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Covid-19 Lessons

Greetings friends!

We hope that all of you are doing fine and following the Government of India's instructions to stay safe and stay at home.

Covid-19 has brought about a sea change across the world. It has also brought to us a whole new lot of lessons.

First, India has revised its foreign investment policy, making it difficult for companies from countries sharing the land border with India, including China, to invest in the country. The world has also realized that importing almost 100% components, raw materials, and doing mere assembly in country, means, it will always be dependent on the other country. This needs to be avoided, for now.

On the contrary, the international business strategy is not said to be based on the Black Swan event. As per Wikipedia, the theory of black swan events is a metaphor that describes an event that comes as a surprise, in this case, the coronavirus. Also, there are said to be too many factors and various types of risk exposures that are involved. It's also important that we don't deprive our innovators of the much-needed risk capital. Next, inter-company collaboration will be critical for future teams. Disaster recovery (DR) on cloud will now become even more necessary than any other time. Covid-19 has also highlighted why the cloud is a natural fit for business continuity, as businesses can be up and running quickly from anywhere. There is also a need to ensure cyber security in the remote workforce.

We also need to start planning right now to post-Covid planning (PCP). We don't know what will happen next. For example, what happens three weeks from now? These were remarks made by Vijay Sethi, CIO, CHRO and Head, CSR, Hero Moto Corp., at a webinar titled Business Continuity Planning (BCP) in times of Covid-19, organised by Dataquest.

The world has changed. The thought process of all employees has also changed. We need to work on the new perspective. To fight the unthinkable, you have to be willing to do the unthinkable. Work from home (WFH) has become the new normal. We need to learn to manage and work around situations. Expectations from the IT have also changed significantly. Remote support is becoming a norm. Thanks to WFH, today, companies are reporting higher productivity across their teams. However, some remote employees are said to be struggling with maintaining their work-life balance. These, and many other such issues, are now occupying most of our time. However, we will emerge, victorious.

Enjoy reading this April issue of Dataquest!

Pradeep Chakraborty

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IoT – Walking on Egg Shells?

Be ready for the next wave of IoT breaches – if you are going cognitive, or not paying attention to hardware and software parts, you could be next in line for a guerrilla assault



When IoT started rising in adoption and investments, security attackers too started to breed termites. More so as the wall is sprawling bigger every year. The very charm and advantage of IoT is spackling it with imminent threats and attacks ahead. The Humpty has to be more careful. More ready.

Less bricks! More Louvre!!

Today, interconnected sensors and actuators have

pervaded almost every sphere of our lives, with the dawn of the IoT era. It is not just our homes and appliances that are embracing smart things, embedded sensors and actuators. Look at connected medical appliances that allow for continuous remote monitoring of patients and timely administration of medicines. Or at the construction industry that is using smart cement with sensors (e.g., accelerometers) to monitor the load on bridges and perform preventive maintenance.

Even power grids are being instrumented with



THE SPATE OF RECENT ATTACKS THAT HAVE BEEN REALIZED ON THESE EMBEDDED SENSORS BEAR TESTIMONY TO THEIR UBIQUITY BUT ALSO RAISE SERIOUS CONCERNS ABOUT THEIR SECURITY. THESE DEVICES, BY VIRTUE OF THEIR DEPLOYMENT, CAN BE USED TO CRIPPLE CRITICAL INFRASTRUCTURE THAT WAS ONCE CONSIDERED INVULNERABLE

— Vaidyanathan R Iyer, Security Software Leader, IBM India/South Asia

sensors to detect possible disruptions and, accordingly, manage the generation and distribution of power. In manufacturing too, embedded sensors are being integrated into the heavy machinery for increased worker safety, optimization of processes via automation, and anomaly detection.

As Vaidyanathan R Iyer, Security Software Leader, IBM India/South Asia uncomfortably reminds, in spite of our increasing reliance on these embedded sensors and actuators, their security has unfortunately not attracted as much attention as it deserves. “The spate of recent attacks that have been realized on these embedded sensors bear testimony to their ubiquity but also raise serious concerns about their security. These devices, by virtue of their deployment, can be used to cripple critical infrastructure that was once considered invulnerable.”

We are talking of a space that is proliferating very fast - IoT connections worldwide can reach 5.3 billion in 2028, as per estimates by Analysys Mason. Any loophole - small or big - can have consequences deep and dangerous for users here. Turns out that these loopholes are not only huge in number but also below the radar even now. There is something new that is discovered every few days, and that ‘something’ happens to be an advantage for the security attackers.

Forget fragmentation, nascent hardware, invisibility of sensors and the scale-multiplier nature of IoT devices - there are more reasons inherent in the IoT nature that are mushrooming as rapidly and wildly as IoT devices are.

Main Driver

The main driver of this IoT boom is its ease of installation and use, Katkar points out when talking about the big

security risk to its end users. “In an attempt to make IoT devices easy to use and install, many basic security best practices are sidelined.” He underlines the worry about the gaps that the current notion of IoT vendors seems to deepen all the more. “They think that if anything traditional can be connected to internet and can be controlled remotely (be it through voice or gesture or mobile apps, etc.), it’s called smart and it will find takers in the market.”

Then, there is the innate problem of entropy. It is relatively low in an IoT Infrastructure because of the stripped-down, bare-minimum nature of embedded devices systems. Many IoT devices rely on RSA keys and certificates. These are used to encrypt data before sending it to other devices. But how sturdy are these?

As researchers from Keyfactor demonstrated really, one can easily compromise 249,553 distinct keys corresponding to 435,694 RSA certificates by just using a single virtual machine. Even if one argues that the RSA algorithm is secure, the way enterprises use it can hint at the level of weakness of these certificates - more so as one cannot ignore the self-sign nature that works in IoT’s case. The consequences range from impersonation by an attacker, theft of data to manipulation for a denial-of-service attack.

The total number of IoT connections worldwide will grow at a CAGR of 22 per cent between the end of 2018 and 2028. They will reach 5.3 billion in 2028: An Analysys Mason Report

Iyer adds the dimension of passive attacks to this list of inherent weaknesses of IoT. “The attacks on these systems can be broadly categorized into two types: active and passive. In the case of active attacks, an



THE ADOPTION OF IOT IS INCREASING DAY BY DAY. THE RACE OF MAKING EVERYTHING SMART IS SO CRAZY THAT THE BASICS OF SECURITY ARE COMPLETELY IGNORED WHILE BUILDING THESE SMART IOT DEVICES

— Sanjay Katkar, CTO, Quick Heal Technologies

adversary gains access to the device and uses it to control the device and run malicious code on it. In the case of passive attacks, signals emitted by these devices are used to infer sensitive information about the system or the usage and activity of the system.

Walking Wall

As IoT evolves, more and more systems will transition from 'traditional' IoT to Cognitive IoT. That's exactly when a new range of security attacks becomes feasible. "Attackers can interfere with the process of cognition and force the system to learn incorrect behavioral models. By subverting vulnerable sensors and actuators, or feeding learning systems with false data, attackers can corrupt the learning process." Iyer argues.

The increasing 'smartness' is a quality that can become a paradox of sorts with IoT. Iyer notes that the point between the data capture at the IoT device to ingesting it in the enterprise security framework is the most vulnerable period. This calls for a new approach to Digital Trust integrated with threat management supported by robust Incident Response schemes."

Companies increasingly want to make use of cognitive technology to better understand and use their data. Enabling such analysis by generating, collecting, and storing additional data makes a company also more vulnerable to the loss and misuse of such data – he reasons. Katkar slices open the security posture of IoT devices on some inherent limitations - like limited hardware resources and not-so-easy ways to update software/firmware running on them. "That is further

increasing the attack surface. The early entrants in the IoT market have learned these security risks by getting hacked and exposed by security researchers. But these days, there are lots of new entrants (vendors) in this market who completely ignore the lessons of others and still focus on ease of use and affordability over secure design and communication of these IoT devices."

IoT – Strong or Weak?

"As companies deploy IoT solutions the networks are potentially bridged and so the attack surface widens. Attacks and threats to companies could be in the form of leakage of sensitive data or manipulation of the corporate network by rogue devices. These same attack surfaces could allow attacks, which take over devices and allow for manipulation of a company's network infrastructure. Ultimately, as devices and sensors are connected in IoT applications, a comprehensive assessment of security, privacy, and safety should be performed."

Katkar reflects at the initial wave of IoT attacks and how it was basically attacks for fun or breach of someone's privacy, etc. "But over the years, we have seen a streak of more devastating IoT attacks like Mirai Botnet, ADB port related attacks, hijacking IP surveillance cameras, etc. We suspect this will continue and adversaries will slowly move from hacking IoT devices for fun to hacking these devices for gains."

Every wall has that one brick, that one air-gap and wet paint spot that do not rhyme too well. IoT may be a unique, moving, expanding and intelligent wall – but it is still as strong as its weak areas.



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—**BALAKRISHNAN D R**
Head, AI and Automation, Infosys



SCALING WITH AI

Organisations that are the early adopters of artificial intelligence, are struggling to accrue the benefits because they have not been successful in scaling and using AI widely. Infosys has implemented a Centre of Excellence-driven strategy for the discovery and delivery of AI and automation opportunities, among others. Balakrishnan D R, Head, AI and Automation, Infosys, tells us more

How is Infosys identifying and mitigating the hurdles thwarting AI's business implications?

While digital natives are comfortable adopting AI, traditional large enterprises are yet to embrace it extensively. While the potential of AI is lucrative, yet enterprises aren't exactly rolling it out because of factors such as the absence of a clear strategy, lack of organized data, skills shortage, and functional silos within the organization. As per a McKinsey study, a mere 17 percent of respondents said their companies have mapped out the potential areas in an organisation where AI can succeed.

Organizations who are early adopters of AI, are struggling to accrue the benefits because they have not been successful in scaling and democratising AI. Also, only 18 percent have a clear strategy in place for sourcing the data that enables AI work.

The dearth of trained talent with AI skills also plays a role in slowing adoption. At the same time, to adopt AI seamlessly, organisations need to take additional measures to ensure better security, governance, and change management. Having said that, we're likely to see most of the stated hurdles being overcome as technology evolves at breakneck speed. For instance, data synthesis methodologies are now available to combat data challenges in AI. With the emergence of

techniques such as transfer learning and meta learning, reduces the need for high volume data. Aspects like the explainability of AI, elimination of bias and ensuring AI is used ethically are becoming mainstream helping in adoption of AI in the enterprise context.

Today, we can automate the steps and processes involved in the life cycle of creating, deploying, managing, and operating AI models which helps scaling AI adoption more widely into the enterprise. Even challenges such as inadequate workforce skills will start to abate over the next few years as more engineers and scientists get trained and become industry ready.

How is Infosys accelerating the digital transformation by scaling with AI across enterprise ecosystems?

AI accelerates and democratises the decision-making process in an organisation reducing the distance between employees and their clients enriching the user experience. The benefits are realized only when the technology is scaled across the organisation.

One great example is a leading telecommunications giant that wanted to enable real-time collaboration amongst its employees by breaking data siloes and bringing AI closer to the employees to help them in their decision making. Infosys AI and automation services created an AI marketplace for the company by designing a 'platform of platforms.' This machine learning driven

platform helps employees set-up challenges, compete and collaborate across the organisation. It also enables better and faster predictions with humans working alongside AI-powered bots. Several hundred employees are using this platform for forecasting, modelling and creating new experiences for the end-users.

We implemented a Centre of Excellence driven strategy for the discovery and delivery of AI and automation opportunities within a global healthcare equipment manufacturer. The implementation is already delivering more than 30% net cost reduction in core processes as well as identifying revenue increasing opportunities in customer interfacing areas.

We worked with a global Oil and Gas company where we offered holistic support in terms of defining enterprise wide AI strategy. We handled the setup and support of Centre of Excellence and initiated common discovery efforts across the organization. We also worked on communication and visibility on use cases across business units, the establishment of a single AI portal for all stakeholders to stay up to speed with developments. These efforts resulted in cost savings of over 50 percent in core processes.

In another case, we worked with SPARK ANZ through a consulting-led, integrated, process-first approach. We started with small, specific problems that were not among the most complex organisational problems to solve but that were sure to prove and show value. For example - AI and predictive ML applications in network capacity planning and server patching. Change management to help overcome the employees' fear of automation was a priority. Also, scaling up was not just about incremental multiplication; it required significant investments in orchestration, management, security, lifecycle management, and governance of checks and balances.

What consulting-led approaches to AI are taken to achieve top-notch business outcomes?

Infosys' consulting-led approach focuses to find, frame and solve unique business problems that leverage artificial intelligence to create measurable business value. The business value is driven by top down identification of strategic priorities, value driven prioritization, and constant value creation monitoring. It is strategic to approach AI as a journey and not just an immediate destination reached with a few PoCs and pilots.

The approach also emphasizes that for AI to scale successfully, a project must be business-driven and not just an IT initiative run by the CIO's office. Having a consistent sense of the ROI created from any AI related initiative is crucial. No project should be kicked off, if we are not able to answer the simple question of "How much is this effort going to bring to the enterprise?"

Key tenets of Infosys' consultant-led engagement on AI:

- **Start business-inward, not algorithms-outward:** Several AI initiatives in the organizations start with a Technology led transformation rather than a business need which needs to be addressed. A deeper understanding of the domain and process is key to arriving at the problem statement, business value followed by the technology implementation.
- **Focus on the process first:** Understand the business process across all aspects of business pain points, priorities, constraints and value maps. Productivity, Decision Making and Quality aspects of the process provide insights to technology roadmap.
- **Integrated capabilities:** At Infosys, our technology services offerings are intertwined with consulting offerings, where the teams bring complementary competencies. While the technology practice brings in AI technology capabilities, the consulting team discovers and identifies the best-fit business opportunities and brings in domain expertise.
- **Taking a life-cycle management view:** The alignment between technology and consulting teams continues throughout the lifecycle of any project— right from implementation, deployment and training, to ultimately driving large-scale adoption in production.

How is Infosys combining the in-house cognitive engines and offerings such as Nia and AssistEdge and third-party AI tools to transform business value chains?

Infosys has invested in building a strong AI partner ecosystem including partnerships with start-ups, research organisations, and industry. For instance, we have partnerships with universities such as Stanford, MIT, and Indraprastha Institute of Information Technology (Delhi). On the industry front, we have partnerships with Microsoft Azure Cognitive Services and IBM Watson among others. There have also been

“INFOSYS NOT ONLY CREATES ITS OWN IN-HOUSE PLATFORMS (NIA, EDGE PLATFORMS, CYBER SECURITY PLATFORM, ETC.), BUT ALSO WORKS WITH CUSTOMERS TO CO-CREATE CUSTOM AI PLATFORMS USING SOME OF THE BEST IN CLASS OPEN SOURCE AND LICENSED SOFTWARE”



several investments in start-ups such as Trifacta, TidalScale, and Whoop.

Infosys is known for its consulting capabilities and business outcome focused approaches, with integrated consulting and AI service teams, from the top leadership through to the operational execution layers. This ensures an end to end value creation journey with clients. A platform-based approach encourages a robust platform agnostic partner ecosystem that can work with any and every third-party provider.

Infosys not only creates its own in-house platforms (Nia, Edge platforms, Cyber security platform, etc.), but also works with customers to co-create custom AI platforms using some of the best in class open source and licensed software.

How does Infosys help the enterprises leverage big data, advanced analytics, robotic process automation (RPA) to transform themselves into a data-driven intelligent enterprise?

Data is the oil, but only good data can help enterprises to become intelligent. Infosys itself believe in data-driven organisation, even before Big Data and AI techniques came into the picture. We believed on that fact that we believe in god, everything else comes from data. Infosys has its own IP, AE Discoverer, which helps in mining business process systemically and which is driven through data. Any opportunity to automate or generating insight comes using its output which is data. This approach gives a scientific method for finding opportunities.

Infosys has created an ecosystem of partner, its

own IP and academics, which helps client adapt data driven journey faster and easier. We bring various data workbenches, Analytics workbenches and AI models, which can help client get better ROI for their journey and which also becomes Suites for enterprise to build their IT ecosystem to drive data driven programmes. Our methodology which is based on design thinking ensures we help client to not only solve critical problem but help them identify future opportunity and future problem which needs to be solved using experience, innovation and Data. Infosys offering around enterprise control tower is to show mirror to client which helps them visualise their performance (data driven) and thus enable them to drive action.

How is Infosys designing and strategising AI architecture to deliver value at scale?

At Infosys, we believe that to scale AI adoption within the enterprise, it takes three zeroes – zero distance to information and insights, zero disruption to business operations and zero latency to business processes. This means building an integrated approach to problem solving and identification, driving actionable insights across the continuum and solutions that accelerate adoption.

