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Breaking Barriers

Why aren't more women at the top in tech?

With fewer than 250 women in senior roles compared to over 2000 men nationwide, we delve into the barriers and pathways to closing the gender gap



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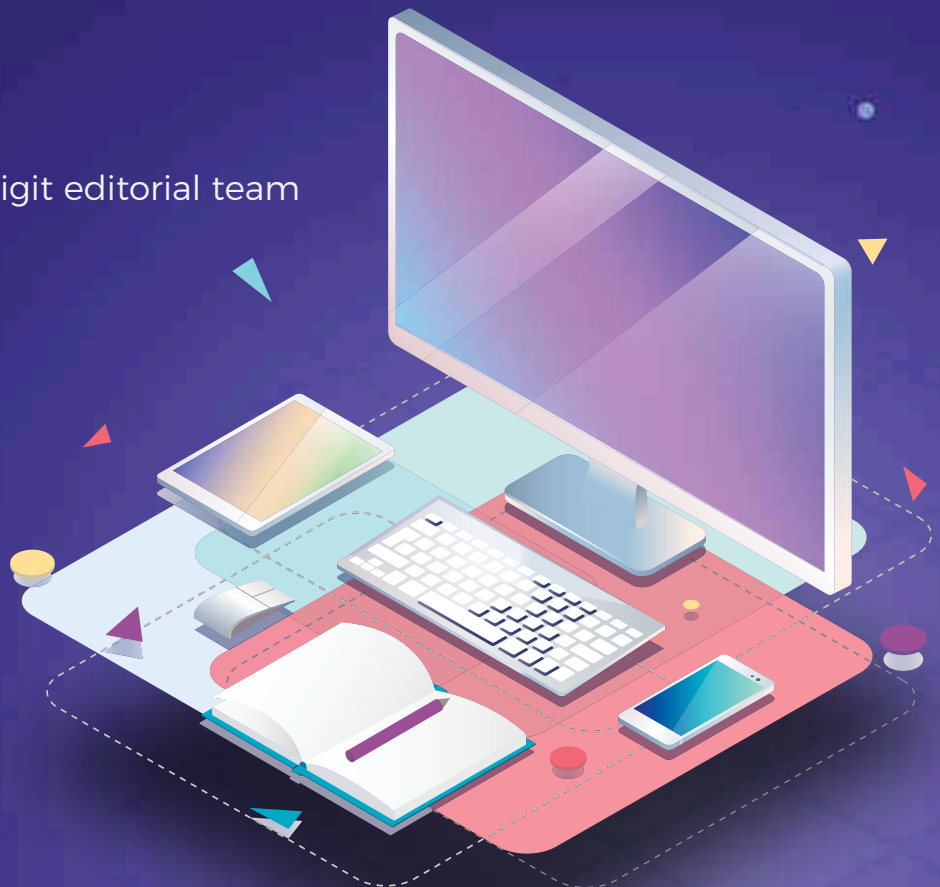


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It's Time to Move Beyond International Women's Day Celebrations

Every year on March 8th, International Women's Day (IWD) I am forced to lead editorial activities with the country's women CIO leaders. I use the term 'forced' not out of disregard for celebrating women's achievements or interacting with women CIOs, but because it serves as a stark reminder of the ongoing journey toward equality. There is nothing to be celebratory about it.

The annual recurrence of *Women's Day* highlights the inequality that still exists and doesn't demand a sense of celebration. IWD traces its roots back to 1911 when over a million individuals, both men and women, took to the streets in Austria, Denmark, Germany, and Switzerland to advocate for women's suffrage, oppose workplace discrimination, and demand their roles in public office. Over a century has passed since then, yet we find ourselves still fighting for the same fundamental rights for women. This reality is both ironic and shameful, underscoring the need for continued advocacy and action toward achieving true gender equality.

Turning our focus to the IT sector, it's disheartening to note that India currently has only around 80

senior women IT leaders within companies with revenues exceeding INR 5000 Crores. Among these, approximately 20 hold the titles of CIO/CTO, with fewer than 10 serving as CISOs. For companies with revenues below INR 5000 crores, the collective count of senior women IT leaders' stands at fewer than 140.

While many women begin their careers in IT with promise, only a select few ascend to top positions, often due to various challenges, such as prioritizing family over career advancement, insufficient workplace and emotional support from organizations, and the need for breaks or remote work to support familial responsibilities. In our cover story for this month, my colleague Nisha Sharma has engaged in conversations with leading women CIOs to uncover strategies that can empower women in IT to achieve their full potential. Their insights offer valuable lessons that can serve as a blueprint for other managers and organizations. We urge more men and women IT leaders to actively participate in such discussions throughout the year, rather than limiting engagement to a single day, and encourage them to continue sharing their perspectives. ■



Over a century has passed since IWD movement started, yet we find ourselves still fighting for the same fundamental rights for women. This reality is both ironic and shameful!

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Build-to-Suit Data Centres: The Best Answer to Your Data Centre Dilemma

The strategic advantages of build-to-suit data centres are crucial in solving enterprises' data centre infrastructure challenges, according to CapitaLand Data Centre.

The digital economy's evolution, driven by a surge in cloud computing, artificial intelligence, and machine learning, has pushed organisations to expand their data centre capabilities to meet increasing performance, flexibility, and security demands. However, the challenge is that traditional data centre solutions often need help to keep up, leading enterprises to explore new options.

