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THE BUSINESS OF INFOTECH

40
YEARS
SINCE 1982

#DQ40Years Special: India's high road to 2047



Mphasis' **Nitin Rakesh** on the twin-engine jet of AI and software development



Oracle's **Shailender Kumar** explains how we are at the cusp of an economic revolution



Wipro's **Amit Choudhary** talks about the role of Generative AI in India's future



Hinduja Global Solutions' **Natarajan Radhakrishnan** feels we can be the R&D lab of the world

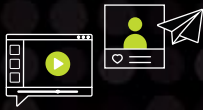


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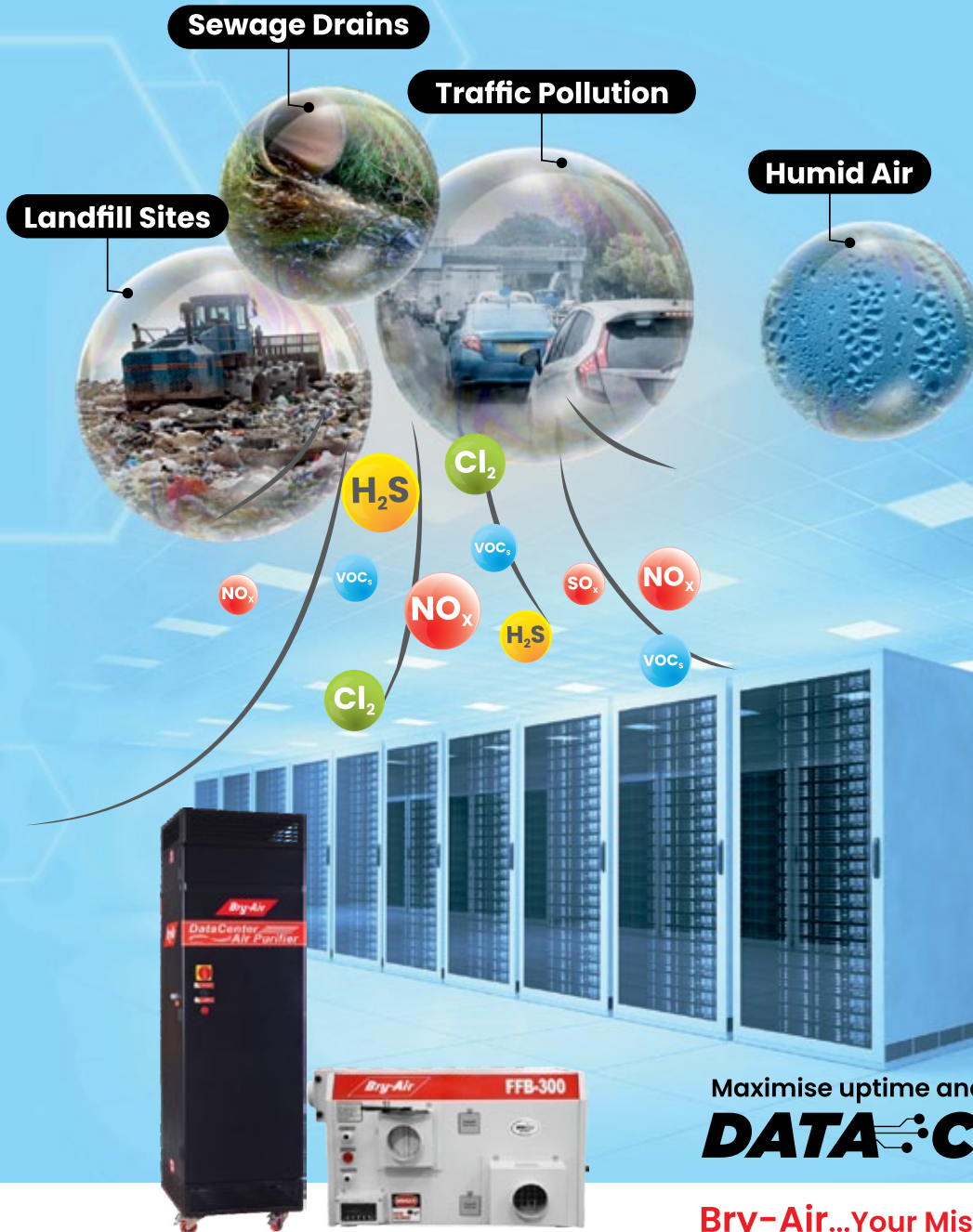
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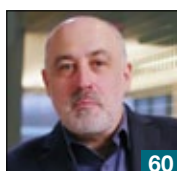


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INDIA'S DIVERSE IT FIELD



Sunil Rajguru

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One positive impact of the otherwise tragic pandemic was that talent shifted to Tier 2/3 towns in India. While some returned to the cities, many continued indefinitely in small towns having secured Work From Home options. That led to the upgradation of infrastructure in these towns.

According to a Deloitte-NASSCOM report, in the past, Indian tech was clustered around seven major cities: Bengaluru, Hyderabad, Mumbai, Pune, Delhi, Chennai and Kolkata. Now it appears that the small city boom may be here to stay as the report has identified 26 emerging technology hubs like: Nagpur, Ahmedabad, Chandigarh, Kanpur, Mangaluru etc. This is really good news if we have 30+ tech towns in the coming years. The more the merrier.

Another report showed that more than a third of the Indian IT workforce are women. As it is about 50% STEM pass outs are women too. That's both a diversity of geography and gender. There has been a surfeit of women leaders at the top in India IT and that's why we came out with Women in Tech Powerhouse 40 Special. 40 is too small a number and we will be expanding that list soon.

While Indian origin CEOs are dominating the tech world and the Indian IT Services sector is No. 1 in the world, our startup ecosystem has become the third largest. Another rising star is the GCC or Global Capability Center. All the above-mentioned things are boosting the GCC network which are centres of excellence and innovation. Their number has already crossed 1500 in India. Their AI capabilities will play a role in the ChatGPT era.

DQ has already been highlighting the role of technical schools (T-Schools) and other educational institutions in enabling the tech environment of India and enhancing skills. Overall skilling, upskilling and reskilling is going to play a huge role in the fortunes of the country.

If India sees another stable government after the 2024 elections, we can roll full steam ahead. The US may not be able to say the same thing with the level of polarization there. In one way America, Europe and China are all in some state of decline. It is India's moment today. Tomorrow will see the rise of the rest of Asia, Africa and South America. The globe may be unrecognizable at the end of the century taking today's reality into account.



"I hope you love kids—there goes your boss."

S@IRE

Sunil Agarwal & Ian Baker

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CyberMedia launched its first magazine in December 1982. Dataquest, India's oldest and leading technology magazine in India is celebrating 40 years of its journey with a series of activities this year.



A portrait of Sunil Rajguru, a middle-aged man with dark hair, smiling. He is wearing a dark blue blazer over a white shirt with a blue pocket square. The background is a blurred cityscape.

**WE NOW HAVE
THE TWIN-ENGINE JET
OF AI AND SOFTWARE
DEVELOPMENT**

Nitin Rakesh, CEO & Managing Director, Mphasis, talks about business in the post-pandemic world, the oncoming age of AI and where we stand in India's Mission 2047. Edited excerpts from an exhaustive interview...

On changes in the post-pandemic era...

The number one question everybody's asking me is: Did enterprises spend too much and are we going backwards? My simple answer to that is: The tech investing super cycle that pulled digital transformation forward is not going away.

I have not had a single CIO come to me and say: We are entering a recession and I'm going to reverse my cloud migration... or I'm spending too much on cybersecurity... or we're entering a recession and customer is no longer important. They are not killing projects, because they're not important but because they don't have the money.

I'm still waiting for the recession we were promised two years ago. Because if you are in a recession, there is a playbook. If you're in a growth environment, there's no playbook. There's very little you can do about uncertainty. I think the trends that got kicked off and accelerated during Covid don't look like they've disappeared. They may have slowed down now.

There is no new abnormal anymore. This is the new normal. Every business will continue to get tech enabled and digitized. Now add on top of that the additional pivot of this new super tool called AI. Think of it as a new platform.

To sum it up, the consumer journey is not going away. Every business is a consumer business, and you will continue to digitise every part of the business. Cloud is an infrastructure. Consumer is a digital business transformation pivot. Then, we have we just entered an age where you have a whole new set of capabilities that are being unlocked with AI that will accelerate this trifecta. They all blend into each other. One thing AI will do is definitely boost productivity. We are entering a whole new era or golden times for anybody who can enable this.

Looking ahead...

If I look at the competitive positioning of our industry compared to the global Tech landscape, we've slowly but surely become a fairly large portion of the global tech services. We have also good progress with Deep Tech and AI startups. We're not a global SaaS powerhouse but a services' one.

As far as we are concerned, we bet behind cloud, cognitive and consumer like crazy last five years. Then we went behind cost takeout, because if you can't keep the customer efficient, you won't have a good business model. It's really about scalability of the business model itself. Then only can I keep it more efficient.

The promise of AI in the ChatGPT era...

It presents a fundamental shift in the way things are being done. It's an opportunity for us because nobody has done it before. When I'm competing, I'm competing against nobody. We are going through the down phase of the hype cycle. But eventually it'll come back. Same thing happened to cloud. Same thing happened to digital. Before Covid nobody believed that true digital would happen.

Looking at early trends, one is software development. But software is still leading the world. AI may be a new trend, but software leading the world is already an existing trend. You could say now we've got a twin-engine jet of AI and software development. Things like testing will get even more efficient, which makes the whole dev cycle more efficient, which means you can write more code. No CIO kills the project for lack of requirements. Projects get killed for lack of funding. If you have enough funding, you write more code and build more things.

THERE IS NO NEW ABNORMAL ANYMORE. THIS IS THE NEW NORMAL. EVERY BUSINESS WILL CONTINUE TO GET TECH ENABLED AND DIGITIZED. NOW ADD ON TOP OF THAT THE ADDITIONAL PIVOT OF THIS NEW SUPER TOOL CALLED AI. THINK OF IT AS A NEW PLATFORM.

RIGHT NOW WE ARE 20% OF IT GLOBAL SERVICES AND BY THEN WE MAYBE 40-50%. THE BIGGEST ADVANTAGE WE HAVE, AND WE CAN'T LOSE THAT, IS THE TALENT ECOSYSTEM THAT WE CONTINUE TO BUILD. A LOT OF IT IS BUILT BY OUR INDUSTRY.

Then I think customer experience transformation is a big one. There are 58,000 banking agents answering phone calls with 30-20-10-minute wait times. That has been completely transformed. You really don't need somebody answering the phone unless the complexity of the transaction is high. You can automate basic protocols. I think fundamentally, job losses will happen in that area, which is okay, because there's already an 80% attrition rate because nobody likes to be in the job. Nobody likes to be shouted at by the customer.

But companies must set up the data pipeline because there's no AI without data. There's no data without having a way to manage a single source of truth. Customer data is one part of it, but application data is also important. It's a little bit foundational, what will happen in the next 1-2 years. AI is now like an arms race. We are trying to win this segment of customer experience and the contact centre.

On emerging tech like Blockchain...

Blockchain will probably disappoint in the long run because it's just too expensive to run. It's never about cost at all but dollars per cost. The compute-infrastructure-energy for blockchain is too expensive.

But it does offer solutions. For example, you can use blockchain to automate record keeping for real estate transactions. Metaverse got pushed out by a few years. Nobody knows what's going happen. Non-Fungible Token (NFT) has become Non-Valuable Token.

The bulk of the focus right now and from our customers is: Cost-led transformation. I really need to get business to be more nimble and agile and complete my digital journey. My customer experience still isn't where it needs to be. I don't have the money to do it. My core system is still very old. I get 2 million malware attacks every year. How do I protect against that? It's really become very, very focused prioritised list of things that I really need to get through.

The importance of being agile...

As an industry, for the companies who keep innovating and those who keep adjusting to the new normal, the new


abnormal—will benefit. I think it's a tech led mind. If you lean forward on Deep Tech and find a way to make it real for your customers, you'll last in the long run.

Part of the proposition for us is creating net new talent in chosen areas where we think there will be demand and in the right place at the right price at the right time. Second part of the solution is problem solving. We are engineers. Throw me a problem and I'll solution the heck out of it. The third one is what has become more important today. Don't wait for a problem to be solved. Can you help the customer think through what is the right problem to be solved?

Can India become a Tech and Economic Superpower by 2047?

I think we are making very rapid progress. I don't think there's a doubt it'll happen. It might even happen before that. For example, right now we are 20% of IT global services and by then we maybe 40-50%. The biggest advantage we have, and we can't lose that, is the talent ecosystem that we continue to build. A lot of it is built by our industry.

There is a lot of big education infrastructure that can be improved. I think we need to continue to invest in that. There is another infrastructure augment that is needed because we can't just rely on a few cities like Bangalore, Pune, Hyderabad etc. We need to identify the next 30 towns that can boom. Every country has to go through that. For example, it's not just San Francisco but Denver, Phoenix, Colorado Springs, Dallas etc. We must enable this tech superpower mindset. That is linked to core infrastructure, electricity infrastructure, data infrastructure etc. It's not just about mobile data. Airport connectivity is important to have access to global customers. They need to be able to come and see you. Employees need to go in and out.

Lots of things to do in the next 5-10 years, but we can accelerate it for sure, but it will happen anyways. It will not happen on its own, there are people working on it, we are doing it. 

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A portrait of a middle-aged man with grey hair, smiling, wearing a dark suit, light blue shirt, and patterned tie. The background is a soft, out-of-focus yellow and orange gradient.

**WE ARE AT THE CUSP
OF AN ECONOMIC
REVOLUTION**

India has exhibited its prowess as being one of the most innovative nations worldwide with several initiatives during and after the pandemic, says Shailender Kumar, SVP and Regional Managing Director, Oracle India and NetSuite Asia Pacific and Japan.

What are your thoughts on techceleration (technological acceleration) that took place during the pandemic, and India being on a path to becoming a tech and economic superpower by 2047?

We live in a 'techade', and the world is watching how India is pacing ahead with its digital transformation. During the pandemic, we were faced with an economic and humanitarian crisis that seemed unimaginable. It made us realize the extreme importance of embracing technology, quickly – for smooth functioning of business and general well-being. Today, we are at the cusp of an economic revolution – look at the pace and scale at which digitization is moving ahead in India. Among the world's nations, India has emerged as a growing economy. Technology is continuously evolving, and that offers radically new growth opportunities for businesses to re-invent. This directly impacts and contributes to economic development.

India has exhibited its prowess as being one of the most innovative nations worldwide with several initiatives eg. the development of cutting-edge technologies like AI, the CoWIN platform, launch of electric vehicles, aspirational districts programme, rapid adoption of digital payments, national e-learning platform, 5G and much more. Additionally, businesses have started to enhance digitization of their internal processes and supply chains by three to four years. India's digital transformation (DX) adoption landscape has been rapidly evolving, with DX spending projected to scale to US\$23.6 billion in 2025 at a CAGR of 17 percent as per IDC. The dramatic pace at which businesses adopt technologies affects our economy, society, and culture. India is moving on the right path to advance its technical and economic superiority—the growth of startups and development of new technologies have been key enablers. With such high penetration of technology, our country is making the average Indian an integral part of the digital economy, and this is becoming the norm for everything, from doctor consultations to food delivery to education and more. Our country is projected to become the third-largest economy in the world in 2027—pegged at US\$5 trillion—overtaking Germany and Japan.

The consensus is that by 2025, humans will have a more connected relationship with technology as more people rely on digital connections for daily activities like jobs, education, healthcare, and critical social contacts.

Shed your insights on the rapid cloud adoption by both large enterprises and SMBs along with the Government and BFSI.

Oracle is a comprehensive cloud player in the Indian market with decades of experience in servicing public sector organisations and companies operating in regulated industries like banking and financial industry. We have collaborated with various government organizations and banks or financial institutions over the past three decades. For governments, our primary goal has been to serve as a technology enabler at the local and central levels in order to assist their wider goal of fostering development and satisfying citizens. For BFSI customers, we are focused towards helping them deliver world-class customer experiences that build loyalty and drive growth. We help them to rapidly respond to what their customers need and improve their business operations with our data-driven applications and cloud services.

Our collaboration on projects ranging from healthcare to urban development to logistics and commerce. One such project was a smart government initiative—the Aspirational Districts Programme. In the healthcare and pharma sphere, we successfully ran a pilot project with NITI Aayog, Apollo Pharmacy and Strides Pharma in which we tested the use of Oracle Blockchain Cloud technology in reducing the growing menace of fake drug production and distribution. The entire procedure and transaction are covered and recorded in a blockchain system, allowing everyone to track and trace the movement of the product, at any point in time.

Similarly, in the logistics and delivery sector, we supported the Logistics Division, under the Ministry of Commerce for a pilot project known as "Secured Logistics Document Exchange" or SLDE. This was introduced by the Ministry of Commerce with an aim to further improve 'the ease of doing business in India and to lend more power and speed

to projects by connecting all concerned departments on one platform. Our partner, CargoExchange, created the SLDE platform with Oracle Cloud Infrastructure and our Blockchain Cloud Service. This solution was created to replace the current manual process of logistics document generation, exchange, and compliance with a digitised, secure, and seamless document exchange system. It is also a part of PM Gati Shakti program which targets to cut logistics costs, increase cargo handling capacity and reduce the turnaround time.

On the BFSI side, we bring to the market one of the more comprehensive sets of software solutions that can be deployed for all types of banking requirements. Be it Internet banking, Open API banking, Mobile, Retail deposits, loans as well as complete set of features for corporate and SME banking including virtual accounts, cash and liquidity management, trade finance, supply chain finance, loans and treasury operations.

We believe in open architecture and are strongly anchored on microservices. Our technology comes with the latest innovations including Artificial Intelligence (AI), Natural language Processing (NLP) and is integrated with numerous others, including Blockchain and IoT. For example, we help bankers leverage AI to help them take faster decisions on loans, or customers to read driving licenses from mobile device cameras to pre-fill application forms.