We work across consulting, technology and operations and rely on three key pillars of AI and automation (as the technology lever), lean methods (as the process lever) and design thinking (as the innovation lever). This holistic approach helps us re-imagine business and processes to create innovative business models.



—**GARGI DASGUPTA**
Director, IBM Research India, and
CTO, IBM India South Asia



CAKES IN A PETRI-DISH

No other technology has had the speed, scale and decibel-levels of excitement surrounding it as AI is witnessing right now. But, that also means a lot of pressure – to translate pure technology ingredients into quick and edible solutions. How is IBM handling that onus, clock-count and adrenaline without being flour-ed?

We have just scratched the tip of what chat-bots can and should do. We have to make AI simple and relevant for non-AI experts. We need to wrap our heads around the problem that AI is not just a low-hanging fruit for narrow applications, but capable of broad buds ahead.

We have to confront the fact that modeling is not the whisker machine that solves everything in AI. With 15 deployed quantum computers at a >99 per cent utilization and a Quantum Volume of 32 – Qubit, IBM Research is not just jumping the hoops faster but is also picking tougher and newer hoops to aim at.

Gargi Dasgupta, Director, IBM Research India, and CTO, IBM India South Asia, lets us have a peek into the oven of AI. It smells great and looks very different from other ones. Pick up the gloves and find out why. The white ones, please!

What does an ideal, long-term arc of research on AI look like? Can you share any tipping points from IBM's journey?

We are moving from the world of 'Narrow AI' to 'Broad AI'. We have seen many successful applications of AI which are pointed and solve a defined task, which is what is referred as narrow AI. These are the low-hanging fruits and have given the community credibility, helped in adoption of technology in mainstream world and initial success. However, we need to widen the scope from three perspectives: people, tools and applications.

What is the next exciting thing or AI challenge that keeps you and your team busy? Can you share any

hints of the next big turning point in AI?

Despite breakthroughs in specialized AI tasks, user engagement, and experience with chatbots is far from satisfactory. A major bottleneck in the design of chatbots is in the process of building the dialog flow. This involves:

- i) anticipating user needs,
- ii) modeling the multiple ways a user might express that need, and
- iii) generating a response from the bot that addresses that needs.

How do we make this process effective? How can someone who designs a bot get answers to these questions from data locked in human-to-human

conversation logs? Our team is working on exactly this problem.

How exactly are you doing this?

We are developing methods that can bootstrap the design process of such bots by analyzing thousands of real-world conversation logs to make smart recommendations to a bot designer. We are also developing methods that can automatically build bots that support conversations over data in documents — eg. conversations based on information captured in process flows, FAQs, self-help guides or even policy documents that describe rules, conditions of eligibility etc.

What is the biggest AI challenge that stays unbeaten even now? How close are we in fixing bias, data issues, consistency and trust problems in AI?

We are in the exciting times of AI. But, we have still not leveraged the full potential of AI, especially for enterprise applications. When people think about AI, they usually think about models. In the last several years, a lot of research has poured into building better, smarter and more efficient models. However, for real-world enterprise applications, a data scientist spends about 60-80% of their time on the data before reaching the modeling stage. That, in my opinion, is one of the biggest challenges in AI today and a roadblock towards making AI more pervasive in the industry.

Is it being handled and solved at your innovation huddles?

We, at IBM Research, are looking at this problem of fixing data bias issues and developing algorithms that can give insights about the quality/goodness of data with respect to AI at the start of a project. I believe this

is a very important area for the research community to look at. And which is why, our mission is to not only perform research on this in our lab, but also to socialize in academic circles.

Tell us something about the Policy Lab and Project Debater. How much progress, you feel, has been made by these initiatives?

IBM has pioneered the advancements in AI for decades now – from Deep Blue to Jeopardy to Project Debater now. Project Debater is the first AI system that can build persuasive arguments on its own and engage in debates on complex topics. Eventually it will help people reason by providing evidence-based arguments limiting the decisions from being influenced by emotion, bias or ambiguity. We are constantly pushing the boundaries of NLP – making machines understand the nuances of language, complex statements etc. After all, the promise of AI in the enterprise depends on Natural Language processing.

IBM Policy Lab is a forum that provides policy makers with a vision and actionable recommendations to harness the benefits of innovation while ensuring trust. We recognize our responsibility and the impact of technology to society. Hence, early this year, we issued a regulatory framework – Precision regulation for AI, which is based on accountability, transparency, fairness and security.

Where, and how, can innovations on AI and quantum computing converge? What is IBM up to in the work on quantum computing?

Quantum computing is the next best thing in technology and it allows us to solve larger business and societal problems which classical computers are not equipped to



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“A LOT OF FOCUS IS ON BUILDING TOOLS FOR DATA SCIENTISTS, BUT EQUAL AMOUNT OF FOCUS NEEDS TO BE GIVEN FOR BUILDING TOOLS TO AID OTHER PERSONAS LIKE DATA OWNER, DOMAIN EXPERT, AS THEY PLAY A VERY IMPORTANT ROLE IN AN AI LIFECYCLE”



do that well. Quantum computers are expected to play a crucial role in machine learning, including crucial aspect of accessing more computationally complex feature spaces – the fine-grain aspects of data that could lead to new insights. Since, AI thrives when ML algorithms used to train them are given massive amounts of data to ingest, classify and analyze, so yes QC could help advance machine learning and artificial intelligence by incorporating extremely complicated data sets.

There have been some significant advancements in quantum computing. Today, we have 15 deployed quantum computers with >99% utilization including a 53-qubit systems, 200K registered users, >150 billion executions and have also doubled the quantum volume (QV) to reach 32 qubits.

Tell us more about QV

The QV is a hardware agnostic metric that measures the performance of a real quantum computer and in order to achieve quantum advantage, we need to at least double the Quantum volume of our quantum computing systems every year. The IBM Q Network, which now includes over 100 organizations, across multiple industries, is exploring a broad set of quantum computing applications.

Carmakers, airlines, energy companies, healthcare providers, financial services firms, and world-class

research organizations are considering new solutions and services that until recently could scarcely be imagined. Anthem, Delta Air Lines, Goldman Sachs, Wells Fargo and Woodside Energy are among the latest organizations to begin to explore practical applications using quantum computing.

Why people?

We need to build algorithms that can explain AI outcomes to a non-AI expert, and work with the domain experts to take in their inputs to improve the algorithms and bring in trust to the AI systems.

Is that where tools and applications jump in?

We need to develop tools that can solve problems to aid more personas in the industry. For example, a lot of focus is on building tools for data scientists, but equal amount of focus needs to be given for building tools to aid other personas like data owner, domain expert, as they play a very important role in an AI lifecycle. Also, with the development of algorithms that can solve the above challenges, I am hopeful that our applications will be able to solve more complex enterprise problems and thereby generating more value. Some of the above problems are the ongoing projects in our lab.



—**RADHAKRISHNAN R**
AVP Solutions, Head Automation Practice (RPA),
Infogain



MAKING RPA SUCCESSFUL

Infogain India is a Silicon Valley-headquartered company with software platform engineering and deep domain expertise in travel, retail, insurance and high technology. They accelerate the delivery of digital customer engagement systems using digital technologies such as cloud, microservices, robotic process automation and artificial intelligence to our clients. Here, Radhakrishnan R, AVP Solutions, Head Automation Practice (RPA), Infogain, tells us more

What are the key factors in successful deployment of RPA at the organisational level?

Automation is the need of the hour, and businesses are at a precipice where integrating with such technologies is imperative for survival and to sustenance in the coming years. However, the decision to implement RPA should be made after careful mapping of the business needs. It is important to acknowledge that 'the quick don't always win the race,'; therefore, the RPA implementation must be paced.

Implementing RPA in real-world enterprises takes a lot more finesse and preparation. Some key factors to keep in mind to ensure success:

- Strategy first: Before starting an automation program, it is important to have the right strategy that aligns with the organization's goal and objectives.
- Alignment of business and IT
- Setting up and operating a Centre of Enablement (CoE)
- Institutionalizing an effective change management process.

How do you see the adoption of RPA technology in the Indian market? Which vertical industries are the early adopters?

Forrester predicts spending on RPA tools will reach

\$1.5B globally this year. And according to the recent Kenneth market research, the RPA market in India will grow at a CAGR of above 20% during the forecast period 2019-2025. As per the general outlook, RPA as a technology is in its early stages in the country, and that is one of the reasons why India presents a lot of potential for an impending boom in its adoption. With multiple service providers delivering customized RPA solutions to companies in local markets across the country, RPA will make its presence felt in India in a big way. With the evolution and deeper application of RPA, we will see it's a market expansion in the country as SMEs and large enterprises enter the RPA market.

Companies vying for success in a technology-driven 'tomorrow' will need RPA to reap benefits like cost-effectiveness, convenience, speed-to-market, increased productivity etc. which will drive the large-scale adoption of RPA. While the BSFI sector is currently the frontrunner in the implementation of RPA, there is immense potential in sectors like insurance, telecom, travel and hospitality, BPO, and manufacturing.

Highlight some of the use cases/sectors where you have already deployed RPA solutions

We have deployed solutions for many of our clients across domains that include – retail, insurance, hi-tech, travel and hospitality.

Across various sectors, some of the processes that we have automated for our clients include:

Insurance:

- Claims processing
- New account creation
- Renewals
- Policy Administration

Travel and Hospitality:

- Competitor pricing analysis
- Guest data processing
- Payment processing
- Property Onboarding

Banking and Finance:

- Reconciliation
- New business quotes
- Application processing
- Closing policies
- New account verification
- Data validation
- Customer account management
- Financial claims processing
- Report creation
- Form filling
- Change of address
- Loan application processing
- Order to Cash
- Procure to Pay

HR:

- Employee Onboarding and Offboarding
- Travel Expense Management
- Employee Credential Management and System Access

Retail:

- Inventory Control
- Compliance and Audit
- Loyalty and Rewards Programs

What are the challenges that come during the deployment of RPA solutions at the customer end?

Implementing new technology poses its own set of challenges, some generic and some unique that may arise due to the specific client, tool, task, expected results etc.

At Infogain, some of the most common set of issues

we have seen over the years are:

- Resistance to new technology
- Lack of local support and resources for implementation
- Infrastructure and platform-related issues
- Ownership and decision making
- Unrealistic client expectations
- Identifying misfit processes for automation
- Realizing the benefits as anticipated.

What kind of handholding is required in terms of training and enablement for the deployment of the solutions?

When deploying RPA, it is advisable to partner with experts who can help integrate and implement RPA in a structured manner, with minimal intrusions to a workflow. After the deployment, it is advisable to periodically review processes to maximize RPA benefits and set realistic ROI objectives for the business.

An expert can help, create a detailed roadmap, and help define roles, responsibilities, plausible risks, and mitigation techniques and can provide training and support. Post an implementation, technologies like RPA need on-going management to ensure success. An expert partner can help monitor the bots regularly while helping with the seamless onboarding and continuous training of the personnel.

How have you geared yourself to address the growing market opportunities?

We are excited about the growing demand for automation solutions, particularly in artificial intelligence and machine learning to scale cognitive automation. Our robust hiring and training programs, coupled with our lean and agile model, help us meet customer requirements. In the past, we have transformed clients' businesses by implementing innovative and integrated automation solutions ranging from RPA programs to enterprise-wide cognitive transformations on leading industry platforms.

We already offer a full spectrum of automation services with enterprise integrations to help our clients achieve operational success and improved productivity. Our automation practice consists of highly trained and certified developers, including analysts, subject matter experts, modelers, architects, developers, and data analysts.

We will continue to build the capacity as well as capability to meet our customer demands even at short



WE EARNED AUTOMATION ANYWHERE'S GOLD PARTNERSHIP IN OCTOBER OF 2019. ALONG WITH THE GOLD PARTNERSHIP, INFOGAIN IS AUTOMATION ANYWHERE'S DESIGNATED CENTRE OF EXCELLENCE. WITH SUCH GROWTH, OUR FOCUS ON TRAINING HAS BECOME MORE FOCUSED TOO

notices. We are also working with leading RPA vendors such as Automation Anywhere, UiPath and BluePrism to offer the best possible solutions to our clients for any automation requirement.

Going forward, how are you looking to capitalise on the growth that you are witnessing in this domain?

RPA is just the beginning of the automation journey. So, we are continuously focusing our efforts on building a robust offering for helping clients achieve their automation goals and strategies while enabling them to address their specific business needs.

We are gearing up for the second wave of automation, which will look at embedding more cognitive elements and the onboarding of smart automation techniques to extend the basic functional automation. We intend to make investments in this area and get to the market early.

Since this is a niche segment and requires specialised skill sets, how much of your focus is on up-skilling and re-skilling in this technology?

Infogain's Automation Practice is growing. We earned Automation Anywhere's Gold Partnership in October of 2019. Along with the Gold partnership, Infogain is Automation Anywhere's designated Centre of Excellence. With such growth, our focus on training has become more focused too.

At Infogain, employees are encouraged to be a part of the training sessions conducted with the support of partner network and RPA vendors. My team offers RPA training & certification for freshers as well as experienced employees. Our training module for freshers covers RPA Fundamentals, Product Specific training, and Product Specific Certification.

The training team's sessions include SQL, Testing and XML, .Net (C#, Asp.Net, Ado.Net, MVC), or Java stack. Our training module for experienced employees covers Advanced and Master Certification for AA (Automation Anywhere), UI Path Certification & Training, Blue Prism.

Our training programs ensure that the automation engineers are technologic agnostic, which gives us the edge to be agile and competitive. Our engineers are trained just not in RPA but all complementing technologies that are needed to provide a holistic automation solution to our clients.

What are the key trends in RPA that will be seen in the coming year?

As the surge in new-age technologies continues, RPA will have a strong impact on India and the fourth industrial revolution. Companies will soon look to harness RPA to build capabilities that will help them offer better experience and value to their customers.

As we have already established that while RPA as a technology is still very green in India, its market is set exponential growth in the next decade. As we progress, we will notice a few key things happen:

- Companies will start looking beyond RPA and focus on automation as a whole
- There will be more convergence between RPA and AI
- The model of operations with service providers will change. There will be more demand for outcome-based engagements
- Till now companies have experimented with RPA without a strong guarantee on investment, but in the next phase of adoption it will turn into an investment driving ROI for the companies.



—**GIRISH NAYAK**

Chief, Service, Operations & Technology,
ICICI Lombard General Insurance



AUTOMATED SELF- INSPECTION OF CARS

ICICI Lombard has launched a facility called InstaSpec, the mobile self-inspection feature that eliminates the need for physical inspection of cars. Girish Nayak, Chief, Service, Operations & Technology, ICICI Lombard General Insurance, talked about the Instaspect campaign and service available across ICICI Lombard's product portfolio

Elaborate on the InstaSpec campaign and service available across ICICI Lombard's product portfolio

We started the InstaSpec campaign in 2018 and we have processed more than 500,000 claims through this solution. InstaSpec is our virtual survey solution that helps process motor claims more quickly. With InstaSpec, a garage operator can conduct a video survey of a vehicle using our mobile app and an ICICI Lombard surveyor can instantly process the claim basis the video survey.

Similarly, customers can also report a claim via our IL Insure app and get in touch with us instantly via video streaming to do the survey on the spot and get assistance on filing claim and finding the right garage for repairing the vehicle. These have resulted in significantly enhanced customer experience and a reduction in the time taken to process a claim.

How is ICICI Lombard leveraging AI/ML to identify frauds and facilitate a faster claim settlement process?

At ICICI Lombard, we are leveraging the power of AI and ML in solving different business problems, one of them being identification and prevention of fraud. Earlier, we would flag-off claims that needed further scrutiny basis rules and triggers put in the system. This would be investigated thoroughly and marked as fraudulent or not basis the investigation.

Today, with significant data availability and technologies available to process big data, we have started using AI/ML based fraud detection models to predict and highlight probable fraudulent claims. All this happens real-time as the claim is intimated and logged within the system.

The continuous self-learning approach of these algorithms helps us to implement solutions that auto-correct very quickly; reducing the time for learning and execution. These algorithms are helping us in identifying and prevent frauds faster (e.g. at the time of claim intimation) and also increasing our efficiency in fraud identification.

Is this solution only meant for fraud detection? What are the other areas it can work?

The above solution is unique for fraud detection. However, AI and ML techniques are used across various use cases within the organization. Just to name a couple of examples, we launched in Dec'18 our AI based break-in





GLOBALLY AND IN SOME SENSE IN INDIA TOO, WE
 ARE INCREASINGLY SEEING A VARIETY OF EMERGING
 TECHNOLOGIES AND INNOVATIVE BUSINESS MODELS
 THAT HAVE THE POTENTIAL TO TRANSFORM THE
 INSURANCE BUSINESS

inspection service which allows customers whose motor insurance has expired to instantly renew their policies.

