The third edition of the Samman, announced during the 22nd annual conference on 4th September 2021, honored 14 veteran Indian CIOs.
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Startups & Enterprises: Why the twain should meet?

This is the third edition of CIO&Leader Samman – the only program that honors veteran CIOs not just for their professional achievement and business leadership but also for their contribution to the community. Started in 2019 to commemorate the 20th CIO&Leader Conference, the response we received made us turn this into a regular annual program. So far, we have honored 39 veteran CIOs with the Samman. The cover story focuses on the 14 recipients of this year’s Samman. You can also find the list of all recipients since the beginning.

From the beginning, we have turned to former CIOs to choose the recipients every year as jury. The deep insights we get from them while listening to their conversations in the jury meetings convince us that good CIOs are far more than technology and business. Their deep understanding of business processes and their flow, value of business information, intricacies of organizational risk and compliance and handling vendors in a very dynamic area that is IT – to name a few – give them unique insights that can be valuable for not just the enterprise IT teams in similar organization but many players in the digital ecosystem.

Not using that wisdom for creating value in our economy is improper; I will say even criminal.

At the same time, an almost parallel wave is gripping the Indian psyche (and steadily the Indian economy). That is the startup ecosystem. Indian startups are making headlines globally for their innovation and unique approach to unique Indian needs—helping to accelerate digitization of India.

There is a lot to learn from these startups for large businesses. Some of these learnings can be how to innovate, how to fail, tapping newer technologies as a process, working in a collaborative manner, finding use cases for new technologies in an everyday basis.

And the learning street is never one way. The startups, great innovators and risk takers, can also learn a lot from the large enterprises. How to do things at scale, managing large and complex projects, effective governance, and vendor evaluation are just some of the things that large enterprises can teach the startups.

When they collaborate, it is not just about learning but they can actively help each other in actual business.

While few will argue with me on the things the two can teach each other, what is not as clear is how the two can practically do that.

I think technology is the best common ground from which this process of collaboration can begin. The enterprise CIOs and founder CTOs of startups can effectively collaborate to do a lot more for their respective businesses.

As a platform for business technology leaders, we would be only too happy to play whatever little role we can to make that possible.

The twain should meet.
COVER STORY

12-22 | 3rd CIO&Leader Samman

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To accelerate value creation, CIOs and IT executives should focus on three key areas – leading from anywhere, nurturing connections and reaching beyond, according to Gartner. As organizations continue to emerge from the disruption of the COVID-19 pandemic, CIOs and IT executives will need to seek to generate value in fundamentally new ways. They should focus on leading anywhere by ensuring enterprise and talent readiness; nurture connections to ensure ecosystem readiness; and reach beyond by using technology and society readiness.

RPA automation will threaten the livelihood of 230 mn or more knowledge workers or approx 9% of the global workforce.

Use of database monitoring tools rises

Over three quarters (79%) of database professionals are now using either a paid-for or in-house monitoring tool, a survey from Redgate Software has shown. This is an increase of 10 percentage points from the same survey last year and, at the same time, the 86% satisfaction rate with paid-for monitoring tools is also an all-time high, up 18 percentage points on the previous year.

Cloud ecosystem revenues leap

Across four key cloud service and infrastructure market segments, operator and vendor revenues for the first half of 2021 were USD 235 billion, having grown by 25% from the first half of 2020, according to Synergy Research Group. The biggest growth was seen in cloud infrastructure services, comprising IaaS, PaaS and hosted private cloud services. First half revenue from these services grew by 37% from 2020. Enterprise SaaS revenues grew by 24%, while spending on IT hardware and software for public, private and hybrid infrastructure grew by 16%.

Cyberattacks increase 40% globally in 2021

Globally, there are 40% more attacks weekly on organizations in 2021 compared to 2020, according to Check Point Software Technologies. Globally, after a slight decrease in the weeks before March 2020, from March 2020, there was a significant increase in the average weekly number of attacks on each organization over the months including 2021. In September 2021, the average weekly number of attacks on each organization globally reached its peak with over 870 attacks. This is more than double the number of attacks in March 2020.

India retail industry to witness huge growth

At 23% CAGR through 2025, India’s retail industry is set to witness a massive shift with its e-commerce sales expected to grow at a compound annual growth rate (CAGR) of 23% during 2020-25 to reach INR 9,328 bn (USD 119 bn), according to GlobalData. Due to the pandemic induced restrictions consumers shunned offline modes and online food & grocery sales grew by 76.7% in 2020 to reach INR 273.1 bn (USD 3.8 bn) and are further expected to grow at a CAGR of 31.9% to reach INR 1,088 bn (USD 13.9 bn) in 2025.

Global revenue from 5G services will reach USD 73 billion by the end of 2021; rising from USD 20 billion last year, according to Juniper Research’s report, titled 5G Monetization: Business Models, Strategic Recommendations & Market Forecasts 2021-2026. This represents a growth of 250%. It predicts that 5G will represent 8.5% of operator revenue by the end of this year, as operators seek a return on their significant investment into the technology.
ITDMs rethinking 2022 IT investments

9 out of 10 IT decision makers look to modernizing cloud architecture and improving data capabilities as top areas of investments, according to a Teradata study. Organizations know that having the right IT in place and leveraging a cloud-first and data-centric mentality is essential in today's digital economy. The study explores global sentiment around data-driven transformation investments this year and beyond.

Govt orgs increasing investments in AI

Government organizations around the world are adopting AI technologies to help them achieve their public purpose or mission, but government employees are still concerned about the technology's impact, according to Gartner. 36% of government respondents in the 2021 Gartner CIO survey indicated that they planned to increase investment in AI/machine learning in 2021. Another survey found that AI technologies are still viewed with a level of uncertainty by a section of government employees.

Encrypted connections unsafe?

An astonishing 91.5% of malware have arrived over HTTPS-encrypted connections, alarming surges across fileless malware threats, dramatic growth in ransomware, a big increase in network attacks, and much more in the first half of 2021. This is as per WatchGuard's Internet Security Report. As we are still firmly in a mobile or hybrid workforce model, the traditional network perimeter doesn't always factor into the cybersecurity defense equation.

India AI market to reach USD 7.8 bn By 2025

By 2025, the state of AI adoption in India — covering hardware, software and services market is expected to grow at a five-year compound annual growth rate (CAGR) of 20.2% and total revenues reaching an impressive USD 7.8 billion in India. The businesses in India will accelerate the adoption of both AI-centric and AI non-centric applications for the next five years. Amongst the three categories, AI software segment will dominate the market and would grow from USD 2.8 billion in 2020 at a CAGR of 18.1% by the end of 2025. Organizations are leveraging multiple AI applications to manage operations, and scale supply chains.

World's largest COs susceptible to phishing

For Global 2000 companies, web domains remain dangerously under protected, according to CSC's Domain Security Report: Forbes Global 2000 Companies. CSC's research also shows that most Global 2000 companies continue to lag in the adoption of domain security measures, 81% of are not using registry locks.

Total VR market revenues set to rise

2020 both accelerated and severely hampered the Virtual Reality (VR) market, and those impacts continue in 2021. Consumer interest in VR grew significantly, while the bubble created around location-based VR is now bursting. Interest is slowly returning for public usage in arcades and other experiences, while home use remains a stable growth area, especially in VR gaming. According to ABI Research, there will be steady growth in both enterprise and consumer VR segments over the next five years.

4 technologies that’ll have high impact over digital commerce

Over the next two years, visual configuration, digital wallets, customer identity and access management (CIAM) and virtual customer assistants (VCAs) will have high impact on digital commerce as mainstream adoption of these technologies increases, according to the 2021 Gartner Hype Cycle for Digital Commerce. CIAM, digital wallets, visual configuration and VCAs entered the slope of enlightenment in the Hype Cycle in 2021. In this phase, examples of how the technology can benefit the enterprise start to crystallize and become more widely understood.

AI to generate USD16.5 bn in M&E Entertainment Services

The media and entertainment (M&E) industry continues to undergo a transformative process, adapting to changes in consumer behavior and preferences, new technologies, and regulations. Direct to Consumer (DTC), emphasis on privacy, omnichannel marketing, and cord-cutting are creating numerous challenges for M&E service providers. These include handling the high volumes of data generated, complexities in audience targeting and identity resolution, and need for deeper levels of personalization. All these changes are making artificial intelligence and machine learning (AI/ML) increasingly essential to automating many media processes.
Ransomware attacks have reached ‘stratospheric’ levels, now accounting for 69% of all attacks involving malware, according to Positive Technologies’ Cybersecurity Threatscape: Q2, 2021. The research also reveals that the volume of attacks on governmental institutions in particular soared from 12% in Q1 2021 to 20% in Q2. And the company’s Expert Security Center (PT ESC) during the quarter discovered the emergence of B-JDUN, a new RAT used in attacks on energy companies, and Tomiris, new malware that comes with functions for gaining persistence.

