What is OPGW and how it's a revolutionary solution to the existing setup?

OPGW (Optical Ground Wire) optical fibre cable which runs over the high-

voltage power transmission lines, can easily connect data centres where OTTs have hosted their content within the city and also connecting cities to provide a stable & best-in-class network resilience. Due to the height at which this fibre runs, it becomes sabotage proof, uses existing Right of Way (RoW), and provides an uptime of more than 99.9% which is unheard of in the telecom industry. This is a game-changing innovation in providing the most reliable data centre fibre connectivity, which is the need of the hour for meeting the expectations set by their growing customers like OTTs.

OTTs are also demanding an inter-city corridor between key cities like Mumbai-Delhi, Mumbai-Chennai and Hyderabad-Chennai despite having 6-7 diverse paths running through telecom service providers, which are running these services using terrestrial fibre, which is highly prone to cuts and losses resulting in performance degradation and productivity impacts.

Within Mumbai, the city which hosts major Data Centers within the country, Sterlite Power has built an intracity Data Center OPGW Corridor ring. This corridor runs within the vicinity of 500 meters to the majority of prime hypers-scale Data Centers like CtrlS, Sify, Web Werks,

Yotta, GPX to provide almost end-to-end OPGW connectivity. Data centres and OTT players can easily tie-up with telecom partners who actually ride on the OPGW and source multiple Gigs/Terabytes of active bandwidth. As a result, OTTs can get low latency and reliable network for running their applications hosted at these DCs and also provide a consistently superior experience to their subscribers. Coupled with a good bandwidth connection at the user's end, the consumer can get the desired experience whether they're streaming on the road from a mobile device or sitting at home in front of their smart TV.

Edge DC solution to enhance customer experience and edge computing is going to be a 20 Billion USD industry by 2026

Faster deployments of edge DCs alongside substations and towers with reliable power supply allows tier-2 and tier-3 cities in Maharashtra like Solapur, Akola, and Wardha to create CDNs by hosting content closer to the end-user and helps improve the experience. As per media reports, rural data consumption now accounts for roughly 45% of overall mobile data usage and urban usage makes up to 55%, compared to a 40:60 ratio before the Covid-19 outbreak. There is also a rapid penetration strategy to replicate this edge DC model in other Indian cities and enable the fast-growing demand from CDN and media and entertainment segments.

Consumers from these areas are also willing to subscribe to the services with the best content and user experience that can reach them wherever they are, and at the right price. The media and entertainment industry along with OTTs are leveraging the edge to DCs that provide low latency and a smooth viewing experience to their end consumers of these services.

GLIMPSES OF THE SHOW



TRANSFORM YOUR BUSINESS WITH UNPARALLELED AI TECHNOLOGY



STARTUP TALKIES

As businesses across the globe have become reliant on digital technologies more than ever, the pressure to act is mounting on organisations, propelling them to rethink their cybersecurity strategies. That said, the challenges for the Financial Services industry (FSI) and the organisations that rely on digital services have aggravated in the wake of the COVID-19 pandemic. According to a study conducted by Cisco, cyber threats received by Asian companies every minute have increased by six times. It is also predicted that consumer visits to retail bank branches are set to drop by 36% by 2022. Moreover, the adoption of global biometric authentication is expected to grow during 2018 – 2023, with compound annual growth of 22.5%.

Let's face it, Asia lags behind in coping with these transformations. Less than one-third of banking executives in Asia-Pacific are equipped to handle the changing regulatory landscape, in comparison to 46% of their peers in North America and Europe. In this scenario, the question that arises is – how can FSI companies, in today's day and age, leverage digital transformation and process automation and still be able to curb and eliminate cyber threats? The answer is simple, they no longer can, at least not with traditional methodologies.

