DON'T JUST CHANGE
TRANSFORM WITH
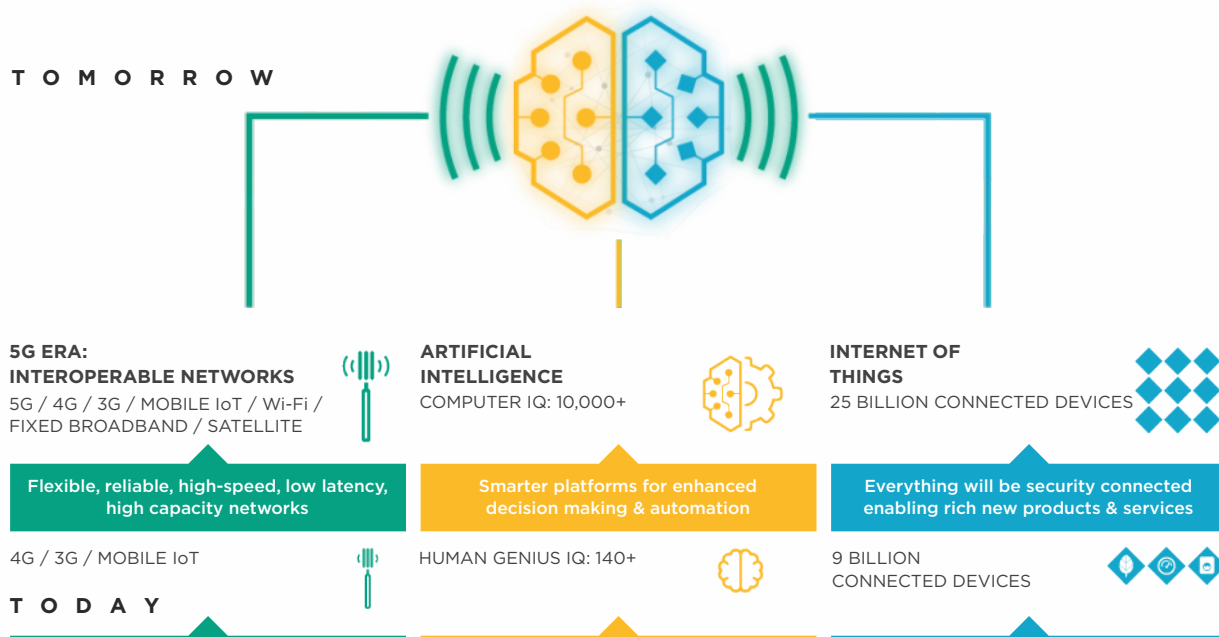# INTELLIGENT CONNECTIVITY

Sterlite Tech

The world is aiming for a smarter digital future. So, is moving your business to the Cloud enough? Can joining the bandwagon of the Internet of Things (IoT) do the trick, or will it be achieved by making your big data bigger?

The mantra of the future is to amalgamate all of these to achieve Intelligent Connectivity. It combines high-speed networks with the Internet of Things (IoT) and Artificial Intelligence (AI) to bring in a structural change to improve performance and efficiency and provide a personalised experience.

INTELLIGENT CONNECTIVITY
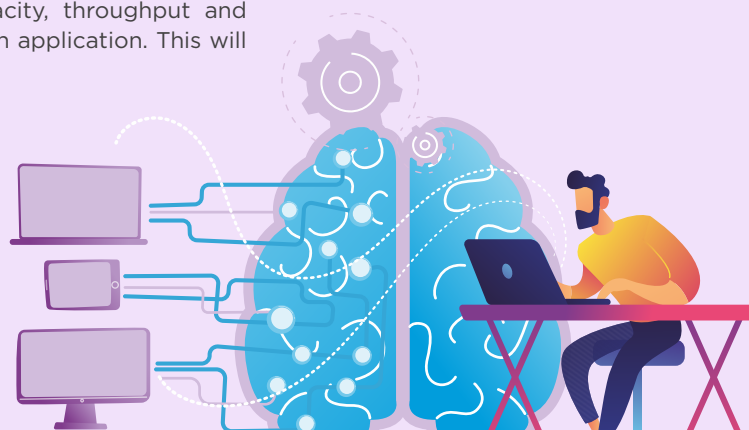
The Fusion of 5G, AI and IoT
INTELLIGENTLY CONNECTING EVERYONE AND EVERYTHING TO A BETTER FUTURE