Most organizations are more concerned about ransomware than other cyberthreats, according to Fortinet’s 2021 Global State of Ransomware Report. However, while the majority of organizations surveyed indicated they are prepared for a ransomware attack, there was a clear gap in what many respondents viewed as essential technology solutions for protection and that which can best guard against the most commonly reported methods to gain entry to their networks.

Investment to rise in digital transformation

85% of businesses plan to increase their investment in digital transformation over the next three years in order to tackle climate change, embrace automation and unlock the performance benefits of advanced technologies. The findings were drawn from an AVEVA-commissioned survey focused on innovation priorities of senior industry leaders and managers. AVEVA surveyed over 850 digital transformation experts across industries such as manufacturing including large-scale agribusiness and food and beverage, infrastructure, energy, power and chemical processing. The objective was to understand the different market opportunities, pressures and innovations driving industries to embrace digital operations, using a combination of AI, industrial software and human insight to deliver unprecedented performance.

Tech providers plan big investment in AI

One-third of technology and service provider organizations with Artificial Intelligence (AI) technology plans said they would invest USD 1 million or more into these technologies in the next two years, according to a new survey from Gartner.

ApeJ ICT spend to show healthy growth

ApeJ ICT spending, including IT spending in addition to telecom services and new technologies such as AI, Robotics, Cloud, Analytics, and IoT, will increase by 9.3% in 2021 to reach USD 1.3 trillion, according to IDC. Organizations across ApeJ have accelerated their investment in these new technologies to rapidly adapt and respond to business disruptions, thus driving this growth. At the same time, 2nd Platform technologies, including non-mobile, on-premises, and those that lack specific functionalities associated with other new technologies, were either constant or declining.

CpaaS revenue to grow

The global value of the CpaaS market will exceed USD 10 billion for the first time next year; rising from USD 8.6 billion in 2021, according to Juniper Research’s study, tilted CPaaS: Future Market Outlook & Emerging Opportunities 2021-2026. This represents growth of 17% year-on-year. To capitalize on this remarkable growth, the research predicts CpaaS vendors will seek to further differentiate their services.

Hyperscale data center count grows

The total number of large data centers operated by hyperscale providers increased to 659 at the end of Q2, having more than doubled since mid-2016, according to Synergy Research Group. In terms of location, the US and China continue to account for over half of the major cloud and internet data center sites. The next most popular locations are Japan, Germany, the UK, Australia, Canada, Ireland and India.
Telangana successfully tests country’s first e-voting system

The Telangana State Election Commission has successfully tested what is called India’s first mobile e-voting system in Khammam municipal corporation. Like VVPATs in EVM, the system shows the voters whom they voted for 10 seconds. However, they cannot take a screenshot.

The initiative has been driven by the Telangana State Election Commission (TSEC).

Ecosystem to integrate state procurement portals

The Department of Food and Public Distribution has developed an application ecosystem, which allows the integration of procurement portals of all state governments having Minimum Threshold Parameters (MTPs) for monitoring and strategic decision making. The introduction of Minimum Threshold Parameters (MTPs) in procurement operations are necessitated to avoid middlemen in procurement and provide that farmers get the best value for their produce. The integration with central portal is expected to help in expediting the reconciliation of procurement figures with states.

BPCL launches new automated fuelling system for better CX

Bharat Petroleum Corporation Limited (BPCL), a public sector enterprise under the Ministry of Petroleum and Natural Gas has launched UFill - a digital customer experience system that gives customers complete control over their fuel filling process.

Karnataka Govt revamps digital governance platform

The Karnataka state government has revamped its digital platform, Mahiti Kanaja, to provide citizens access to a wide range of government services. This is the second such initiative in the country after Rajasthan’s Jan Soochna portal.

The platform now offers 167 services under 50 departments through a portal and a mobile application.

Portal for wetlands info launched

A web portal – ‘Wetlands of India Portal’ (http://indianwetlands.in/), giving details on wetlands of the country, has been launched by the Ministry of Environment, Forest and Climate Change. The portal is a single point access to all information relating to Indian wetlands.

The portal also hosts capacity building material, data repository, videos, and information for students. Importantly, a dashboard for each State and UT has been developed to access the portal and populate it with information of wetlands in their administration. Citizens can register themselves and upload wetland related pictures across different themes.

App for port users launched

The Ministry of Ports, Shipping and Waterways has launched a port mobile app, called MyPortApp. The App includes all port details and monitor operations virtually. Targeted towards Port users for availing various Port services, the App is aimed to promote transparency and easy access of port related information. The App also has various information like Vessel Berthing, Rake & Indent, Rake Receipt, Container Status, Tariff, Bills, Port Holidays, etc. and can be accessed anywhere 24x7 and reach out directly to port.

Project monitoring portal launched by Def. Ministry

Ministry of Defence has launched a Web Based Project Monitoring Portal (WBPM) for Military Engineer Services (MES). The portal has been developed by Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-G). The portal will enable real-time monitoring of projects from its inception to completion. All stakeholders, not only from MES but also Armed Forces users, can gain access to the project information.

Ayushman Bharat Digital Mission launched

Prime Minister Narendra Modi has launched Ayushman Bharat – Digital Mission. It aims to connect the digital health solutions of hospitals across the country with each other. The Mission will not only make the processes of hospitals simplified but also will increase ease of living, he added. Under this, every citizen will now get a digital health ID and their health record digitally protected.

Government News
Koovers raises USD1.5 million

Koovers, an auto spares B2B startup, has raised USD1.5 million in a round led by Inflection Point Ventures, JPINVCats and Venture Catalysts were among other investors. The startup plans to use the funds to enter more markets across India, expand its product portfolio and upgrade its technology platform. Koover was founded in 2016 by Vinayak, Sandeep Begur and S Prem Kumar and provides automobile workshops doorstep delivery of genuine spares for all car manufacturers. It has more than 5,000 workshops in its network and has clocked 100% year-on-year growth even through Covid. It has an annualised revenue run rate of USD4.5 million.

ReshaMandi raises USD30 million in funding

Silk B2B startup ReshaMandi, a marketplace focused on silk products, has raised USD30 million, or about INR 225 crore, in Series A funding round led by Creation Investments. The equity plus debt round saw participation from Omnivore, which led the seed round of ReshaMandi, 9 Unicorns, Venture Catalysts, Sandeep Singhal of Nexus, and IndiaMART founder Brijesh Agarwal, among others, the Bengaluru-based company said in a release on Monday. Debt investors include Northern Arc, Alteria, Innoven, and Stride Ventures, it said.

OfBusiness valuation nearly doubles

OfBusiness, a commerce startup, has raised USD207 million in fresh funding led by New York-based investment fund Tiger Global. Its valuation post-money has nearly doubled to around USD3 billion from July, when Japan’s SoftBank Vision Fund II led a USD160 million round. Both SoftBank as well as Falcon Edge-managed Alpha Wave Incubation have participated in the funding round.

ReshaMandi raises USD30 million in Series B funding

Bijnis, a B2B platform for factories, has raised USD30 million, or about INR 220 crore, in a Series B funding round led by Westbridge Capital. Existing investors InfoEdge, Matrix Partners India, Sequoia Capital India, and Waterbridge Ventures also participated in the fundraising. The investment will be utilised mostly towards expanding the base of 5,000 manufacturers as and helping them generate demand by expanding the retailer base as well. The fresh capital infusion will also be used for product development and expanding the technology team.

Medikabazaar gets USD75 million funding

Healthtech platform Medikabazaar said it has raised USD75 million in a Series C funding round led by Creaegis, along with CDC Group, the UK’s development finance institution, making it the highest funding raising in the B2B healthcare space. The company will use the funds to strengthen its digital capabilities, deepen the supply ecosystem and technology driven distribution channels, and bolster capacity. The funding will also help the startup grow its international operations across MENA and Southeast Asia markets.

Amul, Parle, others stop direct supply to B2B startup Udaan

Some of India’s largest fast-moving consumer goods (FMCG) makers such as Amul and Parle Products have alleged that B2B ecommerce platform Udaan was monopolising distribution to retailers and are not supplying stocks directly to the Bengaluru-based startup. Two other large FMCG companies said they have curbed direct supplies of select stocks to Udaan. Udaan operates across FMCG, lifestyle and general merchandise products, with over 3 million users.

Infra.Market posts 3.5-fold jump in FY21 revenues

Construction materials startup Infra.Market has posted a 3.5x jump in its revenues for the year ended March at INR 1,242.9 crore on the back of heightened demand from tier I and II cities across the country, a senior official said. For 2019-20, Infra.Market, which became a unicorn early this year, had reported revenues of INR 350.8 crore. The company is expecting a five times growth in its revenues for the current financial year at INR 6,670 crore, mainly from the growth in its private label business and B2B initiatives.