How has the techceleration benefited Oracle's business momentum and vertical industry momentum?

India is a critical market and a significant contributor to Oracle JAPAC. This year marks the 30th anniversary of our operations in India, and it's been an incredible journey. India continues to be one of the consistent and fastest growing regions – growing at double-digit across its technology, applications and services portfolio. The business has been a solid growth engine with 100% cloud consumption growth last year. Our cloud renewal rates on the Oracle Cloud Infrastructure business have grown significantly, beyond 74 percent for the entire year. The public sector vertical has increased over 2X last year. Our SaaS business also witnessed exceptional momentum. Q4FY23 has been one of our strongest quarters with overall growth of 43 percent, with an upward trajectory across all SaaS pillars – ERP at 44 percent, HCM at 14 percent, CX at 131 percent. Growth in HCM was our biggest drivers at 20 percent Y-o-Y growth. Within SaaS, 35 percent of our revenue came from net new customers. Our expansion across

businesses has come from sectors like banking, including cooperative banks, FinTech, telecom, manufacturing, and the public sector. Overall, we are closing ground-breaking deals and making inroads into new industries.

Besides the multi-year collaboration agreement with India's Ministry of Education, Oracle also recently signed up Tanishq. Tanishq migrated its inventory management system to Oracle Cloud Infrastructure (OCI). We also extended our partnership with IFFCO eBazar to unify its finance operations to drive greater efficiency and productivity. In the automotive sector, myTVS - India's largest automotive aftermarket digital platform, integrated and digitized its processes, enhanced business insights, and improved decision-making to support its future expansion with Oracle Fusion Applications.

How do you see India as a Data Center nation with hyperscalers, and how has Oracle witnessed its transformation of being viewed as one of the top hyperscalers?

The need to digitalize has pushed the demand for the cloud and accelerated growth in the country across industries. The Internet is becoming a lifeline for people, both for work and entertainment. This move towards the cloud is increasing investments in hyperscale data centers, with the global data center market investments expected to reach ~US\$200 billion per annum by 2025, as per NASSCOM. By 2025, India will witness a share in this growth, with investments expected to reach US\$5 billion annually. India is expected to grow at 5 percent, 2X faster than global.

Oracle already powers 28 states and the union territories. India's top telecommunications providers run on Oracle and so does India's financial backbone.

We believe the cloud is the catalyst to power up India's billion people. Whether it is banking or enabling digital payments, digital education, financial inclusion, or supporting government initiatives in digitization, furthering industrial development, bolstering infrastructure, fighting cyber threats, and basically, connecting more people to the digital economy – Oracle can do that.

Oracle has maintained and expanded its stronghold in India's highly competitive cloud market. With two Oracle Cloud regions in Mumbai and Hyderabad, both empaneled by MeitY, Oracle complies with data sovereignty regulations, provides low-latency access to its cloud services for Indian customers, and supports them in their innovation journey. We are also introducing support for India's localization of Oracle Fusion Cloud Payroll to

WE BELIEVE THE CLOUD IS THE CATALYST TO POWER UP INDIA'S BILLION PEOPLE. WHETHER IT IS BANKING OR ENABLING DIGITAL PAYMENTS, DIGITAL EDUCATION, FINANCIAL INCLUSION, OR SUPPORTING GOVERNMENT INITIATIVES IN DIGITIZATION, FURTHERING INDUSTRIAL DEVELOPMENT, BOLSTERING INFRASTRUCTURE, FIGHTING CYBER THREATS, AND BASICALLY, CONNECTING MORE PEOPLE TO THE DIGITAL ECONOMY – ORACLE CAN DO THAT.



local and MNC customers so they can adhere to local regulations and practices.


Recently, Oracle launched a unique cloud offering named EU Sovereign Cloud for governments across the EU. EU Sovereign Cloud enables commercial and public sector organizations to place sensitive data and applications in the cloud in alignment with EU data privacy and sovereignty requirements.

What is the future of modern cloud applications, hybrid and multicloud in India?

As India continues to strengthen its digital prowess, cloud applications will play a pivotal role as it has the potential to transform the Indian economy and make it more resilient and inclusive. The Indian government has been actively promoting the adoption of cloud technology through various initiatives. As cloud infrastructure becomes more robust and secure, government support and investments in this sector will likely boost the growth of hybrid and multi-cloud applications. Cloud applications have seen an upward trend across sectors like financial services, healthcare, manufacturing, etc. New age models like hybrid cloud allow businesses to maintain sensitive data on-premises while leveraging the scalability and flexibility of public cloud services for other aspects of their applications. The future is multicloud. Today, customers want flexibility and hyperscalers can provide well-integrated cloud ecosystems, allowing them to distribute data across various cloud providers. We recently announced the findings of our multi-cloud survey for India, a study aimed at understanding how IT leaders think about and use multi-cloud in their IT strategies. As per the study, 98 % of enterprises surveyed in India use or plan to use at least two cloud infrastructure providers, with 33 % using four or more.

Enterprises must select the best multicloud and hybrid options for their specific workloads, and none of them should bind them to a technological island. Oracle invests significantly in product and service innovation to provide customers with the variety and flexibility they require. Giving our partners and customers more choice has long been our top priority.

How all the above will change in the new age of AI with the advent of Generative AI. How is Oracle seeing Generative AI technology significantly impacting its customers in India?

Artificial Intelligence has rapidly advanced over the years, fundamentally changing how we interact with the world. AI and this new evolution of Generative AI are transforming businesses at a rapid pace. As per a Boston Consulting Group (BCG) survey, 60% of Indian executives are optimistic about the impact of Generative AI on the workplace. Generative AI models can assimilate knowledge from many sources and use it to automate tasks and enhance human creativity and productivity. Our philosophy with AI has always been that it should augment human intelligence, not replace it. Our strategy is built around the reality that enterprises work with AI through three modalities: Infrastructure, models, and services, and within applications. Oracle has developed robust, generative AI services for organizations in collaboration with Cohere, a leading enterprise AI platform. This collaboration aims to automate business processes, improve decision-making, and enhance customer experiences. We recently announced an addition of generative AI-powered capabilities with Oracle HCM to enhance efficiency and streamline HR processes for candidates, employees, managers, and recruiters. 



THE ROLE OF GENERATIVE AI IN INDIA'S FUTURE

India's "youth bulge" is expected to last till 2030 according to UNFPA projections, and this presents a golden period in any country's existence where the youth can embrace GenAI to drive innovations. Amit Choudhary, Chief Operating Officer, Wipro Limited, explains.

Over the past few decades, digitization has been on everyone's radar, and this has given rise to the question: now that so much has been digitized, what needs to be done with all this data? (Note that this data is much more than our traditional understanding of the term, i.e., numbers.) As a natural next step, this wave of digitization was followed by advances in AI that have continued at breakneck speed and, over the next few years, it will become more integrated in our lives and the way we shape our careers.

Though we may not realize it, AI has already been part of our daily routine while remaining invisible to us. Personalized product recommendations and AI-enabled voice shopping help elevate our experience and are perfect examples of how largely unaware people are about AI integration.

The emergence of generative AI (GenAI) should be seen as a "natural evolution" of this interaction, where the AI moves beyond operating from the shadows and becomes our active companion; helping us to better navigate our lives. The popularity of some mainstream GenAI tools has already highlighted the true potential of AI in helping with everyday tasks and elevating us to new levels of productivity.

The reality of the new age of AI is here, and we must embrace it, or risk being left behind. This expectation becomes even more critical for India as the country has one of the youngest populations and the largest IT workforce in the world. India's "youth bulge" is expected to last till 2030 according to UNFPA projections, and this presents a golden period in any country's existence where the youth can embrace GenAI to drive innovations.

The India of today is constantly innovating and evolving with the times, giving us a significant head start in solving diverse societal problems proactively. Ever-increasing investments in the country's digital public infrastructure and deep 4G penetration are some examples of India's technological advancements. India truly has the potential to be one of the key beneficiaries of this massive technological shift that is AI — if it can enact the changes needed to succeed in this new environment.

With every change comes opportunity

Throughout history, as much as there have been camps bemoaning the advents in technology, or the pace of change, we humans have always found ways to adjust, adapt, and thrive in the face of change.

When computers came along and replaced the typewriter, we all thought those who had made a profession out of typing fast would go into oblivion. We now know that that's not what happened. We all learned to work with computers, which were able to do a lot more than what typewriters did, and we all became better, smarter, and faster for it.

The emergence of GenAI presents a critical turning point for companies and whole industries, especially for India, whose large engineering workforce has become an engine for the world's technology needs.

In the event of such a "strong skill shift" for the workforce, it is imperative that Indian companies, the government, and business leadership put in place the governance structure, the development initiatives and the necessary training to capitalize on the opportunities created by such a change.

Taking advantage of change requires an agile mindset and a renewed focus on upskilling and reskilling

GenAI, as a technology, will transform how work gets done and reshape how humans interact with technology.

It will significantly enhance our productivity and provide new opportunities to apply thought, emotional intelligence and critical thinking to tasks that were previously either fairly repetitive or time consuming.

Let's take coding as an example. GenAI-powered systems will become "coding buddies" to developers, opening up a sea of opportunities. Code developers will be able to improve their processes by using GenAI to write more basic code with increased speed and accuracy, and even automate repetitive tasks such as testing. According to Gartner, by 2025, over 80 % of product development will employ GenAI for code generation, and developers will become "orchestrators" and/or "validators" of the generated code.

INDIVIDUAL, SOCIAL, TECHNICAL AND ENVIRONMENTAL IMPACTS OF THIS NEW TECHNOLOGY MUST BE CONSIDERED EVERY STEP OF THE WAY, WITH AN EYE TOWARD PRIVACY, SECURITY, FAIRNESS AND TRANSPARENCY.

Further, as new advancements get introduced, we will start to see the rise of new types of roles and competencies, which will be necessary to work alongside of GenAI.

While the technology is still in its nascent stages, its potential to impact most, if not all industries, is clear. Getting ahead of this change will require the broader business community to act now.

Among the actions that India will need to take are:

- Academia will need to proactively recalibrate the curriculum to account for GenAI. A passive approach will lead to students exploiting the tool for shortcuts, while an active approach could see it being used as a part of coursework which helps students familiarize themselves with the technology from the get-go. India's Central Board of Secondary Education (CBSE) has initiated the integration of AI in education, with AI being offered as an elective subject from the 8th grade onwards.
- Companies will need to invest in training their workforce to handle the technology responsibly, and also prevent its misuse at the same time. In the meantime, companies will need to equip their employees with the thought process and the skills to be able to actively collaborate with AI systems and augment their decision-making process.
- Non-tech industries will need to account for the emergence of GenAI. They will need to evaluate the use cases for GenAI and map out near and long-term AI plans, thereby accounting for existing knowledge gaps. An example of this is India's steel industry, which can leverage the technology to discover more potent varieties of steel with wider application scenarios.

Responsible AI will need to be at the core of all decisions and actions

The benefits of GenAI are far-reaching and potentially disruptive.


With every new technology, comes a whole set of opportunities and risks. To harness the former, businesses, governments and NGOs will need to work together to mitigate the latter.

Responsible AI must be placed at the heart of all decisions concerning the development and implementation of AI. Businesses must develop new governance processes and policies that ensure AI applications are responsible and ethical.

The lack of common standards across geographies (at least so far) means governments around the world will need to work up their own regulations to ensure the technology is advancing ethically and equitably. India's new landmark Digital Personal Data Protection (DPDP) Act requires any company dealing with data in a digital format to have security safeguards in place to prevent breaches of any kind. This 'privacy by design' approach ensures a sense of trust amongst stakeholders and can even accelerate growth opportunities.

Individual, social, technical and environmental impacts of this new technology must be considered every step of the way, with an eye toward privacy, security, fairness and transparency.

Every technology comes with its own excitement and challenges. How we leverage it defines whether it becomes a boon or a bane for us. India has been investing in its digital infrastructure for more than a decade and is very well positioned to leverage this new chapter with success.

GenAI tools, however powerful, are only as good as the people that use it; the scope for further evolution lies in the future. While an irresponsible user may get caught in a whirlpool of problems, a pragmatic user can unwind the hidden potential of this technology. The old adage of *the teacher will appear when the student is ready* ties into this perfectly, and the ultimate decision lies in the hands of the people to own the future or not, to be the ones leading the change or merely being followers. 

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A portrait of Natarajan Radhakrishnan, President and CIO of Hinduja Global Solutions. He is a middle-aged man with thinning grey hair, wearing black-rimmed glasses, a white collared shirt, and a dark blue pinstriped suit jacket. He is smiling slightly and looking towards the camera. The background is a plain, light grey.

WE CAN BE THE R&D LAB OF THE WORLD

Natarajan Radhakrishnan, President and CIO, Hinduja Global Solutions, talks about the latest tech and industry trends, the importance of using data responsibly, the disruptive power of Generative AI, the three Normals and how the country is placed in its India 2047 Mission. Edited excerpts from a comprehensive video interview...

O n the latest trends...

We used to talk about the technology and IT services industry on one side and BPM on the other: The skills required, the way services were delivered and client expectations. These were dramatically different between the two. But that line is now going away, and it is becoming one continuum. Today for delivering BPM and customer experience services, lots of technology is needed. Similarly for delivering technology services, you need process experience.

ChatGPT has become a generic name even though it's a brand. We also have Bard and other large language models coming. This will fundamentally alter the way customer experience services are delivered. Gen AI enabled chatbots and conversational bots keep learning on the job and build a knowledge repository over a period. Customer experience is becoming much more seamless due to that.

Another interesting thing is voice and visual search. You can have voice clips and find out where they originated from. When you see a particular visual, you want to know what that product is and who manufactured it. Earlier it was very difficult, but today you have visual search.

Then there's cybersecurity. Every year exponentially number of cybersecurity incidents and threats are increasing. It is immense and an unbelievable growth for me. You can have all kind of defenders, virus protection etc, despite that there is always an incident.

There are some existing concepts which continue to be robust. There's personalization and hyper-personalization. Earlier we were segmenting the market, for example some people like sedans and some like station wagons. But that level of segmenting is not enough. We need to personalize for an individual. You can't have a group of people and make an offering for them. You need to personalize the offering to suit the tastes of the individual.

Finally, how to integrate the omnichannel? How to ensure the same experience in every channel, whether you buy something in a shop or through the Internet or through

a mobile app. The experience must be identical. It must be high-quality and very similar.

Many of these technologies must be developed in India. I see exciting times for our tech talent. Now there are so many opportunities around new tech. We need not be the back office of the world or workshop of the world. We can be the factory of the world. We can be the R&D lab of the world.

The importance of using data responsibly...

We are constantly mining for data. This means that you also need to make sure that data is responsibly used. That is where regulation comes in. Most restrictive regulation is in the EU, the GDPR. China has its own PIPL. India passed the Personal Digital Data Protection Act. It tries to borrow the best practices from different countries. For example, the user's data can be used only with consent. It must be unconditional, voluntary and specific. The user further can withdraw consent whenever he feels like.

Then you have the data fiduciary. Recipients of the data need to exercise total safeguards. It can be used only for the purpose it is intended. Data in general cannot go out of the country. In case of multinationals, they can send data subject to two conditions. Government has the power to limit sending data to certain hostile countries. It can only be used for the purpose of taking decisions with respect to the India business.

There are some exemptions for startups because they are not in a position of spending this kind of money whereas for large players like significant fiduciary companies, they need a data protection officer just like a CIO or CTO. All in all, it's a well thought out regulation. There are some concerns about overreach. Data governance is also covered in all of this.

Has the New Normal settled in versus the old?

I actually have three Normals: The Old Normal, the Covid Normal and the New Normal. Old Normal was when everybody was coming to work despite struggling with the

I SEE EXCITING TIMES FOR OUR TECH TALENT. NOW THERE ARE SO MANY OPPORTUNITIES AROUND NEW TECH. WE NEED NOT BE THE BACK OFFICE OF THE WORLD OR WORKSHOP OF THE WORLD. WE CAN BE THE FACTORY OF THE WORLD. WE CAN BE THE R&D LAB OF THE WORLD.

WE ARE VERY GOOD IN TERMS OF BASIC SKILLING. WE MAY HAVE SOME WEAKNESSES IN ADVANCED SKILLING. IF I WANT A PROGRAMMER, I AM CONFIDENT I CAN GET A PROGRAMMER. WE ARE THE ONLY COUNTRY WHERE WE CAN HIRE 300,000 PROGRAMMERS IN A YEAR. NOBODY ELSE CAN DO IT.

traffic. Covid times it became completely work from home. Today we have a hybrid working policy. Most companies have decided to call people back three days a week. Some are also saying two or five days, but nobody wants to come to office five days a week. We have perfected the art of working from home.

But still there are a few things which require face time. For certain complex problem solving, people must be in the same room. Face time is also required for team building and camaraderie.

Earlier all our training was classroom training. We also sent people out for training. During the pandemic there was lots of e-learning. Learning platforms became popular. So today it's a combination of physical learning and e-learning. Pre-pandemic, 6-10 days a year was the industry average for learning. During the pandemic this dramatically went up. New Normal is more than the Old Normal but less than the Covid Normal.

The pace of digital transformation has increased. Earlier what used to take 12-18 months today is taking 3-6 months. Technology, in areas like mobile development, is changing every 6 months. People must be nimble. You should be willing and able to learn new technologies very fast. The most important part is learnability. You are constantly skilling and reskilling yourself. That is the New Normal. 15 years with one technology is the Old Normal.

How much will ChatGPT and Generative AI disrupt?

The headline answer is that it will disrupt big time. The pace of change on the Large Language Model side is frightening. They are all becoming all-pervasive, intelligent, smarter and so on. I see multiple cases in which it will disrupt and, in most cases, improve the business.

The way you engage with your customers, deliver services and handle complaints will change. Post purchase services and help desk is bound to become extremely superior. LLM models will play a big role in the


creative space like movie and drama scripts. Then there's summarization in the healthcare space, intelligent supply chain, digital art and digital agriculture. There are more and more use cases coming up every day.