TOMORROW

5G ERA:
INTEROPERABLE NETWORKS
5G / 4G / 3G / MOBILE IoT / Wi-Fi / FIXED BROADBAND / SATELLITE

ARTIFICIAL INTELLIGENCE
COMPUTER IQ: 10,000+

INTERNET OF THINGS
25 BILLION CONNECTED DEVICES

Flexible, reliable, high-speed, low latency, high capacity networks

Smarter platforms for enhanced decision making & automation

Everything will be security connected enabling rich new products & services

4G / 3G / MOBILE IoT

HUMAN GENIUS IQ: 140+

9 BILLION CONNECTED DEVICES
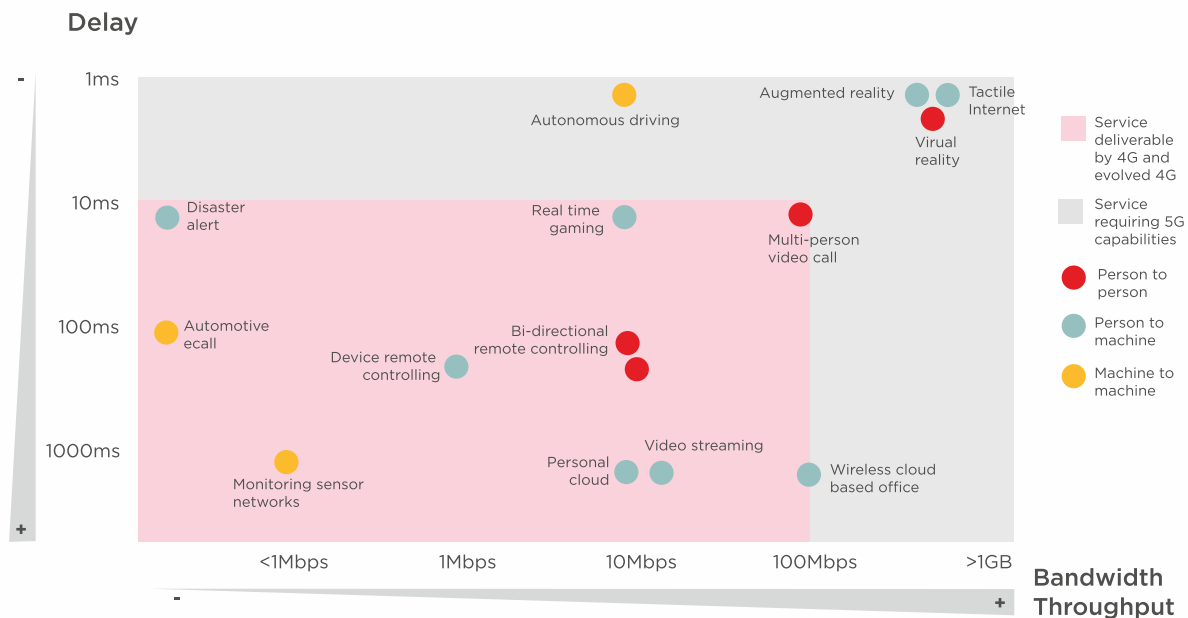
TODAY

Sources: GSMA Intelligence, 2018

All this is further being facilitated by the transition from 4G to 5G. The telecom industry is abuzz with the possibility of several companies including Verizon, AT&T, T-Mobile, Reliance and Huawei testing and rolling out 5G in various cities. This will get an additional boost when smartphone companies announce the launch of 5G-compatible devices. 5G will unlock the future of connectivity at various levels including individuals, consumers and businesses.

According to GSMA Intelligence, 5G connections will reach 1.2 billion by 2025 worldwide. 5G has the capability to dramatically improve network capacity, throughput and responsiveness, enabling operators to tailor connectivity to each application. This will open up an array of applications in the future.