To the rescue, comes **ADVANCE.AI** – a leading big data and AI company in Asia that specialises in solving digital

transformation, fraud prevention and process automation challenges faced by banking, fintech, retail and e-commerce sectors. Currently, operating across six markets (India, Indonesia, Malaysia, Philippines, Vietnam and Thailand), the Singapore-based **ADVANCE.AI**

AI serves over 1000 clients in these sectors, empowering them with its rich industry experience and expertise. To begin with, **ADVANCE.AI** offers a robust AI-powered Face Recognition solution, which comprises modules like Face Comparison, Liveness Detection, Face Search, Fraud Face Detection and Face Multiplatform Score. The company's AI-powered OCR comes with ID Document Recognition (API and SDK) and Receipt Recognition and ID Document Forgery Detection. Besides these cutting-edge solutions, **ADVANCE.AI**'s capabilities also include NLP technology and Machine Learning algorithms for fraud detection.

Digital Onboarding and Identity Verification

ADVANCE.AI focuses on regulatory requirements and helps clients to acquire full alignment and deep understanding of regulatory requirements, such as involvement of data security, process robustness and so on. The company also accelerates the KYC process for customer onboarding by allowing remote information verification through stable and reliable video calls, effective result handling and comprehensive functions to cover all business needs. With **ADVANCE.AI**'s AI-powered OCR SDK, the

company assures correct ID types and automatically takes high-quality ID documents photo even with low-end smartphones. The company's portfolio of AI-powered OCR products also includes **ADVANCE** ID Forgery Detection – a fully automated solution that eliminates the burden of tedious review work and uncertain default risks by ensuring that all types of forgeries, be it a photoshopped image or manipulated layout, can be accurately and quickly be detected by **ADVANCE.AI**'s intelligent ML models.

When it comes to face recognition products, Face Comparison checks the similarity between two photos and verifies if the two faces are of the same person, usually a live selfie and an ID photo, during the identity proofing or verification process. **ADVANCE** Liveness Detection verifies the presence of a live person in front of the camera by checking the live person's facial movements and maximally prevents fraud attacks, such as photos, videos or masks. FSI companies will also benefit from **ADVANCE** Face Search – a product that searches the face database for similar faces and files the similarities with a specific face photo. It helps detect identity fraud risks via facial information in real-time as compensation for no access to the national central face database. Fraud Faces, on the other hand, detects fraud risks in real-time by using a face photo with no requirement of sensitive personal information like national ID card number, name or phone number.

The uniqueness of these innovative products stems from the unmatched AI technology that **ADVANCE.AI** brings to the table.

'We localise, work directly with local clients and deploy human resources such as business development teams and technical teams for our clients. We leverage global AI technology and local data to solve Asia's problems. Our Face Comparison exhibits 99.4% accuracy for real-world images. Also, our Liveness SDK of 2MB is by far the best compared to 40MB of the nearest competitor,' extols Bernardi Susastyo, Chief Commercial Officer, **AD-VANCE.AI**.

He goes on to highlight the company's proven scalable engineering expertise in handling 4 million API calls daily, with no downtime in the last year. Besides bringing in the benefits of microservices architecture for fast deployment and easy integration, **ADVANCE.AI** also focuses on empowering its customers with highly customer-centric products.

Despite the threats posed by the Covid-19 pandemic, **ADVANCE.AI** has fared well in these uncertain times, witnessing a remarkable growth of 37% in its employee headcount and further expansion into six markets, namely Singapore, Indonesia, India, Vietnam, Thailand and the Philippines. While the COVID-19 pandemic has forced banks to shut down many of their physical branches, they are forced to think about an immediate action plan as well as prospects of fewer physical touchpoints. **ADVANCE.AI**'s initiatives are focused on providing such banks with contactless digital solutions by leveraging AI technology, which can be manoeuvred to process and create a seamless and smooth customer onboarding journey, manage loan applications and analyse credit risks of consumers/SMEs. While enabling faster results, higher accuracy of approvals and reduced costs and physical contact, this also allows businesses to rethink their operations to make them more efficient. Moreover, the company also does the scoring based on the credit report.