Bijnis raises USD30 million in Series B funding

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Anar app gets seed funding

Anar, a business-to-business networking app, has raised USD6.2 million in a seed funding round co-led by Elevation Capital and Accel India. First Cheque and Utsav Somani of AngelList India participated in the fundraising, as did angels such as Pratilipi cofounder RanjeePratap Singh. The startup will use the capital for building the product and hiring.

startup news
**CIO & CISO MOVEMENTS**

**DR. JAI MENON** has been appointed as CIO at Skylo Technologies. Dr. Menon is also the Founder of Kappa Consulting. Previously, he was the Founder & CEO of Hyperdew.

**GAURAV SHARMA** has joined Poonawalla Fincorp as Group CTO. Immediately prior to this, Sharma was CTO at L&T Financial Services.

**MANOJ KUMAR MAUNI** has been appointed as CTO at Bandhan Bank. Immediately prior to this, Mauni was EVP - IT at Kotak Mahindra Bank.

**RAMAN KALRA** has been appointed as the Chief Digital Officer at ReNew. Immediately prior to this, Kalra was Partner, PwC India - Digital Transformation & Strategy.

**SAKSHI VIDUR** has joined Philips as Director - Enterprise IT Security. Vidur moves from Yum! Brands where she served as the Head of Information Security - Asia Pacific.

**SWAROOP PATIL** has been appointed CIO at Everest Industries. Patil joins from Godrej Consumer Products where he was General Manager - IT.

**VIJAY KANNAN** is now CIO - Global Lubricants, Sectors & Decarbonisation, B2B Customer at Shell. Earlier, at Shell, Kannan was CIO for its global commercial business.

**VINEET JAIWAL** has been appointed as Deputy CEO - Centre of Excellence (Asset Optimization, Digital Innovation, IT, R&D, Quality) at Vedanta Resources. Previously, Jaiswal was Chief Digital & Technology Officer at the same organization. He had served as a NEXT100 jury member in 2019.
INDUSTRY MOVEMENTS

ASHIS GUHA has been appointed CEO - Asia Pacific & Japan at Olive Data Centre. Guha had earlier served as the CEO of RAH Infotech.

BHASKAR SAMBASIVAN takes over as CEO of CitiusTech from Rizwan Koita. Sambasivan has been working as President of CitiusTech until now.

BOB CALDERONI Calderoni has been appointed interim President & CEO at Citrix. Besides his new role, Calderoni will also continue to serve as the Chair of the Citrix Board of Directors.

DEB DEEP SENGUPTA has joined as President & Chief Revenue Officer at Cloud4C. Immediately prior to this, Sengupta was President & Managing Director of SAP India.

RAMESH SRINIVASAN has been appointed CEO - India Business at Netcore Cloud. Srinivasan joins from QNu Labs where he was Chief Revenue Officer.

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AI with a Sense of Ethics?

Artificial Intelligence may have made it possible for machines to almost replace humans, but can they really? Not till AI starts knowing right from wrong. However, this soon could be a reality as researchers have trained an algorithm to answer questions about human values. This new program called Delphi has been developed by researchers at the University of Washington and the Allen Institute for Artificial Intelligence (AI2) in Seattle. The program aims to teach AI about human values. The importance of this is apparent as AI is being used more and in situations where it must understand ethical values.

The program has demonstrated impressive ability and can answer questions on ethical dilemma accurately.

Delphi was developed using recent advances in AI. A powerful AI model trained to handle language was fed millions of sentences culled from books and the web. Delphi was given extra training by feeding it the consensus answers from crowd workers on Mechanical Turk to ethical questions posed in Reddit forums.

Post training, Delphi was and the crowd workers were asked new questions. 92% of the time their answers matched.

There is of course room for error. But still, it’s impressive.

‘Blue Food’ is not green

There have been recent calls to the public to eat more seafood. However, the messages conveniently omit information about the environmental impact of fishing. Globally, marine wildlife is in a state of emergency. Alarming, 90% of fish populations are at or below half their historical levels. Every year, more fish species are entering the International Union for Conservation of Nature's red list of threatened species. This is more than any other animal species.

The statistics are stark. Global shark and ray populations have declined by more than 70% since the 70s and vaquita porpoise is feared to be extinct in a few years. Māui dolphin and North Atlantic right whale will follow suit closely. And the culprit for the fast vanishing aquatic life is not climate change or plastic pollution but fishing.

Hence, the recent calls for more fishing in the garb of a new term encompassing all seafood and aquaculture products – “blue food” – would lead to the annihilation of aquatic species.

INSTAGRAM INFLUENCERS ARE PASSÉ

The so-called influencer economy has been booming and Instagram has become a rather competitive space for wannabe influencers. For the content creators who have made it their calling, posting content on YouTube, Facebook, Instagram, and more is now challenging due to an ever-changing algorithm determined by Big Tech companies. They have to contend with the uncomfortable reality of posting multiple pieces of content daily all for small financial reward. Not every influencer is raking in big bucks. For the majority, it’s a thankless and a poorly paid occupation.

All this seems to be changing thanks to new platforms such as Substack, Gumroad and Kajabi, that let creators connect with their fans and earn money from them directly. This has led to the rise of what social media watchers are calling independent creators.
The third edition of the Samman, announced during the 22nd annual conference on 4th September 2021, honored 14 veteran Indian CIOs

By CIO&Leader
The CIO&Leader Samman was launched in 2019 to mark the 20th anniversary of the annual CIO&Leader Conference, to acknowledge the contribution of senior IT leaders in Indian enterprises.

The third set of the honors were presented to fourteen veteran CIOs in the 22nd CIO&Leader Conference, held virtually on 3rd-4th September 2021.

CIO&Leader has never been involved in giving any awards to CIOs, even though its sister publication, IT NEXT, confers the prestigious NEXT100 awards. That is because while that serves a community objective of finding future CIOs of India, giving awards to CIOs, in our humble opinion, is not exactly something we think we are qualified to do.

CIO&Leader Samman is not an award at all. It is a way of paying respect to the veteran CIOs.

To choose a few from among a set of deserving people is anything but easy. We decided to turn to the CIOs themselves to do the selection. To avoid conflict of interest, we turned to erstwhile CIOs, as serving Indian CIOs are eligible for the Samman.

**Methodology**

For the purpose of selection of the recipients of the awards, CIO&Leader invited five erstwhile CIOs to be members of a jury panel. They were:

- **Kaushal K Chaudhary, former Executive Director - IT, Lanco**
- **Prashun Dutta, former CIO, Tata Power & Reliance Energy**
- **S Ramasamy, former Executive Director - IS, Indian Oil**
- **Bishwanath Ghosh, former CIO - Enterprise & Corporate Functions, Mahindra & Mahindra**

While Chaudhary, Dutta and Ramasamy were jury members in the last edition as well, Ghosh, himself an honoree in the last edition, was the new face.

For getting the names initially, we decided to follow the peer nomination route.
and asked the CIOs to nominate a maximum of three CIOs each for the honor. 
CIO&Leader spelt out the minimum criteria. To be considered for the Samman, the CIOs needed to meet the following basic criteria:

- **He/she needed to have had a minimum of 30 years of professional experience.** Those in their 30th year were also to be considered.
- **Out of those years, at least five should have been as a CIO**
- **He/she needed to be serving as a CIO in India now.** Those who had retired or are serving in a non-CIO role or are based outside India were not to be considered.

These criteria were publicized for the people who would nominate. Many CIOs came back with their nominations.

While each of the valid nomination—those meeting the criteria—was considered by the jury for the honor, the number of nominations had no bearing on the final selection. That choice was completely the jury’s.

The jury took into account the CIOs’ professional achievements, use of IT to maximize strategic values for businesses that they have been associated with, their leadership, and their contribution to and participation in the community cause.

The jury decided to give more importance to the leadership and contribution to the community. The logic was that almost all the CIOs who had made it to the shortlist were almost equal when it came to their professional achievement. They agreed that unless they have those credentials, they could not have come thus far.

After three meetings and exhaustive research put forward by jury members, they came out with 14 recommended names.

**The List**

There were 48 nominees in the final list. After intense discussions and deliberations, the esteemed jury panel came out with a list of 14 recipients.