One solution to this challenge is build-to-suit data centres, which enable the swift deployment of fully functional facili-

ties tailored to a tenant's needs, including power, cooling, and connectivity. The build-to-suit data centre model provides infrastructure solutions customised for the unique demands of modern businesses.

This model facilitates scalable growth aligned with the business's development, presenting a transparent cost structure. As companies face the challenges of data management and infrastructure scalability, build-to-suit data centres prove to be an effective solution. They offer customisable, scalable, and efficient infrastructure options, giving businesses the agility and control to navigate the ever-changing digital landscape effectively.

Here are the strategic benefits of build-to-suit data centres, highlighting their role in addressing today's enterprise data centre challenges.

Customization and scalability

Build-to-suit (BTS) data centres offer tailored solutions that can be precisely customised to meet enterprises' unique needs and growth requirements. Unlike traditional data centre options, which may have space, power, and cooling limitations, build-to-suit facilities provide the flexibility to design and deploy infrastructure that aligns perfectly with your organisation's objectives.

With build-to-suit data centres, enterprises can choose their facilities' location, size, layout, and specifications, ensuring that every aspect of the infrastructure is optimized to support their operations effectively. Whether it's a high-density computing environment, specialised cooling systems, or stringent security measures, build-to-suit facilities can accommodate diverse requirements and accommodate future growth seamlessly.

Moreover, the scalability inherent in build-to-suit data centres allows businesses to scale their IT resources dynamically as their operations expand. Whether adding more servers, storage capacity, or networking equipment, build-to-suit facilities can adapt to evolving demands without significant modifications or disruptions. This scalability ensures businesses can stay agile and responsive to changing market conditions while maintaining optimal performance and efficiency.

Cost-effectiveness

Build-to-suit data centres offer cost-effective solutions compared to traditional options by allowing businesses to optimise their infrastructure investments and avoid over-provisioning. Companies can precisely match their needs through tailored infrastructure design, avoiding unnecessary resource expenditures. This efficient resource allocation and the ability to scale dynamically minimize upfront capital expenditures and ensure optimal resource utilization.

Furthermore, build-to-suit facilities can reduce operational costs by incorporating energy-efficient technologies and customizable security measures. Unlike traditional

options with vendor lock-in, build-to-suit data centres provide greater control over infrastructure and vendor relationships, enabling businesses to negotiate favourable terms and avoid unnecessary expenses.

Speed-to-market

Build-to-suit data centres offer a significant advantage by expediting infrastructure deployment, allowing enterprises to swiftly adapt to evolving business needs and technological advancements. With customisation integrated from the outset, there's no need for extensive retrofitting or adjustments, which streamlines the deployment process.

Coupled with streamlined processes and dedicated resources, build-to-suit facilities empower organisations to accelerate their time-to-market, providing them with a crucial competitive edge within their respective industries.

Enhanced control and security

Build-to-suit data centres offer a tailored infrastructure that meets and exceeds specific security needs, particularly for organisations that handle sensitive information.

These specialized data centres allow organizations to meticulously design and implement their IT infrastructure in a manner that ensures adherence to relevant regulations. This includes deploying advanced security measures such as robust access controls, end-to-end data encryption, and comprehensive audit trails. These features are instrumental in preserving data integrity and safeguarding against unauthorised access to sensitive information. By customising their data centre environment, organisations can create a fortress around their data, significantly reducing the risk of data breaches and ensuring that privacy standards are maintained.

By taking control of their data governance, organisations can significantly mitigate risks associated with data management, enhance data integrity, and maintain a steadfast commitment to regulatory compliance.

Integration with hybrid and multi-cloud strategies

Build-to-suit data centres are built with interoperability in mind, allowing businesses to integrate seamlessly with various cloud platforms and services. This enables enterprises to leverage the best-of-breed solutions from multiple cloud providers while maintaining compatibility and interoperability across their IT ecosystem. Whether it's infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS), or software-as-a-service (SaaS), build-to-suit data centres provide the flexibility and agility needed to support diverse IT architectures.

Build-to-suit data centres often feature robust networking capabilities, including high-speed interconnects and redundant connectivity options. This allows organisations to establish seamless connections between their on-premises infrastructure, private cloud environments, and public

Advertorial

cloud providers. Organizations can ensure low-latency access and high-bandwidth connectivity across their hybrid and multi-cloud deployments by leveraging dedicated network links and direct connections.

Future-proofing investments

These data centres are built with an eye toward future advancements in technology and infrastructure standards, ensuring that organizations can leverage their infrastructure effectively for years without needing costly upgrades or migrations.

Many enterprises have successfully leveraged build-to-suit data centres to address their data centre dilemmas, showcasing tangible benefits and outcomes.

Support for technological innovations and sustainability

Integrating edge computing and artificial intelligence (AI) into build-to-suit data centres marks a significant advancement in optimizing operational efficiency, reliability, and performance.

AI implementation within data centres further enhances operations. AI algorithms optimise resource allocation, forecast equipment failures, and boost energy efficiency. Machine learning models analyze equipment behaviour patterns, foresee maintenance needs, and proactively address potential issues, minimising downtime and extending hardware lifespan.

These facilities prioritize environmental sustainability through green energy solutions like solar panels and wind turbines, energy-efficient cooling systems, and innovative server configurations.