Backed by reputable VCs from Silicon Valley and last series C funding of \$80 million from Temasek, **ADVANCE.AI** is all set to enter and explore new markets in Europe, Australia, Africa and South America.



Raman Aggarwal
CEO, Founder



JUPITICE – BRIDGING WORLD'S JUSTICE GAP

STARTUP TALKIES

Raman Aggarwal, a renowned Indian Chartered Accountant, started his own venture – AEREN LPO – targeting the US legal market. Very soon his company was providing litigation support and business services to Fortune 500 companies like Google, Yahoo, Booking.com, Pepsi and other 100 firms. Today, over a decade later, he provides holistic guidance in terms of strategy, tech-solutions and implementation through six of his successful legal ventures.

Over his frequent business visits to America and other countries, Mr Aggarwal got himself acquainted with the increasing use of technology in the legal industry globally. His curiosity in digging deep into the usage and benefits of technology-enabled services in the legal industry paved the way for his revolutionary start-up – Jupitice Justice Technologies.

The Inception

Intrigued by how advancements in technology were shaping the world, Mr Aggarwal strategically dwelled on comprehending the use of technology in the legal world. Throughout his thorough research, which spanned over 10 years, he found out that dispute is a by-product of a relation – be it

personal or business – which has a multi-dimensional impact.

He believes that for successful technological intervention in the legal world, the technology should not only facilitate and ease the dispute resolution process but also ensure that it is easily accessible to all for faster justice delivery. Looking at the current justice landscape, approximately five billion people around the globe are still waiting for justice, which includes people who are excluded from opportunities the law provides, people who live in extreme conditions of injustice, and those who cannot obtain justice for everyday problems.

Technology alone will not

be able to solve the wide gap between those who have access to justice and those who don't. Thus, keeping the core motive of making justice accessible to all, his visionary amalgamation of technology and the justice sector resulted in a futuristic product known as Jupitice Justice Technologies.

Jupitice – The Architecture

Jupitice is a technology company that has created the World's First 'Global Digital Court'. This will act as a global address for justice seekers under the Private Justice System where all the participants can conduct end-to-end ADR (Alternative Dispute Resolution)



proceedings online. Further, Jupitice has also built the world's first 'Online Justice Services Marketplace' that aggregates ADR Professionals & ADR Centers across the globe to connect justice seekers with justice providers and facilitate dispute resolution through ADR Mechanisms.

Its ultra-advanced & innovative 'End-to-End Justice Delivery Platform' enables participants to perform all tasks on a single platform environment, thus eliminating the need for any physical contact or manual work. To accommodate anyone with a dispute on the platform, Jupitice was designed to support deprived communities, people with linguistic challenges and people from different geographic locations. Abiding by its core goal of inclusive access to justice, Jupitice also makes convenience its priority, hence allowing access to justice anywhere, anytime.

Powered by AI case diagnosis, predictive analysis and blockchain warranted security, Jupitice is the solution that the justice world is looking for. From corporate companies and government agencies to individual disputants, the Jupitice platform can accelerate your dispute resolution through zero-contact transactions.

CONFERENCE PROGRAMME HALL A

DAY 3: 26 MARCH 2021 (FRIDAY)

SOLAR INDIA SUMMIT
1000 - 1100hrs Session: Pathway to Green Hydrogen Economy in India
Chief Guest: Ms. Gauri Singh, Deputy Director-General, IRENA

Distinguished Speakers:

- **Shri Deepak Gupta**, IAS (Retd.) Hon. Director General, NSEFI, Former Chairman, UPSC (former Secretary, MNRE and former Special Secretary, MoHFW)
- **Shri K. R. Jyoti Lal**, IAS, Principal Secretary, Department of General Administration, Revenue and transport, Government of Kerala
- **Mr. José Ignacio Sanz Saiz**, VP Gas, Renewables and Power India - India Country Chair, Total Group (Virtual)