Regarding India's Mission 2047...

All the predictions about India's economic growth are all understated. The reality is going to be bigger. India is the only country with its demographic dividend intact. China does not have it anymore. We still have a reasonably young population. Second, we are very good in terms of basic skilling. We may have some weaknesses in advanced skilling. If I want a programmer, I am confident I can get a programmer. We are the only country where we can hire 300,000 programmers in a year. Nobody else can do it.

The third thing that encourages me is reasonably new. We were always good in applied research, applied programming and things like that. Now there is an emergence of science education. The quality of pure science is going up and there is much more focus on R&D. There is an emphasis on PhD programmes, IITs and other institutes.

Governance is also becoming stronger. The central and state governments are becoming completely digitized and superior. The regulatory framework is becoming much more sophisticated. We are getting out of colonial procedure-oriented regulation to a management monitoring orientated one. The data protection act is a good example. We are also becoming an innovation hub.

Most of the foundational pieces are in place. I am not even thinking of 2047. India will probably be called an advanced country and in the Top 3 economies in the world in the next 10-15 years. There are a couple of cautionary elements too. This will need superior infrastructure. Advanced education is an area in which we need to make some more progress. 

(Catch the complete interview at the CyberMedia Series YouTube channel)

RANKING OF TOP 100 ENGINEERING COLLEGES IN INDIA ON “DIGITAL INDEX”

December 2023 edition



This December, Dataquest is coming up with the market analysis of the higher education sector primarily engineering colleges in India on basis of Digital Index”. Digital indexing will evaluate the overall “**DIGITAL INFRASTRUCTURE, DIGITAL TEACHING & LEARNING PRACTICES, ADOPTING NEW TECHNOLOGIES, NEW AGE SKILL DEVELOPMENT & SUPPORT, ATTRIBUTING NEW DIGITAL CULTURES** among students & teachers.

KEY HIGHLIGHTS OF DIGITAL INDEX

- 100+ Engineering colleges to be surveyed
- Digital teaching and learning practices
- Digital Infrastructure
- Digital skill development
- Digital environment and culture
- Attitudes to digitalisation
- Interviews of Dean/Directors, leading HR Leaders, CEO's/CXO's.

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To be part of the Survey and Get your Copy, Write to:
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A LONG LEGACY OF ENGAGING WITH CIOs

Dataquest was launched in 1982 when most Indians hadn't even heard of IT. Since then, it has been chronicling the role of the IT Manager to the CIO for decades now.



The CIO Handbook 2012 that got published in the Dataquest March 31 edition was a power packed one that saw the interviews of dozens of global and Indian leaders. The CIOs from US Department of Transportation, Daimler AG, Standard Chartered Bank, Deloitte, Reliance Communications, Shoppers Stop etc participated.


Snapdeal had just been established and Co-founder and CEO Kunal Bahal talked about the new company's strategy. An interesting quote was: We are absolutely technology savvy and data paranoid. Data continues to be a key talking point when it comes to ecommerce firms. He also said: I am hopeful that this e-commerce industry with a size of \$0.5 bn will grow up to a size of \$15 bn in the next 5 years. Well last year we crossed \$80 bn and optimistic estimates show it crossing \$150 bn in 2026 itself!

Jonathan Lu, CEO & Executive Director of Alibaba.com talked in detail about the SME sector and how India

was becoming both a supplier and a buyer market. Sir Richard Hadlee, the ace New Zealand cricketer, promoted IT trade between the two countries and also talked about tech and sports. Dataquest also covered HP's 2012 first quarter results in the US when Meg Whitman was the CEO.

That year the CIOL C-Change edition for CIOs was held in Kollam. Sadguru Jaggi Vasudev, founder, Isha Foundation and Dr N Santosh Hegde, former justice, Supreme Court of India and former solicitor general were some of the star attractions.

Later in the year, in the October 15 edition of Dataquest, we interviewed the interview of Patrick P Gelsinger, the CEO of VMware. VMware has seen great success of late, becoming one of the tech companies to have a valuation of \$100 bn plus. Since then, Gelsinger has moved to Intel.

We are reproducing the cover of the March 31, 2012 Dataquest edition and the Gelsinger interview in the same year as part of our 40 years celebration. 

DATAQUEST

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The Business of Infotech

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Ambassador, New Zealand Trade & Enterprise

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CEO, Alibaba.com

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CIO, Shoppers Stop

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CEO, William Penn

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COO, IndusInd Bank

KUNAL BAHL

CEO, Jasper (Snapdeal.com)

SUBODH SATYAWADI

CEO, GVK Emergency Management and Research Institute

INSIDE



Handbook 2012





'In a cloud you need to re-structure your IT organization'

Patrick P Gelsinger, the new CEO of VMware, the company that grew from zero to \$3.8 bn in 14 years (he was heading EMC earlier, and was Intel's first CTO before that) talks about his priorities, how he will build up the cloud momentum, and what he wants to do with India. Excerpts

—Patrick P Gelsinger
CEO, VMware

After Paul Maritz, as the new CEO what new will you bring to the table at VMware?

Or will you just be pushing your predecessors plans?

It is not that VMware has a problem. Paul has given VMware a solid strategy and the company is in a very good state. So job one for me—smooth transition. Actually Paul has spoken to employees, customers, and partners, and so have I. And everybody is saying, “Very good, let’s get back to work”. Also since the company is performing well, so far everything including the transition has been pretty good. It’s not like the Marissa Mayer of Yahoo! who has to transform the company. Those are hard situations and they have to take some bold actions. In our case, there are aspects that will require strong focus. We have laid out a very bold vision like the software defined data center, the new company that we have acquired which needs to be operationalized, the 3-layer transition (from PCs to user devices, from office applications to new apps and big data, and from servers to cloud) that needs more refinement. Paul in many respects was a reluctant CEO. He loved strategies, he loved technology, and directions, but he was not an operations guy. VMware is a company of 13,000 people, an operations pervade everything we do. VMware is like a clumsy adolescent that has grown up too fast. As a company it had extraordinary growth but some of the operation disciplines and maturity need more work. That has to be refined, accelerated, and made more mature.

Since you are talking so much about the need, as the new CEO, to focus on ops, what are those specific areas that need special attention?

For instance, we have laid out our

“When we are working in silos we are looking at 5-10% efficiency and we want to move to 70-80% with cloud. Those are the kind of numbers we are talking about”

vision on software defined data centers. It is a good and bold vision, and we are all excited about it. For that strategy we announced vCloud Suite that requires packaging and delivering all its components including common interface, single-sign on, upgrade policies, and all that is a big engineering task. Similarly, there are so many other offerings with so many different components that have to be packaged together for our partners and customers. We are now trying to convert into single product offering. For all this a lot of engineering and operational discipline will be required.

CIOs are now getting disillusioned with cloud, specially because of its promise to bring down costs. CIOs believe that with cloud you only shift costs from capex to opex. Actually they are saying that cloud is more expensive. How do you plan to convince them?

I would agree with some part of the statement and disagree with some. If you see virtualization as a precursor to cloud, where one server has replaced 4 servers, then we have clearly shown the huge advantage. Opex improve-

ments are far more operationally dependent. If I keep all the people operating in the same way as they were operating in a silo structure, how can they be operationally efficient, because under cloud the structure is changed. Earlier there was a database team that owned database hardware and processes, and HPC team that ran and owned all HPC hardware, the networking team, and the apps team, and so on. They were all working in silos. But in a cloud environment you need to fundamentally re-structure your infrastructure team. Here no one will carry a networking designation, and everybody will be part of this infrastructure team. So you need to re-organize the team and set up new disciplines to take advantage of the cloud architecture. That is why one of the key announcements we have done is Cloud Ops IP that will help organizations in building, operating, staffing, and measuring public and private cloud infrastructure.

This restructuring or re-organizing business of the IT team to really be able to take advantage of cloud seems to be a complex business. Is this easily doable or will it be a tall order?

My answer would be yes and yes. As it is with organizational behavior issues, they are often hard to implement, but once done they are well accepted. We just finished this at EMC. The company is almost 90-95% virtualized. I rode over the IT department there and drove them crazy to get it implemented. Now EMC will start its cloud journey. Earlier 76-78% of the IT budgets was spent on keeping the light on the remaining on news apps and innovation. Today at EMC, just 60% is going to be spent on keeping the light on, and 40% on new apps and innovation.

And for all of that has come out of operational savings. This is spectacular, and our goal is to get to 50-50. My point is that if you keep running everything as same and then build a layer of cloud on top of it, you don't get the benefits.

But don't you think this transition will be tough?

While there are these early adopters to cloud—who are moving because they have someone like me beating them up, or a very tech savvy and visionary CIO, or business conditions demand it—there are many who are not sure how to get going. That is why we have announced the Cloud Ops Forum which will guide them. It gives a blueprint for the transition, an org chart for them to move to cloud. It tells them about the skills assessment, and what new skill-sets they need to put in place. And we also give them certification for that. The Forum will tell them about the new practices they will need to put in place, and the support they will require for that.

Why do cloud vendors keep harping about cost savings from this technology, when a more compelling argument in its favor is how they can move a big chunk of their IT budget from regular maintenance to new apps and innovation?

That is the holy grail. I have not met any CEO recently who has said he is going to increase his IT budget in the coming year, keeping in mind the economic scenario. In fact, most of them are saying that if I am spending 4% on IT, I need more value from that spend, and if I can take it to innovation I will be excited.

One of the reasons often sighted for the slow take off of cloud is the absence of large

public cloud service providers, because they build economies of scale and offer it to their customers. Will that not continue to be a big hurdle in making cloud popular?

Today there are lots of IT companies that have the scale, it's just about operating more efficiently. If you look at the philosophy of cloud, it's all about abstract, pool, and automate. Which means create the level of abstraction, pool all the resources together, and then automate them. On this side, when we are working in silos we are looking at 5-10% efficiency and we want to move to 70-80% with cloud. Those are the kind of numbers we are talking about.

In many of the emerging economies including India, small to lower end of mid-size enterprises often use unlicensed software or pirated software. If they have to move to cloud, they will have to pay. How to you plan to enroll them, or is that market not on your radar at all?

Even pirated software is not free because someone has to run it, and someone has to maintain it. It might be free in terms of its acquisition cost, but it is not free in terms of its operation cost.

The beauty of the cloud is that you have to neither acquire it or operate it, you get it as a service. As a technology company the challenge for me is to find ways where innovation is faster and more valuable than free. I have to give more value than what those offering it for free give. Also, if there is an alternative from the open source community that is free, then customers will want that and say since it is free I will pay only for the support. But that is not a compelling business model. Often open source is a collection

of diverse pieces, and virtualization and cloud technologies and offerings are hard and complex technologies so offering it for free will not be easy.

VMware had acquired a company called WaveMaker some time back to get into the PaaS space? What is the news there, and where is PaaS on VMware's radar?

Yes, PaaS is important for us. After WaveMaker we are active with cloud foundry. What we have done with cloud foundry is very unique. It is the only multi-cloud PaaS available today. Cloud foundry is an open PaaS, providing a choice of clouds, developer frameworks, and application services. Still in its beta stage, I think, this is a very bold move that VMware has made with broad industry support. The unique thing about cloud foundry is that it makes it faster and easier to build, test, deploy, and scale applications. It is an open source project, and will be available through a variety of public clouds including Amazon. And next year we will allow it to run on private clouds as well. It is a very strategic asset for us in the space. We already have over 30 partners building on the platform.

As the new CEO of VMware, how will you view the Indian market? Will it be business as usual or will there be something different and new for India?

You see VMware is not strong in BRIC countries, and also not strong in the low end and emerging economies. I have to put the focus on where the money is going. That is very much on my agenda, as I have to keep the company growing. ■

IBRAHIM AHMAD

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The author was hosted at San Francisco by this company

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THE POISON IS NOT IN A DART. IT'S IN THE AC DUCT.

Data Poisoning, the sly and silent monster, is already around. If we are not worried already by the glimpse that some incidents have provided us; let's steal a peek at the sheer power of data poisoning. Looks like - it can ruin companies, public systems, countries and human lives - with the push of button.

Imagine you enter your office and see signs of a failed robbery. Till yesterday, you could let out a sigh of relief. But today, if there are signs of a break-in but the gold in the locker is sitting peacefully, it's a bigger alarm to pay attention to. A botched burglary is a horror-movie in the making.

Because chances are that the burglar had sneaked in with a different purpose. There could be poison mixed in that water-cooler or the pudding in the fridge. Alas, while a household can quickly empty the refrigerator, companies and government bodies cannot throw away all their data that easily. It's tricky. And yet, a ticking bomb.

A threat that's not sitting far away. A big train accident out of nowhere. A dangerous brake-failure in all cars of a new model's batch. A fatal drug that is rolled out without the company's knowledge and is suddenly sitting on many counters. A mess-up with the stock market that crashes the financial pulse of an entire nation. A DDoS attack that causes a huge outage and the dominoes fall everywhere – whoever uses that Cloud.

Cyanide or Cool-Aid. It's hard to tell anymore when we look at a bottle of data. Data poisoning is the next big threat vector coming upon us. And it's neither an accident, nor a small bug. To twist the knife further- it's gonna get very easy and cheap for the bad guys. And very tough and all-high-stakes for the good guys.

SNAKES DRESSED AS SNAILS

As per media reports, just as recently as early 2021, a hacker broke into a Florida water treatment plant and elevated the sodium hydroxide, or lye, in the water to an unsafe level. The operator quickly spotted the danger. But is it going to be that easy and effective always? Especially as AI, ML and algorithms (that feed on nothing but data) start running our world in massive ways? What if someone brainwashes them? Or poisons them?

Bringing critical infrastructures down with slithering, and silent, attacks is not a movie-script anymore. Microsoft's investigation into Volt Typhoon's malicious activities reveals how critical infrastructures can be compromised using Living-Off-the-Land (LotL) cyberattacks, avers Sean Duca, Palo Alto Networks - VP and Regional Chief Security Officer for Asia Pacific & Japan. "This technique involves attackers leveraging existing tools and utilities on a compromised system for malicious activities. The tools may include PowerShell, WMI, command-line interfaces, and batch files."

Data tampering and poisoning are serious threats to the integrity and security of enterprise data, affirms Dattaraj Rao, Chief Data Scientist, Persistent Systems. "They can occur in various ways, including hacking, malware, and social engineering. When data is tampered with or poisoned, it can lead to several problems, like financial losses, identity theft, and damage to reputation. In addition, tampering with data can result in incorrect or false information being disseminated, which can have detrimental outcomes."

Data poisoning usually refers to situations where the training data used in ML models is intentionally corrupted by a hacker, if we see it from the gaze of Cybersecurity expert Prof. Lawrence A. Gordon, EY Alumni Professor of Managerial Accounting and Information Assurance, Robert H. Smith School of Business, University of Maryland. "Thus, in terms of the CIA (Confidentiality, Integrity, and Availability) triad considered in cybersecurity, data poisoning is a form of data Integrity cyber breach. Given the growing importance of ML models (which fall under the umbrella of AI), it seems (at least to me) that data poisoning should be a serious concern to organizations."

HOW DOES THAT CUTTLEFISH GET INSIDE?

Duca explains how data-tampering and data-poisoning



"THEY CAN OCCUR IN VARIOUS WAYS, INCLUDING HACKING, MALWARE, AND SOCIAL ENGINEERING. WHEN DATA IS TAMPERED WITH OR POISONED, IT CAN LEAD TO SEVERAL PROBLEMS, LIKE FINANCIAL LOSSES, IDENTITY THEFT, AND DAMAGE TO REPUTATION. IN ADDITION, TAMPERING WITH DATA CAN RESULT IN INCORRECT OR FALSE INFORMATION BEING DISSEMINATED, WHICH CAN HAVE DETRIMENTAL OUTCOMES."

- Dattaraj Rao, Chief Data Scientist, Persistent Systems



"THUS, IN TERMS OF THE CIA (CONFIDENTIALITY, INTEGRITY, AND AVAILABILITY) TRIAD CONSIDERED IN CYBERSECURITY, DATA POISONING IS A FORM OF DATA INTEGRITY CYBER BREACH. GIVEN THE GROWING IMPORTANCE OF ML MODELS (WHICH FALL UNDER THE UMBRELLA OF AI), IT SEEMS (AT LEAST TO ME) THAT DATA POISONING SHOULD BE A SERIOUS CONCERN TO ORGANIZATIONS."

- **Lawrence A. Gordon**, EY Alumni Professor of Managerial Accounting and Information Assurance, Robert H. Smith School of Business, University of Maryland.

works. "A typical LotL attack consists of three phases. First, in reconnaissance, the attacker gathers information about the compromised system, including architecture, software versions, network configuration, and user privileges. This helps identify strengths, weaknesses, and potential exploitation avenues. Second, during the initial access phase, the breach occurs due to vulnerabilities in network devices or unsafe user actions like visiting malicious websites, opening phishing emails, or using infected USB drives. These contain the attack kit with a fileless script."

Third, as Duca tells, the malicious activity execution involves escalating privileges, exfiltrating data, and modifying system configurations. Do note that achieving malicious goals while flying under the radar is vital to this operation. Unless the fish camouflages itself well, the attack will not work.

Aaron Bugal, Field Chief Technology Officer - Asia Pacific and Japan, Sophos highlights a big danger that lurks way deep, and behind, many cyber-attacks. "Far too often when conducting security event incident response functions, it's found that not only was the integrity of the data broken, backup systems storing copies of the data were also destroyed and or deleted – making it very hard, if not impossible, to validate if data remaining is reputable/original." It's ironic but true. Data tampering can only be attributable to a security event with a verifiable and immutable copy of the original document.

ZOMBIE ANTS- CONNING AI – NOT TOUGH EH!