Moreover, robust disaster recovery capabilities ensure swift emergency restoration, including backup generators, secondary data storage, and redundant network connections. Advanced monitoring tools pre-emptively identify and resolve potential issues, ensuring continuous uptime and operational stability.

The key considerations

According to Surajit Chatterjee, Managing Director, Data Centres India, CapitaLand Investment, a thorough analysis of the return on investment (ROI) and long-term value proposition of build-to-suit data centres is essential for decision-making. Businesses must assess the total cost of ownership (TCO), which encompasses the initial capital expenditure and ongoing operational expenses over the data centre's lifecycle. By comparing TCO with potential savings and revenue

Unlike traditional data center options, which may have space, power, and cooling limitations, build-to-suit facilities provide the flexibility to design and deploy infrastructure that aligns perfectly with organization's objectives.

generation opportunities, organizations can determine the financial viability of investing in build-to-suit infrastructure.

Operational efficiency is another crucial consideration. Build-to-suit data centres are designed to optimize resource utilization, streamline processes, and enhance overall operational efficiency. Factors such as energy efficiency, scalability, and flexibility contribute to reducing operational costs and improving productivity. Businesses can better understand its impact on their bottom line by analysing the potential efficiency gains and cost savings associated with build-to-

suit infrastructure. Furthermore, alignment with strategic business objectives is essential. Build-to-suit data centres should support the organisation's long-term goals, whether expanding market reach, enhancing customer experience, or driving innovation.

In today's rapidly evolving digital landscape, the significance of having a data centre tailored to your business needs cannot be overstated. As enterprises navigate the complexities of the modern digital economy, the one-size-fits-all approach often falls short of meeting businesses' diverse and evolving requirements. Recognizing this challenge, CapitaLand Data Centre (CLDC) offers Build-to-Suit (BTS) data centre services designed to precisely align with each client's unique needs.

CLDC's expertise lies in crafting data centre solutions that are not only tailored but also seamlessly integrated into the fabric of your business operations. Leveraging CapitaLand's extensive global real estate network, CLDC ensures that every aspect of your data centre, from its location to its infrastructure, is meticulously curated to meet your specific requirements.

With CLDC's BTS data centre services, businesses can rest assured that their needs are in capable hands. Our commitment to excellence and unparalleled industry expertise make us the ideal partner for companies looking to thrive in the digital age. So why settle for a one-size-fits-all solution when you can have a tailor-made data centre for your business? ■

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India Plans New Laws to Regulate AI

The draft AI regulatory framework, set to be introduced by mid-2024, aims to govern the development and use of AI technology.

By **Nisha Sharma** | nisha.sharma@9dot9.in

India is gearing up to release a comprehensive AI regulatory framework by mid-2024, aiming to harness the technology's potential across various sectors while ensuring ethical use and preventing misuse.

This announcement was made by the Minister of State for Electronics and Information Technology, Rajeesh Chandrasekhar, during the opening session of the NASSCOM leadership summit. The framework, eagerly anticipated since its initial mention in May 2023, seeks to balance fostering innovation and addressing the potential risks associated with AI technologies.

This AI related regulations is the need of the hour as it will give organizations a direction to prepare for compliance and facilitates the management of AI's potentially harmful applications.

According to a joint report by the Boston Consulting Group (BCG) and NASSCOM, India's AI market is projected to reach USD 17 billion by 2027, driven by increased enterprise tech spending, a growing talent base, and significant investment inflows into AI technologies. This growth is part of a global trend, with AI investments witnessing a 24% CAGR since 2019, peaking at nearly USD 83 billion in 2023.

The minister emphasized the government's commitment to leveraging AI to enhance economic growth, healthcare, and agricultural productivity. With a focus on developing AI-skilled individuals, India aims to advance its domestic capabilities and contribute to global AI innovation.

The regulatory framework under development reflects a nuanced understanding of AI's complexities, focusing on principles and guidelines rather than rigid controls at specific development stages. This approach aligns with global discussions on AI governance, which advocate for international cooperation and a unified framework to address safety and trust in AI applications.

Recognizing that each jurisdiction has taken a different approach to AI regulation, India's strategy resonates with six global regulatory trends that are shaping the landscape of AI governance worldwide. These trends, centered around mitigating potential harms while enabling AI's benefits, provide a solid foundation for India's regulatory efforts:

- 1. Core principles:** India's AI guidelines echo the global consensus on core principles for AI, such as respect for human rights and transparency, which are consistent with the OECD guidelines and endorsed by the G20.
- 2. Risk-based approach:** The planned regulations are expected to adopt a risk-based approach, tailoring compliance obligations to the level of risk associated with various AI applications, a practice widely adopted in jurisdictions concerned with privacy, non-discrimination, and security.
- 3. Sector-specific and sector-agnostic rules:** Reflecting global practices, India's framework may include broad, sector-agnostic principles and specific guidelines for high-impact sectors, ensuring comprehensive coverage across diverse AI applications.
- 4. Policy alignment:** India's AI regulatory efforts are likely to align with other digital policy priorities, including cybersecurity and data privacy, mirroring the comprehensive approach seen in the EU.
- 5. Private-sector collaboration:** Using regulatory sandboxes in India would follow a global trend, facilitating collaboration between the private sector and policymakers to ensure safe and ethical AI innovation.
- 6. International collaboration:** Acknowledging AI's global implications, India's push for international cooperation in AI governance aligns with a shared global concern for safety and security by new AI technologies. Globally, AI regulation is evolving rapidly, with regions like the European Union, the United States, and China adopting varied approaches to manage the risks and opportunities presented by AI technologies. For example, the EU's AI Act categorizes AI systems based on risk levels, while the US favors sector-specific guidelines prioritizing ethical principles and innovation. India's forthcoming AI regulation framework is highly anticipated, promising to offer insights into how the country plans to navigate the complex interplay between fostering technological innovation and ensuring ethical, secure, and responsible AI use. The global tech community watches closely as India takes bold steps towards becoming an AI powerhouse. The country's success in creating a balanced regulatory environment could serve as a benchmark for others, highlighting the importance of governance in the age of AI. With the world at a critical juncture in AI's evolution, India's journey offers a compelling narrative of innovation, ambition, and responsible technology stewardship. ■