All customers need to do is to take a few photos of their vehicle and our cloud-based AI-powered algorithms decide on instant policy issuance in case of no damage on the vehicle or on passing this case to a human adjuster for further verification in case damages are found. Enabling customers to do a self-survey of their vehicle has reduced the time taken to issue a policy for such cases.

Similarly, we also launched India's first AI-based technology to facilitate instant cashless authorization approval for group health claims. Similarly, in cases such as non-surgical hospitalization where the treatment amount can vary a lot, we have developed advanced machine learning models to determine the amount to be auto-approved. Using this solution we have been able to reduce the time taken to authorize cashless approvals from 90 minutes to 90 seconds.

What are the ICICI Lombard's future plans as well as those regarding block chain, if any?

At ICICI Lombard, we have always been at the forefront of using these new technologies that help us in acquiring, retaining or servicing our customers better. Globally and in some sense in India too, we are increasingly seeing a variety of emerging technologies and innovative business models that have the potential to transform the insurance business.

Broadly, that includes artificial intelligence (AI) and machine learning (ML), Internet of Things (IoT), telematics / telemetry, Big Data and data analytics, comparative engines and robo advisors, distributed ledger technology

(DLT), blockchain and smart contracts, as well as peer-to-peer, usage based or on-demand insurance models.

On the blockchain front, we, along with a few other companies, have developed a blockchain solution that is currently live and can be used for verification of no-claim bonus (NCB) for motor policies.

How will 2020 prove to be a transforming year for the industry with newer and bigger players entering the market?

We see newer players entering the insurance industry every year and 2020 is going to be no different. Interestingly, the insurance industry continues to see new and rapidly evolving consumer expectations and behaviors emerging. This is primarily driven by an increased internet user base driven by the smartphone penetration within the country. This has also led to a fundamental shift in the way we serve our customers.

On the other hand, we are also seeing a variety of emerging technologies and innovative business models that have the potential to transform the insurance business. Every insurance organisation needs to adapt to their consumer's needs and preferences, irrespective of whether it's new or old. With the rapidly changing consumer expectations and behavior, it is even more imperative for every insurance organisation to be able to reinvent itself to adapt to these changes.

Technology plays and will continue to play a vital role in developing solutions using new-age technologies such as AI and ML to help fulfil these expectations. We always feel that increasing competition always leads to superior customer service and is always more beneficial to the customer.

The Oscars of Indian ICT

IT Person
of the Year



2018
Ritesh Agarwal



2017
Bhavish Aggarwal



2016
Vijay Shekhar Sharma



2015
Rahul Sharma



"Celebrating the Success
of Indian ICT"

With serious concerns regarding COVID-19. ICT Business
Awards has been postponed after due consideration.
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Pathbreaker of the Year



2016
Sahil Barua



2017
A P Hota



2018
RJio



2018
Arjun Malhotra



2017
Ashok Soota



2016
Vineet Nayar



2015
Nandan Nilekani

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—**SURESH SETHI**
MD & CEO, India Post Payments Bank (IPPB)



ANTS OR DRONES - WHO TRAVELS FASTER TO A VILLAGE

Digitisation of finance may have poured into the country with a huge force, but this big torrent is bound to shrink into a stream and then into a few drops by the time it reaches the nooks and shadows of rural India and the corners called the 'unbanked'. Combining the navigation skills of an ant and the technology prowess of a drone may sound clever but it is not easy. How does one make payments simple, fast, effortless, fair, last-mile-friendly and yet digital? Suresh Sethi, MD & CEO, India Post Payments Bank (IPPB) walks us through all the lanes and furrows

Tell us something about the journey so far - what was the road like when you began and how far have you come?

Primarily, our journey started with a huge network of post offices that are sprawled across the length and the breadth of the country. India has a vast and deep network of these anchors. And they reach Indians almost on a daily basis. Now we could leverage this entire ecosystem for the last mile and accomplish far-reaching financial inclusion. Two points were important for us when we started. When we applied for the license, we were cognizant of the deep legacy of the Post Office Savings Banking infrastructure which is not under the RBI but the Ministry of Finance. It echoes a social universal obligation. It has its own set of customers and represented a strong community. Our goal was to give this community the advantage of interoperability because it was not, hitherto, connected to other financial services. We had to empower these users with the digital ease and quick transfer-speed for bills, accounts and other payments. Despite the success of many earlier initiatives on creating bank accounts, the activity factor was a concern. Our mandate was to cover the last mile effectively - to bring banking at everyone's doorstep.

Has it happened the way you envisioned?

We recently achieved an important milestone of 2 crore customers. We hit 1 crore customers in just our first year of operations. The next 1 crore customers were acquired and on-boarded in just 5 months. On an average, IPPB has been opening/maintaining a run rate of 33 lakh accounts per quarter. We have enabled more than 1.36 Lakh Post Offices and 1.9 Lakh Dakiyas to provide a complete suite of banking services at the doorstep of the

customer providing access to any Aadhaar linked bank account. We have managed to raise the rural banking infrastructure by almost 2.5 times. While Jan Dhan Yojana was the first step in bringing crores of Indians into the financial mainstream, our focus on giving Interoperable Doorstep banking services to customers of any bank including the over 38 crore Jan Dhan account holders is what defines us.

Reaching 'everyone' - that seems quite an operative word here

Our reckoning is that money has not reached every doorstep yet. It is all about having a well-oiled railroad with money-transfer systems, RTGS (Real Time Gross Settlement), account-to-account rails. We have to ensure that the underlying handshakes are in place for these trains to travel smoothly. Digital speed cannot be achieved with tracks that are not connected.

IPPB has been established under the Department of Posts, Ministry of Communication with 100% equity owned by Government of India. Launched by the Hon'ble Prime Minister Shri Narendra Modi on September 1, 2018, the bank has been set up with the vision to build the most accessible, affordable and trusted bank for the common man in India. Our mandate was clear - to remove barriers for the unbanked & underbanked and reach the last mile leveraging the Postal network comprising 155,000 Post Offices (135,000 in rural areas) and 300,000 Postal employees.

And interoperability is the plank we needed to do that? But even with all the new-found attention to it, with even SWIFT coming with APIs (Application Programming Interfaces), with BankID network and

Open Banking - how pragmatic is this concept when it plays out for the end user?

Everything today works on API integration for financial as well as non-financial services. Open Banking is an integral part of payments to reach faster and farther than how banks did before. As long as security is taken good care of, and APIs are constructed with the right instances, break-downs and configurations, we would see interoperability gathering more ground.

Speaking of that, why did you pick the Aadhaar Enabled Payment System (AePS) Services as a route to accelerate payments?

Well, as of September 2019, we have become the single largest platform in the country for providing interoperable banking services to the customers of any bank. With AePS, the idea is that any common person with a bank account linked to Aadhaar can perform basic banking services such as cash withdrawals and balance enquiry irrespective of the bank they hold their account with. One can simply authenticate his/her identity with fingerprint scan & Aadhaar authentication to complete a transaction. AePS services are bank-agnostic and enable low cost delivery of doorstep banking services to every section of the society without discrimination.

The Payments problems that you had targeted were also something that players like Aditya Birla's Payment Bank offering, Phone Pe and Fino (specifically for rural solutions) aimed for. What is your niche if any? Anything you learnt from the successes and failures of other players?

Technology players are targetting a different segment. But a huge community out there - 67 per cent or so - of the country does not use a smartphone. In fact, 33 per

cent may only have one family phone. To cater to people who cannot use apps – now that is not easy. They need an assisted model. That's why we identified three critical pillars - Aadhar (as the mechanism for opening accounts and for transactional authentication), full integration of all RTGS and UPI (Unified Payments Interface) parts, and last-mile reach (using the Department of Post's strengths for enhancing reach and leveraging the huge footprint and trust built over the years). Dakiyas - Postmen - have been there in the hinterland for generations. They have read and written letters on behalf of the people - so they are the best bets if we want to assist people with financial advisors. We have an edge over others, hence, on trust and on last-mile reach.

As to what we have learnt, we acquire our customers with the model of being sustainable and viable. This means working on digital literacy and training. Deploying the necessary infrastructure, with biometrics or QR (Quick Response), for example, is a serious investment by the government. The goal is not limited to the question of just having a profitable customer. It's more.

How do you ensure speed and simplification - is that where QR and AePB come into play?

For us, the last-mile simplification entails both Dakiyas and users. We trained them as per the new norms and needs. Most of the times, the process entailed an account number and PIN - that customers used to scribble on scraps of paper. So we created a QR card or a code embedded in the account number. The customer simply gives that card to the Dakiya. There is no need to enter too many digits. This is a huge simplification part.

IPPB has also implemented one of the largest ever digital financial literacy program by investing over 1 crore man hours in training and certifying more than 250,000



OPEN BANKING IS AN INTEGRAL PART OF PAYMENTS TO REACH FASTER AND FARTHER THAN HOW BANKS DID BEFORE. AS LONG AS SECURITY IS TAKEN GOOD CARE OF, AND APIS ARE CONSTRUCTED WITH THE RIGHT INSTANCES, BREAK-DOWNS AND CONFIGURATIONS, WE WOULD SEE INTEROPERABILITY GATHERING MORE GROUND



“WE HAVE COVERED A LOT OF RURAL BRANCHES SUCCESSFULLY. SO MANY POST OFFICES ARE NOW CONNECTED WITH THE BANKING ECOSYSTEM. OUR NETWORK CAN PROVIDE INTERFACE TO OTHER BANKS TOO”

Postal Assistants, Postmen and GDS as Banking Service providers. For us, the goal is to make doorstep banking as simple as hailing a cab.

Any challenges you felt so far?

The one lakh limit could be made flexible as most unbanked merchants may need different brackets as per their average turnover. This can reduce some friction experienced at the ground level.

What about connectivity that can be quite a snag in rural India?

Even in an urban house you have dark spots of network. So these are not going to stop Postmen who do not mind walking an extra length to get a signal. Local Jugaad is still a winner. That said, connectivity is much better than before.

What about the possibility of including Small Finance to expand your portfolio and revenues?

We can take only deposits and enable withdrawals. The revenue part is fresh and challenging. This is where third-party products can come on the platform. Stacking up other financial products like Insurance or Pension can be an avenue. We can also consider stacks of non-financial services on a smartphone - like education, agriculture (say crop communication, crop pricing) and health apps. We are now working on these areas and talking to relevant ministries. Speaking of Small Finance, yes, it

can be a good business model. What is important is the ability to lend. That's where transaction data for players and ecosystem would be useful. We are exploring Micro-credit, credit-scoring etc.

What does it feel like to empower a villager tucked far away somewhere on a hill or behind a river?

Great! I remember meeting this Postwoman in Kunoor. She managed 10 to 14 villages in her vicinity. Every village has some households and tribals that are now being helped. Like this bedridden man who used to struggle a lot for getting the pension from his account. His wife had to take a day off from her work (that meant that day's wages gone), walk through tea plantations, catch a bus (that meant bus fare too), walk many miles and then get to the bank. But now she can avail it sitting at her home, without moving an inch, thanks to this Postwoman. So yes, a lot of Dakiyas have been equipped with devices and trained well for doorstep banking.

We have covered a lot of rural branches successfully. So many post offices are now connected with the banking ecosystem. Our network can provide interface to other banks too. We can become the bank to all banks and make life easy for so many Indians. Now a customer can open an account in paperless ways in just three minutes, with the assistance of the Dakiya and also access a full suite of services. We are working to make it easy for a customer to withdraw and deposit money for any bank account as well. That's true digital freedom.

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—**FERNANDO ANGULO**
Head, Communications, SEMrush



CRYPTOCURRENCY SEARCH GROWING FAST

SE rush started out in 2008 as a small group of SEO and IT specialists united by one mission, to make online competition fair and transparent, with equal opportunities for everyone. After 11 years of trailblazing experiments and constant progress, it has grown into the world's leading competitive research service for online marketing. Here, Fernando Angulo, Head, Communications, SEMrush, talks about cryptocurrencies

What have you seen from the search results about the adoption of, or how the people are thinking about blockchain and bitcoin?

First let's talk about the intent of the people when they are searching, they're looking for something information transactional, or they want to buy something in terms of cryptocurrency, in terms of this entire industry. The investment on cryptocurrency was the first place so they are searching, where to invest, what is the best cryptocurrency, how to get cryptocurrency transform into rupees or how to get physical money about that?

For some states and for some locations in India, that's becoming really popular. The trend is only going on the people who are talking about this, and the ones who are creating content for our organically ranking for these are just a lot. The people who want to use cryptocurrency are consuming the data. That's the thing we can see in terms of results. The interest of course, if we have content, we have the results, and we have the interest of the people! This is something that is growing, faster than in every other Asian country.

Even if we're talking about China, the interest about cryptocurrency in China was fast, and really big.

Blockchain and Bitcoin have been around for some years now. Has India done any development in this field?

In terms of cryptocurrency, I believe you have your own cryptocurrency here. There are companies that have developed a bit and I believe the government is also investing a lot. That's only for the news we have in the search. The search queries show that the Bitcoin is still the number one.

Then, we have a second cryptocurrency, which is mostly popular here. But then, the most popular is still the Bitcoin. For people who are searching for that, they have all sorts of content right now. The content creation is going really, really fast. You have knowledge about cryptocurrency, you are going to build a blog,

you're going to open a startup and you're going to create something because people are consuming that data. So that's making the market grow more in terms of contents created that leads to more results on the search engine.

That's how we thought that we can see the price of the Bitcoin and the numbers of searches. That's why I was mentioning that there is a certain correlation between them three years ago, there was not much information about cryptocurrency. There was just a hype, which is in basic terms, it was viral. Everybody was talking about Bitcoins. But, most people didn't have any idea and the prices went crazy.

In terms of SEO, if you had a post or URL with 600 words, you can rank for that post on organic search. Today, you need to write something about 3,000 words. The competition is there in terms of amount of content is crazy, because there are a lot of companies who are doing that.

Do you remember that in South Korea there was a huge cryptocurrency jacking. Would you say anything about that one?

That was also three years ago. The hype about cryptocurrency, and the reaction from governments was a crisis situation. You have people mining cryptocurrency, you have people acquiring cryptocurrency, and the control of the bands was kind of lost there.

For countries like South Korea, everything is related to bank and everything is related to the government. They were losing control. So, they needed to cut out that really fast. It was a crisis situation in the Islamic countries.

I believe in India, you also have rules because of which Banks don't want to lose control of course, and going with cryptocurrency is losing control. I have a poll in my personal Twitter account: What are the things that humanity needs to rip off? I put three things there: passwords, cables, or taxes. Everybody was saying no taxes. So that means, nobody wants to pay taxes! Cryptocurrencies are the biggest way to avoid taxes.



—**SCOTT ROBERTSON**
VP, Asia Pacific & Japan, Zscaler



A SECURITY PLATFORM

Security as a Service is a new threat prevention platform that is making waves in the IT sector. Scott Robertson VP, Asia Pacific & Japan, Zscaler, tells us more

What are the advantages of a security-as-a-service platform in threat management?

Delivering security as outsourced service means that the provider manages all IT security services and requires no on-premises hardware or software. The cloud-based service provider can offer a range of services on a subscription basis, including secure web gateway, next-gen firewall, sandbox, SSL decryption and inspection, data loss prevention, intrusion prevention, advanced threat protection and others.

With cloud-delivered security as a service, organisations can gain access to the most up-to-date security tools that leverage the very latest threat intelligence without the cost and complexity of deploying and managing on-premises systems or spinning up virtual machines in a public cloud. Instead, organisations can focus on their core business and IT can focus on adding value to the business instead of managing updates, change windows, and end-of-life issues. A comprehensive cloud security solution also consolidates disparate point products into an integrated platform.

How can zero-day attacks and advanced persistent threats be addressed effectively?

Zero-day threats exploit a previously unknown vulnerability, which means such an attack occurs on day zero of awareness of the exploit. Signature-based security methodologies, such as antivirus systems, are ineffective in such cases, because they rely on threat histories and known patterns. Organisations are also facing advanced persistent threats (APTs), which may leverage the previously unknown attack techniques and vulnerabilities. Such sophisticated attacks must be addressed effectively.

Sandboxing is one technique that uses behavioral analysis and does not rely on signatures. With sandboxing solutions, a binary file is permitted to run in a controlled environment where its behavior is monitored and analyzed. Any suspicious activity is observed over a period of time, after which malware can be identified and confirmed.

Sandbox appliances typically operate out of line, allowing traffic through while inspecting suspicious files in TAP mode. If a threat is detected in the sandbox, it sends an alert, but it can often come too late. An inline sandbox will complete its analysis of a file before allowing it to be delivered, which can be slow, as the analysis is compute-intensive and an appliance only has so much processing power. Because a cloud sandbox has no such limitations, it handles inline analysis without impacting performance.