Prasenjit Saha, Executive Vice President and Global Cyber Security Business Head at LTIMindtree points out that while AI has become a great enabler in managing cyber risks – be it contextualizing and augmenting detection capabilities, predictive threat intelligence, threat intel-led

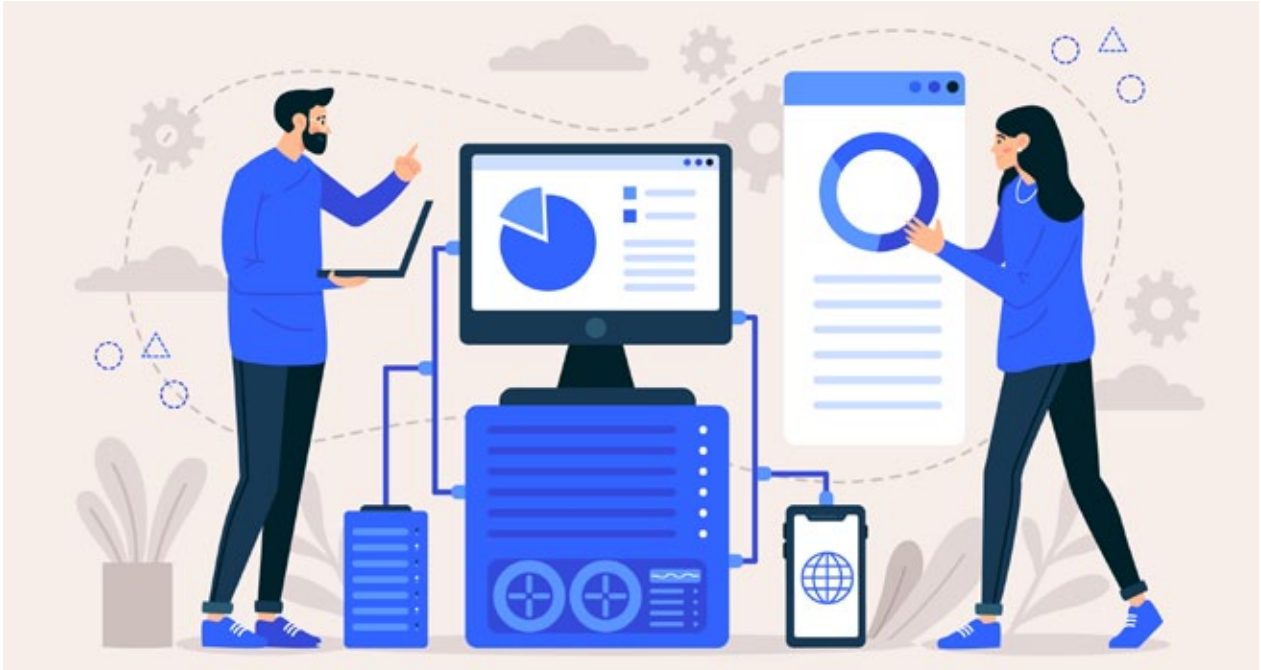
hunting and mitigation—it has also increasingly become a serious source of mishandling or threats. "Malicious actors are using AI prompts and other invasive codes to bypass security systems and exploit vulnerabilities in AI models leading to unauthorized access to sensitive data, theft of intellectual property, and even misuse of autonomous systems."

So would jail-broken AI be a practical threat?

Yes, agrees Rao and dissects how the approach is usually different than traditional software jail-breaking. "Adversarial attacks on AI systems are deliberate and malicious attempts to deceive or manipulate AI algorithms by feeding them misleading or malicious data. Adversarial attacks exploit the vulnerabilities in AI systems and can cause them to make incorrect decisions or predictions, leading to potentially harmful consequences. Today, with the advent of large language models (LLM) like ChatGPT, jail-breaking often includes ways to inject malicious prompts to make the LLM respond by violating ethical principles."

What's worrisome to know is that today, with a prompt injection, some LLMs may be manipulated to generate biased content, create phishing emails, etc. If enterprises are exposing their models via public endpoints, the vulnerability is even higher.

It's much more prudent to understand how AI is being used within your own organization, weighs in Bugal. "Although offensively-tasked AI will most likely become a threat in the future, organizations should be looking to understand how generative AI is being used by employees on company-issued devices and what data is being uploaded to them. This is an example of an insider threat, accidental intent, but the loss and or misplacing of information into a cloud service could be an infraction of self-governance and/or regulatory requirements."



The Anti-Dote is Here

- Regularly monitor and audit systems to detect any anomalies or suspicious activities that could indicate data tampering
- Invest in Responsible AI strategy to ensure ML models follow principles of accountability, transparency, reproducibility, security, and privacy
- Inputs to models, intermediate data, and outputs must be logged and monitored to identify any potential attacks and action should be taken to counter these
- Invest in training data filtering, robust learning, and using auxiliary tools
- Back up pure/verified data - Ruthlessly and consistently
- Train employees on detecting and reporting any suspicious activities and provide them with cybersecurity awareness training
- Work with cybersecurity experts to investigate the incident, determine the extent of the damage, and develop a plan for recovery
- Use AI-enabled advanced access management solutions. This way, security professionals can focus on intelligence and automation while letting the intelligence and automation manage information and events, thus, enabling near real-time detection and response
- Redefine the accountability model, adaptive and contextual control mechanism; and follow industry-leading cybersecurity, data protection, privacy frameworks
- Communicate transparently with stakeholders, including clients, partners, and investors, about the incident and the steps being taken to mitigate the damage and prevent future incidents
- Have a response plan that outlines the steps to be taken in the event of a data-tampering incident. The plan should include steps for containing the incident, notifying authorities and stakeholders, and restoring systems and data

Source: As told by various experts

"YOUR ORGANIZATION IS COLLECTING DATA AS A NECESSARY PART OF ITS NORMAL OPERATIONS THAT HAS POTENTIALLY NEGATIVE CONSEQUENCES. EVEN WORSE, THERE IS OFTEN NO AUTOMATICALLY "CORRECT" WAY OF RESPONDING TO THESE CONSEQUENCES AS BOTH TAKING AN ACTION, AND FAILING TO TAKE THAT ACTION COULD BE CONSIDERED INAPPROPRIATE DEPENDING UPON THE PRIORITIES YOU ATTACH TO DIFFERENT OUTCOMES."

Gareth Herschel, VP, Analyst, Research Engagement Services, Gartner

We can't talk about data poisoning without talking about 'dangerous data' which Gareth Herschel, VP Analyst, Research Engagement Services, Gartner defines very simply. "Your organization is collecting data as a necessary part of its normal operations that has potentially negative consequences. Even worse, there is often no automatically "correct" way of responding to these consequences as both taking an action, and failing to take that action could be considered inappropriate depending upon the priorities you attach to different outcomes."

HEDWIG AND ETHAN HAWK, WHERE ARE THOU?

Thankfully, anyone can be a Tom Cruise in this seemingly-impossible mission of spotting and disarming the dangerous guys. It's not going to be as easy as catching ransomware, but there's some place to start from – like network defense, pre-emptive boxing, and Ninja-speed pushbacks. And being brave and playing in a team.

Corporations, governments, and critical infrastructure providers must revise their cybersecurity strategies to address increasingly sophisticated threats, integrating host and network-based defences, Duca suggests. "For example, relying solely on endpoint monitoring may allow attackers to evade detection, but network-based defences scrutinise traffic patterns and unexpected communications. As a result, the most effective strategies employ endpoint and network-based defences in tandem, using insights from one system to enhance the other and work together to protect an organisation better."

Let's touch the part about being brave and working with others. Often, the problem with data tampering attacks is the lack of transparency in reporting, making it difficult to share knowledge and learn from past mistakes, Rao warns. "Enterprises should implement strong security measures such as firewalls, encryption, and access controls to prevent unauthorized access to their systems and data. Zero-trust strategy is recommended with logged

account activities rather than common admin accounts with shared credentials."

Staple and boring-sounding measures like back-ups and proactivity can be widely under-estimated—but can be just the clincher here.


"Making immutable copies of mission critical data and committing them to an off-line back (remembering the 3-2-1 data backup rule) is integral to a sound incident response plan." Stresses Bugal. "Without these offline backups and verified data, there's no way to establish legitimacy and trust of collateral data post a breach."

At the end-user level, implementing application whitelisting ensures that only approved and trusted applications can run on the network, adds Duca. "This proactive measure restricts the execution of unauthorised programs or scripts, mitigating the risk of LOTL attacks. LotL attackers also exploit known vulnerabilities in outdated software to gain unauthorised access. Therefore, automated scanning and updating systems across the network are essential to decrease risk."

WATCH OUT FOR THOSE MUSHROOMS

It took a clever and sharp-nosed John Snow to sniff out that the cause of a horrific Cholera outbreak was sitting in a water pump. We are scampering at a breakneck speed towards AI—and when we start drinking more and more from these digital-age water pumps, we have to become more and more alert about the venom that can get easily inside.

As we look forward to an AI-led future which will redefine how we live, work and play, we need to bring a security-first approach to AI to make it more trusted, fair, ethical, robust, accountable and transparent- the way Saha puts it.

Indeed! There's no room for another pandemic in this world. And definitely not for one brought upon by something as 'cool' as AI. Burglars can be dressed in tuxedos. But they are still burglars. 

Digital accessibility: A must for inclusion

The National Policy on Universal Electronics Accessibility was approved by the Union Cabinet in India on 3 October 2013. It's been ten years since. Looking at the all-important issue of digital accessibility on this occasion.



Ubiquitous digital access is seen as a prerequisite for inclusive, equitable and sustainable growth highlighted by G20 New Delhi Leaders' Declaration, United Nations Global Digital Compact, and Broadband Commission for Sustainable Development; also under Digital India Programme, National Digital Communications Policy, National Broadband Mission and even state-level policies.

After all, digital transformation is underway everywhere – healthcare to hospitality; education to entertainment; communication to commerce; governance to gaming.

WHAT ABOUT PERSONS WITH DISABILITY (PwD)?

While digital access is necessary, it may be inaccessible for persons with disability (Divyangjan) – physical, neurological or developmental; temporary or permanent. The impairment can impact motor movement or mental faculties as well as in terms of intellectual or sensory perception.

Examples include but are not limited to limitations in vision, movement, speech or hearing as well as dyslexia, autism, cerebral palsy, etc. Every disability creates challenges or barriers, but multiple disabilities have a compounding impact.

ACCORDING TO THE GOVERNMENT OF INDIA'S OFFICE OF CHIEF COMMISSIONER FOR PwD, 2.21% OF INDIA'S TOTAL POPULATION AS PER THE 2011 CENSUS WAS DISABLED, IMPLYING THAT ON AVERAGE, ONE OUT OF 45 INDIANS WAS DISABLED. HOWEVER, ONE OUT OF EVERY 12 HOUSEHOLDS HAD AT LEAST ONE DISABLED PERSON!

EXTENT OF DISABILITY IN INDIA?

According to the Government of India's Office of Chief Commissioner for PwD, 2.21% of India's total population as per the 2011 census was disabled, implying that on average, one out of 45 Indians was disabled. However, one out of every 12 households had at least one disabled person!

Moreover, such data likely did not include persons with temporary disability caused by a fracture, hospitalization or even post-surgery.

POLICY LANDSCAPE FOR PwD?

Notwithstanding the fundamental rights to equality, life and liberty enshrined within the constitution, inequalities of different kinds continue to persist across various axes such as gender, income, caste, education and even disability. Affirmative action and positive discrimination have been used to address such inequalities through various laws, programmes and schemes.

The Persons with Disabilities (Equal Opportunity Protection of Rights and Full Participation) Act, 1995 came 14 years after the International Year of Disabled Persons (IYPD) observed in 1981.

Besides the National Policy for Persons with Disabilities in 2006, various schemes for scholarships, reservation, healthcare and travel concessions debuted. Braille publications have been delivered free of charge by the postal department for decades.

The underlying objective has been to ensure equal opportunity, protection of rights and full participation of PwD and provide them the requisite assistive devices and services based on the principle of 'Universal Design' so that they can lead a healthy and productive life with dignity within an inclusive society.

DIGITAL EMPOWERMENT & INCLUSION OF PwD?

Initiated around 2005, the Union government's project to

set up 100 Information and Communication Technologies (ICT) vocational training centres across the country did open job opportunities for PwD with IT skills. However, it could not address the monumental challenge of access, affordability, usage and adoption of digital devices and services by PwD at large.

Recognizing the need to eliminate discrimination on the basis of disabilities as well as to facilitate equal access to electronics and ICT, on 3 October 2013, the Union Cabinet approved the 'National Policy on Universal Electronic Accessibility' (NPUEA), following a multistakeholder consultation process. In addition to the Constitution, the 1995 law and the 2006 national policy, it also referred to multilateral proclamations including the United Nations Convention for the Rights of Persons with Disabilities ratified by India on 1 October 2007.

I had co-drafted the NPUEA, 2013 but admittedly, it remained largely persuasive in nature.

WHAT TRANSPIRED OVER 2013-2023?

The Rights of Persons with Disabilities Act, 2016 (RPwD Act) replacing the 1995 law was a major landmark in India. According to the Section 2 (ze), "universal design" means the design of products, environments, programmes and services to be usable by all people to the greatest extent possible, without the need for adaptation or specialised design and shall apply to assistive devices including advanced technologies for particular group of persons with disabilities.

While the Department of Empowerment of Persons with Disabilities administers it, Ministry of Electronics & IT (MeitY) may facilitate implementation of Section 42 that calls upon the central and state governments to ensure—Availability of all digital content in accessible format; Access to electronic media for PwD via audio description, sign language interpretation and close captioning; and, Universal design for electronic goods and equipment.

RECOGNIZING THE NEED TO ELIMINATE DISCRIMINATION ON THE BASIS OF DISABILITIES AS WELL AS TO FACILITATE EQUAL ACCESS TO ELECTRONICS AND ICT, ON 3 OCTOBER 2013, THE UNION CABINET APPROVED THE 'NATIONAL POLICY ON UNIVERSAL ELECTRONIC ACCESSIBILITY' (NPUEA), FOLLOWING A MULTISTAKEHOLDER CONSULTATION PROCESS.

Further, the Section 46 of RPwD Act mandates that everyone, whether Government or private should ensure accessibility within two years from the date of publication of the rules. Though the rules had been notified in 2017, the Bureau of Indian Standards approved IS-17802 for 'Accessibility for the ICT Products and Services' spanning 'Requirements' and 'Determination of Conformance', respectively in 2021 and 2022.

It has also been a decade since adoption of the World Intellectual Property Organization (WIPO)-administered Marrakesh Treaty in 2013. It eases the production and international transfer of specially-adapted books for people with blindness or visual impairments. India had ratified it in 2014 and it came into force effective 30 September 2016.

DOES 'UNIVERSAL DESIGN' BENEFITS ONLY PwD?

One-time password (OTP) and captcha are used to enhance security. While Gen Z digital natives often finish faster than they wink, an elderly person with some motor difficulty or poor vision may be frustrated by repeated incidents of 'time-out' or simply locked out!

If a person with normal vision may be confused between the letter 'O' and the number 'zero' in a captcha, or, between 'the letter l' (lowercase of 'L') and the number '1' (one) just think of the challenges for a person with dyslexia! Remember Aamir Khan-starrer 'Taare Zameen Par'? Would it not help if the duration for such actions could be calibrated to users' respective situation and the captcha is in dyslexia-friendly font rather than a confusing 'eye vision test'?

Examples abound:

- A keyboard with larger keys not only enhances visibility, it also helps people with the 'fat finger' challenge.
- Use of 'Reverse contrast' makes reading of text easier for everyone, reduces the exposure to 'blue

light' for everyone and yes, is relatively less taxing on the battery.

- A ramp may help a person on a wheelchair or a stretcher but also those using crutches or sticks.

HOW DO YOU READ DIGITAL BOOKS?

While the idea of an eReader was first propounded way back in 1930 and many prototypes did debut from time to time, it was in the 80s that screen readers became commercially available but often used proprietary formats thereby limiting choice of publications rather limited.

Considering that Braille publications were voluminous, heavy, and costly, the technical standard called EPUB was developed to enhance and ease access to publications for people with visual challenges. However, its widespread adoption in screen reading software across popular operating systems for mobile phones, tablets, desktops, and laptops benefited everyone—even those with normal vision. In 2022, the leading global vendor of e-book readers incorporated EPUB replacing its own propriety file format!

THE WAY FORWARD?

The onus is now on all the stakeholders to ensure commitment to compliance to the tenets of universal design and accessibility through action in letter and spirit of the extant laws and policies by 2024. This must include but not be limited to implementation of relevant standards across the spectrum of digital products and services, websites, contents, and applications.

Time to 'Walk the Talk'! 

Deepak Maheshwari is a public policy practitioner and had co-drafted the National Policy on Universal Electronics Accessibility.



Cloud computing and data management reshape industries

Mastering cloud and data management strategies isn't merely an option; it's a mandate for any organization aspiring to flourish. During a conference held by Dataquest we looked at the future of technology.



From left to right: Shajy Thomas, Prakash Hegde, Minu Sirsalewala, Prathap R, Bhoopendra Solanki, and Sanjay Agrawal.

The conference held the promise of a wealth of insights into the realm of cloud and data management. It began with a special welcome from Minu Sirsalewala, Executive Editor at Dataquest. With her extensive knowledge and insights, she set the stage for a day filled with revelations and innovation.

Hemant Tiwari, Vice President and Managing Director of Hitachi Vantara for the Indian subcontinent,

took center stage to contextualize the modern data landscape. In today's fast-paced digital world, data has emerged as a strategic asset, wielding the power to drive decision-making, foster innovation, and fuel competitive advantage.

The staggering volume of data generated is mind-boggling. By 2025, it's estimated that we will create 175 zettabytes of data. To put it into perspective, one zettabyte is equivalent to one billion terabytes. This

WHILE MACHINE-GENERATED DATA IS READILY AVAILABLE, DIGITIZING LEGACY PAPER-BASED DATA REMAINS A SIGNIFICANT CHALLENGE.

exponential growth underscores the need for effective data management.

Companies that fully leverage the potential of data are positioned for success. They're 23 times more likely to outperform competitors in customer acquisition and nine times more likely to achieve above-average profitability.

