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## Qlik appoints Geoff Thomas as Senior VP to Lead Asia Pacific Business

Qlik, a leader in data analytics and data integration software, announced the appointment of Geoff



Thomas as Senior Vice President for Asia Pacific. Based in Singapore, Thomas is responsible for leading Qlik's business and operations for the region with a focus on driving customer success and strengthening Qlik's go-to-market strategy and

execution with channel partners while building out Qlik's team in the region.

Thomas brings over two decades of experience in helping enterprise customers seize new technologies to drive business growth while building and leading high-performance sales teams across Asia Pacific. Prior to joining Qlik, Thomas held key leadership positions with D2L, Polycom, Juniper Networks and Microsoft and most recently served as Vice President of Asia Pacific and Japan at OneLogin.

## B2B TECH STARTUPS FUELED BY FUNDING AND ADVANCED TECHNOLOGIES



NetApp, a leader in data management and hybrid cloud, in partnership with Zinnov, a global management consulting firm, today announced the results of their first-of-its-kind study titled, 'B2B Tech Startup Ecosystem and Role of Corporate

Accelerators in India'. The study provides data-driven insights into the growth of B2B tech startups and the upsurge in both funding as well as the corporate accelerator programs in India over the last five years.

According to the report, B2B tech startups have more than tripled (from 900 to 3200+) since 2014. This can largely be attributed to the spurt in the need for digital transformation of enterprises, financial institutions, hospitals, government, SMEs, etc. Adding fuel to their success is the growing investor interest – the investment in B2B startups touched US\$3.7 billion in 2018, a steep rise of 364% from 2014.

## OPPO previews vision for 6G and future of connected intelligence at 2019 IEEE ICC



OPPO laid out its vision for a future of connected intelligence this week at the 53rd IEEE International Conference on Communications (ICC), held in Shanghai from May 20th to 24th. With a 2019 theme of Empowering Intelligent Communications, ICC brings together top global experts from industry and academia to share visions and ideas on the latest technologies and innovations in communications. On May 22nd, Henry Tang, Director of Standards Research and Chief 5G Scientist at OPPO, delivered a keynote speech at the conference underscoring OPPO's commitment to driving future generations of connectivity. In his speech, titled B5G (Beyond 5G) & 6G: Connecting Intelligence, Tang offered a preview of a future where, "after the launch of 5G, as AI and telecommunications technologies continue to empower and improve each other, they will enable true inter-

connectivity between humans, things and intelligence."

During his keynote, Tang shared OPPO's outlook and vision for the evolution of an "intelligence era" through next-generation connectivity. Tang described this evolution of connected intelligence – from 5G to B5G to 6G – as a system "for the AI, by the AI and of the AI", and a transformation which will dramatically change the way we live and work.

In the short-term – the "for the AI" stage – 5G is enabling new connections between humans and things that can be leveraged to bolster a range of existing vertical applications like consumer IoT, enterprise IoT and HD video. At the same time, the adoption of AI businesses like autonomous driving, AR and VR is poised to accelerate. In the face of autonomous driving, ubiquitous reality and other AI applications with high requirements for computational power, storage and low-latency, 5G opens up real-time, high-speed channels to realize capabilities like "cloud perception, cloud learning and cloud collaboration".

In the future, Tang envisions a world that is shared by human users and intelligent agents, with B5G and 6G as key enablers of "Human-Thing-Intelligence" interconnectivity.

## FLIPKART INAUGURATES STATE OF THE ART 'GREEN DATACENTER' AT HYDERABAD, TELANGANA



Flipkart, the e-commerce market leader in India, announced the launch of its datacenter in Hyderabad and investment in Telangana to strengthen its technology infrastructure. This is Flipkart's second datacenter in the country and the first in the state of Telangana. The datacenter was inaugurated by Mr Jayesh Ranjan, IAS, Principal Secretary IT and Commerce, Government of Telangana, along with Flipkart Group's Chief Corporate Affairs Officer Mr Rajneesh Kumar. This datacenter has been built in partnership with CtrlS, and Mr Sridhar Pinnapureddy, CEO of CtrlS, was also present on the occasion.

Flipkart's new datacenter is a part of one of the largest private cloud deployments in the country and will help strengthen its growing marketplace e-commerce business in India. This will further enhance the company's ability to bring in more sellers and MSMEs to the platform and cater to more consumers in the country. This facility has been designed to be Tier-4 rated, most of the power consumed is fulfilled by renewable energy, and it is also one of the most energy efficient datacenters in India with a low overall PUE.

## Students from India to showcase AI-powered anti-pollution face mask



Microsoft Corp. announced a series of new Azure services and developer technologies that put advanced capabilities spanning AI, mixed reality, IoT and blockchain in the hands of developers. The company will share these and additional advancements in hybrid cloud and edge computing at its Microsoft Build conference to empower developers.

"It's an incredible time to be a developer. From building AI and mixed reality into apps to leveraging blockchain for solving commercial business problems, developers' skillsets and impact are growing rapidly," said Scott Guthrie, executive vice president, Microsoft Cloud and AI Group. "Today we're delivering innovative Azure services for developers to build the next generation of apps. With 95% of Fortune 500 customers running on Azure, these innovations can have far-reaching impact."



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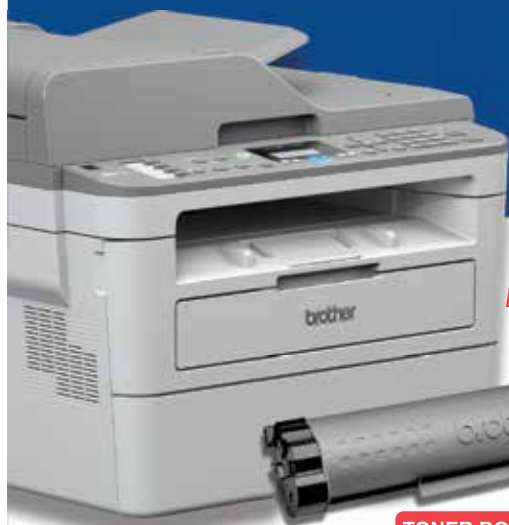
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# Top 8 Supply Chain Technology Trends in 2019

Gartner's top strategic supply chain technology trends have broad industry impact, but have not yet been widely adopted. They might be experiencing significant changes or reaching critical tipping points in capability or maturity.

"These technologies are those that supply chain leaders simply cannot ignore," said Christian Titze, research vice president at Gartner. "Within the next five years, if half of large global companies are using some of these technologies in their supply chain operations, it's safe to say that the technologies will disrupt people, business objectives and IT systems."

**The top 8 supply chain technology trends in 2019 are:**

## Artificial Intelligence (AI)

AI technology in supply chain seeks to augment human performance. Through self-learning and natural language, AI capabilities can help automate various supply chain processes such as demand forecasting, production planning or predictive maintenance.

"AI supports the shift to broader supply chain automation that many organizations are seeking," said Mr. Titze. "For example, AI can enhance risk mitigation by analyzing large sets of data, continuously identifying evolving patterns, and predicting disruptive events along with potential resolutions."

## Advanced Analytics

Advanced analytics span predictive analytics — those that identify data patterns and anticipate future scenarios — as well as prescriptive analytics — a set of capabilities that finds a course of action to meet a predefined objective. The increased availability of Internet of Things (IoT) data and extended external data sources such as weather or traffic conditions allow organizations to anticipate future scenarios and make better recommendations in areas such as supply chain planning, sourcing and transportation.

"Advanced analytics are not new, but their impact on today's supply chains are significant," said Mr. Titze. "They will help organizations become more proactive and actionable in managing their supply chains, both in taking advantage of future opportunities and avoiding potential future disruptions."