Sandboxing integrates big data and behavioral analysis to protect enterprise resources. The enterprise can gain immediate protection once a global threat is confirmed and a greater context is built to enable advanced threat protection.

How do cloud solutions help in the prevention of data loss and enhance network security?

Traditional network security is no longer effective with applications moving to cloud and users becoming increasingly mobile. To offer identical protection and policy enforcement no matter where users connect, security and access controls must also move to the cloud. Cloud security solutions are empowered with the latest security updates and protect users and organisations from rapidly evolving malware. If a threat is detected anywhere in the





IN TODAY'S DIGITALLY TRANSFORMING
WORLD, CYBER SECURITY IS ABOUT
PROVIDING A BUSINESS WITH THE CAPACITY
TO PROTECT AND DRIVE REVENUES WITH AN
ACCEPTABLE LEVEL OF RISK

cloud, for any user, protection is deployed everywhere, for every user.

In the cloud-first world, organisations may have blind spots, in which users leave the network and take sensitive data with them, intentionally or unintentionally. Cloud security can prevent that data from being sent out, even if the user is off the network. With the cloud's complete visibility and advanced policy controls, it closes the gaps in an organisation's data protection strategy.

LANs and WANs are slowly being phased out by 5G. Explain

With incredibly fast connectivity at a lower cost, it's no surprise that organisations are looking at broadband and, soon, 5G to start to phase out expensive wide area networks (WANs) with Wi-Fi connections. Soon, local area networks (LANs) also will disappear.

We have begun to witness the walls of corporate workplaces becoming fluid with legacy corporate networks and traditional network security slowly evolving into a fully internet-driven workplace. Mobility and bring-your-own-device (BYOD) will continue to become commonplace across industries. The high usage of Wi-Fi within the physical office will also give way to 5G devices. This 5G era will accelerate the adoption of a new, more mobile work style. The fifth-generation mobile network will not only connect people, but also connect and control machines, objects and devices. There will be improved performance, efficiency and cost-effectiveness, delivering faster, more reliable access to apps and services.

How has cyber security evolved over the years, from an IT issue to a top business priority?

Organisations today are looking at digital transformation

to remain competitive, and a large part of that means relying on internet for conducting business. As a result, data breaches are inevitable, and cyber security becomes a top priority.

In today's digitally transforming world, cyber security is about providing a business with the capacity to protect and drive revenues with an acceptable level of risk. Thus, organisations must re-evaluate their approach to IT security, which needs to evolve to focus on cloud and mobility and leave behind legacy methods that result in poor user experience, high costs and a risky security posture.

Explain the concept of zero trust and how can it be implemented effectively

As the name suggests, zero trust is based on the philosophy that no one, from inside or outside the network, is trusted by default. This means authentication is required before granting access to any resource on the network. Today, zero trust is no longer a theory, as enterprises are moving to cloud and can no longer control the network. So, security must be user-and app-defined instead of IP- and port-defined.

Architectures based on multi-factor authentication and micro-segmentation should be adopted. Trust should not be dependent on a perimeter in an increasingly cloud-based world, but a perimeter should be formed wherever and whenever the user connects. The technology should decouple application access from network access altogether, connecting users directly to the application they require and nothing more. This approach enables a seamless and secure experience for all users and apps, and protection against even sophisticated cyber threats.



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—J KESAVARDHANAN
Founder & CTO, K7 Computing

It is no surprise that even today cyber attacks attract the maximum attention. In India Also, the corresponding data generated by the large population makes us a goldmine for cyber criminals. How do we go about handling this? J Kesavardhanan, Founder & CTO, K7 Computing, tells us more

“ SOFT TARGETS

What are the issues on ground regarding cybersecurity?

NASSCOM and PwC India estimate that the cyber security market in India will grow from \$1.97 billion in 2019 to \$3.05 billion by 2022 at a CAGR of 15.6%. This forecast paints a clear picture of the ground reality in India with respect to cyber security – Indian organisations are becoming attractive targets for cyber attacks, largely due to rapid digitisation and the corresponding data generated by our large population making us a goldmine for cyber criminals. While there is a proposal to roll out a data protection legislation, this may alone not stop criminals from trying to find and exploit vulnerabilities. The planned laws will definitely increase the responsibility and liability of Indian firms to keep their customers' data safe.

Unfortunately, many Indian companies are not yet ready to mount an effective cyber defence against sophisticated cyber adversaries. It is not unusual to see a corporate network breached because available security patches had not been applied, or a server was still using the default username and password. We also note that cyber attacks are increasing in Tier 2 cities. While they may not be the primary target of hackers, the trend does demonstrate that cyber threats are not confined to large organisations in large cities. Small no longer means safe.

SMEs enrich a huge part of the country's economy but when it comes to security measures policy, what is the situation of SMEs in India?

Indian policy does not specifically protect or penalise SMEs for cybersecurity incidents. Relevant regulations are usually applicable to all organisations. We do not expect this to change as distinction based on the scale of operations may not be viable, as large organisations may outsource some of their processes to SMEs, and SMEs may serve as the point of entry for a devastating cyber attack that could spread across the nation. The Indian SMEs may also serve global clients, where they may be required to comply with international legislations such as the GDPR. When it comes to cyber security, an SME should operate as if they are a large enterprise.

A Microsoft-led study revealed that a mid-sized Indian firm loses \$11,000 on average annually to cyber attacks.

In addition to their direct financial loss, SMEs are also coming under pressure to improve their cyber security from large organisations they work with who wish to cyber secure their supply chain. SMEs who wish to avoid penalties, loss of business, and loss of reputation will need to adopt a more aggressive cyber security posture.

How can SMEs adopt smart strategies for effectively addressing the evolving threats?

Cyber security is more than just tools and technology. It is, first and foremost, a state of mind. The smart strategy is to cultivate a cybersecure culture in the organisation. The first step is to create a cyber security policy which sets standards and lays down every user's responsibilities. This policy should also cover employees' use of personal devices for business purposes, which is fairly common in SMEs. User education and training is another essential pillar of cyber security as some cyber attacks, like social engineering, can take place anywhere and an alert user is the best defence.

On the technology side, ensure that all devices have the latest patches applied. This should include equipment like routers that are often overlooked in such exercises. Finally, use a good cyber security solution to defeat threats that slip past other defences.

How can they be agile and updated in solving the cyber-crimes?

We have discussed measures that an organisation can implement to be agile in stopping cybercrimes. However, a lack of appropriate resources (such as having a Chief Information Security Officer or cyber security team) is the primary constraint faced by SMEs when they wish to have more dynamic defences. A business may require a highly skilled cyber defence team to be proactive in cybersecurity, address niche requirements, and respond quickly if a cyber security event occurs. However, investing in such a team may not be practical for SMEs who wish to focus resources on their core operations.

Such businesses may consider contracting with a cyber security provider – allowing them to benefit from the provider's tools, skills, customised services, and knowhow that has been built across many types of businesses and industries –to build powerful cyber defences without substantial investment.

Short Restart

A move to Windows 10 is a crucial part of maintaining security. What exactly can users and businesses gain from the Windows 10 update?



Most of us are familiar with the inconvenience that comes with having to restart our devices to install new system updates. Even so, the long-term benefit is worth the short-term impact. Getting updates on time, no matter how annoying, can achieve significantly improved user experience and save businesses millions in reduced risks.

That's why having access to the latest updates is vital! With Microsoft rolling out Windows 7 end of life phase in January 2020, there will no longer be any updates released to improve on user experience, and more importantly, no more security updates to computers running outdated operating systems. A move to Windows 10 is therefore a crucial part of maintaining security.

What exactly can users and businesses gain from the Windows 10 update?

More Secure Experience

From YouTube videos to emails, most of us access personal content on our work devices from time to time. In Asia Pacific, Cisco estimates that the average person will own more than three connected devices by 2022. As a result, the modern employee struggling to juggle between different devices can sometimes blur the lines that once used to separate work and play.

While this appears to be a harmless behaviour, it might have some repercussion on the security front. It is much easier to sneak in a malware through phishing scams



WITH THE INCREASING USE OF PERSONAL DEVICES FOR WORK TODAY, BUSINESSES HAVE TO ENSURE THAT EMPLOYEES ARE STILL ABLE TO ACCESS ENTERPRISE RESOURCES WITHOUT TOO MANY ROADBLOCKS ON THESE DEVICES. THIS IS A POINT THAT IS WELL RECOGNISED BY WINDOWS 10, EVIDENT FROM THE FEATURES PRESENT IN THE OPERATING SYSTEM

targeting your personal account, given that it may not have the same security controls as your corporate one.

Furthermore, cybercriminals are quick to find vulnerabilities in new operating systems and continue to do so for the lifetime of the devices they run on. As such, software companies are regularly releasing updates to counter malware and other security threats. With Windows 7 users not receiving further security updates in due time, devices running on the outdated operating system will be at risk against new strands of cyber threats.

In India, cyber-attacks have been evolving rapidly. Hackers are no longer just targeting IT infrastructure, but have started to attack the operational technology infrastructure, intensifying the challenge for companies. According to a research by Cisco India, 25% of respondents have already experienced an attack on their operational infrastructure (vs. 21% globally), and 34% expect this trend to increase in the next year.

In order to cure this, multiple organisations in India are starting to make significant improvements to their cyber security postures by increasing the security budgets, focus on training their workforce, and have more integrated security infrastructure.

The latest security patches are not the only benefits that Windows 10 has to offer. The new system also comes with Windows Defender Security Centre which offers focused security protocols around applications, credentials and specific file access—a handy upgrade for users and businesses looking for robust security offerings to protect their assets.

accompanied by improved usability, additional features and enhanced user experience. This is a crucial aspect for businesses to consider as technology related factors make up 30% of what drives an engaged employee, according to Forrester's Employee Experience Index (EXi) report.

Windows 10 is designed to provide users with a seamless experience across multiple devices, building on the user interface of Windows 7 to ensure familiarity and smooth transition to the new operating system. Furthermore, Windows 10 boosts productivity by allowing mobile workers on Android and iOS to pick up a piece of work when switching devices, and to smoothly "Continue on PC," thus eliminating the tedium of working on a device running a mobile operating system.

Another feature that users and businesses can benefit from is the Cortana app. With natural language processing capabilities, the Cortana app enables employees, especially those with disabilities, to better navigate their devices and produce work with more ease. This is an essential feature for businesses looking to implement technology solutions that empowers a diverse and inclusive workforce and drives greater innovation within the business.

Furthermore, with Microsoft shifting to a Windows-as-a-Service model, Windows 10 is expected to be the last full operating system released. Moving forward, Microsoft will be rolling out regular updates to ensure that all devices running on Windows 10 will always have the latest updates, including securing against the fast-evolving threat landscape.

Advancing Future of Work

These upgraded security features are generally

(The author is Director, Services & Sales, Lenovo India)

5 Reasons to Invest in Adaptive ERP Solution

Enterprise software, like Enterprise Resource Planning, Demand and Supply Chain Planning, Customer Relationship Management and Quality Management Systems must be agile and pass that agility on to the companies that employ it

In business, the mantra used to be the big fish eats the small fish. But with the rate of change accelerating worldwide, the mantra has become, the fast fish eats the slow fish. Speed is everything. The ability to recognise business disruption, pivot quickly and turn that disruption into a competitive advantage is crucial. Nowhere is this truer than a manufacturer's business processes.

With so much rapid change already happening today, enterprise software, like Enterprise Resource Planning (ERP), Demand and Supply Chain Planning (DSCP), Customer Relationship Management (CRM) and Quality Management Systems (QMS) must be agile and pass that agility on to the companies that employ it.

Manufacturers should fully understand the following five areas where adaptive ERP can boost business performance compared to legacy enterprise systems.

Adaptive ERP Simplifies Advanced Tech Adoption

In an era of constant disruption, manufacturers need a solution that enables the quick adoption of new technologies like IoT, machine learning, artificial intelligence, RPA, data lakes, digital twins – and others that aren't even on the radar yet. A Forbes 2018 article highlighting research from Scott D. Anthony "confirms that indeed, for leaders to thrive in today's constantly disruptive way of life, they must be transforming today's and tomorrow's businesses." This quote certainly applies to the rapid introduction of new technologies and the beneficial role adaptive ERP can play in

simplifying and adopting advanced technologies in your manufacturing organization.

Effective ERP System Upgrades

Taking SAP as a big ERP example, a recent study indicated that SAP customers have a roughly 50-50 chance of achieving a successful project with just under half (48%) of the respondents indicating that their project failed to achieve the business objectives. Given that Big ERP systems support a company's key business operations, failing to reach an ERP project's goals can have a devastating impact on the bottom line, a CIO's effectiveness and the progress of any business strategy.

Long gone are the days when companies have to suffer through lengthy implementation projects with monolithic software suites that come with high project costs, business disruption and IT frustration. More and more, CIOs want their new ERP solution deployed rapidly to mitigate costs and boost time to benefit. Manufacturers now realize how important implementation speed is in support of their ability to minimize costs and risk to the business.

Next-generation ERP providers deliver more adaptive and less complex systems that allow clients to quickly tailor the software to their business and be cost-effective when it's time to upgrade. Getting a system up and running rapidly saves money, and speed is now a key consideration for any enterprise software decision.

Operational Efficiency

Visibility into the business is a hot topic for many



ADAPTIVE ERP HELPS MANUFACTURERS STAY CURRENT WITH SPECIFIC INDUSTRY REQUIREMENTS AND STANDARDS MANDATED REGULATIONS AND INDUSTRY-SPECIFIC BUSINESS PROCESSES AND TERMINOLOGY

manufacturers, especially those that currently rely on outdated processes or have overlooked the importance of rapid access to business data for enhancing business efficiency and delivering operational performance improvements.

Access to real-time information and a single source of truth allows manufacturers and key trading partners to improve decision accuracy based on the same set of information. This is superior to a scenario where manufacturers rely on manually intensive efforts to access and exchange information, or where data resides across multiple technology systems.

More agile and effective information visibility strategies result in more accessible and actionable information across the organization. With greater access to real-time production, financial, supply chain and other data, manufacturers and their trading partners are in a better position to deliver innovative products, drive critical manufacturing processes and provide a positive customer experience.

Faster Adoption and Implementation of Industry Best Practices

Changing business realities leads to changing best practices that should be quickly adopted into processes to keep companies aligned with their goals. Manufacturing has changed in many ways over the last 25 years, and the changes seem to keep coming. Growing country regulations, tariff upheaval, increasing customer mandates, pressure for digital transformation and other issues are forcing manufacturers to constantly evolve. This makes it hard to know if your company's operational methods are appropriate for sustaining your business and maintaining a competitive edge in the changing marketplace.

Many manufacturers are reluctant to adjust to new methods of thinking and, while equipment tends to evolve quickly, work processes stay “business as usual” and often rely on paper-based transactions.

Adaptive ERP helps manufacturers stay current with specific industry requirements and standards mandated regulations and industry-specific business processes and terminology. This includes meeting automotive standards like MMOG/LE, validation processes in Life Sciences, various country-specific financial regulations and other regulatory requirements.

Scaling and Future Growth

Rigid systems can slow companies down. In response to change, extensible software simplifies the delivery of new functionality required by a business and lowers the cost of future upgrades. For example, a software solution is considered extensible when users or administrators have the ability to define new features and introduce new functionality within the software solution.

Extensibility allows manufacturers to rapidly extend and create new applications. This helps manufacturers stay current and reduces gaps between business needs and standard enterprise software functionality. The extensibility delivered with adaptive ERP reduces software complexity, minimizes code creation and makes upgrades easier.

Now is the time to thoroughly evaluate how well your enterprise software capabilities adapt to business changes and disruptions. This is the year to review your software systems and turn business disruptions into competitive advantages – remember, it is the fast fish that eats the slow fish.

(The author is MD, South Asia, QAD)

Forging a Win-Win Partnership

Contrary to perception, the rise of global capability centers presents a unique opportunity for the established technology service providers in India to further build on their remarkable growth story



The growth of Global Capability Centres (GCCs) has been one of the biggest drivers of the offshore outsourcing services market in India's IT-BPM sector. India's IT sector is expected to grow to ~\$175 billion by this year, according to Nasscom

and GCCs have thrown open a deluge of business opportunities to the established technology service providers in the country.

Traditionally called global in-house centres (GICs) or captive centres, GCCs are offshore delivery centers



SINCE GCCs PROVIDE SERVICES DIRECTLY TO THEIR PARENT ORGANISATIONS THAT WERE EARLIER OUTSOURCED TO ESTABLISHED IT SERVICES ORGANISATIONS, THERE CONTINUES TO BE A MYTH THAT THE IT OUTSOURCING SECTOR FACES LOSS OF BUSINESS!

owned and managed by large MNCs. They have moved from providing low-end transactional services (e.g., infrastructure management, application management, shared services for various business processes) to being truly global innovation centers focused on engineering and product development to applications of artificial intelligence, machine learning and data analytics to help solve business problems.