The path to becoming a data-driven organization is not without challenges. Data is distributed across a multitude of platforms, from Edge to core to multi-cloud environments. Skill gaps in manpower further complicate the journey.

To thrive in this data-driven era, organizations must embark on a journey of modernization. This includes modernizing infrastructure, applications, and the data fabric that underpins it all. Choosing the right partner is crucial, one who can navigate the complexities and drive sustainable solutions.

Hitachi Vantara, with its extensive experience and commitment to sustainability, is at the forefront of this revolution. Their focus on creating solutions for a better society aligns seamlessly with the global shift towards a more sustainable future.

UNDERSTANDING DATA WORKLOADS

There was a panel discussion on panel discussion on "Strategies for Data Driven Outcomes. Minu moderated the panel. Shajy Thomas, Regional Head of Technology-Asia Pacific at Technicolor, emphasized the significance of understanding workloads in data management. He highlighted how different projects, like movies or TV shows, have unique requirements. While directors focus on storytelling, it's essential to acknowledge the complexity that arises on the backend, especially for organizations like Technicolor that deal with visual effects, animation, games, and immersive media. Leveraging their vast experience, they analyze data footprints to design infrastructure tailored to specific workloads.

BALANCING DATA ACCESSIBILITY AND PRIVACY

Bhoopendra Solanki, CIO at Sakra World Hospital, discussed the critical role of data in healthcare. He

emphasized that in the healthcare industry, data isn't just a resource—it's directly linked to saving lives. He pointed out that while machine-generated data is readily available, digitizing legacy paper-based data remains a significant challenge. Initiatives like the government's digital mission play a pivotal role in consolidating data, ensuring interoperability, and enhancing accessibility.

ENSURING CYBERSECURITY IN A DATA-DRIVEN WORLD

Prathap R, Head of Cyber Security (APAC & EMEA) at Texas Instruments, touched upon the evolving landscape of cybersecurity threats. He stressed the importance of adopting a security-by-design approach, incorporating measures from edge computing to storage. Prathap also highlighted the need for immutable backups to safeguard against ransomware attacks. He emphasized that cybersecurity isn't a one-time task; it's an ongoing, ever-evolving process.

SUSTAINABILITY IN DATA INFRASTRUCTURE

Prakash Hegde, Chief Digital & Information Officer at Larsen and Toubro Limited, emphasized the growing significance of sustainability in data centers. He shared practical steps, such as optimizing temperature settings and power consumption, to reduce environmental impact. Modernization is key, not just for performance and resiliency but also for sustainability. Prakash highlighted that sustainability has become a fundamental SLA in today's data-driven world.

AUTOMATING DATA GOVERNANCE AND COMPLIANCE

In the context of data governance, Bhoopendra Solanki touched upon the challenges posed by data compliances in the healthcare sector. He stressed the importance of role-based access control and continuous cybersecurity measures. He highlighted the need for modernization, emphasizing that cybersecurity and data availability are intertwined with infrastructure upgrades.

As organizations navigate the complexities of data infrastructure management, it's clear that a holistic



Darsshon Somaiya



Hemant Tiwari



Sujith Vijayan

approach is essential. Understanding workloads, prioritizing cybersecurity, ensuring compliance, and prioritizing sustainability are key components. The insights shared by industry leaders serve as a valuable compass, guiding organizations towards effective data management strategies in the digital age. In an era where data drives innovation, mastering its infrastructure is paramount for organizational success.

DATA-DRIVEN STRATEGIES AND AI INTEGRATION

The panel featured insightful discussions on various aspects of data-driven decision-making. Key participants highlighted the importance of refining data for meaningful insights, emphasizing that raw data is akin to crude oil – it needs refining to be valuable. They discussed the implementation of AI and ML in diverse sectors, including manufacturing, healthcare, and entertainment, illustrating how these technologies are revolutionizing processes.

Prakash Hegde provided a compelling example of data-driven decision-making in manufacturing. By profiling customers and analyzing their interactions, businesses can offer personalized services and optimize resource allocation. Bhoopendra shared how real-time data in healthcare is enhancing patient care, reducing response times, and ultimately leading to better outcomes.

Sanjay shed light on how AI is integrated into IT operations at Hitachi Vantara, enabling efficient resource

allocation and enhancing infrastructure management. He also emphasized that AI is now inseparable from data and is integral to its success.

Prathap highlighted a crucial evolution in the definition of data-driven decision-making. It's no longer limited to analyzing business transactions; it now encompasses understanding customer behavior, sentiments, and preferences to gain a 360-degree view. This shift has led to more informed strategies and improved services.

Additionally, the participants touched on sustainability efforts, demonstrating how data-driven insights can lead to environmentally conscious decisions. For example, by analyzing phone usage data, one organization was able to transition from desk phones to soft phones, reducing hardware waste and contributing to sustainability goals.

Overall, the event showcased how data-driven decision-making, powered by AI and ML, is reshaping industries and driving efficiency, innovation, and sustainability. The discussions highlighted that refining and analyzing data is crucial for organizations to unlock the full potential of their operations. The participants collectively emphasized the transformative power of data-driven approaches across various sectors.

EMPOWERING BUSINESSES WITH INNOVATIVE IT SOLUTIONS

Sujith Vijayan, Technical Lead - Data Centre Modernization,

BY ANALYZING PHONE USAGE DATA, ONE ORGANIZATION WAS ABLE TO TRANSITION FROM DESK PHONES TO SOFTPHONES, REDUCING HARDWARE WASTE AND CONTRIBUTING TO SUSTAINABILITY GOALS.

Cloud & Industrial Solutions, Hitachi Vantara, led the Technology Session, delved into the extensive range of storage solutions that stand as a testament to the company's commitment to meeting the diverse needs of modern businesses. The company offers an array of platforms, including the Virtual Storage Platform (VSP), that cater to a wide spectrum of requirements.

One standout feature is the support for multi-data center configurations, whether it's two, three, or even four data centers. This level of flexibility ensures that businesses can scale their storage infrastructure as their demands grow. Moreover, Hitachi Vantara's solutions are designed for efficiency. The company's tools eliminate the need for customers to specify the exact date and time of their data uploads. Instead, they offer a guaranteed two-to-one data reduction ratio, giving clients peace of mind in their storage endeavors.

CYBER RESILIENCY AND SCALABILITY

In an era where cybersecurity threats loom large, Sujith Vijayan emphasized the proactive steps taken by Hitachi Vantara to fortify their storage solutions. The company has integrated robust ransomware protection mechanisms, leveraging features like snapshots and a retention utility to safeguard data integrity. This means that in the event of a ransomware attack, businesses can seamlessly roll back to a known good configuration, mitigating potential data loss and downtime.

Furthermore, Sujith Vijayan highlighted Hitachi Vantara's emphasis on scalability through the development of their Virtual Storage Scale-Out (SSO) solution. This innovative architecture allows for the clustering of over a hundred VSP controllers, creating a highly flexible and powerful storage platform. With the ability to mix different storage models within a single cluster, businesses gain the agility to move workloads as needed, all while maintaining the required service level agreements (SLAs).

UNIFIED COMPUTE PLATFORM (UCP) SOLUTIONS


Storage is just one piece of the puzzle. Sujith Vijayan

introduced Hitachi Vantara's Unified Compute Platform (UCP) solutions, encompassing three main pillars: Converged Infrastructure (CI), Hyperconverged Infrastructure (HCI), and Rack-Scale (RS) solutions.

UCP Advisor, a powerful infrastructure lifecycle management tool, was highlighted for its ability to bridge the gap between virtualization and infrastructure management. This allows VMware administrators to seamlessly manage compute, storage, and networking resources, streamlining operations and reducing dependency on infrastructure teams.

Additionally, Sujith Vijayan emphasized Hitachi Vantara's recognition of the growing importance of application modernization. Through partnerships with VMware and Red Hat, the company offers container-based solutions, enabling businesses to adopt modern development practices and extract more value from their applications.

Sujith Vijayan's insightful presentation sheds light on Hitachi Vantara's pivotal role in equipping businesses with the tools they need to thrive in the digital age. With comprehensive storage solutions, cyber resiliency features, and unified compute platform offerings, Hitachi Vantara is not only providing solutions for today but also laying the foundation for a resilient and scalable IT infrastructure in the future.

The event provided a profound insight into the dynamic landscape of data infrastructure management in today's digital age. Industry leaders from diverse sectors shared invaluable perspectives on critical facets such as workload understanding, cybersecurity, sustainability, and compliance. It's evident that data has evolved into a strategic asset, impacting industries as varied as entertainment and healthcare. was a testament to the centrality of data in our modern world. It brought to light the intricate dance between technological innovation and the responsible management of data resources. As organizations chart their course in this data-driven era, the wisdom shared by these industry leaders serves as a guiding light, illuminating the path towards effective data infrastructure management. 



HEMANT TIWARI

Managing Director – India, Hitachi Vantara



DATA ISN'T JUST INFORMATION; IT'S THE CURRENCY OF INNOVATION

*Says: Hemant Tiwari, Managing Director – India, Hitachi Vantara:
Embracing data-driven decisions is not just a choice; it's the compass
guiding businesses toward a future of unparalleled success and innovation.*

In an interview with Hemant Tiwari, Managing Director of Hitachi Vantara India, we discussed the forefront of data management, analytics, and digital transformation. Hitachi Vantara stands at the crossroads of innovation, committed to not only protecting sensitive data but also unleashing its transformative power for businesses. Tiwari expounds on the pivotal role played by Hitachi Vantara in safeguarding confidential information, enabling IoT-driven insights, and charting the course for a data-driven future. The conversation also sheds light on the challenges and opportunities that businesses encounter in their digital transformation journeys, and how Hitachi Vantara's cutting-edge solutions are poised to address the unique needs of its diverse clientele. Moreover, Tiwari paints a vivid picture of a future where data-driven decisions reign supreme, driven by real-time insights, predictive analytics, and a democratized access to information across the organization. This interview offers a compelling glimpse into the evolving landscape of data-driven innovation and the pivotal role played by Hitachi Vantara in shaping the future of businesses through data.

Could you share how you ensure the protection of sensitive data while enabling organizations to harness its full potential?

We understand the potential of data and are committed to safeguarding sensitive information. We provide services

and solutions designed to expedite enterprise innovation and facilitate a seamless transition into a data-driven paradigm. Our solutions encompass data governance, data protection and data intelligence designed to keep confidential data secure.

Our cutting-edge analytics and Machine Learning capabilities equip organisations to distill insights from their data repositories, thereby facilitating thoughtful decision-making. Also, with more than a thousand global data science experts and a cohort of four-and-a-half-thousand data and analytics specialists, we assist organisations in conceiving and implementing strategies powered by data. Together, the technology coupled with the expertise of our data scientists allows enterprises to fully leverage the latent capacities of their data, all the while ensuring its invulnerability and alignment with rigorous regulatory benchmarks.

How does Hitachi Vantara enable organisations to extract actionable insights from IoT data? What industries do you see benefitting the most from these capabilities?

We are leading in IoT innovation, bringing together more than 60 years of IT and 110 years of OT expertise. We develop innovative IoT solutions to leverage our data management and analytics technology and engineer data-driven business outcomes for areas like manufacturing, smart spaces, transportation, and energy and utilities.

**MORE THAN A THOUSAND GLOBAL DATA SCIENCE EXPERTS
AND A COHORT OF FOUR-AND-A-HALF-THOUSAND
DATA AND ANALYTICS SPECIALISTS, WE ASSIST
ORGANISATIONS IN CONCEIVING AND IMPLEMENTING
STRATEGIES POWERED BY DATA.**

Our IoT solutions and services include Lumada DataOps capabilities for automated, AI-driven data operations for all our enterprise customers, as well as Lumada Industrial DataOps, which provides advanced analytics capabilities for industrial use cases. These solutions help us engineer the path from data to decisions in critical industries.

We enable organisations to extract actionable insights from IoT data by leveraging our data management capabilities and analytics to manage, assess, and provide insights from data in a matter of seconds. The industries that could benefit the most from these capabilities include manufacturing, smart spaces, transportation and energy and utilities.

How has the landscape of data management and analytics evolved? What role does Hitachi Vantara play in this transformation?

We understand the pivotal role of data in driving modern economies and shaping our digital strategies. Ensuring the possession of the appropriate hybrid cloud infrastructure is pivotal, as it provides the means to seamlessly consolidate data from diverse environments. This smooth integration establishes the bedrock for thorough analysis, enabling the extraction of invaluable insights. Consequently, the translation of these insights into actionable strategies unfolds seamlessly, guaranteeing the most effective utilization of your resources.

Our portfolio equips us to expedite data-fuelled innovation for our customers, effectively tackling their most pressing challenges across infrastructure and operations, cloud and data management, as well as application development and management. We seamlessly integrate these capabilities. It sets us apart in the market and empowers us to guide clients from the inception of an idea to its execution.

Could you elaborate on the challenges and opportunities you see for businesses adopting digital transformation strategies in the current market?

Digital transformation is an intricate and ongoing process, involving the integration of fresh technologies, processes, and business models to foster innovation and enhance business outcomes. While this journey presents numerous prospects, it's accompanied by several challenges that businesses must navigate to succeed.

A significant hurdle lies in managing and analysing substantial data volumes from diverse sources. It is worth emphasizing that the landscape of data and analytics is undergoing rapid expansion due to companies generating more data each day. This expansion is further magnified by emerging technologies such as generative AI, which are adding extra strain to the existing cloud infrastructure. It necessitates advanced analytics, machine learning capabilities and robust data governance and protection strategies to ensure the security and compliance of sensitive information. Integrating new technologies and processes with existing systems poses another challenge, requiring careful planning for maximum value and minimal operational disruption.

Also, businesses must cultivate the agility to adapt to market changes and evolving customer preferences. It requires fostering an innovative culture and encouraging experimentation. Despite these challenges, digital transformation offers numerous opportunities. Businesses can leverage technology to streamline operations, enhance customer experiences and innovate products and services. Data analytics offers insights into customer behaviour and helps identify market gaps.

We believe in managing these challenges to enable businesses to thrive. Our data management and analytics solutions are designed to expedite digital transformation journeys.

What innovative solutions or technologies is Hitachi Vantara bringing to address the unique needs?

Hitachi Vantara is a leader in powering global, mission-critical, digital, and industrial environments. Hitachi Vantara delivers a broad portfolio of data management systems, applications, and services to help customers navigate the complex world of hybrid cloud and gain strategic value from data. Hitachi Vantara is committed to providing innovative solutions and technologies to address the unique needs of its customers.

Some of the innovative solutions and technologies that Hitachi Vantara is offering to address the unique needs of its customers includes scalable and secure unstructured data management through Hitachi Content Platform (HCP) and high-performance storage via Hitachi Virtual Storage Platform (VSP) for data storage solutions, AI-driven data operations through DataOps, production and quality optimization for manufacturers with Manufacturing



HITACHI VANTARA ENVISIONS AN ERA WHERE BUSINESSES FUNDAMENTALLY RELY ON DECISIONS ROOTED IN DATA INSIGHTS. WE BELIEVE THAT DATA SERVES AS THE LINCHPIN, UNLOCKING PRICELESS INSIGHTS, PROPELLING INNOVATION, AND ULTIMATELY IMPROVING BUSINESS OUTCOMES.

Insights, lifecycles management for assets and equipment through Asset Management, and unified management of IT infrastructure and operations via Ops Centre.

How do you envision the future of data-driven decision-making for businesses?

Hitachi Vantara envisions an era where businesses fundamentally rely on decisions rooted in data insights. We believe that data serves as the linchpin, unlocking priceless insights, propelling innovation, and ultimately improving business outcomes.

In today's world, the up-to-date data infrastructure should also align with the growing ethical and regulatory demand for businesses to enhance the sustainability and energy efficiency of their data center operations. In addition, it should empower them to scale their operations in a more precise manner. Concurrently, it's crucial to ensure the safeguarding and reliable backup of crucial data, making sure it's always accessible when needed.


According to our Modern Data Infrastructure Dynamics Report, the right data infrastructure is a lifeline for organizations drowning in an ocean of data. More than one-quarter (29%) of the organisations surveyed say their infrastructure is not equipped to handle the current volume of data. With average data storage needs for large organizations set to pass 60 petabytes in the next two years, business leaders need to ask themselves if their current solutions can scale that far without introducing more frustrations for their users.

Notably, decision-makers are placing even more emphasis on hybrid cloud solutions due to concerns around security and the intricacies of managing data across various platforms. 22% of those surveyed in our study admitted important data isn't being backed up. An additional 18% cited not being able to access

data in the past two years because it was corrupted. This underscores the importance of contemporary data infrastructure, which includes hybrid cloud solutions, as a pivotal avenue for businesses to address their needs for scalability, sustainability, and data protection.

Adaptability is key when considering data storage solutions because the types of data currently being collected, managed and processed bear little resemblance to traditional data sources. Organizations that tap the potential of semi-structured and unstructured data can accelerate their digital transformation journeys. Integrating and making all your data accessible, no matter the source will have a huge impact on how well organizations can meet the challenges of the future. One important factor of successful data infrastructure is a single access point for all the data in your platform. Comprehensive access brings the full value of all your data sources to your fingertips.

In the future, Hitachi Vantara envisions a data-driven landscape characterized by swift access to real-time insights, enabling businesses to make informed decisions. Predictive analytics will empower businesses to anticipate trends and take proactive measures. Integration of artificial intelligence and machine learning will further enhance decision-making processes. Data democratisation will promote accessibility across organizations, fostering collaboration and enabling well-informed choices. Additionally, cloud-based data management will revolutionize the efficiency and cost-effectiveness of data storage, management, and analysis.

Hitachi Vantara envisions a future where businesses flourish with data-driven decisions. The vision is characterised by real-time insights, predictive analytics, artificial intelligence and machine learning, data democratisation and cloud-based data management. 