IndiaAI Mission explained: How India plans to unlock its AI potential



The project aims to promote and use AI more comprehensively within India

By **Mustafa Khan** | editor@cioandleader.com

A **I** is the way of the future and everyone is moving in that direction. Keeping that thought in mind, on Thursday, the Union Cabinet approved a national-level IndiaAI Mission. The budget for the same has been set at ₹10,371.92 crore. The project aims to promote and use AI more comprehensively within India.

A press release on the same read, “The IndiaAI Mission will establish a comprehensive ecosystem catalysing AI innovation through the strategic programmes and partnerships across the public and private sectors. By democratising computing access, improving data quality, developing indigenous AI capabilities, attracting top AI talent, enabling industry collaboration, providing startup risk capital, ensuring socially impactful AI projects, and bolstering ethical AI, it will drive responsible, inclusive growth of India’s AI ecosystem.”

Here’s how India plans to promote AI

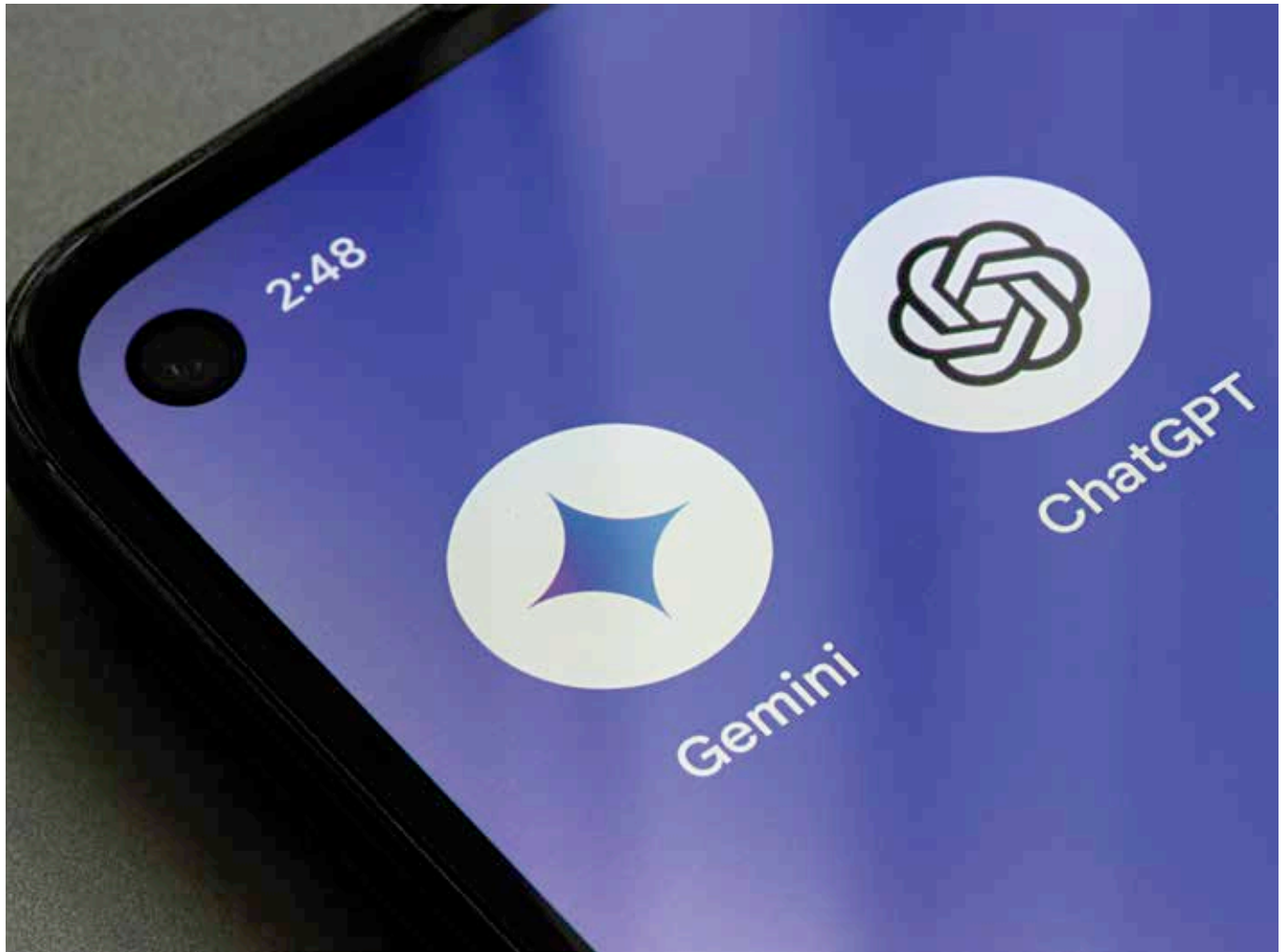
IndiaAI Compute Capacity: IndiaAI will establish a robust AI computing ecosystem by collaborating with public and private entities to create a scalable infrastructure of over 10,000 GPUs. Additionally, an AI marketplace will be established to provide AI services and pre-trained models, catering to the needs of India’s burgeoning AI startups and research community.