Today, India has more than 1,250 GCCs, according to a Nasscom-Zinnov report on GCCs in India, with a large number of them driving core business agenda (engineering and product development) for their parent entities. According to Nasscom, the GCC market has grown from more than \$19 billion in 2015 to over \$28 billion in 2019. And per a Teamlease study, GCCs will hire as many as 1.5 lakh people in the next two years.

However, our viewpoint is that the emergence and spread of GCCs present a great opportunity for the established IT service providers, apart from opening up a wave of opportunities for GCCs themselves. Moving ahead, the relationship between the two entities could be described as one of highly productive co-existence.

Let's take a detailed look at what these opportunities are, across which areas, and the impact they will have on GCC business in the future.

New GCCs at the Heart of Business Innovation

There's a marked change in the character of new GCCs that are being setup of late. Where they once provided back-end support to parent organisations, today they are focused on core value creation and innovation. Most start

off as global innovation hubs driving IP creation and be a true extension of the global enterprise.

There are a large number of GCCs opening in India each year. These new GCCs represent the quintessential innovation-led business prospects, which may be characterized as "small wave" opportunities to IT service providers. This is a typical Build-Operate-Transfer (BOT) model, where the service providers help establish and manage the GCC in the initial phase and transfer the operations over a period of time. This support typically starts in new technology areas like R&D, product development and analytics, and may gradually expand into AI/ML, deep learning, RPA, and other areas.

In today's business environment, the pace of technology change is rapid. Therefore, tech service providers could continuously engage with a single new GCC to create new CoEs and tech hubs. The sum-total of these "small wave" opportunities adds up to a huge opportunity for established service providers in the IT industry, which can make competitive bids for helping the GCCs during the process of potential industrialization of their technology CoEs.

Innovation, Main Mantra in Large GCCs

Large or mature GCCs, with 1000+ employees, initially started their journey in the 1990s as shared services organizations. The current focus of these GCCs is to move faster up the maturity curve – from hiring to cost arbitrage delivery centers to now becoming a truly global innovation arm for their enterprise. These GCCs seek to "carve out" their managed services or non-core work to established tech services players.



WHILE THE LARGE GCCs HAVE THE WHEREWITHAL TO DRIVE THE STRATEGY, THEY CONTINUE TO NEED SUPPORT IN TERMS OF EXECUTION OF SUCH NEW-AGE TECHNOLOGY PROGRAMS. THIS IS WHERE THE ESTABLISHED IT SERVICE PROVIDERS COULD ADD VALUE TO LARGE GCCs

Large GCCs are a strong magnet for attracting quality talent. However, in their quest to be data-driven, innovation-led companies across digital, analytics and cloud, they want to quickly scale up in these technology areas. But while these large GCCs have the wherewithal to drive the strategy, they continue to need support in terms of execution of such new-age technology programs. This is where the established IT service providers could add value to large GCCs.

Both these scenarios (“carve-outs” and execution support in innovation programs) are volume-driven, big-wave opportunities for tech services companies because the sheer number of large captives outsourcing or carving out their non-core operations and striving to focus on innovation programs which give more bang for the buck has increased significantly over the past few years.

“Buy-out” Opportunities in Small and Midsize GCCs

Small and midsize GCCs are usually the Fortune 1000 or Fortune 2000 companies, with annual revenues in the \$1-2 billion range. These GCCs face a dilemma as they are unable to scale due to limitations of size or capability. Due to operational stagnation over time, many find it difficult to move up the maturity curve and meet the expectations of the parent entity to be a global innovation arm. Also, mid-level GCCs face challenges in attracting talent, and hence are neither able to provide stable non-core operations nor drive innovation agenda through new technology CoEs.

Many such GCCs are ready to offer themselves for buy-out by the tech providers once they realise there is not

much value they could extract in their existing set-ups. The idea of GCC take over arises because a business unit once considered an “asset” may no longer be one today – unless they deliver tangible value again. For many organizations, it makes sense to offload the “stranded asset” and “quit the game,” and stagnating GCCs are always ready to give up such assets especially in times of rapid technology evolution.

The tech services players could build a holistic value proposition as part of the buy-out by including the Innovation agenda of these mid-size companies as part of the overall takeover.

It isn't a Zero-Sum, but a Positive-Sum Game!

What drives the high number of GCCs that are setting up shop in India over the next couple of years? The answer: Innovation and Value Creation! GCCs today aren't just cost centers but are evaluated in terms of their ability to enhance customer experience, Net Promoter Score, or drive new business models.

This directly translates into new business prospects for tech companies in India. For example, GCCs are the largest segment of Capgemini's India business, contributing to about two-thirds of our domestic revenue. The rise of GCCs in India is an opportunity for tech providers to complement GCC operations to ensure their Innovation agenda is kept firing while continuing to help them optimise their non-core operations.

It's indeed a win-win opportunity for the GCCs – as well as the tech service providers!

(The author is MD, India Market Unit, Capgemini)

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Logistics Software making Business Efficient

From lost packages to high shipping costs, there are several concerns that plague the e-commerce industry. Adding to the mix is the growing trend of same-day deliveries, initiated by Amazon, an industry-standard that is hard to match by most E-retailers of any size and maturity



There's hope on the horizon with modern-day logistics software that can create transparent and efficient supply chains, enabling businesses to improve their deliveries while reducing their costs significantly.

Here are the top five features enterprises need in logistics software to make their business more efficient and competitive:

Digital Control Towers

A research by American Shipper reveals that almost three-fourths of supply chain stakeholders cite visibility

of freight as one of the most critical challenges to their business, second only to rising operational costs. Indeed, being able to track each and every movement of their delivery fleet can give them full control over the supply chain while also reducing logistic expenses.

An advanced logistics software powered by digital control towers leverages real-time data from the largest GPS, ELD, and telematics network to keep a check on the current status of goods moving on the ground. Also, it can empower businesses with instant alerts for exceptions, such as extra time spent at a resting point by a driver, and escalate tickets in real-time.



ML CAPABILITIES EMPOWER LOGISTICS SOFTWARE TO ANALYZE HISTORICAL DATA TO DELIVER CRITICAL BUSINESS INFORMATION AND PREDICT ISSUES THAT CAN IMPEDE DELIVERIES, INCLUDING CONGESTION AND EARLY DETECTION OF PILFERAGE AND THEFT

Business Process Automation

Automating workflow can help one to get rid of repetitive and time-consuming manual processes while ensuring that the supply chain works seamlessly, like well-oiled machinery.

An advanced business process management platform can empower businesses with customized workflows that are secure and scalable. It can also expedite the pace of digital transformation by reducing the time to build new delivery processes, including testing and deployment. Additional AI and ML-based capabilities enable intelligent decision making and analytics, further improving the delivery process and CX.

Intelligent Task Allocation and Dispatching

Up to 99% of U.S. consumers say that ‘fast delivery’ is important to them when making online purchases. At the same time, more consumers feel frustrated with the lack of professionalism and accuracy when having items delivered.

Today, customers don’t have time for a poor delivery experience. To match up to the demands of savvy customers, businesses need to optimize dispatching processes. Modern logistics software can help by using AI to automatically allocate tasks to delivery executives, depending on the resources available and the destination of a parcel. For example, intelligent software can club several deliveries from a location, leading to more deliveries in a shorter span of time.

Dynamic Routing

An advanced logistics software can do nothing to prevent traffic congestions, but it can enable a fleet to avoid it through dynamic route planning.

Yes, logistics software powered by real-time dynamic routing capabilities ensures faster deliveries by addressing the common issues that disrupt transportation operations, such as driver route-mapping, pick-up and delivery windows, no entry-time windows, tonnage, empty miles cost, etc. It is also possible to improve the productivity of delivery executives by assigning them highly efficient routes.

Predictive Visibility

Lack of visibility of the delivery fleet has been a major problem for the logistics industry. Fortunately, advanced logistics management software with Machine Learning capabilities can empower shippers with real-time visibility of their supply chain, helping them optimize their delivery routes by gaining predictive visibility and control over their fleet.

ML capabilities empower logistics software to analyze historical data to deliver critical business information and predict issues that can impede deliveries, including congestion and early detection of pilferage and theft. By tracking the average time taken between two points, it is also possible to trigger alerts in case the duration to reach any of these points exceeds the already set threshold.

Advanced logistics management software can help to achieve high visibility across the supply chain, improving the bottom-line considerably. According to stats, 79 percent of companies with high-performing supply chains achieve revenue growth superior to the average within their industries, while only 8% of businesses with less capable supply chains report above-average growth.

In order to stay relevant in today’s competitive times, it is high time for businesses to invest in technology and build a robust, omni-channel, and efficient supply chain to delight customers and meet their objectives effectively.

Leadership Transformation Needed

Often, we hear about transformation of people, process and technologies to bring about desirable changes in an organisation to make it a world leader. While most of the time we discuss and ponder over these changes, seldom do we think about bringing transformational changes in behavioural aspects of the leadership team



It is a matter of the fact that changes in an organisation flows from top to bottom, which is made evident by the fact that agile implementation does not materialize effectively until the management provides its whole-hearted support for it.

This makes one wonder whether it is really so difficult to bring about changes in behaviour and the thought pattern of leaders? If yes, why is it so? And what are the areas we need leadership team to influence changes in, in line with latest trends in the industry?

With the extensive professional experience that leaders have - let's say at least a decade if not more, have come certain tried and tested methods for performing tasks, which of course, have brought their team success in

the past. Even though they are set in stone as trusted mantras for success - in the ever-dynamic nature of the IT sector - every approach needs constant reaffirmation. Given how no single technology has been able to stay at the top of the ladder for too long, which is also the case with processes, methodologies, strategies, people etc. - changing times, require a change in approach as well.

Few areas wherein leaders can introspect and work to change attributes, to put their organisations on a growth trajectory are:

Leadership Style

A Leader needs to analyse and understand his/her leadership style, which may be any one of the following:



THE FIRST THING IN THE DIRECTION OF INITIATING A TRANSFORMATION FOR LEADERS IS UNDERSTANDING THE PRESENT SCENARIO AND THEN UN-LEARN WHAT HAS EARLIER WORKED FOR THEM. THIS MEANS THERE LIES A NEED TO START AFRESH AND TO RE-LEARN NEWER TRICKS OF THE TRADE

- **Command and Control**

A leadership style that has more of micromanagement in it, a command and control style of leadership is one wherein a team looks for directions from their leader, who assigns them relevant tasks and monitors them closely. This kind of leadership is useful when there is a lack of clarity regarding certain areas e.g. requirements, team skills, ways of working, reporting structures etc.

- **Transformational and Delegatory**

When the initial queries on a project, team, skills, reporting are resolved and the team starts owning their deliverables as per project needs, then the leader starts delegating to the team for handling day to day activities and moves out of limelight. This makes the team become self-organised and deliver to the best of their abilities. This is what is implied by the Transformational and Delegatory kind of leadership.

IT applications have come a long way in terms of architectural evaluation - from the previous Jurassic ages, to monolithic architecture, to the latest uber-microservices.

Deployment Strategies

Due to the ever changing needs of the business, deployment cycles have reduced from months to weeks to days to hours. To enable this pace of deployment on production we must adapt latest trends in Continuous Integration (CI) and Continuous Delivery (CD). Use of various tools of CI and CD are dependent on various factors such as Application architecture, team skills, business requirement, cost etc. Thus, to ensure the pace of delivery, a Leader must enable team members to take risks in deployment and take customer feedback as early as possible.

Infrastructure

With the cloud becoming the talk of the town in the IT sector and most of IT Applications are moving to it for its obvious benefits such as availability, scalability, pay as you

go etc. Leaders need to hence, perform a careful analysis of cost, flexibility, security, risk etc. before proceeding to cloud adaptation.

Talent Management

Talent management is key to organisations being able to leapfrog from 'good' to 'great' but mostly we hear about challenges in talent management which are evident from attrition, unhappy employees, decreasing productivity etc. A leader can influence the team to bring the best out in them and create an atmosphere of trust, teamwork, ownership and meritocracy. Leaders create skills in teams and not designations.

Thus to surmise, successful leadership is a combination of constant unlearning and learning which means you need to unlearn:

- Directing and Transactional leadership style
- Behavioural trends of Obedience, Compliance, Formality, Centralizing
- Assumption that World is predictable and deterministic

While at the same time learn and adapt the following things:

- Delegating and transformational style of leadership
- Behavioural trends of Self-discipline, Initiative, Informality, De-centralization
- Assuming that the world is unpredictable and probabilistic

Agility in leadership style as a transformative capacity is something that should be a priority for leaders so that they can act as key enablers by developing new mindsets and capabilities. This will not only help in creating highly efficient delivery teams but will also enable the organisation in moving faster, driving innovation and be able to constantly adapt to and at the same time shape the changing environment around them.

(The author is Head Testing, JK Technosoft)

The Starting Point

The task of reskilling millions of workers may feel overwhelming! So how can we adequately prepare tomorrow's workforce at the same time as retraining the hundreds of millions of people whose work is evolving?



By 2022 alone, 75 million jobs will probably be displaced across 20 major economies, while 133 million new ones will spring up in industries that are only just gaining traction. At the same time, it's estimated that nearly two-thirds of children who started school in 2016 will go on to have jobs that don't yet exist.

Here are four ways that business leaders can start addressing the digital skills gap.

1. Embrace lifelong learning

While it's easy to think of digital skills as ones taught in the ICT suite at school or college, technological literacy in the broadest sense is what matters. To make sure our workforces are truly equipped for the jobs of tomorrow, we need a wide-ranging development of these skills, among customers, parents, teachers and older people, as well students and new graduates.

As technology remoulds our everyday, it also unlocks new ways to impart these skills. For example, BT's Skills for Tomorrow platform offers free online or face-to-

face courses to everyone from small-business owners to teachers and parents. And it's not just digital skills that need to be fostered. Study after study shows that while technology will alter many roles directly, it's also set to have indirect effects. As demand for mathematics, computing and data analysis grows, so too will the need for human attributes like creativity, critical thinking, persuasion and negotiation.

2. Start early

Employers that understand this wholesale change in skill requirements are ahead of the pack. Nurturing staff for the long-term and equipping young people with the tools they need to progress becomes more important in a working environment that's in flux. That means we need strong cultures that promote mentoring and the development of so-called soft skills.

With most roles and jobs likely to become less defined and more fluid, continuous retraining and upskilling can make sure staff are ready to take advantage of new opportunities as they arise. There's also a place for



WE ALL NEED TO TAKE RESPONSIBILITY FOR CHALLENGING THESE STEREOTYPES, PROMOTING EDUCATION AND ADVOCATING FOR FEMALE ENTREPRENEURS, SO THIS GAP CLOSSES RATHER THAN WIDENS AS THE FOURTH INDUSTRIAL REVOLUTION TAKES HOLD

reverse-mentoring, with recent graduates able to help and support senior executives as they make sense of the forces reshaping their businesses.

Training on the job could become more important than traditional routes. Companies including Apple, Google and IBM are among many shifting away from requiring college degrees for employment. At BT, you can get your degree while working as a cybersecurity apprentice, gaining real business experience, while also learning about security, identity, vulnerability and risks in the digital age.

3. Foster inclusivity

Programmes like these can help bridge another of the digital divides: the gender gap. Fewer women than men work directly in ICT roles in almost every country in the world. And a European Commission report found women to be less interested in digital-sector higher education, jobs or entrepreneurship.

We all need to take responsibility for challenging these stereotypes, promoting education and advocating for female entrepreneurs, so this gap closes rather than widens as the Fourth Industrial Revolution takes hold. Here, relatively small initiatives can make a big difference. Code First: Girls offers free four-month-long coding programmes to women of any age, and gives them a job interview once they've completed the course.

This is just one example of how the technology sector is already working to address the issue. There are many other initiatives, all with the aim of encouraging women's employment in digital and making sure the revolution takes all members of society along with it.

4. Join forces with multiple stakeholders

While each of the above schemes has its individual merit, there's a growing recognition that bridging the skills gap can't be done via thousands of different company and government initiatives. Public and private partners are

waking up to the idea that working together will generate far more sustainable and scalable solutions.

Some partnerships are already in place. Future.now is a new coalition of leading companies, including BT and Lloyd's Banking Group, as well as civil society groups working in collaboration with government to boost the UK's digital skills initiative. It seeks to bridge the divide between the plethora of digital courses on offer and the lack of people taking them up – whether that's because they don't know where to start, lack motivation, or are confused by the range of options.

Elsewhere more than 20 multinational companies, including Facebook, Microsoft, Nestlé, BT and Vodafone, have joined up as founding members of the Global Alliance for YOUTH, which prepares people for the professional world.