The 14 recipients of the Samman, in alphabetical order, are:

- Alok Khanna, Executive Director - IS, Indian Oil
- Atanu Pramanic, Joint President & CIO, Hindalco Industries
- Rajababu Kotta, CIO, Andhra Pradesh Paper Mills
- Rajasekhar V V, Group CIO, ITC
- Rajeev Batra, CIO, Bennett, Coleman & Co
- Rajiv Sikka, Group CIO, Medanta Hospitals
- Ritu Madhbhavi, Group CIO, FCB India
- Sanjay Moralwar, Global CIO, Cadila Healthcare
- Sanjay Prasad, CIO, CESC Power Ltd
- Sendil Kumar V, CIO, Shriram Capital
- Sreekumar Balachandran, Global IT Head, Suntec
- Subramanya C, Global CTO, Hinduja Global Solutions (HGS)
- V Vasudevan, CIO, EID Parry
- Ved Prakash Nirbhya, CIO, Tech Mahindra

We present you the exclusive set of honorees – the recipients of the 3rd CIO&Leader Samman – with their brief snapshots.
As the man in charge of digital transformation of India’s largest corporation, the contribution of Alok Khanna, Executive Director - IS, Indian Oil, to his company is very explicitly visible. Indian public sector enterprises, with the exception of a few, are not known for their progressive IT strategies. If Indian Oil is often known as the model technology adopter among PSUs, that speaks the volume of the man in charge of overall strategic technology rollout.

Khanna, an MBA and an engineering graduate of IIT Roorkee, is known for his smooth large-scale change management, aligning newer business strategy with technology and of course continuous business process improvement, so crucial in a process-driven industry like Oil & Gas.

“Think Big, Start Small, Scale Fast” – is the mantra that drives him, even as he pursues an agile approach in a huge corporation like Indian Oil. The Industry 4.0 initiatives of Indian Oil has been spearheaded by Khanna.

An active contributor to the community, Khanna is a member of the PSU IT Heads forum. He has been a NEXT100 jury three times.

A leader who comes with a strong business technology services delivery background, Atanu Pramanic, Joint President & CIO, Hindalco Industries, believes that Indian companies are beginning to realize the value of IT as a big business enabler.

A progressive thinker, Pramanic’s approach to enterprise is strongly backed by solid delivery experience, in his previous assignments at Genpact – where he spent close to 10 years as a global practice head – and NIIT. He combines his project management skills with his ability to think strategically.

Pramanic has been in enterprise IT roles for just about ten years but has proven his mettle with his sharp IT strategy and flawless execution. And for all that, he is immensely qualified. A BTech in Mechanical Engineering from Jadavpur University and an MTech from BITS - Pilani in Project Management, Pramanic has also completed his MBA in Finance and Corporate Strategy from IIM - Calcutta.

Before joining Hindalco, Pramanic was the CIO of Larsen & Toubro Construction. Pramanic is active in the community and has been a NEXT100 jury.
In a career spanning over three decades, veteran CIO Rajababu Kotta is accredited with leading several complex IT projects in digital transformation, cybersecurity, data and analytics, and application integration, among others in the various companies he has worked in.

In his current role at Andhra Pradesh Paper Mills (APPM), one of the largest integrated pulp and paper manufacturers, he oversees the use of IT in the company and the overall IT strategy to support its operations business objectives.

A native of Eluru, West Godavari Dist, Andhra Pradesh, Kotta has solid expertise in data analysis, budgeting and business operations.

Having completed his Masters in Rural Management from the Institute of Rural Management Anand (IRMA), he has leveraged his excellent IT systems, planning IT implementation skills as well as superior analytical and problem-solving capabilities for leading dairy firms, such as Heritage Foods and Visakha Co-Op Dairy in all functional areas, such as Milk Procurement, Materials Management, and Production Planning in various capacities.

Rajababu Kotta
CIO
Andhra Pradesh Paper Mills

Rajasekhar VV
Group CIO
ITC

Rajasekhar emphasizes a strong collaboration between human talent and technology to leverage their unique strengths and unravel the power of digital transformation for exceptional experiences.

An alumnus of IIM - Kolkata and ISB, Rajasekhar’s heart beats to the fast-paced advancement of technology, something that’s evident from the success of numerous IT transformation projects he has led.

Before his current role at ITC Infotech, he was Group CIO for Agribusiness at ITC, where he was part of the leadership group that implemented e-choupal, one of India’s most prominent technology initiatives in the agriculture sector, that eliminates inefficiencies and links seamlessly the farm to the customer chain.

He has been instrumental in helping ITC Infotech consolidate its position as a specialist PLM & Engineering services provider for the manufacturing industry while establishing itself as a leader in PLM for the Retail, Footwear & Apparel (RFA) industry.

With over three decades of rich leadership experience, Rajasekhar is always willing to share his knowledge and expert insights with the IT community and help them accomplish their goals.
KNOWN AS an out-of-box thinker who always encourages his team to develop new and exciting solutions, Rajeev Batra has worked for media, logistics companies, IT service providers, and telecom companies in a career spanning nearly three decades.

A significant part of Batra’s experience has been in the telecom sector with Bharti Airtel, Reliance ADA, and MTS - Sistema Shyam Teleservices Ltd, where he architected and executed several innovative and industry-first IT transformation projects. As a Chief Architect - IT at Bharti Airtel, Batra played a crucial role in executing the Bharti Airtel-IBM IT outsourcing agreement. At Reliance Communications, Batra created the framework of JV with the former and Alcatel Lucent for Network Managed Services outsourcing.

Batra’s passion for mentoring and building leaders within the team is widely known, and the community respects him for his continuous efforts to help young IT professionals. He has a BE (Electronics) degree with a university rank and PGD in Advance Computer Programming and System Analysis.

THE CIO&LEADER Samman jury considers contribution to community as one of the most critical parameters while deciding on the Samman. And here is a recipient who is recognized for it, in his first assignment as CIO.

A CIO should strive for continuous improvement and never be satisfied; should appreciate that application is more important than technology; should always be focused on internal and external customers and should build trusted relationships – are Sikka’s clear-cut guiding principles.

Healthcare in India is relatively new in serious IT implementation. So, a CIO has to build a lot of processes and practices from scratch. It is to Sikka’s credit that despite being a first time CIO, he has done that superbly in Medanta. Probably what helped Sikka is his experience in the IT services industry – in such big names as Polaris, Keane and Softech.

Always willing to contribute to community causes, his help to the community is beyond professional matters. His active help to all when Delhi was reeling under COVID second wave was nothing short of exemplary.
THERE IS a dearth of women tech leaders in India and Ritu Madbhavi, Group CIO, FCB India, vouches exactly for this – need to on-board more women tech leaders so as to do away with the myth that women cannot survive or advance in technology. Her thought process is based on complete logic and precision, qualities she possesses coming from a mathematics and statistical background. Its these qualities which has helped her succeed in her almost 35 years long professional career.

Madbhavi, who completed her Masters in Applied Maths from Carleton University and BA (Hons) in Statistics from Delhi University, has always believed that understanding the root cause of a problem and coming up with a logical and fool-proof solution is the order which needs to be followed by both tech leaders as well as organizations.

Before joining FCB India, she worked in FCB Ulka Advertising, NIIT and TCS. From her experience, she believes in the importance of coaching and mentorship programs, especially, the immediate urge to bring up women in leadership roles through such programs.

ONE OF the critical traits of a great CIO is his ability to create a powerful vision to unify business and technology goals. Even more challenging is to execute that vision steadily in the age of rapid data proliferation and customer empowerment. In his three-decade-long career, Sanjay Moralwar, Global CIO at Cadila Healthcare has continually demonstrated that ability.

With a diverse experience in customer relationship management (CRM), IT service management, AI and ML, big data and predictive analytics, data center management, IT security compliance, and IT strategy, Moralwar attaches great importance to team building and collective vision for exceptional business outcomes. He has been instrumental in helping Cadila Healthcare understand users and ensuring that the company is agile in delivering as per their needs.

Moralwar is also an avid reader and counts reading, blogging, and playing outdoor games as his favorite hobbies. Apart from Cadila Healthcare, he had stints at Torrent Pharmaceuticals, Bajaj Auto, and CMS Computers.

He holds a postgrad degree specializing in physics and electronics from Saurashtra University.
SANJAY PRASAD is the quintessential techie CIO who has been managing enterprise IT even before Indian businesses, let alone common people, knew what a computer is, joining in the Systems department of Tata Motors, immediately after his graduation in 1985.

Known for his outstanding project management skills, he has been a great champion of continuous learning. By his own admission, he did not know much about patents when he moved to CTO’s office at TCS but within five years, ended up filing two patents himself.

Active in the community, he was instrumental in the founding of Other Services Providers Association during his stint in the BPO industry as CIO of Citigroup Global Services and then TCS BPO. He has also represented the industry in the IT-ITES Standing Committee of DoT.

An electrical engineering graduate from Jadavpur University and an MBA in Finance from XLRI, Prasad has worked in and led enterprise IT teams in multiple industries. Tata Motors, Hindustan Unilever, Colgate Palmolive, Citigroup, TCS, and Tata Power are some of the large corporates he has managed IT in, before joining his present assignment.