IndiaAI will establish a robust AI computing ecosystem by collaborating with public and private entities to create a scalable infrastructure of over 10,000 GPUs.

- 1. IndiaAI Innovation Centre:** The Innovation Centre will focus on developing and deploying indigenous Large Multimodal Models (LMMs) and specialised foundational models across critical sectors.
- 2. IndiaAI Datasets Platform:** A unified platform will be developed to facilitate easy access to high-quality non-personal datasets, streamlining the process for Indian startups and researchers.
- 3. IndiaAI Application Development Initiative:** This initiative aims to drive AI adoption in vital sectors by addressing problem statements sourced from various government bodies and institutions. It will focus on developing, scaling, and promoting AI solutions with the potential to drive significant socio-economic change.
- 4. IndiaAI FutureSkills:** To enhance accessibility to AI programs, IndiaAI FutureSkills will expand the availability of AI courses at undergraduate, Master’s, and Ph.D. levels. Additionally, Data and AI Labs will be established in Tier 2 and Tier 3 cities to provide foundational-level training. ■

—Mustafa is new on the block and is a tech geek who is currently working with Digit as a News Writer.



Will Google Gemini Outshine ChatGPT? Insights from CIOs

As AI continues evolving, LLMs present immense opportunities for businesses and individuals.

By **Nisha Sharma** | nisha.sharma@9dot9.in

Generative AI tools are making a significant impact on how we interact and the outcomes we produce in record time. For enterprises, they hold immense potential to become a new genie, ready to transform numerous processes, aiding in accomplishing tasks and activities faster and more efficiently.

A report by Valuates Report disclosed that The Large Language Model (LLM) Market was valued at 10.5 Billion USD in 2022 and is anticipated to reach 40.8 Billion USD by 2029, witnessing a CAGR of 21.4% during the forecast period 2023-2029.

While Microsoft-backed OpenAI's ChatGPT currently holds an undisputed leadership position, Google is also preparing to leverage its extensive experience with data by testing and launching its family of multimodal large language models, the latest being Google Gemini.

While both platforms offer unique qualities poised to make a significant impact on AI development, the question remains: which one currently excites CIOs and enterprises more?

OpenAI ChatGPT- the conversational maestro

OpenAI's ChatGPT has been a disruptor since its inception, renowned for its ability to generate natural language responses that are remarkably human-like. ChatGPT generates coherent and contextually relevant text using a sophisticated neural network architecture based on vast datasets. Its applications span various domains, including customer service, content creation, and education, showcasing its versatility and adaptability.

Deepak Agarwal, Ex-Executive Director, Indian Oil Corporation, notes, "ChatGPT's natural language processing capabilities enable it to generate responses that can significantly enhance user interaction and satisfaction." However, he also cautions against its limitations, such as potential biases and a fixed knowledge base, which necessitate careful curation of training data and ongoing model refinements.

Google Gemini AI- the multimodal innovator

In contrast, Google's Gemini AI represents the cutting edge of multimodal AI technology. Gemini AI embodies the future of AI's multimodal interaction and is designed to understand and synthesize information across text, code, audio, images, and video. This versatility allows it to tackle many tasks, from

content creation and media synthesis to more complex analytical tasks, with unprecedented efficiency.

"Google Gemini AI is our answer to the growing demand for AI that seamlessly integrates and interprets various data types," Deepak explains. He highlights Gemini AI's flexibility and efficiency, which make it a potent tool for developers and enterprises looking to harness AI across diverse platforms and devices.

DEEPAK AGARWAL
Ex-Executive Director
Indian Oil Corporation



"ChatGPT's natural language processing capabilities enable it to generate responses that can significantly enhance user interaction and satisfaction."

Choosing the right AI for enterprises

There's no one-size-fits-all solution when selecting the appropriate large language model for enterprise use. The choice between ChatGPT and Gemini AI—or any other LLM—depends on many factors, including the business's specific needs, integration capabilities, cost considerations, and the desired balance between creativity and analytical prowess.

"Google Gemini AI might be the go-to for those requiring robust multimodal capabilities, particularly in STEM, law, or medicine," Deepak suggests. On the other hand, "OpenAI ChatGPT is unparalleled in creative and conversational applications, making it ideal for sectors like education, media, and customer service."

The road ahead

As AI continues to evolve, the distinctions between models like ChatGPT and Gemini AI will become increasingly nuanced, with each iteration bringing new capabilities and improvements. Agarwal's insights illuminate the current landscape and hint at a future where AI's potential is limited only by our imagination.

For enterprises, the journey towards AI integration is fraught with challenges but also brimming with opportunities. By understanding the unique strengths and limitations of models like ChatGPT

PRADEEPTA MISHRA

Co-Founder & Chief Architect,
Data Safeguard Inc.