## IoT

The IoT is the network of physical objects that contain embedded technology to interact with their internal states or the external environment. "We are seeing more supply chain practitioners exploring the potential of IoT," said Mr. Titze. "Areas that IoT might have a profound impact on are enhanced logistics management, improved customer service and improved supply availability."

## Robotic Process Automation (RPA)

RPA tools operate by mapping a process in the tool language for the software "robot" to follow. They cut costs and eliminate keying errors. "We are seeing a significant reduction in pro-

cess lead times RPA technology is used to automate the creation of purchase and sales orders or shipments, for instance," said Mr. Titze. "RPA technology reduces human intervention and improves consistency across manual data sources within manufacturing."

## Autonomous Things

Autonomous things use AI to automate functions previously performed by humans, such as autonomous vehicles and drones. They exploit AI to deliver advanced behaviors that interact more naturally with their surroundings and with people.

"The rapid explosion in the number of connected, intelligent things has given this trend a huge push," said Mr. Titze. "The once distant thought of reducing time for inventory checks by using drones' cameras to take inventory images, for instance, is here."

## Digital Supply Chain Twin

A digital supply chain twin is a digital representation of the relationships between all physical entities of end-to-end supply chain processes — products, customers, markets, distribution centers/warehouses, plants, finance, attributes and weather. They are linked to their real-world counterparts and are used to understand the state of the thing or system in order to optimize operations and respond efficiently to changes.

"Digital supply chain twins are inevitable as the digital world and physical world continue to merge," said Mr. Titze.

## Immersive Experience

Immersive experiences such as augmented reality (AR), virtual reality (VR) and conversational systems are changing the way people interact with the digital world. "In supply chain, organizations might use AR along with quick response (QR) codes and mobile technology to speed up equipment changeovers in factories," said Mr. Titze. "Immersive user experiences will enable digital business opportunities that have not yet been fully realized within global supply chains."

## Blockchain in Supply Chain

Although supply-chain-related blockchain initiatives are nascent, blockchain has potential to fulfill long-standing challenges presented across complex global supply chains. Current capabilities offered by blockchain solutions for supply chain include traceability, automation, and security.

"Organizations might use blockchain to track global shipments with tamper-evident labels, allowing a reduction in the time needed to send paperwork back and forth with port authorities and improved counterfeit identification," said Mr. Titze.

Gartner clients can learn more in "The 2019 Top Supply Chain Technology Trends You Can't Ignore," which provides an outlook into other emerging trends that might disrupt supply chain operations in the upcoming years, such as 5G and edge computing.

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## Excess2sell completes 3 years and celebrates 100 Crore of excess inventory sale



L to R - Rajan Sharma, Navinder Chauhan and Anant Chaturvedi

## 2019 LG AI THINQ TVs ADD AMAZON ALEXA SUPPORT

LG Electronics (LG) will begin rolling out Amazon Alexa support in 14 countries\* to the company's 2019 TV models featuring artificial intelligence. The update will be implemented through the Alexa app on 2019 TVs featuring ThinQ AI including LG UHD TVs, NanoCell TVs and OLED TVs. Customers in North America will begin receiving the update this month, followed by customers in Europe and Asia in the weeks to come.

Following the introduction of Google Assistant on 2018 LG TVs with ThinQ AI, LG is delivering more choices and options with the addition of Amazon Alexa capabilities to its 2019 TVs with ThinQ AI. With the Alexa app, owners of compatible LG TVs can ask questions, control smart home products, access over 90,000 Alexa Skills and more, all without the need for a separate external device. And LG's 2019 TVs can understand hundreds of voice commands and handle requests of greater complexity than ever before thanks to more advanced LG ThinQ AI conversational voice recognition technology.



# Tips and take the time to protect yourself and your data

With virtually all of our private information now living on the internet, cybersecurity is more important than ever before! May 2nd is World Password Day, and NETGEAR's security team has compiled the top 4 tips you can use to protect yourself against hackers, starting today.

## 1. Use a strong password!

That seems obvious, but what exactly makes a password strong? Our best tip is to ensure that your password is at least 12 characters long, containing a mix of random uppercase and lowercase, symbols and numbers.

Should you use your name or birthday? Not unless you want to be easily hacked! Your password should ideally be as random as possible, rather than words that can be found in a dictionary (any dictionary, in any language!) or numbers listed in a row.

And, no, changing the letter E in a word to the number 3, or adding a couple of numbers to the end of a word, isn't going to be all that helpful, since that "trick" is very common.

But why 12 characters? According to BetterBuys, if a hacker was systematically checking combinations, it would take them just five hours to crack an 8-character password. How much time would it take to crack a 12-character password? 200 years! Seems like the better bet.

Can you guess what the most common (and commonly hacked!) passwords were both in 2017 and in 2018? "123456" and "Password".

## 2. Enable Two-Factor Authentication

Rather than utilizing only username and passwords, many apps and sites will allow you to enable multi-factor or two-factor authentication, which is when you have to prove in multiple ways that you are the authorized user. Commonly used authentication methods in addition to a password are SMS messages, push notifications, one-time passcodes, or GPS locators. Always enable multi-factor authentication when given the option.

## 3. Change your password frequently

Time is also a major factor. Even if the password you choose is strong and random, passwords weaken over time as technologies, and hackers, evolve, so your best bet would be to change your password frequently — like, on every World Password Day — especially for those accounts protecting your most sensitive information.

## 4. Never Re-Use Passwords

There's nothing better than reusing, reducing and recycling! EXCEPT when it comes to passwords, that is.

A recent poll has found that 59% of people reuse

the same password across multiple accounts. Reusing one password across multiple accounts can give hackers access to all of those accounts, in credential stuffing attacks.

What is credential stuffing? It is one of the most common techniques used to hack user accounts. When a business improperly protects user passwords and their website is subsequently breached, those compromised usernames and passwords get posted online. Attackers use botnets to then test those stolen credentials against many websites.

How do you know if any of your existing usernames and passwords are out there on the dark web? If you use NETGEAR Armor on your home router, you can easily detect if any of your data has leaked online, right from the app on your smart phone or tablet.

To check the privacy status of any of your accounts, simply add an e-mail address in the Account Privacy section of the Bitdefender for NETGEAR Armor app, available on iOS and Android, and validate that it belongs to you. Once validated, you will then see if the e-mail address is safe or if it was part of any leaks, along with more details. If you find that your information has been compromised, immediately change your passwords.

## Unplugged and Uninterrupted: What's Driving Networking Today

Offices. Hospitals. Factories. Hotels. Universities. Sports arenas. In my job, I talk to the people around the world who run technology for all of these types of operations. They tell me that more wireless devices than ever are joining their networks, and that if they have no Wi-Fi, they have no business. Without a network that's up 24/7, a hospital's critical medical device might not function. A robot in a warehouse won't be able to receive commands and a critical process will grind to a halt. A point of sale tablet in a stadium won't be able to process a fan's purchase, and perishable demand will be lost. The network, in short, is critical infrastructure. And the kind of network we're relying on is

changing. In the past, for devices that needed constant connectivity, we'd wire them to our core. Today, our critical devices are just as likely to be wireless: the cart with medical equipment, the roving inventory-picker robot, the handheld ticket scanner. These devices can no longer connect using "best effort" wireless as they might have in the past. The wireless network has to be as rock-solid as wired. It has to provide uninterrupted and unplugged access for users and devices.

Businesses need their IT professionals to understand these issues today, as well as challenges they will be facing in the near future. Having

planners who see into the future is one key way businesses stay agile and competitive. So when I speak with IT professionals we often discuss the need to plan for a few key trends.