THE MOST DEMANDING SERVICES WILL DEPEND ON 5G

Delay

1ms	Autonomous driving — Augmented reality — Tactile Internet — Virual reality
10ms	Disaster alert — Real time gaming — Multi-person video call
100ms	Automotive ecall — Device remote controlling — Bi-directional remote controlling
1000ms	Monitoring sensor networks — Personal cloud — Video streaming — Wireless cloud based office

<1Mbps   1Mbps   10Mbps   100Mbps   >1GB

Bandwidth Throughput

Legend:
- Service deliverable by 4G and evolved 4G
- Service requiring 5G capabilities
- Person to person
- Person to machine
- Machine to machine

Source: GSMA

Today, personalised experience is the key to any business and every company is working towards it. Imagine you driving towards the office, and the Starbucks on the way senses your presence in the vicinity and sends you a customised message that your favourite coffee is ready for the grab with a hazelnut cookie (your maximum ordered side item), popped in as a little extra to brighten up your day.

Be it remotely operating a manufacturing plant at the other end of the world, or constantly monitoring and repairing each and every part of an aircraft at the highest altitude or a salesman who has detailed information about you, your choices and your style quotient just as you enter a shopping mall – Intelligent Connectivity is more than you have ever bargained. It is poised to have a significant and positive impact on individuals, industries, society and government to transform the way we live and work.

GETTING INTELLIGENTLY CONNECTED

Let's broaden this up and imagine the avenues that Intelligent Connectivity will open in the global space. Things that once were only figments of imagination will soon turn into reality. Here are some of the smart digital possibilities that the industry is working on:

Entertainment

Workplace Productivity

Smart Living

ENTERTAINMENT

Live Streaming:

Intelligent connectivity will be a game changer for the entertainment industry. If posting and sharing photos and videos are the latest trend today, 5G will bring the possibility to deliver 4K and 8K ultra high-definition videos, 3D videos, holograms, augmented reality and virtual reality applications for gaming and immersive TV. This means live sports coverage could be broadcasted with a 360-degree view from your favourite players' perspective. You can be a part of a live music concert without being at the concert physically. This combination of augmented reality and virtual reality will change the way we perceive entertainment in the future.

Gaming:

Gaming will become more realistic with virtual reality, artificial intelligence, HD graphics, etc. Faster and responsive access to the internet will bring in more gamers to share real-time gaming experience. 5G connected glasses will provide more freedom of movement, player orientation and interaction within the game and the real world without the need of any specialised hardware.

Targeted Advertisement:

Advertising will become more personalised. Sensor embedded cameras will detect the user's age and gender to display appropriate product recommendations. Sourcing data of an individual's buying patterns will help companies to analyse and deliver customised and tailored purchasing options. Each customer will be treated personally to improve the relevance of advertising.

WORKPLACE PRODUCTIVITY

Virtual Offices:

The internet has made the world a small place today. Intelligent Connectivity will make it smaller and more real. 5G video conferencing can bring together the best brains from anywhere and everywhere; be it meetings from home, regional offices, head offices or even remote locations. Virtual reality headsets, virtual offices, virtual productivity tools will make virtual conferencing highly engaging.

Customer Care:

With Industrial Internet of Things (IIoT), businesses are run remotely from the other end of the world. But with Intelligent Connectivity, you can be with your customers from any part of the world. With personalised video chats, 3D hologram images, you can analyse, diagnose and resolve the problems in systems or machines installed in any plant at any corner of the world.

Remotely Automated Plants:

Factories are becoming increasingly automated, enabling them to be controlled largely by operators in another location. This brings in the flexibility of choosing the locations of production plants without the dependence of putting together a huge workforce or finding skilled manpower. Plants can remotely run with fewer on-site employees and issues too can be resolved with intelligent connectivity bringing down the cost of operations.

Drone-ni-present:

A lot is being done with drone technology to virtually be at places which are inaccessible or inhospitable to access, like oil rigs, wind turbines, nuclear power plants, war fields, or rescue operations like the Malaysia Cave rescue and the recent Meghalaya mine rescue. Intelligent Connectivity can bring a new dimension to such operations by transmitting live 360-degree images and audio from its location to the control centers. Maintenance and emergency services can make extensive use of connected cameras to control and coordinate such operations.