While these initiatives must be fostered and applauded, we need to go further and integrate more.

That's because we're at the tip of the skills-gap iceberg and the mismatch may be far more wide-ranging than we think. Within 20 years, 90% of all jobs will require some digital skills. New needs are emerging all the time, not just in obvious spheres like cybersecurity and big data, but also in areas like ethics, regulation and privacy.

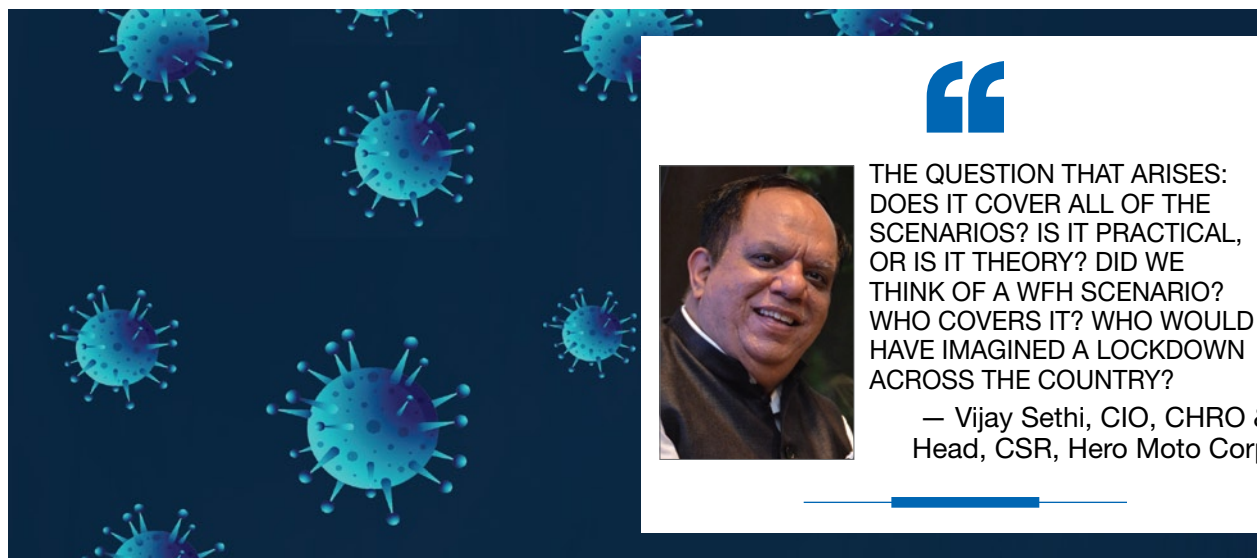
In its new Davos Manifesto, the World Economic Forum emphasises how companies, governments and civil society need to come together, harnessing their core competencies in collaboration to improve the state of the world.

Now is a great moment to take stock of where we are and call for an end to isolation and working in silos. Executives at every level, and in every industry, must seize this moment to cement their legacy and ask: how can my organisation do more? With whom can we join to make a better tomorrow?

(The author is MD, Banking & Financial Services, Global, BT)

Planning for post-Covid 19

We need to start post-Covid planning (PCP) right now. We don't know what will happen next. For example, what happens three weeks from now?



THE QUESTION THAT ARISES:
DOES IT COVER ALL OF THE
SCENARIOS? IS IT PRACTICAL,
OR IS IT THEORY? DID WE
THINK OF A WFH SCENARIO?
WHO COVERS IT? WHO WOULD
HAVE IMAGINED A LOCKDOWN
ACROSS THE COUNTRY?

— Vijay Sethi, CIO, CHRO &
Head, CSR, Hero Moto Corp

The world has changed. The thought process of all employees has also changed. We need to work on the new perspective. To fight the unthinkable, you have to be willing to do the unthinkable.

We are all in BCP today. It is to ensure that our business continues, he said. Work from home (WFH) has become the new normal. We need to learn to manage and work around situations. The expectations from the IT have also changed significantly. Remote support is becoming a norm. Cloud migration is also becoming different. We are using cloud-based apps. Similarly, we are talking about mobile-first. We are looking at AR/VR, RPA as well.

Learn from Experiences

You need to show agility and quickly learn from experiences. You also need to now move to the post-Covid-planning or PCP. We planned for all these things, but the reality can be very different. We look at various steps. We identify risk assessment. We do the business impact analysis. We also do strategy and create a development plan. We measure, by testing, training

and maintaining. Customers want their Data Centre to continue during disasters. Once you put up a plan, you do mock runs. We get an output document.

Innovate

All of our vendors, IT support stuff etc. should be working at all the time. We need to ensure this. How can we help tech support from home? We need to learn from our experiences. We need to be innovative in these times and also meet all of our objectives. We need to relook at our IT budgets and make cuts, where necessary

There are powerful learnings to be had from the lockdown. Be ready for the unexpected, and the unthinkable! We have to be ready for all eventualities. We also have to move from theory to practice e.g., your server goes down, vendor backs out, system goes down, etc. Each one of us can assume our situations, and ensure that we are able to meet them. There may be partial restrictions later.

*(The author is CIO, CHRO & Head, CSR,
Hero Moto Corp)*

Need for Domestic Production

Given the uncertainty around approval, the startups will shy away from Chinese capital



The Government of India recently reviewed the extant FDI policy for curbing the opportunistic takeovers/acquisitions of Indian companies due to the current Covid-19 pandemic, and amended para 3.1.1 of extant FDI policy as contained in Consolidated FDI Policy, 2017. On account of this review and revision, foreign investment from, *Neighboring Countries including China*, will require government approval now.

Earlier, the said condition was made for the for residents and entities incorporated in/ citizen of Bangladesh and Pakistan. Now the aforesaid restriction has been extended to Countries like China, Nepal, Burma, Myanmar, Bhutan and Afghanistan, who share land borders with India.

In a statement on April 18, Ji Rong, Chinese Embassy in India Counselor, said that India's Department for Promotion of Industry and Internal Trade (DPIIT) revised its foreign investment policy, making it much difficult for

companies from countries sharing land border with India, including China, to invest in the country.

Startups will shy away from Chinese capital

Ashneer Grover, CEO and co-founder, BharatPe, said: "The new FDI guidelines essentially imply that Chinese capital would require prior Government approval. In effect, given the uncertainty around approval, the startups will shy away from Chinese capital. In the immediate future, this could impact 'PhonePe' and potentially, 'PayTM' at a later date. 'BharatPe' thankfully has quality India, Singapore and US VCs. We don't have a single Chinese investor." Rukshad Davar, Partner & Head M&A practice, Majmudar & Partners, International Lawyers, noted: "It is obvious that the FDI directive of the Government is aimed at incoming FDI from China, both directly as well as indirectly, through any entity being beneficially owned by the Chinese. The authorities need to come out with similar directives to regulate such investments through the FPI route as well."



THE NEW FDI GUIDELINES ESSENTIALLY IMPLY THAT CHINESE CAPITAL WOULD REQUIRE PRIOR GOVERNMENT APPROVAL. IN EFFECT, GIVEN THE UNCERTAINTY AROUND APPROVAL, THE STARTUPS WILL SHY AWAY FROM CHINESE CAPITAL. IN THE IMMEDIATE FUTURE, THIS COULD IMPACT 'PHONEPE' AND POTENTIALLY, 'PAYTM' AT A LATER DATE. 'BHARATPE' THANKFULLY HAS QUALITY INDIA, SINGAPORE AND US VCS. WE DON'T HAVE A SINGLE CHINESE INVESTOR.

— Ashneer Grover, CEO and co-founder, BharatPe

Global village not tenable!

Giving his views, Prof. NK Goyal, Chairman E TEMA and President CMAI, said that the world has realized that the theory of globalization and global village is not tenable. On a click of thought, any country can block or restrict supplies of any product, components. This can be because of any reason political, economical or boundary. Now, countries have realized the need for domestic and in-country production and dependence.

The world has also realized that the so-called lobby of low, cheap cost and dependence on one country is not tenable in the long run. The world has realized that the so-called modern/state-of-art/latest technology to be imported from a foreign country, is far more non-dependable than home-grown technology. The world has also recognized that pursuant to the Covid-19 epidemic, there would be an overall scarcity of capital and downfall of the economy. In such a situation, there is likelihood of any particular country overspending and aggressively investment, takeovers, etc., that world views as not good in long run.

There are cases of some countries who have taken steps in this direction. Within India there have been cases of acquisition/investment from China companies in HDFC/PayTM/Snapdeal, etc. Also, the world has realised that importing almost 100% components, raw materials, and mere assembly in country, will always be dependant on the other country and needs to be avoided.

He added: "In this background, TEMA welcomes the steps taken by Government of India that any investment/takeover from bordering countries shall be subject to approval from the Government. It simply means that automatic routes are not available. It is not banned, and not blocked! This also gives the powers to the Government to examine in all aspects and take any appropriate decision, keeping the national security angle in view.

"It should be noted that there is no embargo of trade with any bordering country. We wish to thank and complement the government for this decision."

International business strategy

Bisweswar Bhattacharyya, former Dean, Indian Institute of Foreign Trade, and Senior Adviser to UN noted: "For some time I have been seeing posts /international media reports that this pandemic may result in some amount of relocation of manufacturing FDI from China to India. I have been highly sceptical of this view. International business strategy is not based on Black Swan event. Too many factors and various types of risk exposures are involved.

"A few days ago I read a long interview with Harsh Goenka. When asked whether India could be a beneficiary, his answer was an emphatic NO! I was happy to see that the industrialists have much deeper understanding of the future."

In a tweet, Manu Kumar Jain, Global VP, Xiaomi and MD, Xiaomi India said: "Dear all, we have just received an update from the MHA suspending e-commerce for non-essential items, affecting our decision about operating Mi.com from tomorrow. We are studying this, and will update you soon. We will of course follow all government guidelines. Folded hands."

A PR executive from Xiaomi responded, saying that they are currently studying these norms and will be able to share a comment, (even indicative in nature) later.

Step in right direction

Dr. Satya Gupta, Chairman, IESA, noted that intelligent electronics and semiconductors is a sector, which is strategically important for any country, including India, as it forms the backbone for many important sectors like



THE WORLD HAS REALIZED THAT THE THEORY OF GLOBALIZATION AND GLOBAL VILLAGE IS NOT TENABLE. ON A CLICK OF THOUGHT, ANY COUNTRY CAN BLOCK OR RESTRICT SUPPLIES OF ANY PRODUCT, COMPONENTS. THIS CAN BE BECAUSE OF ANY REASON POLITICAL, ECONOMICAL OR BOUNDARY. NOW, COUNTRIES HAVE REALIZED THE NEED FOR DOMESTIC AND IN-COUNTRY PRODUCTION AND DEPENDENCE.

— Prof. NK Goyal, Chairman E TEMA and President CMAI



WE PROPOSE THE CREATION OF A \$1B FUND BY THE GOVERNMENT, WHICH INVESTS IN COMPANIES WORKING ON DEEP TECH PRODUCT AND IP CREATION IN THIS IMPORTANT SECTOR, AND PROVIDES THE MUCH-NEEDED SEED CAPITAL FOR THE INNOVATORS TO THRIVE. WE CAN USE THE DOMESTIC RESEARCH AND IP CREATION TO BUILD SOLUTIONS, NOT JUST FOR INDIA, BUT FOR THE GLOBAL MARKET

— Dr. Satya Gupta, Chairman, IESA

medical electronics, smart agriculture, defence, security and surveillance, etc. We have been propagating the need for domestic R&D and IP creation/IP ownership in this strategic sector.

“The current move is a step in the direction of taking control of our strategic assets and having a government view on any large investment. While we do this, it’s also important that we don’t deprive our innovators of the much-needed risk capital.

“We propose the creation of a \$1B fund by the Government, which invests in companies working on deep tech product and IP creation in this important sector, and provides the much-needed seed capital for the innovators to thrive. We can use the domestic research and IP creation to build solutions, not just for India, but for the global market.”

Prof. NK Goyal added that China is governed by several laws and regulations, which control the investments within China. Hence, we expect that China will appreciate this decision. For any genuine and reasonable proposals, the Government’s consideration can always be available.

There are no orders with regard to the existing investments from China in India. Likewise, there are no

orders for any Indian investment/offices in China. TEMA believes that it will not stop the working of Chinese offices by any Indian entity.

Josh Foulger, Country Head and MD, Foxconn International Holding, India, did not respond to our emails and messages. Elsewhere, smartphone chip maker, Broadcom, has warned customers to place orders 26 weeks in advance (compared to 8-13 weeks). Huawei’s growth also seems to have disappeared since Covid-19 started playing havoc with the healthcare system in the USA.

The Ministry of Health & Family Welfare (@MoHFW_INDIA), Government of India, onboarded Twitter Seva to help the Indians with speedy resolution to their health-related queries. It will enabling transparent e-governance delivery in real-time and allow the Ministry to communicate effectively and at scale with the public, especially in crisis situations like the ongoing COVID-19 pandemic. Dr. Harsh Vardhan, Union Minister of Health & Family Welfare, announced the dedicated account @CovidIndiaSeva with a Tweet.

Could ‘Not Made in China’ be the next big trend in global technology? We wait and watch!

Business still not as usual, in Covid-19-hit China

Manufacturers/exporters/logistic service providers are facing difficulties in terms of cancellation of orders, bankruptcies of buyers, as well as the uncertain market forecast, etc. Those who have the resources to switch to the domestic market have a better chance to survive. Otherwise, the closure of some businesses is inevitable



Last Wednesday, the central Chinese city of Wuhan, where the pandemic called SARS-CoV-2 by the WHO, coronavirus or Covid-19 began, opened its doors again! This, after spending 76 days, sealed off from the world. Remember, Covid-19 first broke out in the city of Wuhan, China, in December 2019!

Businesses are struggling to get back to business as usual, while there are instances of the development of robotics in Guangdong area. China set up a prefabricated hospital to deal with Covid-19. Two new coronavirus hospitals were also built in Wuhan. People are said to be maintaining social distancing.

Cautious about second wave?

Chen Yang, a scholar, said that China business activities have gradually resumed to normal as new local cases have been reduced dramatically. People have gradually started going back to work across all industries. However, the China government is still cautious about the possible outbreak of the second wave. That's why, they keep urging the public to be mindful for personal hygiene and social distancing.

A lady informed that the China economy is recovering. Business and manufacturing are on the move. However, people are still very cautious. Another echoed the same



BLOOMBERG REPORTED THAT JAPAN HAS EARMARKED \$2.2 BILLION OF ITS ECONOMIC STIMULUS PACKAGE TO HELP MANUFACTURERS SHIFT PRODUCTION OUT OF CHINA. THE EXTRA BUDGET, COMPILED TO TRY TO OFFSET THE DEVASTATING EFFECTS OF THE PANDEMIC, INCLUDES 220 BILLION YEN (\$2 BILLION) FOR COMPANIES SHIFTING PRODUCTION BACK TO JAPAN AND 23.5 BILLION YEN.

lines. An insurance agent, Spring Lee, said that the situation is getting better. People are resuming work and doing outdoor activities.

Business unusual?

Sabrina Xi, an e-commerce sales agent, said that domestic business is definitely restructuring. However, a lot of offline business may close down. Even the import and export business have still not recovered because of the pandemic. Lee added that with the economic downturn, the government needs to do something to rebound.

Businesses in relationship with protective supplies against Covid-19 are doing good, said Chan Shih, a manager. Yet, not all factories are back to normal.

Yang noted that manufacturers/exporters/logistic service providers are facing difficulties in terms of cancellation of orders, bankruptcies of buyers, as well as the uncertain market forecast, etc.

He advised that those who have the resources to switch to the domestic market would have a better chance to survive. Otherwise, the closure of some businesses is inevitable. Therefore, people now understand that they have to put in more resources for developing the domestic market.

Alternatives, besides China

Nevertheless, there is a global backlash against China. Bloomberg reported that Japan has earmarked \$2.2 billion of its economic stimulus package to help manufacturers shift production out of China. The extra budget, compiled to try to offset the devastating effects of the pandemic, includes 220 billion yen (\$2 billion) for companies shifting production back to Japan and 23.5 billion yen.

So, what is the opinion regarding whether companies will look for alternatives, besides China? According to Yang, it all depends on the industry served. For instance,

it is difficult for those who are in the electronics industry to move out, due to the supply chain issues.

However, companies in the garment industry have shifted to the other Asean countries, such as Vietnam, Cambodia, Laos and Myanmar, etc. due to a lower labor and other operating costs, as compared to China.

The size of the domestic market is one of the major factors that would hinder companies' decision in looking for alternative manufacturing base, other than China, he added. Going forward, China will become the largest market for consumer spending in the world within the next few years.