MOST ORGANIZATIONS felt the urge to deploy latest digital technologies, such as cloud, AI, RPA, etc, especially after COVID struck. Shriram Group of companies also followed the same path and the man behind bringing about the tech transformation is none other than Sendil Kumar Venkatesan who is currently engaged as the CTO of Shriram Capital.

Venkatesan, with an experience of more than 22 years at Shriram Group, is at present, heading IT Infrastructure, IT Security & Data Center operations for the entire group. Data Center, Vendor Management and Cloud Computing are some of the top tech areas he thrives on, using his overall 30 years of professional experience to full effect.

An alumnus of IIM - Calcutta (having completed his Executive Program in Business Management there), Venkatesan also holds an MBA and a Computer Science degree. Thus, he maximizes both his IT and Business knowledge, skills, management and leadership experience in his professional life to good effect. He is also currently serving as the President of CIO Klub, Chennai Chapter and is a member of MCCI.
THE INDIAN CIO community draws great power of knowledge and inspiration from the peer group, through continuous interactions and social exchanges. For a CIO based in a location where very few large businesses exist, it is often considered a major handicap. Yet, Sreekumar Balachandran, Global IT Head of SunTech has shown exemplary leadership in managing the IT of his company—one with a global footprint at that—based out of Kochi, Kerala, for close to two decades.

A BTech in Electrical & Electronics from Kerala University, he started with a brief teaching career, before working in large organizations like Indian Oil and Qatar Petroleum. He switched to IT-ITES industry with a stint in Allianz’s offshore facilities before joining his present assignment a decade and half back.

Being based out of a smaller location has not deterred him for connecting with the community. Balachandran is active in CIO Klub and is the president of its Kerala chapter.

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Sreekumar Balachandran
Global IT Head
Suntec

Subramanya C
Global CTO
Hinduja Global Solutions (HGS)

SUBBU, AS Subramanya C, is popularly known in the community, epitomizes the new IT leader who can take charge—the new CIO, who can proactively find opportunities for every business function to transform, leveraging technology. That requires not just strategic thinking, but also a thorough understanding of every nuance of the business. Not surprisingly, in an area where 3-5 years is the average tenure of a CIO, Subbu has been with his present company for more than two decades.

HGS is a global company with presence in multiple geographies providing onshore, offshore, and nearshore delivery. To keep these facilities running is a big challenge by itself. HGS IT team under Subbu ensures that every part of the business – from customer-facing functions to HR to operations are optimized, leveraging technology.

Subbu stands out as a leader and a great community person. As a leader, he has encouraged his team members to take on challenging responsibilities. He has not just been active in the CIO circuit, but has also played important roles in his industry causes.
IN THE era of Industry 4.0, manufacturing CIOs are suddenly expected to play a pivotal role of a business strategist, rather than just an IT infrastructure and services enabler. While many CIOs may see the new role as a challenge, for V Vasudevan, CIO, EID Parry, this is an opportunity to harness the potential of technology to enable new ways of business and stay put on the cutting edge of digitization.

Vasudevan looks to technology and advanced digital innovations as a way to simplify processes. His core expertise includes program management, application development and management, business analytics and big data, IT innovation, IT compliance and risk management, enterprise application, database management, administration, and mobility. He also has extensive experience in SAP implementations.

A humanitarian at heart, Vasudevan is an avid gardener who enjoys lush landscapes and flowers. He aspires to give back to society by enabling people to do more incredible things in life. He is a Post Graduate in Computer Applications.

VED PRAKASH Nirbhya has over 30 years of rich experience in the IT Services domain and has managed a diverse set of projects, encompassing IT management to setting up value chains in his career. He views COVID-19 as the most significant catalyst for digital transformation and innovation across business models and industries.

Having spent most of his professional career with Tech Mahindra, Nirbhya has driven various IT initiatives and played a pivotal role in its transformation journey over the past several years. As a CIO, he identifies the successful technology implementation and integration for Tech Mahindra and Satyam (acquired by former in 2012) as his most intriguing assignment.

In the post-COVID environment, Nirbhya has been extensively focusing on leveraging next-generation technologies, such as 5G, AI, AR, and VR, among others, for delivering an incredible experience to Tech Mahindra’s customers continuously.

An alumnus of IMT - Ghaziabad and National Institute of Technology, Surat, Nirbhya strongly believes in the importance of upskilling and reskilling people to develop future technology leaders who can manage the continuing digital transition effortlessly.
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The Science of Data

Data Science is a field of study because it uses Statistics and Calculus to make predictions in a scientific manner.

“Data Science” is being bandied about everywhere. Some IT departments have got it working, some are working on it, some will start soon, and others want to do it. But if you ask a few practitioners or academicians to define Data Science, you will likely get multiple answers. Is it Artificial Intelligence (AI), or Machine Learning (ML), Deep Learning (DL), Neural Networks (NN), Big Data (BD), Reinforcement Learning (RL), etc.; a combination of these or some more things?

In fact, it is all of it. First, a simple comparison with the field of study of Physics. Physics has many sub-branches and different people specialize in one or more of these sub-branches. Similarly, Data Science has some branches and different folks specialize in one or more of these branches. It is, therefore, a field of study. It is the study of Data for its sub-branches, which is selected based on the business application.

Data Science is a field of study because it uses Statistics and Calculus to make predictions in a scientific manner. It looks at patterns and trends to project in future. It also likes at outliers and analyzes if these are actual emerging trends. Most of this work is done by identifying the most influential data points (for the question at hand) and focuses on them to make predictions. Another very interesting part of Data Science is its self-learning science; it can actually experiment and adjust until the accuracy gets to as high as 80% (in some cases more). It will also tell the expected accuracy percentage.

Another way to look at Data Science as a field of study is to look at its history. Data Science came into being decades ago, at universities and research labs. And it uses models of Statistics and Calculus...
which are even older. So, it is not an “evolving” science; what is evolving is newer applications that can be conceived and applied. It went mainstream so late because of insufficient computing power; in fact, there is now an overarching sub-division called Computational Data Science (that needs very high computing power). Something Cloud Service Providers have made easy to access.

We will end with some examples of recent applications:

- **HR**: Predict which employee is like to quit the company; or is this particular employee likely to leave. A capstone project done by this columnist. 94% accuracy. Top 3 features for resignation: Number of hours worked in a month, Number of Projects, Tenure with the company.

- **BFSI**: Credit application processing within seconds, without human intervention. Most of us have seen it. The few seconds are required only to pull credit reports, that the data science then selects the relevant data points in credit report and makes a decision.

- **Manufacturing**: Predict which machine or assembly line will break down and therefore needs preventive maintenance.

- **Retail**: Based on weather prediction of a cyclone, rejig the entire supply-chain for that area because the customers will need lots of specific items (e.g., drinking water, etc.), and almost none of some (e.g., cakes, etc.). Deployed at one of the largest retailers of the world, along with MIT. Also came in useful when COVID-19 lockdown started and ended.

- **Logistics**: Store rearrangement so that adding/taking out parts is faster. Time saved is money earned.

- **Social**: Multiple models predicting COVID-19 trajectory; many highly accurate.

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A very interesting part of Data Science is its self-learning science; it can actually experiment and adjust until the accuracy gets to as high as 80% (in some cases more). It will also tell the expected accuracy percentage.
Important Steps In Preparing For Data Breaches And Security Incidents

Preparing for an incident will eliminate confusion and missteps if, in the moment of response, things get overlooked and mistakes are made

By Rajesh Maurya
**Security** incidents and data breaches can have very disruptive and devastat-
ing effects on an organization. In fact, according to the Ponemon Institute’s annual Cost of a Data Breach Report, the average total cost of a data breach is near USD 3.92 million, with an average of 25,575 records being stolen or compromised.

Recovering lost data is only part of the equation. Extended downtime can quickly compound costs on an hour-by-hour basis. And more difficult to quantify is regaining lost consumer confidence and damage to an organization’s brand, which can take months or years to repair.

Part of the challenge is that modern cyberattack strategies involve new techniques and technologies designed to evade detection. As a result, not only do initial data breaches sometimes go undetected but the average dwell time of a breach – the time a compromise goes undetected while attackers scan your network and exfiltrate data – is sometimes 209 days. And even then, it can take more than a month to conduct a thorough investigation and completely recover affected systems.

Proper preparation, however, can cut costs significantly. Below are some high level points to consider when creating a security incident plan.

Preparing for an incident will eliminate confusion and missteps if, in the moment of response, things get overlooked and mistakes are made. This starts by identifying your incident response team, which should include not only technical team members and consultants, but also executives, the communications team, members of the legal team, law enforcement, etc. Each of these individuals will have critical insights that need to be incorporated into any preparations.