Moderator: Mr. Subrahmanyam Pulipaka, Chief Executive Officer, NSEFI

1100 - 1110hrs Changeover

1110 - 1215hrs Session: Aatma-Nirbhar in Manufacturing-Self Reliant Solar Industry

Distinguished Speakers:

- **Shri Pradip Kumar Das**, CMD, IREDA
- **Shri Hitesh Doshi**, Chairman and Managing Director, Waaree Energies
- **Mr. Sujoy Ghosh**, Vice President -APAC & India Region, First Solar
- **Mr. Sunil Badesra**, Country Head - Sungrow India

Moderator: Mr. Rishabh Jain, Manager- Market Intelligence, CEEW-CEF

1215 - 1225hrs Networking Break

1225 - 1330hrs Session: Solar PV Recycling- Action and Direction

Distinguished Speakers:

- **Mr. Jan Clyncke**, MD, PV Cycle
- **Mr. Máté Heisz**, Director of Global Affairs, SolarPower Europe

Moderator: Mr. Subrahmanyam Pulipaka, Chief Executive Officer, NSEFI

Launch of Report by NSEFI: Solar PV Recycling in Indian Context

CONFERENCE PROGRAMME HALL B

DAY 3: 26 MARCH 2021 (FRIDAY)

CLEAN AND WATER INDIA SUMMIT
1000 - 1050hrs Session: Disposable Plastic Waste: Now & the Future. Alignment with the Sustainable Development Goals & Principles of Circular Economy

Distinguished Speakers:

- **Dr. Binish Desai**, Recycle Man of India
- **Ms. Shalini Goyal Bhalla**, Advisor, Sustainability and Circular Economy
- **Mr. Ujwal Desai**, Managing Director, Lucro Plastscycle Pvt. Ltd.

Moderator: Mr. Ashish Sachdeva, Founder President, Green Dream Foundation

1050 - 1100 Changeover

1100 - 1145hrs Session: Integrated Solid Waste Management & the ‘Triple Bottom Line’ Approach to Meet India’s Waste Crisis

Distinguished Speakers:

- **Mr. R.K. Sud**, Managing Director, EESL
- **Mr Masood Mallick**, Joint Managing Director, Ramky Enviro (REEL)

• **Dr. Abhinav Akhilesh**, Director - Human and Social Services, KPMG in India

Moderator: Mr. Ashish Sachdeva, Founder President, Green Dream Foundation

1145 - 1200hrs Networking Break

1200 - 1300hrs Session: Efficient Water Management

Distinguished Speakers:

- **Dr. Fawzia Tarannum**, Assistant Professor, TERI School of Advanced Studies
- **Mr. Raman VR**, Head of Policy, WaterAid India
- **Md. Mazharul Haque**, Managing Director, Oasis Wfs Pvt Ltd.
- **Mr. Chinnayya Math**, CEO, Nimble VisionPvt. Ltd.
- **Mr Ganesh Shankar**, Founder & CEO at FluxGen Technologies

Moderator: Dr. Pranab J Patar, Chief Executive, Global Foundation for Advancement of Environment and Human Wellness

1400 - 1600hrs Smart Cities India Awards 2021

Chief Guest: Shri Jibesh Kumar, Hon’ble Minister Department of IT, Government of Bihar

Guest of Honour: Mrs. Anju Bhalla, Joint Secretary, Ministry of Science & Technology

Smart Cities India (SCI) Awards is a unique platform designed to felicitate, recognize and encourage individuals, policy makers, companies, municipalities, government bodies and associations to illuminate the work done in both urban and rural sectors. SCI Awards is industry’s most prestigious and well recognized platforms with 800+ submission forms scrutinized and reviewed by the eminent jury in last 5 years. The winners of SCI Awards 2021 will be announced (Physical) on 26th March 2021 at Pragati Maidan, New Delhi.