Xi agreed, adding that it is quite the opposite. This now gives China more opportunities to show the world its robustness. Chan added that due to the Sino-American trade disputes, companies will look to source from places such as Vietnam, Indonesia and the other Asian countries, besides China. Indeed, the production capabilities are picking up in these countries!

Focus on cloud, smartphones!

In China, the most popular options for cloud and hybrid cloud-based solutions are Microsoft Office365, Alibaba's DingTalk, and Tencent's WeChat Work. Other solutions such as Slack, Microsoft Teams and Flow (now renamed Power Automation), exist as well.

Smartphone makers are also hoping for strong recovery. Apple and Xiaomi have showed some recovery in March 2020. Lenovo is helping with supercomputers, genome sequencing, and the race to decode coronavirus.

Workplaces have become virtual-friendly or digitalized. An opportunity exists for companies to shift corporate work processes online. They are digitalizing, and possibly automating their back-office operations in China.

China might also suffer from 'global social distancing' in the post-Covid-19 world. 'Brand China' may have lost some of its sheen.

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5 Trends in IoT and Home Automation in 2020

Emerging techs enabled with sensorial capabilities are becoming the order of the day at a rapid pace

Smart technology has been growing at an exponential rate and it is prophesied to further accelerate. IoT is truly a technological tour de force that has revolutionised our lives. As we edge closer to the next decade, here are 5 trends in the IoT and Home Automation space that are most exciting:

Smarter Home Devices

Smart home devices that were previously considered a technology of the future are now a reality. Currently, there are a range of smart home devices like smart lights, safety and security devices, Wi-Fi-enabled switches etc. In the year 2020, I feel smart home devices will go beyond convenience and offer solutions that will ensure reduced power consumption and energy costs. I also think that smart kitchen devices like refrigerators that create shopping list to virtual assistant integrated toasters will become more commonplace. Overall, many of the things that we had heard about will become more mainstream.

Integration with AI

In the next phase of smart technology revolution, IoT is likely to get smarter. Businesses are already incorporating Artificial Intelligence (AI), specifically machine learning, into their IoT application. I believe that the ability of machine learning to identify trends and patterns will take smart technology to the next level. For instance, it can easily detect anomalies in data that smart devices and sensors generate like pressure, air quality, sound and vibration. In 2020 we can expect to see more AI supported devices that will enable users to make more accurate data driven decisions.

Smart Cities

The world is rapidly moving towards urbanisation and there

is a rise in the number of technologically advanced cities—Smart cities. Many countries are moving towards smart cities using IoT platforms to monitor as well as manage infrastructure and operations in the city—from traffic flow to adaptive energy systems. In the new decade, I expect to see a growth in smart cities, especially in India, where data from Artificial Intelligence can be used to unlock opportunities and drive innovation in healthcare, traffic management, energy management and public safety.

Advanced Sensory Technology

A lot of ongoing research focuses on digital intelligent sensors. These sensors can both capture sensing data and interpret them for various applications. In the year 2020, it is likely that sensor fusion will move towards digitization and multi-sensor integration. This will help predict and alert users about potential devastating crisis. The home automation space is expected to witness more advanced sensory technology that is not limited to just security and safety equipment.

Smarter Voice Assistants

Today, smart voice assistants have made their way in every household. This technology is rapidly improving and is likely to stay the course as companies across industries race to release their own voice technology integration. In 2020, we are likely to see an improved voice assistant that is not only able to accurately understand us but also gauge the context and tone of the inquiry while offering solutions. This technology is also expected to go beyond the ability to control electrical and home appliances. In a multi-lingual nation like India, I also anticipate companies to launch bi-lingual or multi-lingual voice assistants in the next year.

(The author is Director, Goldmedal Electricals)

Empowering Industry 4.0 with AI

Industry 4.0 has the potential to be a powerful driver of economic growth, predicted to add between \$500 billion-\$1.5 trillion in value to the global economy between 2018 and 2022



As AI emerges from reel-life to real-life to become the frontier of world-changing technologies, there is an urgent need for systematic development and implementation of AI to see its real impact in the next generation of industrial systems, namely Industry 4.0.

This broadly refers to the next step in industrial technology, with robotics, computers and equipment becoming connected to the Internet of Things (IoT) and enhanced by machine learning algorithms.

AI is a Significant Part of Industry 4.0

AI is one of the emerging technologies already being utilized by manufacturers to improve product quality, efficiency and for cutting down on operating costs. We are starting to see a working relationship between humans and robots, an area which is benefiting from the use of AI in the manufacturing plants.

The smart factory which is made up of hyper-connected production processes comprises of various machines that all communicate with one another, relying

on AI automation platforms to collect and analyze all types of data including images, standardized code text and categorized fixed field text. Essentially, AI as a component is automating processes across various industry verticals, bringing that added efficiency and precision in all facets.

A recent IDC survey of global organisations that are already using AI solutions found that only 25% have only developed an enterprise wide AI strategy. Many organizations are applying artificial intelligence (AI) to increase their efficiency. However, there are immense quantities of data that have not even been digitised or organised in a way that enables AI to use them. Furthermore, numerous organizations lack the right people, such as data scientists, to analyse whatever data they have. BFSI, healthcare, logistics which are manual labour-intensive industries deals with a lot of data requires AI solutions to produce effective results.

Manufacturing companies that are looking to innovate and deploy AI need to look towards implementing integrated automation platforms that use bots built with

fractal science technology for undertaking admin-based roles and tasks. Fractal science is based on the premise of self-similarity and that networks of neurons carry similar but not identical signals about patterns. Fractal science is a more deterministic science which needs a smaller representative data set for training. With Fractal technology one needs a thinner infrastructure, lesser computing power and it becomes much easier and faster to implement.

These types of AI, known as multi-tenancy platforms, enable multiple bots to reside on a single machine and perform several different processes at once. It also allows personnel to use the same machine to perform other functions at the same time, meaning that less of the human touch is required to fulfil roles.

This, in turn, means that a significant number of workers can be re-skilled and retrained at a faster rate, to take on the more technical and complex work such as designing and programming, effectively moving them off the production floor and on to higher positions. This is something that is already happening in some parts of the industry.

These bots will not only speed up the manufacturing process but also aid human workers in decision making. Bots can collect, process and analyse structured and unstructured data in form of algorithms and system messages in real-time.

Manufacturing warehouses mainly use unstructured data, like handwritten paperwork and inventory checklists, as part of their day-to-day workings. Intelligent automation platforms that are built on fractal science will be instrumental in transforming the modern warehouse. As a result of this, manufacturers will be able to cut down on production downtime, while also optimising the overall operational efficiency of the manufacturing lines.

AI in Manufacturing Process

Original equipment manufacturers (OEMs) that are successfully operating in smart factories and implementing industry 4.0 are using AI in their production processes. Manufacturers who have undergone a digital transformation and can organize and utilise their data sets are taking advantage of the ability of AI and machine learning to improve quality control, standardisation, and maintenance through producing predictive analyzes of equipment functionality and radically streamlining factory lines.

CIOs and CTOs are starting to buy into the smart factory revolution in their quest to achieve optimum operational efficiency in their manufacturing processes. However, a big part of their role in managing the deployment of AI is first to identify the processes that need automating. They must then decide on the right automation platform for achieving the set goals. This is a fundamental step in deploying and managing AI as wrong decisions will undoubtedly lead to a waste of resources.

Business leaders also need to establish buy-in from workers at all levels and effectively implement a management plan which will take into account the effects of automation on the organization's workloads and roles. This will also help pinpoint which roles need retraining.

Future of Manufacturing

Companies have stepped up their efforts to embrace digital transformation to align themselves with evolving consumer needs. With manufacturing being one of the backbones of global economy, the implementation of technology in this sector is all about unleashing the true potential of products and solutions for the consumers.

Analytics and Internet of Things will play a major role in industry 4.0, identifying patterns, behaviours and bringing real time data to the fingerprints of manufacturers. As manufacturing operations will keep growing, organisations will also need to find a way out of dealing with the deluge of data and complexity of analytics, they will have in front of them.

The way ahead transforms the evolution of manufacturing into cognitive manufacturing, which essentially means the collection of data from the entire gamut of manufacturing processes such as employee biometrics, factory logs, manuals and equipment sensors. These intelligent assets will enable the machines to optimise performance with the use of connected sensors. Manufacturers will be planning smarter resource optimization on the back of data collected from various smart factory workflows and processes.

Having a data deluge will no longer be a problem for manufacturers as cognitive technologies working on the back of machine learning and artificial intelligence will predict patterns both in structured and unstructured data to provide real time information helping the industry to make data driven decisions.

(The author is Co-founder & Group CEO, AntWorks)

Cloud Transformation Success in 2020

2020 is the year the businesses are starting to address their cloud-related challenges. In our conversations with enterprise IT leaders, we sense a growing appetite to systematically navigate cloud complexity



The cloud will lie at the heart of this transformation by enabling agility and efficiency within organizations. However, before the cloud can deliver on this promise, there are two key challenges that businesses must overcome. Turning these challenges into opportunities will absolutely be key to cloud success in 2020 and beyond.

#1: Businesses will try to simplify cloud adoption

One of the barriers to effective cloud deployments today is the overabundance of choice. Enterprises must decide between public, private or hybrid approaches and select from an overwhelming number of platforms, application and managed service providers – each one extolling the virtues of their services above all others’.



**BUSINESSES THAT IDENTIFY A NEED FOR CLOUD
INTEROPERABILITY AND MOVE FAST TO ADAPT THE LATEST
TECHNOLOGIES AND STANDARDS WILL FIND THEY CAN IMPROVE
THE PERFORMANCE OF THEIR CLOUD INVESTMENTS, GIVING
THEM A SIGNIFICANT COMPETITIVE EDGE**

While this means businesses can create highly tailored solutions for their business aims, it also makes cloud management highly complex. In worst cases, this complexity can paralyze decision-making and stall cloud projects. It can also mean businesses fail to realize full value from their cloud investments. A recent Accenture study showed that two thirds of global businesses have not seen the benefits they expected from the cloud.

We predict that 2020 will be the year businesses start to address this challenge. In our conversations with enterprise IT leaders, we sense a growing appetite to systematically navigate cloud complexity. The time for adopting the cloud through trial and error is over – businesses are trying to learn from successes and failures of other companies to build strong business cases, define the right architectures and select the best partners from the get-go.

In 2020, we can look forward to a more rigorous and scientific approach to the cloud. Businesses will utilise advanced analytics tools to analyze their business needs on the one hand, and the cloud provider ecosystem on the other. The result will be data-driven insights into which cloud solutions will deliver the most value for that particular business and each given use case. From there, we expect IT teams to use simulations to test these solutions on scaled-up models before committing to them. The result will be cloud systems that deliver as expected and tailored to business objectives.

#2: Cloud interoperability will become paramount

As mentioned, one of the benefits of the large number of cloud platforms on the market is that they give businesses the flexibility to choose the right solution for specific aims – whether that's to meet the needs of a given workload, to drive efficiency, or to be fit for end-

user requirements. So, while businesses will be looking to reduce cloud complexity, many will also be seeking effective ways to manage multi-cloud environments. As a result, we expect to see cloud interoperability emerge as a top requirement next year.

Cloud interoperability refers to the ability of systems to work efficiently and effectively across various cloud platforms. It is vital for firms as they look to avoid vendor lock-in and create robust cloud infrastructures capable of handling fluctuating workloads. Cloud interoperability also allows firms to continue to leverage existing investments as they build out their cloud estate.

However, achieving interoperability is not easy as it requires full application data and component synchronization as well as a management system capable of maintaining performance across different cloud environments. Starting next year, we can expect to see the emergence of more common cloud standards, while cloud service providers will continue to develop more adapters, APIs and containers to facilitate interoperability across platforms.

Businesses that identify a need for cloud interoperability and move fast to adapt the latest technologies and standards will find they can improve the performance of their cloud investments, giving them a significant competitive edge. What's more, the right interoperability approach will allow them to increase the RoI of their cloud systems.

2020 will be the year that many businesses get systematic about their approach to the cloud. As a result, these organizations will be well placed to make the most of the opportunities for the decade ahead.

(The author is Senior MD & Lead, Accenture Cloud and Technology Growth & Strategy)

Paving the Way for Next Data Decade

We'll see organizations accelerate their digital transformation by simplifying and automating their IT infrastructure and consolidating systems and services into holistic solutions that enable more control and clarity

2020 marks the beginning of what we are calling the next data decade. We are entering this era with new – and rather high – expectations of what technology can make possible for how we live, work and play. So what new breakthroughs and technology trends will set the tone for what's to come over the next 10 years? Here are Dell Technologies top predictions for the year ahead.

2020 proves it's time to keep IT simple

We've got a lot of data on our hands- Big Data, Meta data, structured and unstructured data – data living in clouds, in devices at the edge, in core data centers. But organizations are struggling to ensure the right data is moving to the right place at the right time. They lack data visibility – the ability for IT teams to quickly access and analyze the right data – because there are too many systems and services woven throughout their IT infrastructure. As we kick off 2020, CIOs will make data visibility a top IT imperative because after all, data is what makes the flywheel of innovation spin.

We'll see organizations accelerate their digital transformation by simplifying and automating their IT infrastructure and consolidating systems and services into holistic solutions that enable more control and clarity. Consistency in architectures, orchestration and service agreements will open new doors for data management – and that ultimately gives data the ability be used as part of AI and Machine Learning to fuel IT automation. And, all of that enables better, faster business outcomes that the innovation of the next decade will thrive on.

Cloud co-existence sees rolling thunder

The idea that public and private clouds can and will co-exist becomes a clear reality in 2020. Multi-cloud IT strategies supported by hybrid cloud architectures will play a key role in ensuing organizations have better

data management and visibility, while also ensuring that their data remains accessible and secure. IDC predicted that by 2021, over 90% of enterprises worldwide will rely on a mix of on-premises/dedicated private clouds, several public clouds, and legacy platforms to meet their infrastructure needs.

But, private clouds won't simply exist within the heart of the data center. As 5G and edge deployments will rollout, private hybrid clouds will exist at the edge to ensure the real-time visibility and management of data everywhere it lives. That means, organizations will expect more of their cloud and service providers to ensure they can support their hybrid cloud demands across all environments. Further, we'll see security and data protection become deeply integrated as part of hybrid cloud environments. Bolting security measures onto cloud infrastructure will be a non-starter. It's got to be inherently built into the fibre of the overall data management strategy edge to core to cloud.

What you get is what you pay

One of the biggest hurdles for IT decision makers driving transformation is resources. CapEx and OpEx can often be limiting factors when trying to plan and predict for compute and consumption needs for the year ahead, never mind the next 3-5 years. SaaS and cloud consumption models have increased in adoption and popularity, providing organizations with the flexibility to pay for what they use, as they go.

In 2020, flexible consumption and as-a-service options will accelerate rapidly as organizations seize the opportunity to transform into software-defined and cloud-enabled IT. As a result – they'll be able to choose the right economic model for their business to take advantage of end-to-end IT solutions that enable data mobility and visibility, and crunch even the most intensive AI and ML workloads when needed.



OPEN NETWORKING SOLUTIONS WILL PREVAIL OVER PROPRIETARY AS ORGANIZATIONS RECOGNISE THE ONLY WAY TO SUCCESSFULLY MANAGE AND SECURE DATA FOR THE LONG HAUL REQUIRES THE FLEXIBILITY AND AGILITY THAT ONLY OPEN SOFTWARE DEFINED NETWORKING CAN DELIVER

“Edge” rapidly expands into the enterprise

The “Edge” continues to evolve – with many working hard to define exactly what it is and where it exists. Once limited to the Internet of Things (IoT), it’s hard to find any systems, applications, services – people and places – that aren’t connected. The edge is emerging in many places and it’s going to expand with enterprise organizations leading the way, delivering the IT infrastructure to support it.

5G is creating new use cases and possibilities for healthcare, financial services, education and industrial manufacturing. As a result, SD-WAN and software-defined networking solutions become a core thread of a holistic IT infrastructure solution – ensuring massive data workloads can travel at speed – securely – between edge, core and cloud environments. Open networking solutions will prevail over proprietary as organizations recognise the only way to successfully manage and secure data for the long haul requires the flexibility and agility that only open software defined networking can deliver.

Intelligent devices change the way you work and collaborate

PC innovation continues to push new boundaries every year – screens are more immersive and bigger than ever, yet the form factor becomes smaller and thinner. But, more and more, it’s what is running at the heart of that PC that is more transformational than ever. Software applications that use AI and machine learning create systems that now know where and when to optimize power and compute based on your usage patterns.

With biometrics, PCs know it’s you from the moment you gaze at the screen. Now, AI and machine learning applications are smart enough to give your system the ability to dial up the sound and color based on the content you’re watching or the game you’re playing.