## Trend 1: Expanding Number of Devices Connected

It's not just that every employee of a business has a device (or two) that they connect to our networks. Today, every single person visiting a business comes with several devices, and the number of devices per person (phone, watch, headphones) continues to grow.

But that's just the tip of the iceberg. Everything today is getting connected. From light bulbs to medical diagnostic equipment, there is hardly a single new piece of infrastructure that is not connected today, or that won't be tomorrow. IT staffs are not getting larger to match this growth. For IT to provide uninterrupted connectivity to all these devices, simplicity is the key to scaling up.

## Trend 2: Reliability and Security

As much as businesses are eager to adopt the latest technology in their business, the networks must be reliable and safe – all the time, no matter the situation. And the more connections we open up, the more exposure a network has. The major security threats today are also different from what we were protecting from just a few years ago. Today, data theft isn't the only challenge. We need to protect networks and devices from outright sabotage. Ransomware is now used to take down businesses. The impact can be brutal. The NotPetya attack cost businesses over \$10 billion in 2017, and some of the hardest-hit companies were completely compromised in under four minutes.

Additionally, the bulk of incremental devices landing on the network are unmanaged, not laptops or phones that are managed by IT. This means classical pieces of the security kill chain – endpoint tools such as antivirus software, MDM (Mobile Device Management), and EDR (Endpoint Detection and Response) – don't come into play. The increase in device and OS diversity can also lead to a dramatic rise in alerts from legacy network security tools, making them essentially ineffective for SecOps departments already suffering from alert fatigue. Finally, unmanaged devices can also be weaponized by attackers; they're often highly vulnerable to botnets, like Mirai, which continue to rapidly evolve.

## Trend 3: Immersive and Real-time Computing

The way we interact with technology is evolving, too. Since computing first became part of business, we have moved from batch processing, to command lines, to interactive experiences on our computers and handheld devices. We are now moving into the era of truly immersive computing, in which users will expect real-time and high definition imagery as part of the interface. This means not just pervasive use of high definition collaboration tools (like Cisco's own Telepresence products) but also expanded use of augmented reality and virtual reality in a variety of business applications. These applications need both high bandwidth and ultra-low latency for their real-time experiences. The same goes for machines that are making real time decisions. Increasingly the expectation is that all of this is achievable over both wired and wireless networks.

Our networks need to support new levels of speed, reliability, and scale. That's what we've been building. We have been working hard on our entire suite of networking products, from

Wi-Fi ASICs to core switches, to our software fabric that ties it all together. We believe that when you can work with the network holistically, and not just as series of parts connected through patchwork, you can raise the value of networking and business overall.

The fundamentals of network design in the coming years are anchored in three architectural principles to serve the needs I outlined above. These design points are: Wireless First; Cloud Driven; and Data Optimized.

### Wireless First

Every part of our networking stack has to be built for always-on wireless. This means that the entire network, from switch to device, needs to be built to support full-time, uninterrupted access for all users. High-availability systems need to be everywhere, not just in the core of the campus network. Technology like cold and hot patching, perpetual POE, non-stop forwarding (NSF), automated rapid and rolling upgrades, and much more need to be built into every applicable layer of the campus and branch network.

Building wireless-first networks means we no longer think of wired and wireless as two distinct systems. We need to consider the impact of wireless technologies – like new Wi-Fi 6 access points that support four times the bandwidth of current models – at the same time as we plan our wired systems. Wireless, of course, aggregates to wired, and the wired network must also evolve. Technology like multi-gigabit ethernet must be driven into the access layer, which in turn drives higher bandwidth needs at the aggregation and core layers.

Even more importantly, to securely connect and protect the flood of managed and unmanaged devices on our networks, and to manage it all, we must treat the network as a one single software-defined fabric. This allows us to segment the network, and make sure that if one device gets infected by malware it cannot easily spread to other devices.

### Cloud-Driven

The cloud has helped businesses achieve great feats at grand scales. It offers the same potential for network management and efficiency.

A cloud-driven network infrastructure provides new capabilities to on-prem network equipment, most importantly by giving your the network access to the continuous improvement inherent in cloud services. When we leverage the cloud we can transform how we operate a network, with better support, better IT processes, and by applying data insights.

Cloud-driven network management also lets Cisco work alongside IT pros. We can work proactively and in real-time when there are issues to address, instead of waiting for a support call. Insights that we gather from cloud-driven peer networks globally enables us to act more dynamically to keep networks functioning at peak efficiency – and makes dynamic, business-led improvements easier as well.

This architectural principle gives IT pros a lot of flexibility. Enterprises can choose what data they

share; whether their controller and management layers are on-prem or off; and they can choose how they engage with us for support and consultation.

### Data-Optimized

We can use the data and analytics from our networks not just to improve our networks themselves (making them more secure and more efficient), but to serve our business outcomes. This is the most exciting area of growth in networking. It's ultimately what networks are for: Driving business forward.

We start with taking the reactive model of IT support and putting it on a new footing: proactive, based on next-generation analytics. We now leverage data to resolve issues before they impact business, or even before a user calls in a problem. If a failure does sneak through, analytics can pinpoint the cause and scope quickly, to speed remediation. We can determine with confidence when an issue is network-related and when it isn't – speeding up the mean time to innocence for network professionals, which can be key to their career success.

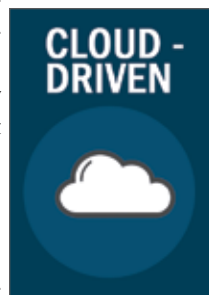
Our businesses operations themselves also generate valuable data. For example, nearly every single person today is carrying a mobile device that will be noticed by a businesses' wireless access points. Data from these interactions can be applied to all sorts of issues that go straight to the bottom line. We can help a business determine where its customers are and how they flow through their facilities. These insights lead to better customer engagements, and they improve the ROI of a network.

The same technology is being used in medical and industrial facilities now to make sure that high-value equipment is where it's needed and is staged appropriately when it's not in use. Solutions like these go straight to business outcomes. We can also use network data to improve our security posture. We use participating customers' network telemetry, along with our global threat intelligence, to discern patterns in network traffic that indicate the presence of malware within encrypted traffic. We give enterprises a layer of insight into encrypted traffic – without decrypting it. Based on this posture they can choose to deny this traffic, or selectively decrypt it. They can balance security with privacy, and control for the cost of decrypting traffic at scale.

In sum, we feed data from all network sources into analytics engines and machine learning systems, and this leads to insights we apply to security, IT operations, and business outcomes.

### The way forward

This outcome-driven architecture is what we have been building for the last two years. It's why we are all-in on intent-based networking. For unplugged and uninterrupted networking, we need our systems to be wireless first, cloud-driven, and data-optimized.





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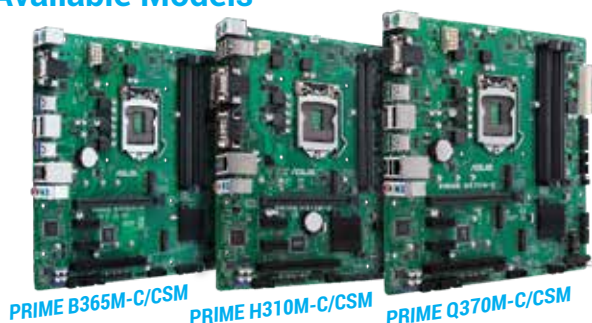


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# 5G and Wi-Fi technology can benefit CIOs' priority business objectives

Companies in search of a competitive edge need to be faster, more agile and less burdened by technology's limitations as they charge forward.