"We're looking at a future where LLMs, through their integration into various applications, will significantly enhance communication interfaces, making them more intuitive and efficient."

and Gemini AI, businesses can better navigate the AI revolution, leveraging these powerful tools to innovate, enhance efficiency, and, ultimately, transform their operations for the digital age.

The future of LLMs

As we delve into the transformative potential of Large Language Models (LLMs) across various industries, Pradeepta Mishra, Co-Founder & Chief Architect at Data Safeguard Inc., known for his expertise in the field, emphasizes the dynamic nature of LLM development, influenced by technological advancements and ethical considerations.

"The transformative potential of LLMs lies not just in their ability to understand or generate text but in their capacity to bring about a paradigm shift in how businesses operate. We're looking at a future where LLMs, through their integration into various applications, will significantly enhance communication interfaces, making them more intuitive and efficient," Pradeepta explains. This statement underscores his belief in the power of LLMs to change the fundamental ways businesses engage with their customers and manage internal processes.

One of the key expectations Pradeepta highlights is the advancement in multimodal AI, allowing LLMs to process and combine various forms of data for a richer understanding of content. However, he doesn't overlook the ethical and regulatory challenges accompanying the widespread adoption of LLMs. Pradeepta advocates for industry-specific solutions, addressing sectors' unique needs, such as healthcare and finance, while stressing the importance of continued research, interoperability, and collaboration to mitigate security concerns and ensure responsible AI deployment.

Generative AI's role in manufacturing

Shweta Srivastava, head of IT for Matix Fertilisers and Chemicals Ltd, outlines practical applications of LLMs in production optimization, quality control, and predictive maintenance. Srivastava's detailed account of how LLMs can pre-empt equipment failures and optimize demand forecasting illustrates the tangible benefits of AI in enhancing productivity and cost control within the manufacturing sector.

Srivastava illustrates the transformative impact of LLMs, saying, "By integrating LLMs into our production and maintenance systems, we've been able to pre-empt equipment failures and significantly enhance our demand forecasting. This proactive approach reduces downtime and ensures we're operating at peak efficiency." This statement highlights the critical advantage of using AI to predict and solve problems before they impact production, demonstrating a shift from reactive to proactive management in manufacturing operations.

Moreover, Shweta points to the potential of computer vision LLMs in ensuring quality assurance on production lines and refining equipment operating parameters for optimal performance. Her insights underscore the role of LLMs in enabling manufacturers to adopt a proactive approach to planning and problem-solving, leading to improved efficiency and profitability.

Unified expectations and challenges ahead

Pradeepta and Shweta acknowledge the varied and complex expectations for LLMs across different organizational types and sectors. They concur on the innovation, productivity, and competitiveness LLMs can bring to organizations, fostering a culture of continuous learning and improvement.

SHWETA SRIVASTAVA

Head IT, Matix Fertilisers and
Chemicals Ltd



"By integrating LLMs into our production and maintenance systems, we've been able to pre-empt equipment failures and significantly enhance our demand forecasting. This proactive approach reduces downtime and ensures we're operating at peak efficiency."

Nonetheless, they also caution against data privacy, security, ethics, and governance challenges, highlighting the need for a comprehensive LLM evaluation and implementation framework.

As LLMs evolve, their potential to transform industries becomes increasingly evident. However, realizing this potential requires a balanced approach considering technological capabilities, ethical implications, and industry-specific needs.

Tips for CIOs

For Chief Information Officers (CIOs), implementing Large Language Models (LLMs) is both a strategic imperative and a complex challenge that demands meticulous planning and foresight.

GENAI can spark creativity and drive productivity across all lines of business. Goldman Sachs forecasts that GENAI can deliver a \$7 Trillion boost in global GDP over the next 10 years. IDC estimates that India will be the third fastest AI-adopting country in Asia by 2026 after China and Australia.

Deepak Agarwal suggests a few tips to get CIOs started using Gen AI:

- Your Data is a differentiator, so get your data house in Order.
- Include in your people along with your GENAI Journey. Cloud skills are essential since most GENAI cases require massive data and computing capacity.
- Work Backwards... First, understand the customer challenge, get the ideal solution, and build the product that solves the challenge.
- Build responsible and sustainable solutions.
- Select the right foundation model for the right use case
- Start small with PoV

Agarwal's strategic tips for navigating this new frontier emphasize the crucial role of data, the importance of a skilled and inclusive team, and the need for a methodical approach to innovation. This journey into GenAI is not just about technology; it's about pioneering a future where customer service, competitive edge, product development, and risk management are reimaged through the lens of generative artificial intelligence. ■

Form IV

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I, Vikas Gupta, hereby declare that the particulars given above are true to best of my knowledge.

Dated : March 1, 2024

Sd/-
(Signature of publisher)

Embracing AI for Market Integrity: SEBI's Strategic Move



SEBI harnesses AI and ML to revolutionize market safety and transparency, marking a new era in financial regulation.

By **Nisha Sharma** | nisha.sharma@9dot9.in

In a world where financial markets are becoming more complex, SEBI is turning to Artificial Intelligence (AI) to keep the markets safe and transparent (Source). This move is a big step towards using technology to fight fraud and ensure that market rules are followed, showing how vital innovation has become in protecting investors and maintaining trust in the financial system.