PROF. VIMAL KATIYAR
Dean of Research and
Development, IIT Guwahati



PROF. MIHIR KUMAR PURKAIT
Dean of Alumni,
IIT Guwahati



DR. LALIT PANDEY
Head of the Center for Career
Development, IIT Guwahati



NEED FOR ALIGNING CURRICULA WITH INDUSTRY REQUISITES

In a world marked by rapid changes and unforeseen disruptions, the role of education institutions in nurturing innovation and equipping individuals with adaptable skills is more crucial than ever.

The Indian Institutes of Technology (IITs) have emerged as bastions of research, entrepreneurship, and skill development, playing a pivotal role in shaping India's technological landscape. Here we delve into the dynamic realm of IITs and their strategies for fostering innovation, entrepreneurship, and employability in the face of global challenges.

In this interview, Prof. Vimal Katiyar, Dean of Research and Development at IIT Guwahati, Prof. Mihir Kumar Purkait, Dean of Alumni at IIT Guwahati, Dr. Lalit Pandey, Head of the Center for Career Development at IIT Guwahati, all offer invaluable insights on adapting to change and enhancing employability. The interview emphasizes the significance of continuous learning, adaptability, and a positive mindset in navigating challenging circumstances.

OUR ACHIEVEMENTS, LIKE PATENT FILINGS AND PUBLICATIONS, TESTIFY TO OUR DEDICATION. RECORD PLACEMENTS, RESEARCH OUTPUT, AND COLLABORATIONS WITH GOVERNMENTS AND INDUSTRIES UNDERScore OUR CONTRIBUTIONS TO NATION-BUILDING.

What role does research play in the IITs, and how do these institutions encourage innovation and entrepreneurship among their students?

Prof Vimal Katiyar: Research and Development (R&D) serves as a foundational pillar for our country's holistic growth. India's dynamism is a result of collaborative efforts across states, with the Northeastern states gaining prominence for their achievements in science and technology innovation.

The Northeast region, rich in natural resources and captivating landscapes, offers both opportunities and unique challenges. Since its inception, the Indian Institute of Technology Guwahati has emerged as a beacon of Research and Development in Northeast India. The institute has taken a leadership role in translational research, elevating the Northeast's global standing.

Our institution boasts the Technology Incubation Centre (IITG-TIC) and the Technology Innovation Hub (TIH). IITG-TIC supports young entrepreneurs and innovators in transforming their ideas into viable businesses, minimizing startup risks. TIH, a part of IIT Guwahati Technology Innovation and Development Foundation (TIDF), focuses on indigenous design and development of Mechanical Structures, Prime Movers, Sensors, Controllers, Software, and Communication systems for underwater applications. This hub aims to foster knowledge generation, skill development, startups, and research opportunities.

Our Research Park facilitates collaboration between students and industries, aiding technology development and incubation. This synergy encourages entrepreneurship, academic ties, and disseminates intellectual property. Mission-driven projects encompassing defense, space, healthcare, and urban development, along with IP development, are central to our efforts.

Events such as "The North-Eastern Research Conclave" underscore our commitment to research and

development. These platforms bridge academia and industry, propelling local technologies and contributing to Sustainable Development Goals. Our institute aligns with the National Education Policy 2020, focusing on research, innovation, and startup culture to create a robust ecosystem.

Central Instrumentation Facilities and specialized initiatives like the NECBH bolster cutting-edge research. Our achievements, like patent filings and publications, testify to our dedication. Record placements, research output, and collaborations with governments and industries underscore our contributions to nation-building.

How does IIT Guwahati encourage international collaborations, student exchanges, and global trend exposure?

Prof Mihir Kumar Purkait: IIT Guwahati actively seeks global exposure through strategic initiatives:

1. Exchange Research Work, Course Work, and Project Work Programs: We welcome foreign students for research, coursework, and project work, fostering international collaboration. Terms are based on MoUs with partner institutions, and tuition fees are waived for certain programs.
2. Joint Degree Programs: Collaborative programs with international universities enrich academic diversity. Our involvement spans fields like Food Science, Mechanical Engineering, Bioinformatics, and Civil Engineering, with institutions such as GIFU University (Japan), Heidelberg University (Germany), Curtin University (Australia), NIMS Japan, and Shantou University (China).
3. Hybrid Education: IIT Guwahati pioneered a swift return to physical classes in 2022, ensuring direct student engagement and experiential learning.

These efforts align with the National Education Policy 2020 and cultivate adaptable, globally aware graduates.

SUCH SCENARIOS CAN BE TAKEN AS A BLESSING IN DISGUISE. THE INDIVIDUAL SHOULD BE READY FOR NEW CHANGES, CHALLENGES AND OPPORTUNITIES. IN ADDITION, EXPLORING FOR STARTUPS CAN ALSO BE CONSIDERED.

What advice would you give to individuals who have been affected by global layoffs on how they should adapt their skills and mind-set to stay relevant in the job market?

Dr. Lalit Pandey: In a dynamic economy-driven job market, employees are affected by global layoffs. Professional and personal skills, past experiences and patience aid the individuals to re-evolve themselves. Adapting to pertinent skills and a positive mindset help to stay relevant and competitive. A positive mindset is very important to overcome such situations. The individuals should carry on continuous learning through various online platforms like online open courses, certificate courses, workshops and training. This enables them to upskill and adapt to recent advancements. Further, networking helps to identify the right opportunities.

Such scenarios can be taken as a blessing in disguise. The individual should be ready for new changes, challenges and opportunities. In addition, exploring for startups can also be considered.

How can educational institutions support individuals in the face of layoffs? Any IIT-specific initiatives?

Dr. Lalit Pandey: Institutes can collaborate with industries to provide tailored training programs, skill development workshops, and internships. Entrepreneurial ecosystems, mentorship, and industry-aligned curricula enhance practical learning. IITs offer online programs for professionals, aligning with the National Education Policy 2020 and industry needs.

What skills should individuals focus on after a layoff to enhance their employability?


Dr. Lalit Pandey: Following a layoff, individuals should prioritize enhancing adaptability, digital literacy, critical thinking, communication prowess, and emotional intelligence. These competencies empower them to

navigate diverse roles and collaborate effectively in a technology-driven, rapidly evolving work environment. Tailoring skills to industry specifications heightens employability. Proficiency in these skills not only secures new roles but also facilitates thriving and contributing effectively in dynamic post-layoff career landscapes.

Resilience equips individuals to tackle challenges, and a commitment to continuous learning ensures they remain pertinent. Creativity, cross-functional collaboration, and leadership qualities set them apart. Cultural acumen facilitates seamless communication within global teams, while data literacy empowers data-driven decision-making. Networking expands horizons, and an entrepreneurial mindset cultivates innovation.

How can institutes collaborate with industries to provide relevant training for those affected by layoffs?

Dr. Lalit Pandey: Institutes can foster collaboration with industry partners by aligning curricula with industry requisites, inviting industry experts for guest lectures, and facilitating internships. Organizing certificate courses and short-term programs catering to practical needs is pivotal. Continuous feedback from industry professionals ensures program relevance. IITs are increasingly focusing on industry-academia collaborations. Engaging in collaborative projects, consultancy/mentorship, and industry certifications enhances experiential learning. Industry-sponsored research projects, joint supervision of scholars, and industrial training bridge the gap to job opportunities.

Teaching and learning practices driven by innovation impart the skills individuals need. Industries often sponsor their employees for higher education, and they should actively engage in fruitful industry-academia collaborations. Such collaborations foster comprehensive skill development programs that directly address layoff-induced skill gaps and other global challenges. 

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**MAYUR PURANDAR**

VP - Enterprise Architecture, Lowe's India

What it takes for retailers to be successful during the peak sales season- Enhancing omnichannel capabilities.

In today's fast-paced world, the retail industry has undergone a massive transformation, driven by the adoption of new technologies and changing consumer preferences. One of the biggest challenges that retailers face is the preparation and execution of festive sales. With the surge in traffic and orders during these peak periods, retailers must ensure that their technology infrastructure is robust, reliable, and secure.

According to a recent report by Statista, in 2022, retail e-commerce sales were estimated to exceed US\$5.7 trillion worldwide, and this figure is expected to reach new heights in the coming years. India's e-commerce market is expected to reach US\$ 111 billion by 2024 and US\$ 200 billion by 2026 according to a report by IBEF.

In the context of festive sales, a report by Accenture states that during the festive season in India, online retailers experience a surge of up to 80% in traffic and sales compared to non-festive periods. This massive increase in demand puts a significant strain on retailers' technology infrastructure, with



TECH PREPAREDNESS: FROM CHAOS TESTING TO ENDURANCE TESTING

up to 30% of festive sales lost due to technology failures, according to a report by Gartner.

In light of these statistics, it is crucial for retailers to have a robust and reliable technology infrastructure in place during festive sales. In this context, Lowe's India is leveraging innovative technologies like AI and machine learning to enhance its technology preparedness and testing during festive sales.

Minu Sirsalewala, Executive Editor – Special Projects delves into Lowe's India's approach to festive sales, their technology infrastructure, and their efforts to balance innovation with reliability, all of which provide insights into the future of retail technology. In conversation with Mayur Purandar, VP - Enterprise Architecture, Lowe's India. Excerpts:

Tell us a bit about festive sales and what makes it challenging for retailers?

Festive sales have grown to become immensely popular across the world, with millions of consumers anticipating and even holding off purchases to make the most of exciting deals. With retailers going omni-channel, these “peaks” as we call them, have gone from in-store shopping to becoming a multi-channel phenomenon. Brands face a huge surge of customers and skyrocketing order volumes, and this makes it crucial for them to deliver a superior experience to every one of them. In fact, retailers could generate more than 10% of their annual revenues in these few days. Now this means a lot of checks and balances needs to be put in place to ensure there are no gaps in any critical function – for instance, a sudden surge in online traffic leading to an outage or a single cyber incident has the potential to bring down a brand's reputation, cause financial losses and affect customer trust.

At Lowe's India, our engineers play a crucial role during peaks in the US market—we prepare months in advance to ensure three aspects: if our technology products are reliable, agile and auto-scalable, if our people are on the same page with the same knowledge, skills and training and finally, if we have the right processes to withstand the load and complexities of a peak.

What steps do you take to ensure your technology infrastructure is prepared for the surge in traffic? What goes in testing your systems and applications to ensure that they can handle the increased load?

Every year, we prepare for two peaks – Black Friday/

Cyber Monday and our Spring season 100 days sales when home improvement retail sees most uptake. Months prior to the peaks, our entire technology infrastructure, applications, and systems undergo extensive testing to ensure it is adequately prepared to withstand the upswing in customers and orders. We ensure all our processes are tested at twice the load, at least 3-4 times and such as performance testing, endurance testing and most importantly, chaos testing which is to gauge how quickly we can recover and respond in case our data center goes down or an availability zone in our public cloud goes down and so on.

On peaks such as BF/CM, an entire war room is set up in the US and India where engineers collaborate and address issues real time. Over 600 people are directly involved across multiple offices who work like clockwork in the preparation of peaks—these include infrastructure, platforms, security, website, merchandising, supply chain and many other critical teams who collectively give our customers a flawless experience from search to order to fulfilment. They have to be functioning at 2x-3x of regular volumes. The other aspect is preparing ourselves to be dynamic and react to customer behaviors and market trends. For instance, our personalization and pricing engines have to be working real time to show customers the right promos, our inventory and supply chain need to be working to assess our capability to fulfil orders.

What measures does Lowe's India have in place to prevent cyber-attacks or data breaches during festive sales? Does Lowe's India have a contingency plan in place in case of any technology failures or disruptions during festive sales? If yes, can you elaborate on it.

Security is no longer a choice but an architectural mandate for any retailer, given the nature of consumer data that are collected and stored. For us at Lowe's, it is critical that we provide consumers a safe and secure shopping experience irrespective of when and where they shop with us. However, owing to the sheer volume of orders and the surge in traffic during these peaks, we need to ensure our security is fail-proof and has absolutely no loopholes. We conduct rigorous penetration tests on all our software multiple times and patch vulnerabilities well in advance to negate all possibilities. Our infrastructure, platforms and security teams work round the clock to ensure there are no incidents.

WE ARE ALSO ENSURING THAT EVERY TECHNOLOGY PRODUCT BUILT, SUCH AS A PRICING OR DEMAND MANAGEMENT SYSTEM, COMES WITH AI-FIRST.

How does Lowe's India balance the need for innovation with the need for maintaining a stable and reliable technology infrastructure?

At Lowe's, we believe in approaching innovation by identifying the business problems that need to be solved. We carefully evaluate new technologies and only adopt those that align with our business needs and can help solve the problems at hand. Our approach to learning is continuous and dynamic, with a blend of guided and informal learning programs for all our associates, including leadership experience training for managers and high-potential engineers. This ensures that our team is equipped to handle the latest technologies and can adapt quickly to the changing business needs.

To maintain a stable and reliable technology infrastructure, we focus on ensuring that our people, products, and processes work seamlessly. We invest in the skills and knowledge of our engineers, establish scalable and adaptable technology products, and test our processes repeatedly with multiple contingency plans. We recognize that even with the best resources, a team can fall apart during peak periods without the proper procedures to operate efficiently. Therefore, we conduct endurance and peak stress testing processes for months before peak periods to ensure that our infrastructure can handle the rush.

What role does AI and Machine Learning play in enhancing technology preparedness and testing during festive sales for Lowe's India?


We are investing heavily in AI and ML technology for use cases such as search, personalization, pricing, promotional analytics, and demand forecasting. For instance, the company is building a pricing engine that uses AI and ML to determine the pricing elasticity of an item and the elasticity of locations where an item sells more than others. Lowe's India is also working on demand forecasting to understand the demand of an item across 18,000 Lowe's stores in the US. This helps to cut the purchase orders with vendors to be more profitable. Taking it one step further, we are also ensuring that every

technology product built, such as a pricing or demand management system, comes with AI-first. This means that the impact of any modification, such as modifying the price of an item in a particular region, is understood at several levels—including how much it will sell, its impact on low profitability, and other items.

We are using Augmented Reality (AR) and Virtual Reality (VR) to cater to the needs of our customers wherever and whenever they want. To give you an example, Lowe's India has built an app called "Measure Your Space," which allows customers to scan their entire room and compute how much paint they need for the space without needing to measure each wall or ceiling. Our teams are building visualizers that allow customers to see how their room would look after remodeling.

How does Lowe's India plan to leverage emerging technologies such as virtual reality, augmented reality, or blockchain to enhance the customer experience during festive sales in the future?

We keep our customers at the heart of what we do and strive to offer a best-in-class omnichannel retail experience every day. Our in-house expertise and external partnerships enable us to harness the power of emerging technologies to better understand what our customers' expectations will be, the concept of home, and the future of retail. With that knowledge, we are constantly striving to deliver meaningful change. For instance, we are building a future that leverages the rise of emerging technologies like LiDAR, computer vision, AI, and mixed reality hardware to help our customers understand their home's space and use the data related to their homes whenever and wherever they need it.

Going a step further, we are also equipping our associates to better manage our stores, making sure they adapt, evolve, and meet our customers' needs on a more personal level. Currently live in two stores, our first-of-its-kind digital twin represents a leap forward for home improvement. Our associates can not only visualize and interact with a Lowe's store in 3D but can interact with nearly all of a store's data in new ways, across a range of devices. 

Pratima H

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**AVADHESH DIXIT**

CHRO, Acuity Knowledge Partners

As HR leaders grapple with ‘Great’ everything – from resignations to quitters to lay-offs and AI’s footprints; there is a new way emerging to look at what HR does, expects, fixes – and how. Avadhesh Dixit, CHRO, Acuity Knowledge Partners gives an honest look at his new dashboard. And also gives some ‘more than brochure’ insights on DEI, and a candid take on India’s Demographic Dividend.

The pendulum could not have swung any more suddenly than how we saw it moving from the ‘Great Resignation’ to the ‘Big layoffs’. How much has all this changed life for HR?

Yes, you are right. I have never seen a shift as rapid as this in the last 25 years of my life. We have abruptly moved from one extreme to another. The industry was just trying to figure out what to do with the volume of offer-drops. And now we are looking at surplus manpower.



HELLO GLASS TUNNELS. BYE-BYE GLASS CEILINGS

I HOPE WE CAN MAKE THE MOST OF IT—BY INVESTING WELL IN PRIMARY AND SECONDARY EDUCATION. GOVERNMENT HAS STARTED THAT WORK ON SEVERAL FRONTS—AND WE CAN DO A LOT MORE. PRIVATE PLAYERS CAN ALSO DO A LOT IN FILLING THE CAMPUS-TO-CORPORATE GAPS.

The tech meltdown in Europe and the West cannot be ignored. Managing this shift is definitely challenging for HR. The second challenge is to deal with new models of distributed workforce and hybrid workplace. It's not a reversible trend. It's a structural shift. We have to embrace and facilitate flexibility in a completely new way now.

You had announced significant hiring plans in early 2022 – along with a global expansion spree and India headcount targets for next three years. Would that change?

No. We have been lucky. And the credit goes to our sales and delivery teams too. We are still on track with these plans. We have never come to layoffs and hopefully, never will. The plans are still intact, we have not revised them – we can't put a number to it though due to changing circumstances.

What has changed—if anything—for your L&D strategy—like at Acuity Training Academy?

We are training campus hires to bridge the 'campus to corporate' gap. We try to fill in the requirements that customers have through specific trainings in 6 to 10 weeks. Especially in areas like financial modeling and analytics.

Is AI going to help or shake up the 'skills' game'? Will AI change HR's focus on human skills – in terms of software and hardware?

Getting talent is tough these days – especially in industries with the need for skilled specialists—like financial analytics, auto, aviation, AgriTech. There are skills like critical thinking, problem-solving etc. that cannot be taught in six weeks. While we have seen (with the ChatGPT chatter) that generative AI and LLM can be quite disruptive, there was a recent report on Labor Day that AI will create new jobs too—like that of 'prompt engineers'. It's like Y2K. Some jobs will go. New ones will arrive. In terms of skills,

people will have to continuously reconfigure their stack of functional and technical skills – maybe every 6 months or 1 year to remain ahead of the curve. But soft skills are very complex. They develop over time. And they are very human—like team work, analytical abilities, empathy, problem-solving abilities and resilience.