Historically, network infrastructure has been one of those constraints, lacking the speed, capacity and flexibility that enterprises need to innovate and act quickly. From enabling remote workers to data-intensive business applications, the network has at times stood in the way of capabilities such as fast application response times, seamless videoconferencing and the ability to get data insights on the go. But today, advances in networking architecture—particularly via 5G and Wi-Fi 6 wireless network standards—are poised to deliver improvements in speed, performance and capacity that will help remove the network chokehold on enterprise agility as companies seek to move ever faster.

5G provides wireless communications and networking over large geographic areas. The most important characteristics for businesses are high speed, high throughput and eventual wide availability, at least in moderately to densely populated geographic areas. 5G wireless is expected to have a theoretical shared maximum speed of 10 to 20 Gbps. Wi-Fi 6 technology is a new standard that enterprises—and consumers—can deploy easily. Its key characteristics include higher throughput, lower latency and higher capacity than prior generations of Wi-Fi—also security, reliability and improved traffic management capabilities. Wi-Fi 6 speeds could reach nearly 10 Gbps, some 40% faster than Wi-Fi 5 speeds.

These vast improvements in network capability are, in turn, poised to have a major impact on companies' key business priorities over the next few years. Here's a breakdown of key business initiatives where 5G and Wi-Fi 6 technology are poised to usher in change:

- ▲ Enabling digital transformation and company modernization
- ▲ Providing superior customer service
- ▲ Enabling a remote workforce
- ▲ Fostering business innovation and product development
- ▲ Establishing a solid governance, risk and compliance posture

In this article we explore how the technologies of 5G and Wi-Fi 6 will help fuel key business initiatives.

## Why we need 5G and Wi-Fi 6 technology

5G and Wi-Fi 6 technology will enable these speed and performance enhancements. In the near term, though, Wi-Fi 6 will be the dominant technology for high-volume, low-latency traffic in the enterprise, with more clients and access points available in 2019 through 2020. 5G will take longer to roll out—operators must invest in spectrum, core networks and other network infrastructure to enable 5G—with major carriers starting to roll out deployments in select cities in late 2019 and accelerating deployments further into 2021 and beyond. New and more

demanding applications will first be deployed within the enterprise and then will take advantage of Wi-Fi 6's capabilities. As 5G becomes available, these same applications will be used outside the range of enterprise Wi-Fi. 5G will complement Wi-Fi 6 technology. Although both provide high throughput and capacity, low-latency communications, cost and management control issues will favor Wi-Fi 6.

## Five business pillars driving 5G and Wi-Fi 6 technology

**1. Digital transformation.** The single most common driver to adopt Wi-Fi 6 and 5G network architectures is their importance to digital transformation and company modernization efforts. A Harvard Business Review study found that 87% of CEOs say that digitization of the business is a priority, and 66% plan to change business models to accommodate modernization efforts. This kind of radical improvement will require coordinating technical and organizational resources. Technical requirements will include high throughput, reliable, scalable communications and networking. These are the kinds of requirements Wi-Fi 6 and 5G are designed to meet.

**2. Providing superior customer service.** One of the common motivations for digital transformation is the desire to provide exceptional customer service, including the digital experience of customers. Continuous, high-speed service applications that function on-site with Wi-Fi 6—and remotely over 5G—are part of this equation to improve customer service quality.

**3. Enabling a remote and on-the-go workforce.** Wireless technologies like 5G and Wi-Fi 6 can equip new ways of working. Digital transformation has changed how employees work, enabling productivity from any location and device.

Gartner research finds that enterprises now prioritize providing employees with tools to be more effective and productive. Expect to see business invest more in support for joint cognitive systems that couple humans and technology with cloud-based AI. These services may require transmission of large volumes of data. Further, the data collected by Internet of Things (IoT)-connected devices, mobile and other sources needs to be analyzed. Analysts will have greater and better access to data visualizations, 3-D renderings and more advanced analytics, with enhancements to networking and communications. These data-intensive processes need 5G and Wi-Fi 6 technology for speed and performance as well, particularly when devices use edge computing architecture rather than centralized cloud or data center architecture.

**4. Generating new business ideas.** Fueling business innovation is another driver of 5G and Wi-Fi 6 adoption. Analytics is an example of a business function that will benefit from innovation. Having access to a high-speed, high-volume communications network, for example, streamlines analysis procedures.

A typical model uses bulk data loads followed by a separate and discrete analysis phase. The new networking technologies will enable continuous data collection and analysis. Developers can deliver applications and services that offer more efficient interactions with users because the network supports more data-intensive interfaces such as 3-D renderings and 3-D objects in motion.

**5. Governance, risk and compliance.** Organizations stand to gain immensely from improved network speed and performance. But as the proliferation of IoT devices continues—with 31 billion IoT devices expected by 2020—the attack surface for malicious actors continues to broaden. 5G and Wi-Fi 6 technology stand to entrench that problem further. Organizations will need to formulate policies that can be applied in agile, constantly changing environments. Part of this will require formulating governance of these standards to prevent security gaps from being compromised.

As companies charge forward, new ways of working and delivering services bring risks, especially in governance. Organizations will need to consider the risks that come with more complex technologies. As systems become more complex, they introduce the potential for new forms of failure. And the behavior of complex systems is difficult to predict. Monitoring is essential in order to identify problematic behaviors in systems and respond to incidents.

Treating 5G and Wi-Fi 6 as a unified networking platform encourages the use of policy-based controls that can scale to a large number of users, services and devices.

## Getting ready for 5G and Wi-Fi 6 technology

Wi-Fi 6 is available now and 5G is being deployed but may not be widely available for several years. In the short term, make use of Wi-Fi 6 while planning for 5G. Here are some final recommendations to consider as 5G and Wi-Fi 6 become adopted:

- ▲ View 5G and Wi-Fi 6 as a two-track strategy (short-term and long-term) for expanding network capacity.
- ▲ Architect your network to manage 5G and Wi-Fi 6 technologies as a single resource.
- ▲ Develop applications and services that take advantage of Wi-Fi 6. When 5G is available, you will have services in place to exploit the benefits of 5G.
- ▲ Design for continuity in networking between Wi-Fi 6 and 5G. Users should be able to seamlessly move from one networking technology to another without interruption.
- ▲ Plan how to use policy-driven resource management and security controls.

This new merged networking platform will not be deployed quickly, but it is best to start planning now. By focusing on security policies, unified management systems and monitoring these technologies enterprises can best exploit the benefits of a unified 5G and Wi-Fi 6 platform.



## Mobile service providers are preparing to fortify security in anticipation of 5G deployments

A10 Networks, a leading provider of security solutions for mobile operators worldwide, announced the findings of the 'Securing the Future of a Smart World' Survey in partnership with Business Performance Innovation (BPI) Network. Gathering insights from 145 telco and cloud service providers worldwide, including India, to understand industry intentions, priorities and concerns about 5G.

The findings underscored that mobile carriers around the world foresee rapid progress toward 5G over the next 18 months, significant new revenue opportunities for carriers and disruptive new use cases for many industries. Respondents also believe that much-improved security will be essential to realizing the full potential of 5G.

Mobile carriers also ranked security nearly on par with increased throughput and capacity as critical to the next generation of networks. As they assess the risks associated with new levels of traffic, explosive growth in connected things and mission-critical use cases planned for their networks, most IT decision makers were of the view that security and reliability must be an essential aspect of 5G networks.

As India is amongst the top countries in mobile data consumption and ranks second in terms of mobile subscriber base, 5G technology has the potential to drive transformative services that can have a deep impact on society. 5G is poised to enable the role of information technology across sectors like manufacturing, educational, healthcare, agricultural, financial and social. With several markets including India being poised to commercially launch the next generation cellular communications technology by the end of this year or next year, the global survey demonstrates that carriers are moving decisively toward 5G commercialization and that security is a top concern.