A chain of command across all team members will also need to be established so that incident responses can be carefully coordinated. Each member of the team should not only know their roles and responsibilities, but also the authority they have to make decisions.

In addition to having the right technology in place to detect a breach, other equipment is needed to respond to an incident, and that needs to be identified beforehand. Much of that equipment will need to reside off-network so that it isn’t compromised in the case of a ransomware or similar attack. Likewise, regular backups of data and systems need to be available and stored off-network, and routine system and data recovery drills need to occur so bringing systems back online can be a smooth and seamless process.

To determine which technology will be needed, you also need to understand the kind of data you have in your environment and how it flows. In addition, you will need to identify any critical business processes, and the assets that those processes ride over. Of course, you can’t protect and monitor everything, so focus on what’s important.

Most importantly, determine if any of your data falls under any kind of regulation. Organizations subject to regulatory requirements need to ensure that official processes for documenting and reporting a breach are included in your preparations and strategies.

**Detection and Analysis of Breaches**

One of the biggest challenges organizations face is limited visibility across the distributed network. Not only do security tools and anomaly detection systems need to be in place, but they also need to be able to share information to detect events that would otherwise live under the radar.

This requires integrated security tools and a centralized system for analyzing and correlating data. Where possible, NOC and SOC operations should be tightly integrated so that security systems have a better opportunity to evaluate network data in real-time to detect suspicious behaviour.

Your incident response team needs to do the following to prepare for data breaches and security incidents:

- **Data**: Quickly determine what data and resources have been compromised or stolen and what critical business processes were affected.
- **Authorities**: You will also need to analyse any systems compromised with malicious software to determine its intent and to clean IOCs, logs, and transactions.
- **Compliance**: Review what regulatory requirements need to be addressed. Because of the dwell time for most breaches, all critical data and logs will need to be saved off-line for a minimum of a year.
- **Authorities**: Determine whether you need to contact the authorities, including law enforcement and regulatory bodies. This is especially critical for organizations bound by regulatory requirements. GDPR, for example, can exact significant fines for failure to report an incident in a timely manner.
- **Evidence**: Preserve evidence in case the incident becomes a legal issue. Law enforcement should have already been included in your preparation and planning, so steps for preserving the crime scene should already be part of your response plan so that any evidence is admissible in a court of law.

**Quarantine and Redundancy:**

Because impacted systems will likely need to be quarantined, redundant systems need to be available so that forensic analysis can take place. Quarantine capabilities are important to avoid spread.

**Trace Attack Chain**: Tools need to be in place that enable you to trace an attack path back to its point of entry. This will require determining the malware used and the dwell time of the attack. Once the attack chain and malware have been identified, every device along the attack path will need...
to be analysed. Incidents of compromise (IOCs) will need to be used to identify other devices that may have been compromised.

**Training:** Employees, even those outside of IT or security roles, need to be cyber-aware and trained. Rarely do security incidents not affect the broader employee base. In addition, training will help facilitate proper response and could help with preventing incidents.

**Contain, Eradicate, and Recover - Incidents**

To prevent the lateral spread of an incident across the network, organizations should already have intent-based segmentation and zero-trust protocols in place. Intent-based segmentation logically separates systems, devices, and data based on business requirements, and are critical in preventing a system-wide incident.

Once malware or other elements of a breach have been detected, care needs to be taken to ensure that they are entirely removed from the network. Tools that modify shared libraries or files, that modify applications or code, or that exploit existing software tools – a technique known as living off the land – can make it especially challenging to identify and remove all elements of an attack. As a result, quick mitigations will need to take place to ensure that the attacker is not able to compromise the system again. This is accomplished by taking the information gleaned from prior steps and immediately address issues that led to the breach, such as reconfiguring a device, installing a missing patch, or resetting compromised credentials.

Finally, after an incident has been contained and eradicated, recovery needs to take place using good backups. Recovery teams should be able to bring essential systems back online as soon as possible. IT teams should also be aware that it can be difficult to totally eliminate embedded threats, especially those designed to evade detection, so it is always good idea to increase security monitoring for several weeks after a breach recovery to ensure the threat is completely removed.

**Post-Incident Handling for Data Breaches and Security Incidents**

This is a much longer mitigation process that will reduce the likelihood of an incident from reoccurring. Lessons learned need to be incorporated into security policies, points of compromise need to be repaired, hidden malware needs to be found and removed, and instances of the same weakness in other parts of the network will need to be hardened.

This is also when you may need to not only take a hard look at the security tools and systems that you have in place, but people and processes as well. What security elements are missing that could have caught the breach but didn’t? What processes broke down? What skillsets were missing that could have sped up the discovery of a breach or the incident recovery process? This may mean adding additional tools to your security architecture, updating or replacing systems that failed to do their job, and providing additional training for critical security personnel.

Visibility is a critical element of that process. Critical gaps often exist between security devices, and you will need to assess where communications between different systems broke down. An event detected by one device that is not correlated to a related event detected by another, or that fails to trigger a response, can result in a serious incident that can go undetected for months.

Addressing this challenge not only requires consistent security across the distributed network but tools designed to share and correlate threat intelligence in real-time. You will need to assess what you can see and not see, and make changes to expand visibility and improve your network’s ability to respond to events automatically.

Finally, lessons learned need to be turned into education for different groups within the organization. If the breach began with a phishing attack, for example, all employees should receive heightened education on preventing future incidents. Likewise, a breach due to a flaw in an internally developed application should trigger security best practices training for your DevOps teams.

**Responding to a Future Data Breach Starts Now**

Often, this requires a shift in thinking. It can start by assuming that your organization may have already been breached. If that’s true, what issues exist in your security architecture right now that prevent you from seeing it? Are your existing solutions able to detect even the most subtle anomalous behaviors? How quickly can your network put two and two together and come up with a response? Do you have a team in place ready to respond once a breach is detected?

Answering these questions now, combined with regular wargaming, incident response drills, assessments of your current security technology capabilities, and ongoing training will help ensure that you can minimize the impact of your eventual cybersecurity incident.

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*The author is Regional Vice President - India & SAARC at Fortinet*
The Power Of AI

ML and DL help us to create an AI system that can even create systems with more complex tasks that a human can do

By Kanu Butani
**Artificial Intelligence (AI)** is a science that deals with how we can build a system using computers, and the data that we have in the humongous form, that can do the manual tasks that humans do in to an automated one. Robotics Process Automation (RPA) deals with the conversion of manual process into automation. AI is still bigger than just automating the computer processes. It also has ML and DL at a very greater scale. ML and DL help us to create an AI system that can even create systems with more complex tasks that a human can do. The way human analyzes a situation and behaves or works here at first stage we want to see that the way a reasonable person with average understanding can do, such tasks can be done using ML and DL in an appropriate way.

In this article we will see some of the examples that can show us how AI can be powerful and its underneath technology, using ML and DL and the different formulae applied and then the power that AI gets to show how it can help humans in automating many things. Certainly, AI must be explored more and with the extent that AI has, it can help humans while they do some tasks manually and the human intervene deciding how to take this ahead.

### AI Power

I was going through the videos and articles that discusses many examples that define the real-life AI and had done good things that make our life easier. When we see in our daily lives there are so many tasks that are repetitive and are done manually by people, even as a layman we would think if we can get some automated solution for these manual tasks to help us in a big way. The work that we do manually in our computers like data entry operations, or any support operations and try to make those into an automation process. AI is intelligent enough to help us in solving these sorts of manual repetitive tasks in the start and head towards being the leader in automation industry. This simply transforms reading of mails and other files and replying to those mails with not just auto-reply sort of things, but an added intelligent in the reply using ML technology.

### Machine Learning

Data Science and AI show us how important the need of Automation is in today’s world. When we do so many of the repeated tasks manually and getting connected from one software to another, and sometimes from one server to another and repeatedly doing those all the tasks manually, drain all our energy, and that is the time we hope of some such automation process if it exists, we will welcome it with our open hearts. This is only the striving thing that wants us to think and create a solution that would help the techies to just click a button and all the tasks are done automatically. For example, take a scenario, if there are some unread emails of the same subject, pending from 50 days old mails, same emails, with same issues containing same data, but they must go through those emails and figure out when the problem arose and when it was resolved. This can be done only by manually visiting those emails and checking one by one, and finally figuring it out when it was finally resolved so that we can send the closing mail to the recipient. Imagine if we create a bot that goes through these emails and searches all the emails with a same subject line and finally gives out the report saying that this email has been coming from last 60 days and the solution is yet to be done, and this report goes to the SME who is responsible for these emails, will surely make the life easier for the SME, with such an automation solution. Isn’t it?