CONFERENCE PROGRAMME VIRTUAL

DAY 3: 26 MARCH 2021 (FRIDAY)

CYBER SECURITY CONCLAVE
1000 - 1100hrs Session: Cyber Security in the New Normal World
Moderator: Mr. Atul Gupta, Partner and Head - IT Advisory Services, KPMG in India

Distinguished Speakers:

Keynote Address: Lt. Gen. (Dr) Rajesh Pant, National Cyber Security Coordinator, Prime Minister’s Office, Government of India

Special Address:

- **Dr. Muktesh Chander**, IPS, Special Commissioner, Delhi Police
- **Mr. Shirish Bapat**, Assessor Manager, LRQA SWA

1100 - 1110hrs Changeover

1110 - 1210hrs Session: How Secure is your Data on the Cloud?

Moderator: Mr. Nikhil Narendran, Partner, Trilegal

Distinguished Speakers:

- **Mr. Vijay K. Banda**, Senior Director- Cyber Security, Qualcomm India
- **Mr. Moshe Ferber**, Chairman, Cloud Security Alliance, Israel
- **Mr. Vijay Kumar**, Founder, DigitalFort Technologies
- **Mr. Akshay Shah**, CEO, iWeb
- **Mr. Deepak Talwar**, National Cyber Security Officer, Microsoft

1210 - 1220hrs Changeover

1220 - 1320hrs Session: New Emerging Trends in Cyber Crimes

Moderator: Mr. Vijay Kumar, Founder, DigitalFort Technologies

Distinguished Speakers:

- **Ms. Lopa Mudra Basu**, Cyber Security Expert
- **Dr. Balsing Rajput**, Superintendent of Police, Maharashtra Cyber, Maharashtra Police
- **Mr. Kunal Gupta**, Partner, Trilegal
- **Mr. Nikhil Mahadeshwar**, Chief Technology Officer, Skynet Softtech Pvt. Ltd.

EMERGING TECH SUMMIT
1000 - 1130hrs Session: Building Embedded Systems for IoT
Moderator: Mr. Ravi Subramanyam, Founder and President, iBot Control Systems Inc.

Distinguished Speakers:

- **Mr. Siddharth Verma**, IOT Lead India, Microsoft
- **Mr. Vinay Thapliyal**, Technical Marketing Manager, MCD, INDIA, STMicroelectronics
- **Mr. Amit Rao**, VP - Strategy & Business Development, APAC, Trusted Objects
- **Mr. Deepu Chandaran**, Sr. Technical Manager, LDRA India
- **Mr. Nate Srinath**, Founder and Director, INXEE

1130 - 1145hrs Networking Break

1145 - 1315hrs Session: Industry 4.0: Reinventing Manufacturing

Moderator: Mr. Sunil David, Regional Director-IOT (India & Asean), AT&T

Distinguished Speakers:

- **Mr. Arun Handa**, Chief Technical Officer, Servotech Power Systems
- **Mr. Samip Mutha**, Head of Digital, RPG Group
- **Mr. Manuj Ohri**, Partner, KPMG
- **Mr. Naveen Kumar Singh**, Group CEO, Napino Auto & Electronics
- **Mr. Sandeep Sehgal**, Head Enterprises, Nokia

1330 - 1400hrs Startup Pitch Session

1400 - 1600hrs Smart Cities India Awards 2021 (Physical)

Chief Guest: Shri Jibesh Kumar, Hon’ble Minister Department of IT, Government of Bihar

Guest of Honour: Mrs. Anju Bhalla, Joint Secretary, Ministry of Science & Technology

Smart Cities India (SCI) Awards is a unique platform designed to felicitate, recognize and encourage individuals, policy makers, companies, municipalities, government bodies and associations to illuminate the work done in both urban and rural sectors. SCI Awards is industry’s most prestigious and well recognized platforms with 800+ submission forms scrutinized and reviewed by the eminent jury in last 5 years. The winners of SCI Awards 2021 will be announced (Physical) on 26th March 2021 at Pragati Maidan, New Delhi.



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