67% respondents said they will deploy their first commercial 5G networks within 18 months and another 20 percent within two years

94% respondents expect growth in network traffic, connected devices and mission-critical IoT use cases

to significantly increase security and reliability concerns for 5G networks

79% respondents say 5G is a consideration in current security investments

"Mobile carriers anticipate significant revenue opportunities and exciting new use cases as they move forward with their 5G deployments. However, the industry also recognizes that 5G will dramatically raise the stakes for ensuring the security and reliability of these networks," said Ravi Raj Bhat, Global Field Chief Technology Officer, A10 Networks. "New mission-critical applications like autonomous vehicles, smart cities, and remote patient monitoring will make network reliability vital to the safety and security of people and businesses. Meanwhile, dramatic increases in traffic rates and connected devices will significantly expand the attack surface and scale for cyber criminals."

### New Revenue Opportunities and Use Cases

Realizing the potential of full-scale 5G networks requires major investments by carriers—and payback on that spend is a crucial issue for the telecommunications industry. Operators surveyed reported significant opportunities to increase revenues and innovate new business models.

### The top-three benefits derived from 5G:

- ▲ 67% – Overall growth in the mobile market
- ▲ 59% – Better customer service and satisfaction
- ▲ 43% – The creation of new 5G-enabled business models

### Top drivers for 5G:

- ▲ 61% – Smart cities
- ▲ 48% – Industrial automation and smart manufacturing
- ▲ 39% – High-speed connectivity
- ▲ 37% – Fixed wireless
- ▲ 35% – Connected vehicles

"Operators overwhelmingly understand the importance of upgrading security in a more connected and smart world," continued Bhat. "Now it's time to take decisive action. Carriers need to move ahead aggressively

with their plans to upgrade legacy DDoS protection and consolidate security services at the core and edge of their networks to address the growing concerns. A10 Networks 5G security solutions including Gi/SGi firewall, GTP firewall and AI based DDoS protection enable operators to secure and scale their networks now and protect against the massive cyber threat coming with 5G."

Emphasizing cyber security, legacy infrastructure challenges and the potential for 5G in India, Sanjai Gangadharan, Regional Sales Director, SAARC, A10 Networks said, "5G technology has the potential to unleash new business opportunities and disrupt every vertical industry over the next decade. With India ranked as one of the top countries for data consumption, 5G will be central in transforming the economy and accelerating government initiatives such as Digital India and Smart Cities. Ultimately, with more connected devices on the network, security will play a very important role to ensure the networks are safeguarded from potential cyber threats."

### Assessing 5G Security Needs

Chief among security concerns among respondents are core network security and DDoS protection.

63% respondents said advanced DDoS protection is the most important security capability needed for 5G networks.

98% of respondents said core network security was either very important (72%) or important (26%) in 5G build-outs

79% respondents have or will upgrade their Gi/SGi SGi firewalls

73% respondents have or will upgrade their GTP firewall

5G networks, with their dramatic advances in transmission speed, latency, capacity, energy efficiency and connection densities, promise to bring about a smarter and more connected society that will drive massive changes in India and across the global economy.

## With 5G Deployments Advancing Rapidly, Operators Share Plans for Dealing with Increasing Densification

Vertiv, together with technology analyst firm 451 Research, today released the report on the state of 5G, "Telco Study Reveals Industry Hopes and Fears: From Energy Costs to Edge Computing Transformation." The report captures the results of an in-depth survey of more than 100 global telecom decision makers with visibility into 5G and edge strategies and plans. The research covers 5G deployment plans, services supported by early deployments, and the most important technical enablers for 5G success.

Survey participants were overwhelmingly optimistic about the 5G business outlook and are moving forward aggressively with deployment plans. Twelve percent of operators expect to roll out 5G services in 2019, and an additional 86 percent expect to be delivering 5G services by 2021.

According to the survey, those initial services will be focused on supporting existing data services (96 percent) and new consumer services (36 percent). About one-third of respondents (32 percent) expect to support existing enterprise services with 18 percent saying they expect to deliver new enterprise services.

As networks continue to evolve and coverage expands, 5G itself will become a key enabler of emerging edge use cases that require high-bandwidth, low latency data transmission, such as virtual and augmented reality, digital healthcare, and smart homes, buildings, factories and cities.

However, illustrating the scale of the challenge, the majority of respondents (68 percent) do not expect to achieve total 5G coverage until 2028 or later. Twenty-eight percent expect to have total coverage by 2027 while only 4 percent expect to have total coverage by 2025.

"5G presents a huge opportunity for India, further revolutionizing the app and content ecosystem in the country. The world over, telcos have recognized this potential, while also understanding the network transformation required to support these services," said Girish Oberoi, general manager of telecom strategic account management for Vertiv in India. "As telcos ready themselves for the rollout of 5G, this report brings to light the challenges they face, as well as the need for energy-efficient network infrastructure

required to optimize the technology in the best way possible."

To support 5G services, telcos are ramping up the deployment of multi-access edge computing (MEC) sites, which bring the capabilities of the cloud directly to the radio access network. Thirty-seven percent of respondents said they are already deploying MEC infrastructure ahead of 5G deployments while an additional 47 percent intend to deploy MECs.

As these new computing locations supporting 5G come online, the ability to remotely monitor and manage increasingly dense networks becomes more critical to maintaining profitability. In the area of remote management, data center infrastructure management (DCIM) was identified as the most important enabler (55 percent), followed by energy management (49 percent). Remote management will be critical, as the report suggests the network densification required for 5G could require operators to double the number of radio access locations around the globe in the next 10-15 years.

## Eurotech Technologies Launches BestNet Outdoor Enclosures

Eurotech Technologies, the leading technology solutions company, announced the launch of next generation BestNet outdoor enclosure system. The enclosures are equipped with pre-engineered interchangeable components to accommodate a variety of equipment's, such as; electrical controls and instrumentation in industrial and other challenging environments. The rigid construction, adjustable components, mounting options and a wide variety of kits and accessories makes BestNet outdoor enclosures highly competent, while ensuring exact enclosure configuration to deploy equipment's in any ambience or location. Manufactured from 1.2/ 1.6mm thick zinc coated



steel to minimize corrosion with powder coat finish the outdoor enclosures offer fully welded construction and flexible equipment mounting options. The enclosures offer easy access with reversible door opening, adequate with gland plates supplied on 200mm & 300mm and feature a locking system.

"We want to provide customers with best-of-breed enterprise grade solutions," said Mr. Anuj Jain, Managing Director, Eurotech Technologies. The robust outdoor enclosures offers customization and easy integration, while ensuring flexibility, ease of usability and improved efficiencies, he added.

BestNet outdoor enclosure system has been designed for swift assembly and rapid integration at site. The rack system ensures physical security and prevents invalid access to critical equipment's, making it an ideal choice for organizations.

## BIOSTAR Presents A68N-5600E For Home Entertainment and Everyday Computing



BIOSTAR, a leading manufacturer of motherboards, graphics cards, and storage devices, introduces the new A68N-5600E SoC

motherboard featuring a power efficient AMD PRO A4-3350B Processor and AMD Radeon™ R4 graphics. The BIOSSTAR A68N-5600E is perfect for home entertainment and everyday home computing from web browsing to office applications. Watch videos on Netflix and YouTube with high-definition and immersive visuals, thanks to the AMD Radeon graphics, and high-resolution display with HDMI support. The A68N-5600E sports an ultra-compact Mini-ITX form factor, perfect for small-form-factor PCs and HTPCs.

## NETGEAR Unveils Tri-Band Wi-Fi 6 Router with the Fastest Wi-Fi to Speed Home Networking in India

NETGEAR, the leading provider of networking devices that power today's smart home and small businesses has announced the launch of its tri-band Wi-Fi 6 routers; the Nighthawk AX4 & AX8 in Bengaluru.