In the above example, NLP (Natural Language Processing) helps us in a great way. With its help we can find the emails that contain same subject and then...
fetch the total number of emails that are there for that subject. The concepts of NLP like finding a word in a paragraph and by applying stop words we can eliminate words like pronouns, conjunctions, etc. to get a clean paragraph and then even execute other concepts to figure out the specific word from a paragraph or an article to fetch more required information. For example, if we want to search the internet for a celebrity where all and which all magazines and/or newspapers his name is mentioned or for which brands he is advertising, this can be very easily fetched through NLP and ML concepts of unstructured data.

ML opens up more ways to automate the process by applying concepts in AI. The two most important concepts are:

- **Supervised learning**
- **Unsupervised learning**

Easier and powerful supervised learning in which we have a last column called result, and other columns called fields that can sort out the values and the data in a particular fashion.

For example, if we have a training data of one of the humongous data sets of the “breeds of dogs” which the machine is made to recognize based on its features and the machine has now learnt much from its training data that is fed. Now when it sees a picture of a dog in the real time data, input check, it goes through all of its training data set and based on that it can recognize which dog it is. In the machine learning this accuracy comes up to 70% to 75% and that is considered as the best accuracy. But same thing when it gets into deep learning (using CNN - Convolution Neural Network) then the accuracy shoots up to 95% because now the machine is doing its analysis like a human brain does.

These and similar examples show how AI interact with automation and help us in our day-to-day activity. It makes these technologies go a long way to make more and more intelligent solutions for us so that not only repetitive tasks but also apart from these we get more better solutions. We expect these technologies to play a vital role in displaying its presence in these manual processes and show more enhanced behavior.

—The author is Manager - IT at Atos India
Top 5 Enterprise Technology Trends For 2021-22

While the pandemic has induced a paradigm shift in the approach to enterprise technology, it has also accelerated the digital transformation journey of enterprises to foolproof their businesses

By Sindhu Gangadharan
A futuristic business strategy always integrates the inclusion of rapidly changing technology to cope with ungovernable circumstances and to ensure business continuity. The COVID-19 pandemic has changed the way enterprises – large or small – operate and has fueled a cultural transformation that is now redefining the world of enterprise technology. Here are some trends shaping up enterprise technology in 2021-22.

1. Digital Transformation remains a frontrunner
   Digital Transformation has been the undisputed winner in the crisis that followed the outbreak of COVID-19. The fact that almost every single industry was exposed to the volatilities caused by COVID-19 has led to this growing demand of a faster digital transformation of the Intelligent Enterprise.

   An Intelligent Enterprise is all about adopting and leveraging advanced technologies which enable the rapid transformation of data into insight – thereby feeding process automation, innovation and optimal experiences. This also offers visibility across the entire enterprise with the ability to collect and connect data and take necessary action accordingly. This trend will continue into 2022 as many organizations announce their decision to go hybrid or fully remote with a global workforce.

2. Sustainable enterprises for a greener present & future
   When it comes to sustainability, settling for doing less harm is no longer sufficient. It is urgently time to do “more good”. Today, every business must be agile, insight-driven and empowered with data to anticipate market trends – all while dealing with constant change and being mindful of the vital need to develop more sustainable business practices. Enterprises need to go beyond measuring top and bottom-line results to include a new dimension of success – a green line. More and more enterprises are embedding sustainability as a critical measure of business success. In a world where sustainability is a strategic and economic imperative, the time is now to transform to an Intelligent and Sustainable Enterprise.

3. Total Experience (TX) brings a new approach
   When we talk about Total Experience (TX), we refer to a holistic program that ties customer, user, and employee experience together. The pandemic has necessitated the need for businesses to have a good TX strategy. Its goal is to not only enhance customer satisfaction but to also enhance employee productivity – providing an exceptional experience to anyone interacting with your brand. Companies need to focus on interlinking the experiences as opposed to working on them individually. This way customers, users, and employees alike will be more satisfied as teams that work as an integrated unit. This trend will continue into 2022 as businesses try to eliminate communication silos and provide a unified experience for their dispersed workforces.

4. Cybersecurity is a key challenge
   With cloud solutions becoming an indispensable part of enterprise technology, cyber threat sophistication continues to be a challenge for CIOs. A lot of the times, cyber offenders are successful because many organizations do not carry out due diligence in addressing the core problems of business email compromise, phishing, ransomware, etc. With dispersed workforces, organizations will need to rethink security where they protect employees, company assets and systems.

5. Hyperautomation is the way forward
   Going forward, more businesses will want to combine the efficiency of automation with the decision-making capabilities that AI-ML bring to the table. It is advisable to invest in technology to automate tasks and integrate processes to connect the business end to end, including suppliers and partners, with full visibility. It is with this regard that hyperautomation is gaining popularity among smart enterprises. The idea is to automate everything that can be automated in an organization. With hyperautomation, enterprises can leverage new-age technologies to drive end-to-end automation and deliver superior customer experience.

   While the pandemic has induced a paradigm shift in the approach to enterprise technology, it has also accelerated the digital transformation journey of enterprises to foolproof their businesses. Therefore, when we talk about digitalization of intelligent enterprises, the question is no longer ‘why’, it is ‘how’.

   –The author is MD, SAP Labs India & SVP, SAP User Enablement
Vulnerability And Patch Management Needs A Revamp In The Distributed Workforce Era

It’s high time that organizations start looking at vulnerability and patch management as a unitary process

By Joyal Bennison
Despite being cleared to return to the office, businesses have begun to embrace a hybrid work culture. While there are obvious benefits to a distributed workforce, having a sizeable portion of your endpoints beyond the corporate perimeter warrants quicker and more effective security methods. More than ever, there’s a need to stay vigilant of vulnerabilities in your endpoints and keep them patched as and when vulnerabilities appear. This is even more pressing considering the recent surge in vulnerabilities, amounting to 8,993 security vulnerabilities (CVEs) so far in just the first half of 2021.

The shortfalls of the traditional approach

Traditionally, vulnerability and patch management involve dedicated tools operated by different teams. The security team employs vulnerability scanners to identify vulnerabilities in endpoints and shoots a ticket to the IT or remediation team with vulnerability details and required action items to fix them. IT administrators utilize patching tools to sweep the network for missing patch details, and they compare those findings with the data sent by the security team to correlate the patches required to resolve the vulnerabilities. Then the IT team proceeds to download patches from vendor sites, test them for stability, and deploy them to their production environment. Another round of scanning is performed by the IT team to ensure the vulnerability is thoroughly fixed, and the remediation status is sent to the security team, requiring the latter to perform additional validation to close the vulnerability management loop.

But there are multiple caveats to this fragmented approach. Here are a few reasons why it is inadequate for distributed IT, where vulnerabilities require instant, effective action.

Delayed remediation

Juggling multiple tools for patch and vulnerability management results in a siloed, inefficient workflow, adding complexity, creating redundant scans, widening the gap between vulnerability detection and patching, and dramatically slowing down the process of remediating risk. It shouldn’t come as a surprise that organizations in general take more than a couple of months to close a discovered vulnerability. Edgescan’s 2020 Vulnerability Stats Report reveals the time taken by organizations to patch vulnerabilities for an internet-facing system is now 71 days. With the gap between vulnerability disclosure and active exploitation having shrunk in recent times, organizations need to be swift in remediating vulnerabilities, especially with remote endpoints exposed directly to the internet.

Lack of accuracy

Point products don’t interface well with each other, increasing the likelihood of potential disparity in data between integrated solutions. In other words, all the required patches may not get deployed completely and critical vulnerabilities could remain unaddressed.

Piling up management challenges

Deploying and implementing multiple tools on remote endpoints can be clumsy and time-consuming, with the endpoints constantly plugging in and out of the network. Besides, managing multiple clients on remote endpoints can impact the VPN bandwidth of your organization. Adding to this challenge, installing multiple agents strains system resources and affects their performance.

Difficulties in scaling

The modern IT landscape is extremely dynamic and it’s characterized by the frequent addition of new remote assets. An instance of one of the agents not being installed on any of the new remote assets could introduce further complications in the workflow and leave behind several security gaps.

Increased security budget

Let’s cut to the chase: the deployment and maintenance of separate tools for patch and vulnerability management will cost you two times as much. It’s as simple as that. Further investments include dedicated training sessions on each product for new staff.

It’s high time that organizations start looking at vulnerability and patch management as a unitary process. Investing in integrated patch and vulnerability management solutions helps overcome these caveats by providing all the involved teams with unified visibility and better tracking from detection to closure of vulnerabilities across your distributed IT. With just a single interface and a single agent to maintain, scaling and management challenges are considerably reduced. Besides, an integrated solution simplifies the entire vulnerability management life cycle by automatically correlating vulnerability and patch information and facilitating direct remediation.