Preventive Maintenance:

A day of downtime in an oil rig or a manufacturing plant can cost millions of dollars in losses. However, Intelligent Connectivity will not just play a major role in preventing breakdowns by constant analysis of data generated from various sensors but also locate the cause of the problem which might have a rippling effect leading to a possible disaster. The world is clearly understanding the importance of digitisation and to be in sync with the global trends, every company is implementing IoT, machine learning and artificial intelligence in their set up. According to Gartner, by 2020, more than 65 percent of enterprises (up from 30% today) will adopt IoT products. However, bringing in a broader picture and combining these technologies in the mould of Intelligent Connectivity is all about implementing a solution which looks for problems and solves it even before you notice.

Digitising Agro-Business

Farming can gain a huge boost from sensor-enabled drone technology. Every year, a large portion of farm yields are destroyed due to unnoticed insect infestation. Drones are already being used for crop spraying, land management and aerial surveillance of farmlands. Sensor-enabled drones can detect the inception of such invasions and alert the farmer for proactive measures before it is too late to handle. Not just bugs, Intelligent Connectivity can assist in increased crop yields, crop quality and livestock management with detailed analysis of soil conditions, improved use of pesticides and fertilisers and accurate prediction of weather conditions.

SMART LIVING

Driverless Cars:

Google, Tesla and every other major automotive companies have been working on making driverless cars a reality. And now, the reality doesn't seem that far. Intelligent Connectivity can help every person and every vehicle to communicate with everything else in the vicinity to make road transport safer, efficient and sans collision. A recent research by Bosch predicts that connected cars will reduce traffic accident injuries by 350,000 and save approximately 11,000 lives by 2025.

Drone Delivery:

In the 1960s, Hanna-Barbera, envisaged space-age with aerocars in their animation - The Jetsons. Who knew it would come true! 5G-enabled unmanned aerial vehicles with AI to optimise route management is almost a reality. Companies such as Amazon Prime Air, Boston Dynamics and many others are working to introduce unmanned aerial and road delivery vehicles to handle the last-mile delivery of goods, packages and food. The vehicles can navigate autonomously avoiding buildings and other objects on its path, climb stairs and even open doors with access permissions to make a flawless delivery.

Smart Cities:

Sustainability is today's necessity and governments are trying to incorporate sustainability in the form of smart cities where every factor can be monitored, controlled and conserved. Street lights, traffic signals, electricity and water can be effectively handled to avoid wastage. Smart cities can also deploy traffic control systems with 5G connectivity to monitor traffic thereby removing the need for traffic lights, speed cameras and other systems.

Even crime can be handled digitally where sensors-enabled CCTV cameras can analyse behaviours and immediately alert the nearest police station and further assist with the criminal's facial recognition, digital marking, and electronic tagging of the criminals to keep tabs on their activities. In other words, digital-age Batman!

Intelligent Education:

Internet has broadened the horizons of education from textbook to global knowledge. Intelligent Connectivity can do more by bringing in a holistic way of learning with augmented reality in classrooms. On a broader level, in areas such as healthcare, engineering and the armed forces, people can learn hands-on skills from anywhere across the world.

Smart Home Applications:

We already have a taste of having machines intelligently do our work. Alexa and Siri are already a part of our lives. Washing machines operating on voice command, homes readjusting itself to your preferred temperature before you step in, or refrigerators that stops cooling to escape - these too we already know of. But the future of smart living can enable home and entertainment appliances and devices to operate beyond imagination by amalgamating with 5G connectivity and IoT. Gartner predicts that consumer spending on connected home devices amounted to approximately $189 million in 2018, an 18 percent increase from 2017. And these numbers will see an unprecedented rise with the inception of 5G with rising use of some form of smart devices and energy controls appliance such as thermostats, lighting or smart home access device like smart door locks, etc.

Intelligently Connected to Health:

Given the rising awareness on health among common people, intelligent connectivity has already begun making strides in this segment with wearable smart devices wherein people can self-monitor various aspects of their health like continuous information on heart rates, blood pressure, temperature, stress levels, etc. enabling any kind of emergency alerts. It can do more. There is a dearth of medical assistance across the world and 5G will help health managers to maximise the use of scarce medical resources. Without depending on the location, physicians can diagnose anywhere at any time using remote physical examination with full audio-visual and haptic feedback. With Intelligent Connectivity, surgeons could even carry out remote procedures using specialised robots.