Is it a good time for India to shine?

India's Demographic Dividend will pay out well for the next several years. I hope we can make the most of it—by investing well in primary and secondary education. Government has started that work on several fronts—and we can do a lot more. Private players can also do a lot in filling the campus-to-corporate gaps.

Is there a flip side to more diversity at workplace – like can Baby Boomers and Gen Z work in the same room?

We are taking diversity at a different level. It's not just about gender. It's about age, parenting stage of life, and women coming back to workforce. We have ERGs or Employee Resource Groups to help HR. As to the challenges of DEI, well, challenges are always going to come up. It's not an easy game. It's not simple to have consensus on ideas—pure democracy at workplace without differences of opinions. That's why it's important to start this journey and keep going.

What are some of your top diversity initiatives for women?

Women Returnee Program Step Up 3.0 – Maintaining a stable career graph as a woman navigates through the various phases of her life is a challenge. Marriage, mobility and motherhood often make women put their career on the back-burner and take a career break. For those who decide to re-enter workforce, it is often an uphill climb with the negative connotation associated with a career hiatus. With Women Returnee Program—

THROUGH SKILL-GAP ANALYSIS, FOCUSED MENTORING, RE-SKILLING AND UP SKILLING, ON-THE-JOB TRAINING AND SMOOTH ONBOARDING, WE FACILITATE A SEAMLESS TRANSITION FROM BEING ON A BREAK TO BEING READY TO BE BACK IN THE BUSINESS.




STEP UP, we are offering female professionals on a career break an opportunity to re-establish themselves professionally and restart their corporate careers. Step Up is a prudently designed training-cum-internship programme that prepares them for a second successful innings in the corporate world. Through skill-gap analysis, focused mentoring, re-skilling and up skilling, on-the-job training and smooth onboarding, we facilitate a seamless transition from being on a break to being ready to be back in the business.

How well has this worked?

We concluded our batch of 2022 internships for a brilliant cohort of 25 ambitious and talented women returnees. We were fascinated by their enthusiasm and attitude towards work. About 50 per cent of the batch was hired as full-time employees. As an organization, this was a great learning experience, has opened doors to a brilliant talent pool and has made our culture more inclusive.

Any implications of acquisition-action on HR—like with Cians Analytics and recent Permira-Equistone development?

Acquisitions and mergers are perceived as a demanding exercise from all facets, especially from the people integration aspect. We keep people at the heart of everything and our culture thrives on respect and collaboration. It is these values which have guided us in this entire integration process as well. We had both parties included at various levels of decision making and communication, which has resulted in an extremely agile, collaborative and efficient integration process which was completed in record time, taking everyone along.

The recent ownership change to Permira is another milestone in our growth story; we have been a dynamic organization that has imbibed positives from each of its phases. As a knowledge business, we strongly believe in the power of learning and evolving. With Permira coming on board, we are very excited about the future. 

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**GARETH HERSCHELT**

VP Analyst, Research Engagement Services, Gartner

*Do they know we know?
What a Sophie's choice!
Holding a certain kind
of data is like being an
eye-witness to a murder.
Should you hold your
breath till the killer walks
away? Or risk losing your
own neck because you
saw something you were
not supposed to?*

At the recent Gartner Data & Analytics Summit India, there was an interesting session on 'Dangerous Data'. Gareth Herschel, VP Analyst, Research Engagement Services, Gartner helped us to double-click on this subject on the sidelines of this summit. It was both fun and thought-provoking to juggle issues like possession of tricky data, plausible deniability, third-party data and data localization while also fiddling with possible answers like privacy cloak, Blockchain, Zero-proof models and data ethics.

How would you explain 'dangerous data' to an ignorant CEO if you had to—in two or three lines?

Your organization is collecting data



THE MORTON'S FORK OF DANGEROUS DATA: CAN COMPANIES ESCAPE THIS NEW WITCH-HUNT?

THE KEY POINT OF DANGEROUS DATA IS THAT YOU REALLY DON'T HAVE A CHOICE ABOUT COLLECTING IT, BUT THERE IS ALSO NO AUTOMATIC ANSWER ABOUT WHAT TO DO WITH IT NOW THAT YOU HAVE IT.

as a necessary part of its normal operations that has potentially negative consequences. Even worse, there is often no automatically “correct” way of responding to these consequences as both taking an action, and failing to take that action could be considered inappropriate depending upon the priorities you attach to different outcomes.

Any recent examples or possibilities that you can cite to explain ‘dangerous data’?

If you provide a photo-storage service to customers, you are probably aware that ‘some’ of those photos ‘could’ indicate evidence of criminal activity. You have no choice about storing customer photos (that is your business). But the question is whether by storing those photos you are exposing your organization to negative consequences. For example, if you scan the photos for evidence of illegal activity you are violating customer privacy. If you do not, you are failing to uphold the law and potentially supporting future criminal behavior. If you discover evidence of revolutionary activity, are you as duty bound to report that evidence in an evil dictatorship as you would be in a benevolent democracy? The key point of dangerous data is that you really don’t have a choice about collecting it, but there is also no automatic answer about what to do with it now that you have it.

How should companies navigate this Scylla and Charybdis situation between ‘should I tell—not Tell’? Especially when offering ‘privacy’ to users is a product feature in itself for many companies?

It is a strategic choice based on their values (and those of their employees, customers or other stakeholders). They will be judged based on their behavior and people with similar values (or those who do not read the fine print of privacy statements) will support them and others will seek other options (similar to the situation Twitter is getting into).

Does this paradox of ‘knowing something dangerous’ become easier or tougher to handle when the world is swinging towards Blockchains and decentralization—with anonymity/privacy of data taking new contours?

That is one way to avoid ‘knowing’ the data, you can technologically put it out of your own reach as well (this is still a choice, not a random happenstance resulting from technological developments) – organizations implement blockchain for example because they do not want to take the responsibility of ‘owning’ the data. At a certain point you also do need to ‘know’ the data to draw broader conclusions, I may not need to know how ‘your’ self-driving car is performing, but I do need to know how ‘some’ self-driving cars are performing in order to improve the self-driving algorithm.

What area would take more effort or investments—the legal side, the social media side, or the ‘what if the customer knows we know’ side?

The what if the customer or social media side would take more effort because the ‘right’ course of action—that is more ambiguous. We can (more or less) agree on what is legal or illegal, but what is acceptable to some groups is unacceptable to others requiring more variability in how the data is handled.

Can you elaborate on the aspects of ‘plausible deniability’ and ‘treating the symptoms’ that were shared in the session?

Plausible deniability is the excuse that although you had the data, you either did not realize the implications of having the data (‘sorry we deleted the data already and didn’t know we could have used it for that purpose’) or that someone else had the data and didn’t tell you (‘that data is actually stored on a 3rd party server, we just sell the rights to store the data there’).

Treat the symptoms is tactically responding to specific situations while avoiding the broader implications (‘I didn’t



I MAY NOT NEED TO KNOW HOW 'YOUR' SELF-DRIVING CAR IS PERFORMING, BUT I DO NEED TO KNOW HOW 'SOME' SELF-DRIVING CARS ARE PERFORMING IN ORDER TO IMPROVE THE SELF-DRIVING ALGORITHM.

realize people were storing those sorts of photos on my service! Let me act straight away to delete those images and report that individual to the authorities, thank you so much for bringing it to my attention!'), 'we (and everyone else in our industry) always do it that way and nobody (including the government/regulators) has ever had a problem with it)'.

Will the implications of dangerous data change between zero-party and third-party data?

The principle applies to both although there is another dimension for third-party data because of the potential lack of awareness about what data the organization possesses (potentially reducing the exposure to some aspects of dangerous data) but also a lack of explicit or implicit permission about the data the organization possesses (increasing the exposure to some implications of dangerous data).

Can data localization demands add more dilemmas for companies?

I think the biggest danger is that data localization reduces some of the legal exposure but does nothing to reduce the social implications so organizations can deceive themselves into thinking they are solving the problem.

AI built on dangerous data—how slippery and scary can that be? Especially when companies let it speak


to the outside world as conversational AI.

You are correct, I think Gen-AI will make the data that organizations possess even more obvious, and the ease of enabling new use-cases to which it can be put will open up a variety of debates about good and bad uses of data.

What should we be really worried about—as users, as companies, as innovators, as regulators—but we are not?

That as more and more of our daily activity is captured in data, the potential for both beneficial use and misuse of that data increases, but there are few incentives for organizations to use that data for good versus attempting to conceal the implications of the data that they have access to.

Would zero-knowledge proof models help to solve some of these dilemmas?

I love that you asked this question, but I think the answer is 'unfortunately not'. Because the issue is not really the possession of the data, it is the use to which that data is put (or not) which is the issue. The solution (possibly naive) is for data management (and business schools) to include training classes around business ethics and for regulation along the lines of good Samaritan indemnification for taking action intended to provide assistance. 

CYBERSECURITY FOR THE MODERN WORLD

January 2024



The CISO & CXO community has tremendous visibility into all aspects of cybersecurity, ranging from attacker activity to technological developments.

PCQuest Cybersecurity conference brings together cybersecurity and critical infrastructure stakeholders across verticals and provides a forum for meaningful conversations and collaboration about how we can

KEY DISCUSSION POINTS

- C-suite attacks • Zero Trust • Securing the Digital Revolution • Cloud Security • Digital innovation
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- Trends & Predictions in Ransomware

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KANCHAN RAY
CTO, Nagarro

Kanchan Ray – CTO, Nagarro, talks about the importance of understanding the organization's goals to make technology decisions that support and enable the overall long-term business strategy.

As a CTO how do you balance trade and all things come into play?

At Nagarro, we have multiple CTOs spread across the globe specializing in domains encompassing both technology and business. All our CTOs evaluate risks, costs, innovation opportunities, scalability, and compliance considerations to make informed decisions that drive our organization forward while optimizing resources and mitigating risks. I feel that collaboration, communication, and the ability to adapt to changing technology landscapes are key skills for a CTO that can be used to navigate the complexities and trade-offs in this role. Balancing these trade-offs requires strategic thinking, a deep



CTO SKILLS: COLLABORATION, COMMUNICATION & ADAPTING TO CHANGING TECH LANDSCAPES

OPEN SOURCE IS MOSTLY ABOUT COMMUNITY AND THE HYPERSCALERS ARE JOINING THESE OPEN SOURCE COMMUNITIES, INTENDING TO CHANGE THE STATUS QUO AND SUPPORT CLOUD ADOPTION.

understanding of technology, and the ability to align technology decisions with business objectives.

Being in the digital transformation space in the IT services industry, one of the key aspects I regularly prioritize is aligning with business strategy for us and for our customers. To achieve this, I need to understand the industry landscape, competitive dynamics, and the organization's goals to make technology decisions that support and enable the overall long-term business strategy.

The other major balancing act for me is between technology innovation and trends. Staying abreast of technology trends and innovations is crucial for a CTO, which helps to balance the adoption of emerging technologies such as Artificial Intelligence (AI), blockchain, or the Internet of Things (IoT), with the organization's needs and available resources. Assessing the potential impact, risks, and benefits of new technologies is essential in making informed decisions for any CTO.

How do you see technology talent going forward after Covid?

The Covid pandemic has had a significant impact on the technology talent landscape. In 2020, across the IT industry when people were sent to work from home with laptops and Zoom – today they are no longer the same workers, as they navigate attending virtual family gatherings, participating in online weddings, and facilitating remote education for their children. These changes have propelled the virtual world into the mainstream.

Most surveys are predicting a huge global deficit of technology talent – ranging from Agile, and AI to cybersecurity. In the post-Covid world, I see the following trends:

- Talent will come from anywhere and won't necessarily be limited to "elite" pockets of Tier 1 or 2 locations. We see that technology has untethered talent from geographical locations as remote working becomes more mainstream. This works in favor of both employers and employees. Employers can tap into the talent pool of any location, even from different

countries, and at the same time, talents can choose to work from anywhere across the globe. This separation of the workforce from the workplace heralds a new era where companies will have to build their company culture outside the building.

- The talent requirement in the post-Covid era has also coincided with the rise of next-generation AI and that aspect can't be ignored at all. Just like business and technology transformation strategies, companies will need to focus on talent transformation strategies. Upskilling and reskilling will be key and most CXOs I have talked to have indicated their need for more talent in data analytics, AI, user experience, DevOps and automation, cloud, and cybersecurity as their top priorities. I imagine a lot of talent will gravitate towards these technologies.
- As someone who spends a lot of time on Teams calls, I feel that video calls are a great equalizer. Everyone has their faces in the same box on the same screens, eliminating the advantages of in-person meetings where someone could have the benefit of being at the right place at the right time. The remote way of working provides a level playing field, presenting a unique opportunity for companies to focus more on diversity and inclusion. For employees, it also means focusing on soft skills as well as on how to be "visible" digitally.

How does the notion of Open Source align with cloud ambitions?

Open Source is mostly about community and the hyperscalers are joining these Open Source communities, intending to change the status quo and support cloud adoption. Many of the container services are built on Open Source software too. For Open Source technology stacks to co-exist in the cloud, it has to deliver a simple experience for the users and at the same time bring in unique value propositions. Another aspect of Open Source software that needs to be kept in mind is cost efficiency and on-demand scalability. Open Source software often adheres to open standards, fostering interoperability

THE FIRST CLARITY THE DATA LEADERS NEED TO BRING IS ON THE MEANING OF VALUE FOR THE ORGANIZATION. FINANCIAL VALUE IS THE MOST OBVIOUS AND DIRECT VALUE AND CAN COME VIA INCREMENTAL TOP-LINE OR BOTTOM-LINE IMPACTS.

with other systems and services. The cloud provides a platform for integrating and connecting various Open Source components, enabling seamless interoperability across different applications and services.

With the complex balancing act data leaders face today, how to drive value from data without losing sight of good governance?

On the one hand, most organizations need to leverage their data effectively to gain insights, make informed decisions, and drive business innovation. On the other hand, they must ensure data privacy, security, and compliance. Finding the right equilibrium between these two aspects is crucial for sustainable and responsible data management. Another emerging issue that has come to the forefront recently is how organizations use their data ethically.

The first clarity the data leaders need to bring is on the meaning of value for the organization. Financial value is the most obvious and direct value and can come via incremental top-line or bottom-line impacts. While focusing on these obvious values is important, deriving other values that can have far-reaching impacts in the future should also be part of the approach. A data strategy for any organization must be a very pragmatic way to enable their business strategy, with iterative delivery and tangible KPIs.

The first clear understanding should be about the data assets the organization has. This should include all assets across the value chain – for example, data sources, data pipelines, APIs, ML models, reports, etc. Often, we see organizations only focusing on one or two of the above rather than taking a holistic view of data.


Once a clear data strategy is defined with proper KPIs and milestones that articulate the expectations of the business clearly, the organization needs to focus on data governance, data privacy, data policies, compliance, and ethical use. It is very important to build a data culture in the organization which ensures everyone is thinking about data at every stage of the value chain. The data leaders should collaborate with stakeholders across the organization, including legal, compliance, IT, and business units. Regular communication and engagement with

these stakeholders can help ensure that data initiatives are aligned with governance requirements and mitigate any potential conflicts.

How can organizations optimize their technology stack and SaaS spending on applications through the adoption of Product Analytics?

By leveraging product analytics, organizations can make data-driven decisions when evaluating new SaaS applications or managing existing subscriptions. The most significant reasons for wasted money on SaaS and cloud services are unclear ownership, automatic renewals of unused licenses, and the lack of visibility of overlapping SaaS subscriptions. There are simple steps an organization can take with product analytics that can help them lower the SaaS cost.

Product analytics provides visibility into the adoption and usage of different features within applications. By analyzing feature-level data, organizations can identify which features are most valuable to users and which are underutilized or poorly received. This information helps in optimizing feature sets, focusing development efforts on high-value features, and potentially avoiding unnecessary feature overlap with other applications. Product analytics also allows organizations to monitor the impact of technology stack optimizations over time. By continuously tracking usage, adoption, and user feedback, organizations can iterate on their application portfolio, address emerging needs, and ensure that the technology stack remains aligned with business objectives and is cost-effective.

The first strategy is to make the SaaS stack visible, which can be achieved by taking stock and making an expenditure inventory which will include all expenses, contracts, and the number of licenses the organization has. Doing so allows the business to see what they are using and why. Moreover, taking regular stock of SaaS usage and spending is highly recommended for any organization. Another important aspect is to promote organization-wide adoption of apps and productivity by champions. Team champions for specific products and software can be learning points for employees wanting to know more about the product as well as SaaS optimization. 



RAMKUMAR VENKATESAN
CTO, Cashfree Payments

Engineering culture makes a substantial contribution to the outstanding performance of top tech companies. It determines the hiring and job execution processes, both of which significantly affect the calibre of the finished product.

Ramkumar Venkatesan, CTO, Cashfree Payments, talks about how engineers witness first-hand the impact of their work, from both appreciation and negative feedback. It can be a game-changer. In the case of criticism, a direct interaction can often trigger solutions that are true innovations.



**APPRECIATION CAN INSPIRE
ENGINEERS TO INNOVATE MORE
AND BUILD BETTER PRODUCTS**

Please talk about your journey in the industry and an overview about it?

The fact that the products we created have impacted billions of people gives me a great sense of satisfaction. My journey has been really great, and being a part of great product companies over the years, working with great colleagues who have built great products, and being mentored by great leaders over the years have all contributed to this.

Additionally, the code I wrote is probably still being used to help our customers, which is satisfying. The Internet and mobile phones were just becoming commonplace when I first began out; I imagine that today's generation, who have witnessed much of this shift of the Internet truly entering every home and every person's life, may not even realise that those things did not exist a few years ago. So far, so good. I get a lot of knowledge from all the fantastic product companies I have the chance to deal with. We create products that have had a significant impact on billions of people, according to the executives I've worked with.

And it's been a rewarding career, and Cashfree has also given me a great opportunity to build FinTech for India, making India bank for the world. And it's a great opportunity that I'm loving.