Today's households are dealing with an increasing number of connected devices and an increasing demand for greater bandwidth from stream-

ing video, audio and online gaming. Add to this the plethora of smart home devices from IP cameras, voice assistants, smart thermostats and appliances, all of which are dependent on a constant connection to the cloud. These devices just increase the complexity of a network as they compete for bandwidth, pushing wireless home networks beyond the technical threshold for the current generation of Wi-Fi. NETGEAR has solved this modern-day dilemma with the introduction of a full suite of ultra-fast Wi-Fi 6 routers.

Wi-Fi 6 — the latest generation of Wi-Fi — delivers up to four times better performance than Wi-Fi 5 (802.11ac) using innovative technologies

such as Orthogonal Frequency-Division Multiple-Access (OFDMA) to help maximize the capability to connect multiple devices at the same time, which will help reduce the congestion for the typical bandwidth starved connected home. Wi-Fi 6 will provide a huge boost in total network capacity and reliability, ushering in a new era of speed, performance and capacity for wireless networking in today's homes. The actual quality of the connection for each Wi-Fi device will also be improved by reducing the interference between them, thus ensuring that the experience of lag or buffering is reduced during online gameplay or streaming Ultra HD 8K/4K.

## Lenovo Unveils Preview of the World's First Foldable PC in ThinkPad X1 Family

From never-before-seen form factors to new user experiences, Lenovo's innovation history is laden with firsts that have continued to define and re-imagine smart, personalized computing. Today, another breakthrough is on the horizon.

At Accelerate, we're unveiling a preview and demo of the world's first foldable PC.1 Made for highly mobile, tech-savvy professionals who demand the best tools, the new foldable PC joins the premium



ThinkPad X1 family, promising that the unprecedented portability will in no way compromise productivity and reliability. This is not a phone, tablet, or familiar hybrid; this is a full-fledged laptop with a foldable screen.

We all want access to a large comfortable screen even on the go, but travel can make this incon-

venient or impossible. Never mind that remote work increased 140 percent from 2008 to 2016, with more and more employees taking time-sensitive, media-intensive projects with them everywhere. In the past, a 13.3-inch screen on a laptop demanded that the device stay at that same size footprint —not so with this single OLED 2K display made in collaboration with LG Display® that can fold in half and reduce its width by 50 percent. Intel®-powered with Windows®, the foldable ThinkPad can transition with users from day to night:

- Wake up, fold it into a book, and start the day scanning your social media feeds in bed.2
- Walk to your kitchen, unfold it, and stand it up for hands-free viewing of your top news sites.2
- Hit your commute on the bus or train and morph it into a clamshell to catch up on emails.2
- Get into the office, dock it into your multi-monitor setup and get to work.
- Go into meetings, take notes with its pen, and

write on a full screen tablet.

- After lunch, set up the stand and use its mechanical keyboard to type out a few work emails.2
- Come home at night, open it up and stream your favorite shows.2
- Relax in bed, fold it in half and enjoy your latest read before going to sleep.

This space-saving ThinkPad combines laptop productivity with smartphone portability to fold into your lifestyle like never before. Stay tuned for full product details and availability in 2020. We can't wait to show you more.





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# 'M' for Manasi; Macaws Infotech Completes 2 Decades



Completing 20 successful years of business Manasi Saha of Macaws Infotech feels her company has also transformed her as an individual. A start-up at the age of 26, Manasi flips the pages of the history in an exclusive chat with CELL IT shares her entrepreneur journey.

**From where it had started and what made you name Macaws infotech**

I had started my career in 1998, in a leading Bengaluru based Antivirus Company, having 26 branches across India which couldn't survive because of a few reasons. Later I joined another company which got merged with a global leader. This was my learning period. It was my Father-in-law who suggested me on starting own organization, after closely observing my visionary and leadership skills. His encouragement still resonates within- "if you are doing a job you are earning for yourself and for your family. But if you come up with an organization you can help to feed other families and society at large".

Speaking on the name, Macaws is a large colorful high seeing South American parrot, which is always in a group and is always a plural word. They [birds] are playful and active, and they have an exuberant personality to go along with their sizes, sociable and are extraordinarily noisy. My husband being into ornithology (Bird Watcher), found all those qualities in me. And not to forget, my name starts with 'M'.

**You had completed two decades in the industry. What are the ways your organization had changed?**

It does not matter. I believe in 'present'. Thus, I prefer giving my best 'Today' as I play ball-by-ball. I am taking a steady, calculative risk, and not being greedy about my top line and concentrate on the bottom line. Just facing every day as a new journey.

**You are from the Eastern part of India. We all want to know how East as a market? What are the positive and not-so-positive with that market?**

Yes. I am from the 'City of Joy'. Having spent my childhood in Orissa and Assam, you can consider me as a person from the Eastern part of India. My goal is not to be better than anyone else, but to better the past version of myself. I find happiness in my employees and customers. There is no better happiness knowing my customers are away from any cyber attacks. I also do not find any negativity for being from this part of our nation. I have done

a successful business over the last two decades in the Eastern region and it is a good market to work with. I believe that I am a positive person and will remain to be a one.

**In your experience, how are the top management in enterprises seeing IT? Has the awareness and need for IT as a whole have increased from the day you had started your organization?**

In IT infrastructure security the individual does everything (manage backups, databases, the network, new technology purchases, support contracts and more) as a part of his/her overall job responsibilities. He or she spends at most 20 hours a week on these tasks, is more likely to spend 20 hours or less per month performing them and the organization may even outsource this task to a third party contractor.

The awareness and need for IT have increased gradually from the day we have started, moreover the IT Security field was transformed with the evolution in technology, as more and more companies are emerging and the requirement and needs went parallel. I feel we are expecting a big transformation in the field of IT security when machine learning, AI, BI, IOT, Blockchain, RPA are already taking place.

**Your focus is security. What challenges, as a partner from the East face while selling security solutions?**

We have witnessed the transformation and changing of technologies over the years. It keeps on happening and it is like getting updated and fulfillment of requirements of the customers. As new challenges come, we need to cope up with all sorts of problems to stay updated.

**What are the key industries you are handling and what are the new industry verticals you are planning to enter?**

We have strong presence in Media, Corporate, manufacturing units, BFSI/NBFC sectors. In coming years we will be looking for geographical expansions and creating a customer base in education as an industry vertical.

**What is the key USP you have in Macaws which helped you build a strong customer base?**

The key USP of Macaws is customer retention, which helped us to build a strong customer base over the last two decades. We had provided hassle-free support, and due to our good relationships with customers, we achieved a longtime

**Manasi Saha, Founder, Macaws Infotech**

retention percentage of 99%. We work as a team, and we work on a flat architecture, where everybody shares their responsibilities, duties equally. Please explain your expansion plans and how you are planning to take your organization to the next level.

I believe 'sky is the limit'. Predominantly Macaws is into IT Network Security and now we are focusing into something smarter and productive like Robotic Process Automation (RPA), Internet Of Things (IOT), blockchain and more. We also want geographical expansion, which will certainly take our organization to the next level.

**Wishes and Testimonials:**

**Vishal Bindra, ACPL**

Mansi is Iron Lady of Cybersecurity space. I have known her for a very long time and she has built a great organization where people feel belonging. She is brave, talented and committed lady. I wish her all the best



**Nandhini Sharma, Comnet Resources**

For me, she is a woman of substance who does not need any validation. She is always herself and doesn't care log kya kahenge (what if someone tells anything). A born leader like, with all challenges and hurdles in her life she never plays a victim but stands and deal with it. Being an extraordinary multi-tasker, I had seen her in her workplace positive and energetic. Also, she has special attention to each and every employee from the bottom of her heart. She is an inspiration for me. I truly admire her and wish her all the best for her journey to the next milestone.