Intelligent Connectivity sits at the heart of this transition to the new world of smart life. In short, the world is about to make science fiction movies a reality and we will soon be living it too!

MAKING SMART TRANSITION WITH STERLITE TECH

At Sterlite Tech, we like to stay one step ahead of the race. As various segments of the industry are working towards taking their digitised space to the next level, we are technologically geared up already to support them in their transition. Here are some of the areas where you will find us to be your trusted partners in your business.

Intellza

Digital Commerce & Customer Management

Crestel Digital Billing & Revenue Management

NetVertex Policy Control & Charging

Elite Wi-Fi Service Management Platform

INTELLZA

We live in the web of internet and knowingly or unknowingly, we are constantly churning out data. While smart phones have become a ubiquitous device, we all use an array of smart devices in the form of smart watches, wearable devices, automated cars, digitised machines, etc. which leaves our digital footprint in this web.

eMarketer estimates that by 2019, more than half of the world will access the internet regularly and by 2021, more than 4 billion people will be online. Imagine the amount of data that will be generated and then, imagine the amount of valuable, constructive information that can be mined from this cauldron of big data and used to initiate personalised and targeted marketing. Putting numbers to that imagination, Market Research Future predicts that the data lake market is expected to grow from $3.18 billion in 2018 to $14.27 billion by 2023.

In all this, Communication Service Providers (CSPs) are uniquely poised to shine in this data-driven future and will play a critical role in facilitating digital transformation. Sterlite Tech's Intellza is a near real-time business intelligence solution that effortlessly manages, stores and processes data faster. This high-speed system has the agility to capture, process and correlate trillions of records every day into a single data repository eliminating data duplicity. This not just saves infrastructure cost but also improves data integrity with faster access to data. Backed by seamless information access, Intellza provides actionable insights for smart decision-making that helps to increase monetisation opportunities, enhance overall revenue, redefine customer experience and improve network planning.

Intellza consolidates customer usage patterns from legacy networks over a single platform allowing the service providers to craft personalised plans with bundled packages, including cross-selling, up-selling and a-la-carte offerings, to retain high-value customers and increase average revenue per user.

DIGITAL COMMERCE & CUSTOMER MANAGEMENT

From booking a cab to ordering from Amazon, digitisation has proliferated the digital experience of customers while ensuring speed, quality, flexibility, efficiency and security. These tonnes of data can help businesses understand customers better and even bring in changes in various industries to suit future needs. For instance, while e-commerce platforms are analysing the online behaviour to provide customised buying options, they are also changing the buying pattern of customers; automotive manufacturers are understanding the drivers better helping them design and make changes in vehicles accordingly.

However, consumer behaviour constantly changes and the industry has to be a step ahead in this change. The trend now is towards advanced personalisation, social commerce, assisted services such as chatbots, order management among many such advanced features.

Sterlite Tech's Digital Commerce & Customer Management (DCCM) is a customer-centric platform that digitises each interaction and every engagement of CSPs, its customers and partners. DCCM offers one-stop digital solution to CSPs. It enables CSPs to monetise their services via every touchpoint, channels, and devices. It improves operational efficiencies of CSPs by replacing back-office operations with end-to-end automated processes and enriches the end-user experience by providing one-stop telco storefront for all their needs.

To further personalise customer experience, creating an omni-channel platform is vital. This is even more important in this digital era, where OTT players and technology-led competitors are deftly filling the gap they spot in the market. For this enhanced and redefined customer experience, CSPs need to map the different ways customers connect with their brand and build the required capabilities aligning their resources accordingly. CSPs also need to source actionable insights about their customers. And for all this, conventional research tools are no longer capable of addressing this requirement.

In this era of constantly changing customer behaviour, the key role of CSPs is to use advanced and user-friendly analytical tools to gather the right data about individual customers and predict it in near real-time to resolve customer pain points even before they feel it. Providing personalised experience based on their requirement and usage pattern will only strengthen the bond with customers and gain their trust. Amidst hundreds of service providers, this level of personalised customer experience is the only thing that will differentiate a brand from the crowd bringing in stronger financial performance and making a positive impact on a company with higher conversion rates and increased customer loyalty.