—The author is Product Consultant at ManageEngine

The security team employs vulnerability scanners to identify vulnerabilities in endpoints and shoots a ticket to the IT or remediation team with vulnerability details and required action items to fix them
The Shifting Priority Of AI To Excellence-Led Monetization

As much as enterprises are increasing investments in AI, there is a real and persistent struggle to demonstrate business value from AI and realize returns on investment

By Sandeep Sudarshan & Arundeep Sivaraj
As much as enterprises are increasing investments in AI, there is a real and persistent struggle to demonstrate business value from AI and realize returns on investment. Centers of Excellence (CoE) or innovation centers for next-generation technologies have played a significant role in creating thought leadership and bringing about best practices, but there’s more to be done in a planned and concerted manner to leverage and monetize AI to its fullest and as such, CoEs have to show more action and outcome bias and become Centers of Excellence and Monetization (CoEM), as we would like to term it.

A CoEM is a natural extension and enhancement of the CoE. It consists of all the fundamental building blocks of a CoE and takes it a notch further to bring about the monetization bias. A CoEM is designed and built on the same four fundamental pillars as the CoE, and those being:

- **Strategy**
- **People**
- **Processes; and**
- **Technology**

**Strategy**

Businesses today are looking to use AI to find answers to their complex problem statements while progressing in their digital transformation journey. A data-driven strategy and decision-making framework become an important aspect in this journey before we can actually get talking about monetizing AI. The strategy function of the CoEM is one of the most important pillars. It defines the vision and direction of what the enterprise can practically and realistically achieve so that morale and confidence in AI initiatives remain positive.

The action and monetization bias comes from the ability of the CoEM to identify and prioritize high-impact use cases where investment needs to be made. This is easier said than done. It often happens that organizations bite off more than they can chew when it comes to finalizing a charter for their AI journey. Choosing the right use cases to work on is a balancing act. As much as the use case(s) needs to be able to positively impact either top line, bottom line, or customer experience, it is also pertinent that organizations pick ones that are realistic to execute.

**People**

How should the AI CoEM look like? Should all AI competencies be centralized resources or decentralized in multiple departments? What is the role and responsibility of each identified stakeholder in the ecosystem? What are their interdependencies? How can an enterprise keep them motivated and continuously curious? How can we put in place a mechanism to add new stakeholders with the right skills and temperament to ensure sync with the current teams and objectives? These are all critical questions about the people strategy aspect of a CoEM.

Once the answers to these higher-level questions are built into the design, ground-level challenges also needed to be addressed, and an important one being - Identifying the right data owners and stewards. This is a highly underrated aspect and raises its ugly head whenever clean, and tightly governed data is needed to push through initiatives. Organizations struggle to make this available since data is stored in multiple places, and due to a lack of proper governance, enabling democratized access is impossible. These cannot be solved just by tooling but needs change management in the people process and mindset.

**Process**

The next important building block of a CoEM is the process element. More often than not, organizations attempt to fix many problems by throwing more technology and automation at it, and they fail. This is because the underlying process itself is inherently broken. Therefore, if you already have an AI CoE in some shape and form but not yielding the results and outcome that you were expecting, it might be worthwhile to have a serious look at existing processes, and if needed, ask fundamental questions on why the organization does things a certain way. When it comes to CoEM, processes lay down a systematic way in which stakeholders who are directly or indirectly associated with the initiative can collaborate better, create more re-usable assets and ensure that all the knowledge, assets, and best practices are stored securely and made accessible on-demand to authenticated and authorized users. The monetization bias comes from the repository of re-usable assets, feature stores, and libraries which allow the culture of ‘fail fast, succeed fast’.

**Technology**

The technology landscape of AI, like many other technology domains, is an ever-evolving one. The technology strategy within the CoEM should include, as part of its design, the framework for tools and technology evaluation, best practices for architecture standardization, and managing operations of AI solutions in production.

The beauty of AI is that the solutions powered by it allow a level of flexibility and self-optimization. Additionally, the technology also provide enriching outcomes by adding more data dimensions and features. The choice of tools, technology, and framework ensure that the AI solutions remain living, breathing entities and adapt to the evolution of the business.

—The authors are Sandeep Sudarshan who heads the Business & Solutions Consulting Group in Subex’s Business & Solutions Consulting Group and Arundeep Sivaraj, who is a Director in Subex’s Business & Solutions Consulting Group.
Protecting Supply Chains: The Recipe Against Ransomware

It’s not just about implementing the right data solutions though, but also about maintaining and consistently testing them.

By Rick Vanover
Now is the time to ask about quality standards, security practices, abilities to understand data protection/the transparency into their dependencies and what you could be potentially exposed to based on their business activities. A thorough approach to supply chain management takes into consideration that you’re only as secure as your least secure trading partner or supplier. You can do everything perfectly in terms of your own security measures, but one supplier’s laps in security can spoil the bunch. It’s within your rights as a business to ask this of your suppliers.

Don’t Skimp on Data Backup
Any good business leader knows there are areas and departments where you can safely cut costs without significant risk, and other places to double down when it means protecting your business. Data backup and recovery is one such area where no business should cut costs or corners, especially with the rise in ransomware. While a robust backup and recovery strategy won’t alone keep you safe from ransomware attacks, it will put businesses in a much better position when the inevitable does occur – leaving hackers left with less options when you’re able to recover critical data quickly on your own.

It’s not just about implementing the right data solutions though, but also about maintaining and consistently testing them. It’s critical to consistently test your backups in advance of an attack – because it won’t do you any good after the fact. One way to do this is to think like the hackers. There are many different ways to simulate attacks, including hiring professional, ethical hackers who can purposefully look at and target your vulnerabilities to find out where you’re most at risk – but with no real-world danger of data theft or loss. If you can’t hire these simulation actors, it’s important to test your backup and recovery solutions frequently and thoroughly on your own as often as you can to find and resolve risks.

Review & Enhance Your Security Standards and Best Practices
It’s no secret the COVID-19 pandemic led to an increased state of urgency for enterprise security – overnight people were thrust into work-from-home scenarios, with little-to-no time for IT departments to prepare. And when you move fast there’s a lot of potential for mistakes. From a security perspective, the cloud is still new for many organizations, especially those that moved to the cloud hastily or in a rush out of necessity. For all organizations, regardless of their IT department’s cloud sophistication, it’s a best practice to revisit all protocols that were adopted as part of the initial cloud migration to ensure they’re secure, hardened and cost effective. Especially as security and hyperscale cloud settings can change at a moment’s notice (options, etc.), there’s a need to continually monitor, evaluate and implement the latest security standards. It’s on IT to identify exposures and vulnerabilities, and surface them up to management to secure C-suite support and budget.

Hackers continue to get more sophisticated, with new trends like ransomware-as-a-service (RaaS) – a consumer-driven offering that multiplies the volume of attackers by lowering the technical skill required to launch a ransomware attack. Like a game of chess, as your opponent (hackers) evolve, so does your defense strategy need to evolve. To prepare, organizations need to follow the right recipe of supply chain transparency, data backup and security maintenance and testing. Failure to do so could result in your business getting its 15 minutes of fame as the next victim of ransomware.

With this uptick in ransomware attacks targeting supply chains, organizations must implement stronger, layered security strategies to protect against lurking vulnerabilities. The fact is, cybercriminals have become much less methodical when launching attacks against organizations, oftentimes casting their nets with no specific target in mind, just to see what they can find. As a result, many of the hits against the supply chain are “accidental” – third-party collateral due to unsecure backdoors uncovered by attackers. Whether the supply chain was the initial target of the attack, or became the attack vector as an opportunistic hit, the approach to ransomware protection is only as effective as all of its ingredients. That means – effective supplier collaboration and transparency, robust data backup, and improved security maintenance.

The Supply Chain’s Ripple Effects
Supply chains are an incredibly complex web of trading partners, commerce transactions, logistics and more. This complexity is compounded by the fact that there are tier-two and -three suppliers within your own supply chain that you may not even know exist but could still impact your business if they are the target of a ransomware attack. You may not be the target, but you can still be a victim as their breach extends to their trading partners.

In light of this, it’s absolutely fair game – and smart business practice – to ask your suppliers how they are improving security measures and protecting against ransomware attacks. It’s within your rights as a business to ask this of your suppliers.
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देश का सबसे लोकप्रिय और विश्वसनीय टेक्नोलॉजी वेबसाइट
डिजिट अब हिंदी में उपलब्ध है। नयी हिंदी वेबसाइट आपको
टेक्नोलॉजी से जुड़े हर छोटी बड़ी घटनाओं से अवगत रखेगी। साथ
में नए हिंदी वेबसाइट पर आपको डिजिट टेस्ट लैब से विस्तृत गैजेट
रिव्यु से लेकर टेक सुझाव मिलेंगे। डिजिट जल्द ही और भी अन्य
भारतीय भाषाओं में उपलब्ध होगा।

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