**L Ashok, Futurenet**

My good friend Manasi's Macaws infotech completes 20 years of business. I congratulate Manasi and her team many successful years to come.



Manasi is a fighting entrepreneur managing family and multiple challenges within and outside the business. She had done extremely well as an individual and as a business women. Being women, managing family, and business parallelly in not a cakewalk. Macaws has long-standing satisfied customers and employees which are the basic ethos of the organization and are the building blocks of the organization.

**Jiten Mehta, Magnamious**

I always feel the pride I know someone who has completed 20 years in the entrepreneurship. Being a woman, it is great she has managed to both personal and professional life. I wish her and her team a great year ahead.





# Sivasubramanian Takes Global Role; Becomes CIO Of VA Tech Wabag

Chennai based IT leader M Sivasubramanian, who had worked as DGM & Head – IT & Digital with



L&T IDPL has joined VA Tech Wabag as the CIO managing the global operations.

His decision comes after 14 years of his stint with L&T group at various capacity, lastly with L&T IDPL where he had the responsibilities including Digital Transformation, IT Strategy, Business-IT Alignment, Business Process Excellence, Revenue Assurance, IT Budget Control, Program Management, IT Infrastructure Management, IT Operations, Vendor/Technology

Evaluation, etc. At his new organization, he will execute the role of global CIO.

As a senior IT Professional he had worked in major Corporates, Conglomerate in Engineering and construction industry with various domains ( Finance, Manufacturing, Infrastructure & Construction). VA Tech Wabag is a water technology multinational offering a range of solutions directed at addressing water challenges in over 20 countries across four continents.

Speaking on the appointment, he said, "I am feeling excited to take up the global role and face challenges like the diversity of team, culture, regulatory needs and business needs of different geographies, alignment of technology across

M Sivasubramanian, CIO, A Tech Wabag the globe." Speaking on the increasing number of Indian IT professional heading global role, he says, the key expectations towards Indian leaders are increasing in terms of cultural diversity, adherence to geography based regulations, team management, aligning team to global business Strategy, R&D investment in Digital Transformation.

He holds a bachelors in chemical engineering and MBA in information systems from Annamalai University and Bachelor of Technology from the University of Madras. He has also pursued various certificate courses from the IIM-B. He has also undergone various leadership training programmes.

## EverestIMS IoT platform integrates with Bionic Yantra's REARS to accelerate physical rehabilitation of patients

EverestIMS Technologies Pvt Ltd (Everest), an Indian software product company specializing in providing software solutions for IT Infrastructure, ITSM and the IoT space, recently announced its collaboration with Bionic Yantra, India's first medical robotics company. The integration of Everest's IoT platform with Bionic Yantra's Robotic Exoskeleton Assisted Rehabilitation Systems (REARS) will help hospitals gain greater insights from the data collected from a specially-abled person.

REARS accelerates the rehabilitation process by reducing the overall recovery time after a given surgical procedure. REARS benefits can be leveraged in a variety of medical applications including assisting healthy senior citizens, enabling specialized training for athletes and activities (games) for kids. It enables standard therapeutic procedures across regions and hospitals while automating measurement of patient progress.

With Everest, Bionic has incorporated advanced technologies such as IoT and ML to REARS adding value to a patients' experience. With the integration of Everest's IoT platform, hospitals

can acquire far deeper insights from the data collected from a specially-abled person. The automated therapy is safe and reliable – at a reasonable cost and accelerates recovery and improves rehabilitation outcomes.

Satish Kumar, CEO, EverestIMS Technologies is enthused about this partnership and said, "It's a



great opportunity to expand our presence into healthcare sector by associating with Bionic Yantra. The robotic rehabilitation systems of Bionic Yantra have the potential to offer individualized therapy, increased efficiency of training at lower cost and new sensing capabilities for the physical therapist to quantify a patient's progress. We would like to further work closely with Bionic Yantra, impacting the lives of people in a positive way."

The integrated offering is a typical example of how different technologies across horizontals can work harmoniously together to solve complex medical issues.

Satish Kumar, CEO, EverestIMS Technologies

Shivakumar Nagarajan, Director at Bionic Yantra said, "It is our mission to transform patients into productive assets of society. We intend to do so in a manner that enables this cutting-edge technology to be affordable and reach all those who need it. Our partnership with EverestIMS and the integration of AI and ML into the offering will help accelerate our vision towards reality. When cutting edge hardware meets advanced software the result can only be beneficial for society and especially those with special locomotor needs." The Everest IoT solution will record the rehabilitation session details, helping the patient for insurance claims. All the historical data of the patient is stored and can be accessed from everyday devices. Additionally, it also provides assistive information to the patient, including all the exercises and routines completed along with advice of future routines. Overall, it offers a complete patient management solution with detailed insights of activities, reports and future guidance. Together, both companies are transforming patients into productive assets of society.

## iValue InfoSolutions achieves 77% growth in Fy18

Krishna Raj Sharma, Director & CEO, iValue InfoSolutions

Reinforcing their commitment to be the most valued technology enablement partner, iValue InfoSolutions, has received the



'2018 VAD of the Year Award' by Hitachi Vantara. The award was presented at the 2019 Hitachi CIO & Partner Summit event which was held in Colombo, Sri Lanka. This is the 5th time iValue has received this recognition

from Hitachi Vantara which is a testimony to their pursuit of continuous evolution in its Go to

Market initiatives across Customer, Vertical, Horizontal and Partner fronts, driven by Analytics and AI based CRM.

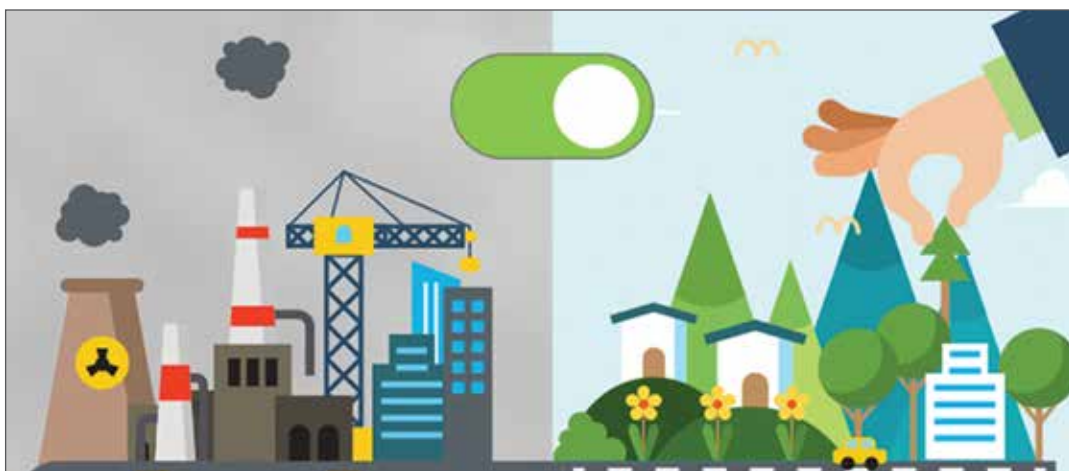
iValue has continued to stay ahead of the curve with its distinctive go-to-market for focused practices that comprise BFSI, Government, Enterprise and Channels. There is also an experienced team engaging the Consultants, Big 4 and as well as the Regional Consultants, apart from direct market development at large Enterprises.