Sterlite Tech's DCCM offers a quick and hassle-free experience tailor-made specifically for customer's use while efficiently handling the entire purchase lifecycle from subscriber onboarding, purchase to the activation process.

CRESTEL DIGITAL BILLING & REVENUE MANAGEMENT

Competition in the market is rife. There are hundreds of options for customers to pick from. So, what makes you unique? Digitisation can bring in that uniqueness to your service and offer opportunity to companies to re-position themselves in the market while creating innovative service offerings for customers.

Sterlite Tech offers a uniquely positioned Crestel Digital Billing & Revenue Management (Crestel DBRM) solution, a single converged platform that simplifies billing processes and ensures intelligent revenue management of digital services.

With Crestel DBRM, CSPs can scale up and do more with a converged and modular architecture. In this age of personalisation, we've made it easier for you to connect with your customers with integrated subscriber analytics. Now CSPs can offer tailored suggestions to customers based on their usage. What's more! They can also quickly launch products and on-demand plans with real-time prepaid-post-paid convergent charging.

NETVERTEX POLICY CONTROL & CHARGING

Our lives are entangled in the digital web and we cannot imagine a day without it. Be it travelling, work, shopping or simply communicating with our loved ones, we are in one way or the other linked to the internet.

And to churn out the best services for individual requirements, CSPs works towards integrated policy and charging solutions for better control over networks, providing usage flexibility to empower subscribers, increasing revenues, and enabling differentiation through monetisation of policy and charging.

Sterlite Tech's NetVertex Policy Control & Charging (NetVertex PCC) is intuitive, dynamic and offers real-time policy enforcement capability to CSPs. NetVertex PCC equips CSPs with real-time policy design and management capabilities. With this, CSPs can roll-out personalised plans for subscribers which are innovative, convenient and flexible to best suit their needs. It also enables subscribers to buy and use on-demand services, and get real-time upgrades, service passes and advice of charge alerts. Our platform is future-ready with SDN & NFV compliances and is capable of scaling up to address the next-gen 5G and IoT requirements.

ELITE WI-FI SERVICE MANAGEMENT PLATFORM

If the internet runs the world, what runs the internet?

A seamless connectivity.

We are a Netflix addicted generation and we need seamless connectivity for uninterrupted streaming. To ensure a smooth and superior user experience, seamless connectivity is imperative and Wi-Fi is the only connection of choice. Added to this, high adoption of smartphones means the global Wi-Fi hotspot market is poised to grow. Such hotspots are needed everywhere be it hotels, airports, cafés or various public places.

It is also a conducive option for operators as carrier Wi-Fi giving them an opportunity to augment cellular network capacity. It further helps reduce congestion on cellular networks. Telecom operators also enjoy carrier-grade Quality of Service (QoS), security and gain access to unique business cases across all customer segments.

Sterlite Tech offers pre-integrated and modular Elite Wi-Fi Service Management Platform with which CSPs can easily manage and monetise Wi-Fi while offering a superior user experience. CSPs can also gain access to newer avenues for revenue generation with our Monetisation Framework and allow thousands of secure, concurrent sessions with a robust Access Control System. Plus, our solution comes with built-in ANDSF which means that customers can seamlessly switch to their preferred network– taking user experience up a notch.

TOWARDS A CONNECTED WORLD

As the world is rearranging itself in the digitisation space and transforming towards Intelligent Connectivity, this is the best time to re-position yourself in the market by understanding customer needs and provide personalised and innovative service offerings for customers. And in this journey of transformation, choosing the right partners can make all the difference.

SterliteTech

About Sterlite Technologies:

Sterlite Technologies Ltd [BSE: 532374, NSE: STRTECH], is a global technology leader in smarter digital infrastructure. With a pure-play telecom focused business that develops & delivers optical communication products, network & system integration services and OSS/BSS software solutions, Sterlite Tech has sales network in six continents. The Company has manufacturing presence in India, China & Brazil, and aims to transform everyday living by delivering smarter networks. With a strong portfolio of over 162 patents, Sterlite Tech is home to India's only Centre of Excellence for broadband research. Projects undertaken by the company include intrusion-proof smarter data network for the Armed Forces, rural broadband for BharatNet, Smart Cities' development, and establishing high-speed Fibre-to-the-Home (FTTH) networks.

STCC19/WP-S/2301