SEBI's strategic implementation of AI technologies underscores a proactive approach to ensuring market transparency, detecting and preventing fraudulent activities, and maintaining legal compliance. This initiative, highlighted by SEBI's Whole Time Member Kamlesh Chandra Varshney, represents a forward-thinking paradigm in regulatory oversight. The deployment of AI in market investigations not only aims to deter market manipulations but also emphasizes the critical importance of technological adaptation in preserving the integrity of financial markets. By leveraging AI, SEBI sets a new benchmark for transparency and efficiency in oversight, which is instrumental in protecting investor interests and stabilizing the financial market environment.

Overcoming the AI implementation gap in anti-fraud efforts

Parallely, the 2024 Anti-Fraud Technology Benchmarking Report, a col-

laboration between the Association of Certified Fraud Examiners (ACFE) and SAS, draws attention to the burgeoning interest in generative AI and ML within anti-fraud programs. Survey data from nearly 1,200 ACFE members indicate a near-tripling expected in the adoption of AI/ML technologies in the next two years. Notably, 83% of organizations anticipate incorporating generative AI into their anti-fraud strategies, a stark contrast to the current adoption rate of 18%. This discrepancy between interest and implementation highlights organizations' challenges in integrating these technologies despite their recognized potential to revolutionize fraud detection and prevention.

Addressing AI integration challenges- accuracy, security, and skilled personnel

The report underscores several critical considerations for organizations adopting generative AI, including the accuracy of AI-generated results, security risks, and the requisite staffing and in-house skills. The emphasis on accuracy and security reflects the nuanced challenges of integrating AI into fraud prevention strategies, where the stakes involve financial losses and the integrity of financial systems at large. The need for skilled personnel further accentuates the gap between technological potential and practical application, suggesting a broader industry challenge of upskilling and training.

This convergence of regulatory efforts and organizational strategies toward adopting AI and ML in fraud detection and prevention heralds a new era in financial market oversight. The increasing reliance on these technologies is not merely a response to the growing complexity of financial transactions but also a testament to the evolving nature of

fraud and the continuous need for innovative solutions. As regulatory bodies like SEBI lead by example, the broader financial industry is prompted to follow suit, underscoring the importance of technological fluency in navigating the modern financial landscape.

From anticipation to actualization

The integration of AI in anti-fraud measures, as poised by these developments, represents a critical juncture for the future of financial regulation and fraud prevention. It promises enhanced efficacy in identifying and mitigating fraudulent activities, fostering a transparent, fair, and efficient market ecosystem. However, the journey from anticipation to actualization of AI and ML technologies in anti-fraud programs is fraught with challenges, including bridging the gap between interest and implementation, addressing concerns over accuracy and security, and building the necessary skill sets within organizations.

AI and ML- transforming the financial regulatory landscape

In conclusion, the strategic adoption of AI and ML by regulatory bodies like SEBI and the findings from the 2024 Anti-Fraud Technology Benchmarking Report underscores a pivotal shift towards more sophisticated, technology-driven approaches to fraud prevention and market regulation. This shift not only indicates the financial industry's response to evolving challenges but also reflects a broader commitment to safeguarding the integrity and stability of financial markets through innovation. As the industry navigates these challenges, the synergy between technology and regulation will undoubtedly become a cornerstone of a more secure, transparent, and resilient financial ecosystem. ■

Breaking Barriers

Why aren't more women at the top in tech?

With fewer than 250 women in senior roles compared to over 2000 men nationwide, we delve into the barriers and pathways to closing the gender gap

Meetali Sharma



Director - Risk,
Compliance, and
Information Security
SDG Corporation

Mehjabeen



CIO
Raychem RPG

Pooja Chatrath



CIO
Oncquest
Laboratories Ltd.

Shobhana Lele



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Head IT
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Chemicals Ltd.

By **Nisha Sharma** | nisha.sharma@9dot9.in

While women have made significant strides in diversifying workplace roles traditionally associated with men, their representation in the IT and Technology sector remains low, accounting for about a quarter of their roles. This disparity becomes even more visible when considering leadership roles within the IT field.

For instance, in the 14th edition of the NEXT100 awards, hosted by the 9.9 Group, out of 1037 IT applicants, only 8% of the women professionals were the winners. The issue lies in more than just reaching the top; it's the disproportionately low number of female applicants, constituting just 12% of the total candidates.

The cover story delves deep into the multifaceted issues surrounding gender equality in IT leadership, exploring the systemic challenges that hinder women's progression and the transformative impact of female leaders driving innovation and change. From navigating cultural norms and societal expectations to embracing emerging technology trends, women in tech are at the forefront of shaping the industry's future.

This story discusses women's struggles in tech leadership and highlights their skills and expertise in the tech world.

Gender Disparity in Tech Leadership

A survey by SPR highlights the persistent gender bias in STEM fields, with 73% of over 500 women experiencing discrimination in the past year.

Common issues include being overlooked for promotions, pay disparities, and underestimation of abilities based on gender. Despite these challenges, only 14% reported their experiences to HR, often feeling their concerns were dismissed. The survey also reveals a perceived gender pay gap by half of the respondents and skepticism about achieving gender diversity in tech within the next decade. Additionally, gender-based harassment persists, notably in remote work settings, underscoring the urgent need for systemic change and more robust policies to support women in STEM.

Mehajabeen Taj Aalam, CIO, Raychem RPG, provides crucial insights into the ongoing gender gap in the tech sector: Mehajabeen delves into the nuanced reasons behind the scarcity of women professionals in senior roles, attributing it to various societal and cultural factors. She observes that while the influx of women into the workforce has increased, they tend to be clustered at junior to middle management levels, with fewer progressing to senior positions. Drawing from personal experience, Mehajabeen highlights the palpable scarcity of women in the industry, often recognizing familiar faces at conferences.