Empowered by Analytics for Business Development, iValue has been delivering 4+ times market growth for its OEMs consistently over the last 10 years. Hitachi Vantara, with its best in class

offerings in IoT, Analytics and Data Center Management, is of high relevance for iValue's 3000+ strong Enterprise Customer base in their Digital Transformation journey.

"Hitachi continues to join hands with us in empowering our enterprise customers in their digital journey, this recognition is a testament of our collaboration with HV team and focused Partners across geography" said Krishna Raj Sharma, Director and CEO, iValue InfoSolutions. "The Industry precise solutions delivered by Hitachi augurs perfectly with our Enterprise customer base and with our mission of endlessly providing leading-edge offerings."

# Achieving a USD 1 Trillion Manufacturing Economy



Recently, CII partnered with the Government to work on the target of creating a USD 1 trillion manufacturing economy by 2025-26. We brought out a report 'The Lion Conquers the Forest, India: A USD 1 Trillion Manufacturing Economy' which looked at how India could become a leading global destination for cost-effective high value-added manufacturing.

Achieving a USD 1 trillion manufacturing industry (in gross value added terms) by 2025-26 would necessitate industry, government and academia to work together to propel the sector towards a 12.3% CAGR.

The Interventions Escalator, comprising horizontal and vertical interventions, summarises the required areas.

## Horizontal Interventions Escalator

Enhancing infrastructure, streamlining regulatory processes, easing global trade restrictions, and ensuring access to financing and branding 'India' are the primary elements of creating a conducive eco-system. Greater adoption of Industry 4.0 technologies will require skilling up all levels of employees as well as developing new business models.

Under the horizontal interventions, set out below are a few priority actions based on their impact and relative ease of implementation.

- ▶ Logistics costs will need to be reduced.
- ▶ Industry will need to work with state governments to ensure uninterrupted and consistent quality supply of utilities.
- ▶ Digital infrastructure will improve the ease of doing business.
- ▶ Labour reforms will need to move quickly.
- ▶ A land bank database needs to be created, including surplus lands of PSUs, railways and defense, and a map for industrial use.
- ▶ Credit registry for MSMEs will overcome the

issue of non-availability of historical data and behavior of MSMEs.

▶ Awareness needs to be created, along with the development of model plans for shared infrastructure.

▶ Coastal economic zones need to be developed with a more conducive eco-system.

Skilling up the future workforce of the manufacturing industry is of utmost importance and updates in the curriculum will need to ensure personnel are future-ready, aligned with Industry 4.0 needs. Tie-ups between educational institutes and skilling centers, and between academia/research institutions and industry will assist in answering real industry problems.

Investments towards research and development need to be encouraged, particularly in higher education institutions and by setting up incubation centers for innovation and start-ups in Tier 2 and 3 cities.

## Vertical Interventions Escalator

We have identified 11 existing sectors with a high growth potential.

- ▶ Defence manufacturing
- ▶ Aeronautical products
- ▶ Chemicals
- ▶ Electronics
- ▶ Auto and auto-components
- ▶ Pharmaceuticals
- ▶ Space manufacturing
- ▶ Ayurvedic products
- ▶ Ready-made apparel
- ▶ Food processing
- ▶ Jewellery

The Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, has also identified 8 nascent sectors, with potential for exponential growth. These sectors include: biotechnology and genomics; electric mobility and storage; unmanned

aerial vehicles; active pharmaceutical ingredients; medical devices; robotics and automation equipment; advanced materials; and chemical feedstock.

Specific focus on these sectors will set the stage for the future manufacturing industry; contributing in excess of USD 170 billion to the manufacturing GVA by 2025-26.

There are three possible growth scenarios which can occur over the next decade: business-as-usual; moderate implementation of the interventions' escalator; or full implementation of the interventions across all dimensions.

## Scenario 1: The Lion Meows

In this scenario, we can expect incremental steps from the government and industry, with India's GDP growing at a CAGR of 6%. With the manufacturing sector growing at a CAGR of 6.6%, it would reach USD 650 billion and India would remain on the sidelines of integration into global manufacturing value chains.

## Scenario 2: The Lion Roars

If most of the growth enablers are put in place, India's GDP could touch USD 4.5 trillion by 2025-26 and the manufacturing sector, comprising 20% of the total GVA, will grow to USD 800 billion in the same period.

## Scenario 3: The Lion Conquers the Forest

Achieving a USD 1 trillion GVA by 2025-26 will require all growth enablers to be in place. Vertical interventions for all identified sectors, including the nascent sectors, would be implemented to the fullest. Leading global players must be invited to invest in India, with a prime focus on the 8 identified nascent sectors. This will allow for India to be fully integrated into the global manufacturing value chains; with a manufacturing sector GVA target of USD 1 trillion and an overall GDP target of USD 5 trillion by 2025-26.

We must target the last scenario where we are able to achieve our full manufacturing potential and take the lead in emerging sectors. This ambitious target of a USD 1 trillion manufacturing industry requires a detailed action plan for all dimensions, highlighting allocation of specific responsibilities, along with quarterly and annual targets. DPIIT has set up task forces to identify solutions and CII is privileged to work on this initiative.

The next decade will witness rapid changes in technology, market and global dynamics. Together, government and industry can ensure that India is able to strategize for meeting our aspiration of a USD 1 trillion manufacturing industry.



# GROWTH IN INTELLECTUAL PROPERTY IS INDICATIVE OF TECHNOLOGICAL PROGRESS AND IMPROVED ECONOMIC ACTIVITY

India is on course to become one of the leading hubs for innovation, research and development. The intellectual property industry is also assessed to have a huge growth potential in the current Indian and Global context. With regards to this, the National Association of Software and Services Companies (NASSCOM), unveiled its report titled 'Emerging Technologies: Leading the next wave of IP Creation for India'. The report showcases how companies in India are creating IP assets in the US, which is one of the most favored destination for filing patents.

## Key findings of the report

The report highlights the fact that India domiciled companies filed over 4,600 patents in the US between 2015-2018, of which majority were from the technology domain, with Artificial Intelligence being the fastest growing area followed by IoT. The share of technology patents has consistently increased to 64.8% in 2017-18 from 51.0% in 2015. In technology patents, the share of emerging technologies has increased consistently to 56.3%

in 2017-18 from 38.3% in 2015, while the share of computer and communication technology patents witnessed a decline. Artificial Intelligence leads the emerging technologies patent race both in terms of total number of patents with 330 patents being filed in as well as growth over the period 2015-18. Apart from AI, there has been a consistent growth on building IP in other emerging tech domains with patents filed in Cyber Security (193), IoT (107) and cloud computing (88) accounting for over 50% of the tech patents filed in 2017/18.

Over the past few years, start-ups have contributed to the IT-BPM industry by building new innovative products and services. As per the report, in the period from 2015-18, Indian start-ups have filed nearly 200 patents in the US, majority of which focused on emerging technology areas including Image Processing, AI, Cyber Security, Vehicle Technology and IoT.

Sharing her views on the launch of the report, Debjani Ghosh, President, NASSCOM said, "It has been phenomenal to witness the advancements

and technological innovation and human intellect with the volume of patents being recorded over the years. Innovation is the key to driving transformation and such patents and trademarks are a testimony to this transformational growth. As a country, India can further strengthen its potential as an innovation hub through more investments in research and strategic collaborations. We are confident that we will usher in a new wave of innovation and intelligence in the country.

"The study also highlights the patent growth story in newer application areas including cyber security (96), digital payments (31), e-commerce (87) and navigation (58). NASSCOM has been organizing various IP awareness workshops for the industry including tech Startups highlighting the needs to protect their innovations under IP laws. In future too, NASSCOM plans to focus on these workshops, which will touch upon creating awareness on various IP laws, filing process including generating awareness on Government schemes and incentives for Startups to encourage innovation.

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