Over the next year, these advancements in AI and machine learning will turn our PCs into even smarter

and more collaborative companions. They’ll have the ability to optimize power and battery life for our most productive moments – and even become self-sufficient machines that can self-heal and self-advocate for repair – reducing the burden on the user and of course, reducing the number of IT incidents filed. That’s a huge increase in happiness and productivity for both the end users and the IT groups that support them.

Innovating with integrity, sourcing sustainably

Sustainable innovation will continue to take center stage, as organizations like ours want to ensure the impact they have in the world doesn’t come with a dangerous one on the planet. Greater investments in reuse and recycling for closed-loop innovation will accelerate – hardware becomes smaller and more efficient and built with recycled and reclaimed goods – minimising E-waste and maximizing already existing materials.

At Dell Technologies, we met our Legacy of Good 2020 goals ahead of schedule – so we’ve retired them and set new goals for 2030 to recycle an equivalent product for every product a customer buys, lead the circular economy with more than half of all product content being made from recycled or renewable material, and use 100% recycled or renewable material in all packaging.

As we enter the Next Data Decade, I’m optimistic and excited about what the future holds. The steps our customers will take in the next year to get the most out of their data will set forth new breakthroughs in technology that everyone will experience in some way – whether it’s a more powerful device, faster medical treatment, more accessible education, less waste and cleaner air. Before we know it, we’ll be looking forward to what the following 10 years will have in store.

(The author is President and Managing Director, Dell Technologies India)

Ankit Parashar

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—AMIT DIXIT

Director, V-Connect Systems & Services

“OUR PARTNERSHIP WITH CRAYON SOFTWARE HELPED US TO ADD CLOUD RESOURCE BILLING AND SPEND MANAGEMENT SERVICES

Tell us about your company.

V-Connect is a Cloud Hosting and Managed Services provider company, since 2016. We offer a complete suite of Cloud services, which caters the present needs of the customers to reduce upfront investment and enable seamless IT operations. In every client engagement, we ensure clients realize higher ROI, stretch the intrinsic value of existing IT investments and are better prepared for emergent market.

Tell us about your journey with Crayon Software so far.

We have been connected with Crayon Software since the last 2 years as a partner and both of us has worked as team in offering Cloud Solutions wherein customers easily adapted to industry changes while monetizing any service in a subscription model, automating end-to-end operations, and reducing time to market and revenue with access to our infinite ecosystem.

How does Crayon Software Solutions help you to grow your customers?

Our partnership with Crayon Software helped us to add cloud resource billing and spend Management services to our existing cloud consulting and 24x7 managed services. This also helps us with the necessary visibility to provide a seamless cost optimization and control solution on our enterprise customer's cloud spends.

How can customers leverage the different solutions offered by Crayon Software?

By engaging with Crayon Software, customers can be assured of a consistent user experience of getting it right one time and every time. This experience starts right from planning, on-boarding, and continues running at a steady state with effective monthly cost management.

What are the different training programs offered by Crayon to understand the latest technologies?

Various Webinars, Sales team meet, Technical support, Partner and Customer initiatives offered by Crayon to understand the latest technologies.

Which are the different technology services receiving maximum traction in the market?

Talking about verticals, logistics, manufacturing and e-commerce or “Wallet/Payment Gateway” are some services which are eagerly adopting cloud. Organizations that are either in rapid agile expansion phase or looking to consolidate and gain cost control are eagerly adopting cloud. This also depends on the market segment and the cloud adoption maturity. Nowadays in India, the focus is more on leveraging data security and adopting AI and ML as well as migrating critical workloads to public cloud with leading cloud aggregators. In markets, the major focus is on setting up the Backup and Disaster recovery and largely building the TCO as well as moving customer facing sites.

What are your future plans?

We are planning to have joint GTM and Quarterly strategic meetings for new customers onboarding in Cloud and Managed Services BU. Moreover, we will be hosting events to bring fresh business from new customers as well new business from existing customers (like Backup and DR Services + IT Security Consulting Services). We will understand customers' pain areas or challenges and help them with the benefits of cloud services.



“ OUR PARTNERSHIP WITH CRAYON SOFTWARE IS A SYNERGISTIC AFFAIR

Tell us about your company.

Our business group has two companies Xautomation Labs and Solicon. Xautomation Labs Pvt Ltd is a software company with products catering to BFSI, Cybersecurity, Mobility and Software Testing Automation.

Solicon Pvt Ltd started operations in 2015 and worked as a Hybrid Cloud Integrator for initial few years of operation. During the course of five years, Cybersecurity and cloud focused Application Development got added to our portfolio.

Tell us about your journey with Crayon Software so far.

Our partnership with Crayon Software is a synergistic affair. Crayon has a great technology support and has helped us focus on developing deep technology expertise.

The two year journey has been very good for us, but it has only just begun, and we expect a bigger collaboration with Crayon Software.

How does Crayon Software Solutions help you to grow your customers?

Crayon has been helpful in rolling out new products, and the support for emerging technologies is stupendous. Coupled with a targeted marketing effort, the customer reach is expanding into new market segment and audience. The handholding done by the channel team is par excellence, which is missing in most technology distributors these days.

How can customers leverage the different solutions offered by Crayon Software?

Crayon is a perfect fit for Clients who focus upon bringing about digital transformation in their organization.

The new age technologies help shedding the inefficiencies and bring about new growth and success avenues for Organizations world over.

What are the different training programs offered by Crayon to understand the latest technologies?

Crayon is our window to the “Cloud Service Provider” ecosystem. We get training programs running through the year for technical, sales and marketing aspects. They are our phone-a-friend for anything new in the market.

Which are the different technologies services receiving maximum traction in the market?

Cloud is a Juggernaut, It is unstoppable, and it is here, to stay.

So obviously Cloud is the biggest driver of all the allied disruptive technologies on offer today. We have started focusing upon RPA, AI/ML, and Blockchain as our next wave of transformation.

What are your future plans?

Solicon will be focusing upon delivering the real cloud advantage to clients leaving behind classic architecture to reap full benefits of Containers, PaaS, Devops and move towards Application Modernization rather than just using IaaS in Cloud.

With Xautomation we are planning to launch new products in the market, which will be driven by cloud and help in Identity Centric Security, Robotic Process Automation and Software Testing Automation. It is an exciting phase for us. We are happy that we have Crayon as a partner to support us in the next phase.

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CRAYON MAINTAINS A BUSY CALENDAR OF TECHNOLOGY ENABLEMENT PROGRAMS FOR THEIR PARTNERS

Tell us about your company.

WinMethods Technologies is a Hyderabad based technology company. We started our journey a decade back with reselling ICT solutions and very quickly established ourselves as a System Integrator of repute. While we continue to be a highly dependable System Integrator we transformed our business model to on-board a host of emerging technologies. Today, we stand tall as a successful Cloud Solutions Provider. We differentiated our offerings with a strong service based value adds. It was but natural for us to further strengthen our services offerings in the new era with a combination of Hybrid offerings – on premise, on cloud and Multi Cloud. On the cloud front, starting from Migration Services, we offer optimization and innovation as well as a host of Managed Services.

Tell us about your journey with Crayon Software so far.

Our partnership with Crayon is more than 3 years old. We counted on Crayon to help us in our initial transformation to Cloud business. With their established best practices we not only benefited in terms of learning but also we managed to establish a strong customer base for both of us. Our cloud business is growing fast with a 100%+ increase YOY in terms of both the revenue as well as new customer logos.

How does Crayon Software Solutions help you to grow your customers?

WinMethods is a very customer centric organization, following a common theme of delivering value to customers in everything we do. We found a perfect match in Crayon who share the same business philosophy. By augmenting Crayon's Pre-sales and Post-Sales support framework with our own support delivery, we mitigated the risks a customer encounters and offered an attractive proposition of comprehensive solution delivery and successful implementation. Experiencing success, our customers increased our engagement while offloading a number of workload responsibilities to us, be it backup as a service or managing the entire workload. This helped our customers focus on innovation that works for enhancing their business.

How can customers leverage the different solutions offered by Crayon Software?

In today's world, customers look for business outcome assurance more than a technology stack delivery from companies like us. Crayon offers a number of options from different technology vendors that match the requirements of different market segments, from SMB to Enterprise. At the same time Crayon offers a number of services geared for optimizing the technology investment thus assuring an enhanced ROI from the deployed technologies.

What are the different training programs offered by Crayon to understand the latest technologies?

Crayon maintains a busy calendar of technology enablement programs for their partners. The calendar offers options to select from a Webinar to a Workshop. They have played a key role in keeping my team stay abreast of technology developments which in turn helped the team acquire the latest certifications that are very important for our supplier partnership status.

Which are the different technology services receiving maximum traction in the market?

It is all about Cloud now. Digital transformation is right on top of any organization's agenda and the journey starts with Cloud migration. We are stretched to limits offering migration and management services.

What are your future plans?

Perhaps this is the most exciting time so far for my company. We have successfully transformed our business to cloud and emerging technologies. We benefit from our lineage of a solutions vendor and continue being the same in the Cloud era. We had to relook at our partner ecosystem and making it current in the context of Cloud business. Managed services are a key focus for us and we will further consolidate our offerings in the markets with our emerging technology practice comprising of transformational business solutions. We have seen some success in markets outside India and we will be working with our partners to further enhance our presence in the identified markets.

Humanscale launches campaign to help remote workers stay healthy

Humanscale has launched a campaign in India to offer online ergonomic consultations + 'Work From Home' workstation to support workers. This campaign, targeted at employees who are looking at a happier, healthier, and more productive place to work while at home, is being organized by Bengaluru based S Cube Ergonomics Pvt. Ltd., the exclusive India distribution partner of Humanscale.

ergoQ LIVE, Humanscale's new virtual consulting offering (with Video or Voice-only options), connects Work From Home(WFH) Employees with its global network of certified ergonomists to quickly identify and eliminate underlying causes of discomfort. The consultation includes Expert guidance on proper workstation configurations, Diagnosis of any potential equipment-related problems, Guidance

on postural improvement and behavioral modification, a Summary report of ergonomist recommendations, and a Healthy Workstation Guidelines handout.

Virtual consultations with ergoQ LIVE will help professionals optimize home workspaces in 30 minutes or less at a time that's convenient for them (same-day consultations are available). ergoQ LIVE is the first-ever online ergonomic consultation tool with the automated set-up. Payment for consultations can be done online in INR.

"With limited space, working from home can sometimes feel more like a stressor than a perk. Trying to work comfortably while constantly rotating between the bed/sofa/dining chair and the floor is not only irritating but also potentially bad for your health, said Sathish Nandagopal. Director, S Cube Ergonomics."

CEOs not to get Arrested if Employees Test Positive for COVID-19

As the consternation around CEOs and directors getting arrested if an employee tests positive for COVID-19 grows, the Ministry of Home Affairs once again offered a detailed clarification on the matter. The MHA stated that all such fears and apprehensions are misplaced. "Misplaced apprehension. No such clause in Lockdown 2.0 guidelines. To be safe, follow National COVID-19 Directives and SOPs at workplaces," said the MHA Spokesperson.

A claim that legal action would be taken by states, including imprisonment of CEO and factory getting sealed in case an employee tests positive for COVID-19, had become a cause of concern for leading industrialists. "The calibrated restoration of economic activity will be jeopardised by the wrong disincentives. In fact, we need the right incentives. This approach runs counter to the PM's stated views about placing trust in the industry," tweeted Anand Mahindra, Chairman of Mahindra Group, on the issue.

While the clause under DMA ACT 2005 does mention that if the director, manager, secretary or other officers of the company, such director, manager, secretary or others, if

found guilty, can be punished, it has been wrongly interpreted to mean the following:

- States may take legal action, including imprisonment of CEO, in case a COVID-19 positive employee is found in the factory.
- In such a situation, the premises of the factory would be sealed for 3 months.
- In case of non-compliance of precautionary measures, the factory may be closed down for 2 days and may be allowed to restart after full compliance.

The MHA has clarified that there is no such clause in the consolidated revised guidelines, and hence misapprehensions on the same must be avoided. However, industries have been advised to strictly follow the SOPs mentioned in the MHA guidelines to protect employees from getting infected. MHA, on 15 April 2020, had issued an order to exempt certain activities under the consolidated revised guidelines to fight COVID-19, in areas not included in hotspots or containment zones. It has been stated in the order that IT and ITes, manufacturing plants, and industries in the safe zones could reopen provided they implemented all measures stated in the order.

DRDO Unveils Mobile Lab in Hyderabad Capable of Screening 1000 Coronavirus Samples Everyday

DRDO, premier agency of the Government of India responsible for military research and development, today launched a mobile laboratory named Mobile Virology Research and Diagnostics Laboratory (MVRDL) in Hyderabad. The first-of-its-kind laboratory aims at speeding up Coronavirus screening and research and development activities.

The laboratory was conceptualized 6 April and all activities have been completed record time of 15 days which is by 20 April said the Defence Research and Development Organisation. "I congratulate team DRDO for developing this mobile lab in Hyderabad. The Ministry of Defence and the Armed Forces are working tirelessly to strengthen India's capacity and capability in winning the war against the menace of COVID-19," tweeted Rajnath Singh, Defence Minister of India.

DRDO, after discussions with ESIC Medical College, Hyderabad, came up with a combination of two mobile laboratories, which can be positioned anywhere in the

country in a very short period of time. The labs have been built as per WHO and ICMR bio-safety standards to meet the international guidelines.

Apart from screening Coronavirus samples, the labs can also be used for drug screening, therapeutics, Coronavirus diagnostics, vaccine development, development of diagnostic kits, and so on. The laboratory, DRDO says, can enable the test services at remote places. Apart from that, the laboratory will also enable the researchers and medical practitioners to undertake research activities and develop diagnostics assays and therapeutics.

DRDO has been involved in various other activities as well to power India's fight against Coronavirus. Contactless sanitizer dispensers, seam sealing biosuits, five layered N-99 masks, PPE MkIII for protection of medical professionals and paramedics, face protection mask for health care professionals, COVID Sample Collection Kiosk (COVSACK), and other related products are some of the innovations DRDO is involved in.

TCS iON Offers Free Online Course on Career Ready Skills to Over 4 Lakh Telangana Students

TCSC iON, a strategic business unit of Tata Consultancy Services, has partnered with the Telangana State Council of Higher Education (TSCHE), a statutory body of the Government of Telangana State, to prepare college students in the state for future job readiness. As of now, a free online course by the name Career Skills Vantage Program is being offered on the TSCHE website.

Commenting on the partnership, Venguswamy Ramaswamy, Global Head, TCS iON, said: "We are committed to provide an array of learning tools that will help boost the youth of the state in a progressive way. We commend the TSCHE and the state leadership for their vision, and for providing the state's future citizenry with state-of-the-art tools and skills that are aligned with the needs of the industry."

Under this partnership, a rich set of curated courseware, accessible through the TCS iON Digital Learning Hub, will be made available free of cost to 4 lakh students, across 1500 institutions of higher education in the state of Telangana, effective this academic year, said a statement from the company.

Prof T Papi Reddy, Chairman, TSCHE, said, "We are pleased to partner with TCS iON to strengthen our students and equip them with all the necessary skills that will help them to compete well in the job market. As one of the largest employers, TCS has been playing a key role in shaping the development of student competencies by engaging with higher education institutions. We are grateful to TCS for partnering with TSCHE in our journey to prepare the youth of Telangana for future jobs."

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Wipro	IBM	SIEMENS	STEMCELL	EXCLUSIVE PERSONALITY DEVELOPMENT MODULES	EXCLUSIVE PERSONALITY DEVELOPMENT MODULES	EXCLUSIVE PERSONALITY DEVELOPMENT MODULES
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EXCLUSIVE PERSONALITY DEVELOPMENT MODULES	EXCLUSIVE PERSONALITY DEVELOPMENT MODULES	EXCLUSIVE PERSONALITY DEVELOPMENT MODULES	EXCLUSIVE PERSONALITY DEVELOPMENT MODULES	EXCLUSIVE PERSONALITY DEVELOPMENT MODULES	EXCLUSIVE PERSONALITY DEVELOPMENT MODULES	EXCLUSIVE PERSONALITY DEVELOPMENT MODULES

Total Placed 117

335+
2018 - on going
COMPANIES VISITED

We are proud of you
Prachi Chaudhary
(25.6 LPA) CS Department

76%
PLACEMENT PERCENTAGE

We are proud of you
Nandita Kundo
(12 LPA) BT Department

Total Placed 112



MIETians are National Champions PUNE SMART CITY HACKATHON - 2019

Stunning Drivers of MIET is National Eco-Cart Champions, 19, received the award of Rs.1.02Lacs

2 Teams from MIET Won Smart India Hackathon

Awarded Second Position in Dr. Kalam Entrepreneurship League (KEL) 2018 - 19

Meerut Institute of Engineering & Technology

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