How are you at Cashfree payments making world class software products under the Make in India initiative?

Right now, software in India is in an advanced stage of development. When we first started out, we assisted other companies with their digital transformation. We've come a long way and I would say that the evolution has sort of completed and now we are level playing field, with the best of software product companies out there, wherever you build are comparable and better than the products being built anywhere else in the world, right. And that's sort of a great place to be. Making India is a great initiative, I think all of us are to be proud of products

that are being built out of India, for the Indian market, as well as for the global market.

Regarding FinTech, we are the global leaders in digital payments, so to say that we are at the top of the globe is accurate. We publicly use digital payments more than the US, UK, Germany, and France do and that is a remarkable accomplishment. Therefore, I believe Cashfree lies at the nexus of these two issues.

Why it is important to have a customer connected engineering culture?

We are here because of our customers, and we can succeed only if our customers succeed. They'll use more of our products as the market grows and their revenue rises. Therefore, the more the customer succeeds, the more successful we will also be. That is an aspect of it.

The second aspect is, developers are core to building all these great products that we are building. When they connect to the customer, they can when they're building their products, they can visualize how my product is going to be used by our customers.

What are some of the biggest challenges in building the customer connected engineering culture? How can we address them?

One of the difficulties is that the engineer is involved in many different elements of product development, such as requirements, architecture, design, testing, moving products into production, handling problems, etc. They must wear many different hats in a variety of contexts, which requires different parts of the brain to be engaged in various ways. It can be a little bit overwhelming if we add, "Connect to the customer," on top of all of this. But without that, it causes a lot of rework and a certain amount of burnout because we build something without keeping the customer in mind, without understanding their needs or our pain points, and then realise that it is either not exactly what they wanted or that a competitor has

WE ARE THE GLOBAL LEADERS IN DIGITAL PAYMENTS, SO TO SAY THAT WE ARE AT THE TOP OF THE GLOBE IS ACCURATE. WE PUBLICLY USE DIGITAL PAYMENTS MORE THAN THE US, UK, GERMANY, AND FRANCE DO AND THAT IS A REMARKABLE ACCOMPLISHMENT.



IN MY OPINION, REGULATORY POLICIES ARE VERY IMPORTANT, AND GIVEN THAT INDIA RANKS AMONG THE TOP 10 COUNTRIES FOR THE NUMBER OF DIGITAL ATTACKS, THERE IS OBVIOUSLY ROOM FOR SOME MALICIOUS ACTORS TO IDENTIFY WEAKNESSES AND EXPLOIT THEM.

created a better product. This is a drawback of not being connected. Therefore, I believe the benefits will exceed the drawbacks once engineers are able to recognise the added value in decreasing effort and the opportunity to satisfy customers.

As of right now, there must be alternative ways to get the customer's voice via the channels into the engineer because Cashfree has hundreds of thousands of machines on our platform, and we can't reasonably connect to everyone. And you realise that needs to be cracked. This means that every department inside the firm needs to be customer-focused, not just one team. This will ensure that the customer's voice is not changed or lost as it passes through the many layers of the various teams. And that presents a problem.


Perhaps a lot of the consumers have provided similar feedback. They combined and made the flow of combined user feedback to the technical and product teams incredibly easy. Who can again, so that's the one, right? I believe that time and context wage are the two main obstacles. And that sort of has to be overcome with the idea that I will ultimately save time, as well as with how we handle having a lot of consumers. How do we condense the input such that we can use it to fund innovation.

What role do regulatory frameworks and policies play in building trust in the digital world and how can they be improved?

In my opinion, regulatory policies are very important, and given that India ranks among the top 10 countries for

the number of digital attacks, there is obviously room for some malicious actors to identify weaknesses and exploit them. Regulations are therefore crucial for creating a level playing field and protecting good actors from bad ones. As a result, we are currently a regulated entity. That's good, too, and those are the kinds of regular tasks that all of our competitors must completed by people who are unable to, say, cut corners. The end user will gain from this regulation once they are aware that Cashfree is a regulated entity as well as all the other players in the market because it gives them confidence that there is good governance in place and that the overall system is safe. This confidence will allow them to make their payments online with confidence.

Another area where regulation is beneficial is the fact that we use several participants and layers in all of our products, meaning that we are on top of the banks. Now that we are aware that our partner banks are also subject to regulations, there are rules in place for them as well. As a result, a particular degree of security, quality, uptime, etc. is ensured, and we can now focus on staying on top of that. Once more, we will be safe, secure, and available, etc. Similar to this, some of our larger merchants may demand us to obtain specific certifications in order to use particular items that they use currently.

Again, the fact that they have been audited and certified provides us peace of mind, that our partners and merchants are likewise certified. As of right now. The ecosystem is now secure because all the levels have been secured. Therefore, in my opinion, regulation is absolutely essential to fostering systemic trust. 



SANTOSH INGALKAR
Head of Operation, KSH Distriparks

Not technology. Not yet. But technology is helping to strengthen the real backbone of this industry, while also repairing its broken parts. Santosh Ingalkar, Head of Operation at KSH Distriparks, a container logistics solutions company in Pune (operating in areas like seamless transportation network, buffer yard solution, ocean imports, bonded warehouse facilities, and DPD transportation services) tells us more as he also shares why drivers are still the critical piece that holds it all together.

How crucial is technology in what you do—specially as your posture is that of an integrated-IT logistics solutions player in India's container market which is slated to turn into a **US\$10.3 billion industry by 2028?**

We use technology in a number of areas. Like transport management, expense



THE AXLE OF ANY LOGISTICS COMPANY IS...

management, warehouse management, customs monitoring and document management. One by one, we have strengthened a lot of these processes with the help of technology. We use IT mainly in operations – as that constitutes 80 per cent of our work.

Let's start with TMS (Transport Management System). How early did you begin this and why?

It began six to seven years back. That time everything, from LR to trip sheets, was maintained in a manual way—expenses, funds, and driver advances etc. We were, hence, facing a lot of person-dependent limitations. If a regular person was not making the data entry someday, there were chances of some details being missed. Changing it to an automated system has ensured that the system does not move to the next step unless all details are provided. This has given us a lot of savings.

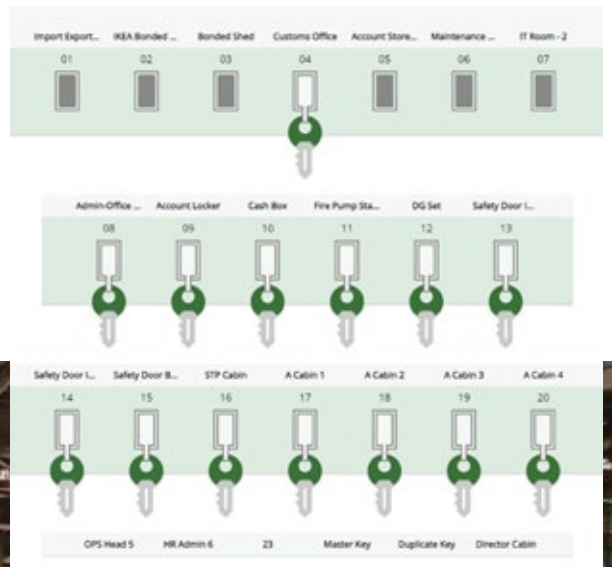
How does IT help in areas like documents and customs?

Customs is an area that needs a lot of documentation—hundreds of pages per set. In 2021, we implemented a document management system. Now we can directly

store and tag documents from the emails we get from importers and exporters. We use smart metadata for data organization and retrieval.

How do you ensure its security—specially with customer's data?

We use strong SSL certificates, data encryption and data insurance models. We have two back-ups – in different locations. We also have a Digital Key system that makes sure a photo is taken every time someone opens a warehouse, and only a specific key is allowed as per a specific person.



WITH TMS, WE HAVE ARRESTED SOME REVENUE LEAKAGE BECAUSE NOW ALL TRIPS GET AUTOMATICALLY REPORTED AND, HENCE, CANNOT BE MISSED.

What was the idea behind making your vehicles GPS-enabled?

We own 120 vehicles and 250-300 are sourced from outside. All vehicles are GPS-enabled – that allows a lot of much-needed tracking and visibility to both customers and Ops people. Also, all important documents like PUC, insurance etc. are monitored so that whenever something is approaching an expiry date, a pop-up alert is sent to the right person. The overall app - which we have put in here—takes care of many important areas as well—like maintenance scheduling or preventive repair. We do not need separate software for all this.

Does technology help drivers too?

Yes, like we have brought in a smart card system for better Driver Diesel Efficiency. Earlier, we used to pay fuel expenses in cash- that would lead to disputes sometimes and also opened possibility of thefts or misappropriation. But tying up with HPCL through 'automatic diesel issue' to our trailers as per routes and rules—that has ironed out all those problems while also helping with TMS reconciliation. Late payments to drivers have also been wiped away.

What's lined up next?

We are in the evaluation stage of a project that would be worth crores of investment – and will be done in a few months. We are bringing a Yard Management System (YMS) where every order loaded, unloaded, moved in yard is tracked through real-time updates. We are also planning to put in AI and algorithms for recommendations for optimum placement and advanced cameras for spotting damages.

Do you use a pilot approach or a Big Bang approach with new IT initiatives?

It depends on the size of investment. For YMS, it is happening in 3 phases: gate automation, yard management and planning.

Does your IT play a big role in shaping vendor solutions as per your needs?

Yes, the team was involved in making fleet management

system, document management system etc. as per our context.

Has technology helped on the revenue side also?

Not directly. But the use of intrusion detection system helps. It basically ensures that premier customers can be assured of their high-value items in our warehouses. With its help we have on-boarded four big customers. With TMS, we have arrested some revenue leakage because now all trips get automatically reported and, hence, cannot be missed.

What have logistics players like you learnt from the pandemic's jolt to supply chains? How critical is this industry for putting India on the world map?

We learnt that we should be more and more process-driven and less limited by person-specific dependencies. We also learnt the value of drivers and manpower—with all the lockdown and migration. Drivers are the backbone of this industry. And technology can help to make everything streamlined and more organized. Logistics is the spine of any economy. Specially India—which is on a trillion-dollar path and has, lately, witnessed remarkable improvements in its ports and roads. There is a lot of opportunity to take logistics to the next level by making it all more organized. We expect AI and automation to change a lot in the next few years.

How far are we from seeing Fleet-Platooning on our roads?

That will take time—at least, another 15 years, thanks to our road conditions and the way we drive here. But if that happens, platooning can lead to a lot of revenue optimization.

How?

We can check unscheduled stoppages. The customers can release fleets faster when we do on-time deliveries – leaving our assets free for more business. That would mean, at least, 10-15 per cent savings. ⁽¹⁰⁾

Cloud—The Maple Leaf of Good Luck

Loblaw's turn into the aisle of Cloud: Leveraging Oracle, Stacking up Innovation and Customer Success



DAVID MARKWELL
EVP and Chief Technology and
Analytics Officer, Loblaw Companies

Every company passes through many seasons – no matter how big or old or new it is. From the spring of growth to the autumn of inertia and the winter of redundancies – a business must confront all realities. Foresighted enterprises make sure they keep shedding old leaves and adding new buds of the future. These are the ones that stay evergreen. And relevant. Like Loblaw.

Since 1990, Loblaw Companies Limited, popularly known as Loblaw, has pioneered breakthroughs in revolutionising the grocery retail experience for many Canadians. As Canada's leading food and pharmacy retailer, Loblaw

boasts nearly 2 billion (annually) in transactions across its extensive network of nearly 2,500 stores and national e-commerce options. Loblaw states that it is committed to serving Canadians through various trusted brands and offers a diverse range of products and services spanning food, pharmacy, beauty, apparel, and financial services. At the heart of Loblaw's customer-centric approach is its PC Optimum loyalty program, which boasts nearly 16 million active members. Incidentally, adding the ingredient of technology can deepen this stronghold on customer-centricity – enriching and accelerating CX in a new-age way. Let's get a peek into Loblaw's mission, its seamless

transition to Oracle Cloud, and the transformative impact this had on its business.

SHOP WELL, SHOP EASY AND LIVE LIFE—WELL

Loblaw's mission statement is centred around "helping Canadians live life well." This mission encompasses various strategic focus areas: retail, pharmacy, financial services, and more. The core of Loblaw's operations revolves around its retail offerings, which come in various formats, including conventional grocery stores, discount stores, superstores, apparel outlets, pharmacy services, and beauty boutiques. Loblaw's extensive network ensures that Canadians have convenient and affordable access to the products they need. In addition to traditional retail, Loblaw's Shoppers Drug Mart pharmacies pack many important areas like—prescription services, medical consultations, and expanded healthcare services. Through President's Choice financial services, Loblaw also offers credit cards, savings accounts, and other financial products, enhancing the financial well-being of its customers. However, what truly sets Loblaw apart is its PC Optimum loyalty program, allowing customers to earn and redeem points across the entire network, whether through digital channels or brick-and-mortar stores. Loblaw's maintains that its commitment to its customers goes beyond products and services; extending into environmental responsibility, with initiatives to reduce food waste, eliminate non-recyclable plastics and achieve a net-zero carbon footprint. That's exactly why swift and frictionless CX becomes the top-most shelf for any retailer – specially one that offers digital adjacencies and financial fluidity to its customers. And that's precisely where Cloud jumps in.

SEAMLESS TRANSITION TO ORACLE CLOUD

Speaking at Oracle Cloud World 2023, Loblaw's Executive Vice President and Chief Technology and Analytics Officer, David Markwell, shared some precious insights into the company's remarkable journey to the cloud. Loblaw's decision to migrate its substantial SAP database, comprising 180 terabytes of critical data, to the Oracle Cloud was not a small task. However, the move was driven by Loblaw's commitment to becoming a more customer-focused and agile business than ever. The decision was taken, and the wheels started moving.

But the transition was not without risks. And Loblaw took every measure to toss out those risks from this

cart, loading it with as many impact areas as possible. To start with, it conducted a rigorous selection process to find the ideal cloud partner. Key criteria included finding a cost-effective, high-performance cloud platform, mitigating operational and migration risks, and establishing a solid partnership. Oracle Cloud emerged as the top choice, ticking all the boxes on various technical and partnership requirements.

The migration, which took only six hours of actual downtime, significantly improved performance, and shrunk transaction processing speed in a staggering way. Loblaw also used the opportunity to enhance its security posture, automate maintenance routines, and bolster the platform's resiliency. The partnership with Oracle Cloud ensured that Loblaw had a supportive ally throughout the migration process.

NEXT AISLE—HEALTHCARE

Loblaw's commitment to innovation extends into the healthcare sector. With a vision to make healthcare information more accessible and secure for Canadians, Loblaw leverages its vast network to deliver healthcare services. This includes initiatives such as medical adherence programs, personalised messaging for chronic patients, and the PC Health app, which aggregates biometric data, prescriptions, and wellness programs. This strategic imperative aligns with Loblaw's 30,000-foot goal of transforming the healthcare ecosystem in Canada, demonstrating the company's dedication to its mission of helping Canadians live life well.

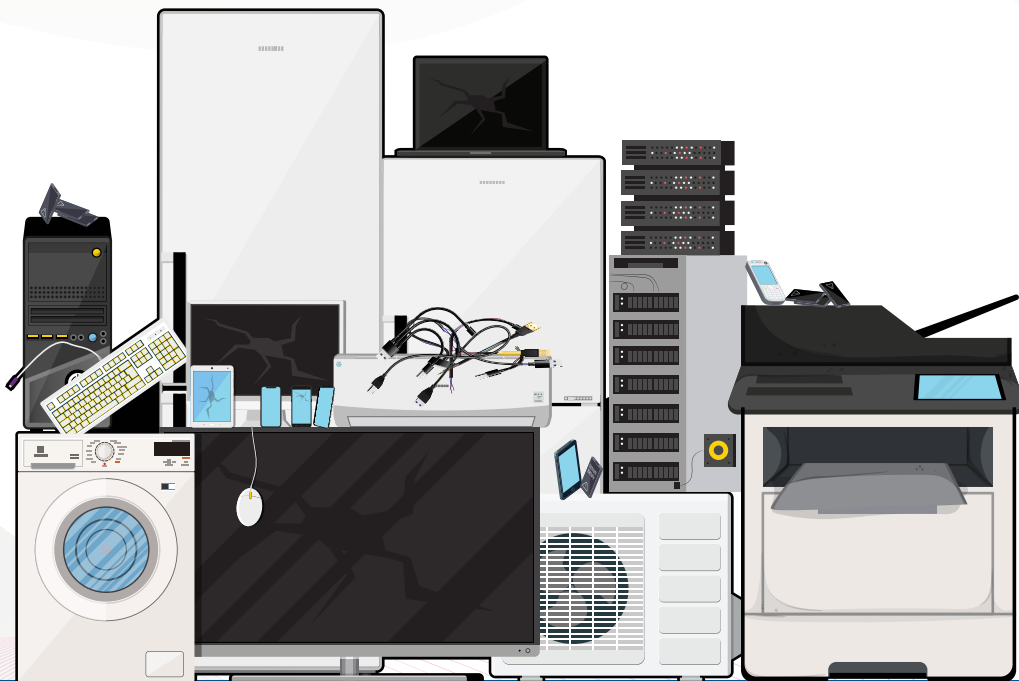
Loblaw's journey to excellence reflects its unwavering commitment to customer success and innovation. By transitioning to Oracle Cloud, Loblaw has improved its performance and security and expanded into critical sectors like healthcare. Loblaw's mission to help Canadians live life well is at the core of its operations, and its partnership with Oracle Cloud was a key enabler in achieving this mission. As Loblaw continues to evolve and adapt to changing customer needs, its future looks promising, driven by a foundation of technological excellence and a customer-centric approach.

Now that its customers experience new delights of speed, seamlessness and precision – the enterprise is blossoming well to new heights of customer-centricity and intimacy- just like a happy maple tree. ⁽¹⁰⁾


(The author was hosted by Oracle at Las Vegas, for Oracle Cloud World (OCW) 2023.)


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