She identifies societal expectations as a significant hurdle, noting the unfair burden placed on women regarding family obligations. This imbalance often forces women to prioritize family over career, leading to fewer opportunities for career advancement. Additionally, factors such as childbearing and rearing contribute to women dropping out of the workforce at a faster

Cover Story

rate than their male counterparts, impacting their perceived reliability and career trajectory.

Mehajabeen emphasizes that the issue isn't rooted in women's potential or aptitude but rather in the support systems and cultural norms surrounding them. Despite progress in gender representation and empowerment, entrenched cultural values still prioritize women's

careers in technology or STEM-related fields. A recent study by PricewaterhouseCoopers reveals a stark contrast in career guidance, with only 16% of female students being encouraged towards a tech career compared to 33% of their male counterparts. This lack of encouragement is compounded by a noticeable shortage of female role models in the sector, leaving many to perceive technology as

In the United States, the disparity is equally evident within the workforce, with women constituting only 28% of STEM professionals, despite men representing 73% of all STEM workers, according to a study by Martinez & Christnacht (2021). Additionally, women are underrepresented in higher education, earning just 18% of computer science bachelor's degrees, and they account for only 20% of professionals in the computer science field, reports Computerscience.org.

Globally, the scenario varies with the country of Georgia leading by example, where 56% of STEM fields' workers are women, as reported by the International Labour Organization (ILO) in 2020. This stark variance underscores the critical need for systemic change across educational and professional landscapes to foster a more inclusive environment that encourages and supports women in pursuing and thriving in technology and STEM careers.

Tech Shift in Healthcare: Women Leaders Drive Data Revolution

In examining the transformative impact of BI and data analytics in the healthcare sector, significant changes have emerged in response to the COVID-19 pandemic. Emphasizing the pivotal role of predictive analytics, Pooja Chathrath, CIO at Oncquest Laboratories Ltd., sheds light on how these technologies drive proactive health measures, particularly in predictive testing initiatives.

This shift towards predictive analytics revolutionizes patient care and empowers healthcare organizations to adopt data-driven decision-making across various functions. This underscores how BI facilitates personalized medicine by leveraging patient data, thus enhancing the quality of healthcare delivery.

Furthermore, integrating AI and machine learning augments the analysis of vast datasets to extract action-



Organizers struggle to achieve gender balance, with only a handful of women leaders present. This cultural imbalance and societal expectations contribute to women dropping out of the workforce faster than men.

MEHJABEEN
CIO, Raychem RPG



familial responsibilities over career aspirations. This imbalance extends to workplace policies, where women, unlike their male counterparts, may face challenges balancing work and family commitments.

Overall, Mehajabeen's insights underscore the systemic challenges women face in the tech industry. She urges a reevaluation of cultural norms and greater support systems to enable women to reach senior leadership positions.

From Education to Career

The gender disparity within the technology sector begins to emerge during the formative educational years, with a multitude of factors influencing young women's decisions to pursue

predominantly male territory. In fact, when asked to identify a renowned woman in tech, only 22% of respondents could do so.

Despite a strong initial interest in STEM subjects, with 74% of young women expressing enthusiasm, a mere 18% choose to follow through with STEM or computer science paths, according to research from the University of Washington. This trend persists globally, with female students in the UK significantly less likely to study STEM subjects at both pre-university (64%) and university levels (30%). Furthermore, only 27% of female students consider a career in tech, a stark contrast to 61% of male students, as highlighted by PricewaterhouseCoopers.

able insights, fostering innovation within the healthcare ecosystem.

In the context of women in tech, the Pooja Chatrath insights highlight the vital contributions of female leaders in propelling technological advancements, particularly in traditionally male-dominated industries like healthcare and technology. Their expertise exemplifies the intersection of technology and healthcare, showcasing women's pivotal role in shaping the future of BI and data analytics. By embracing innovation and leveraging data-driven strategies, women in tech are effecting transformative change and breaking industry barriers.

The Critical Role of Women in Shaping the Future of Cybersecurity

In today's rapidly evolving digital landscape, the importance of cybersecurity and data privacy cannot be overstated. With the global average data breach cost increasing by 15% over the past three years, organizations face mounting challenges in protecting their digital assets from sophisticated cyber threats. Amidst these challenges, Meetal Sharma, Director - Risk, Compliance, and Information Security at SDG Corporation, offers valuable insights into safeguarding digital assets and ensuring data privacy.

Her expertise extends beyond mere technical solutions; she advocates for a holistic approach grounded in the WHOM principle: What to protect, How to protect it, Owners of the protection, and Monitoring of controls. Her approach emphasizes the collective responsibility of all individuals within an organization to prioritize information security, highlighting the crucial role of proactive measures and continuous monitoring in mitigating cyber risks.

However, Meetal's insights extend beyond cybersecurity; they also resonate within the broader context of women in technology. Despite progress towards gender diversity,

women remain underrepresented in cybersecurity roles, comprising only 20% of the global workforce. Her emphasis on inclusivity and collaboration underscores the importance of empowering women in tech and promoting their active participation in cybersecurity efforts.

This explores how organizations can adopt inclusive approaches to cybersecurity while also addressing gender disparities in the field.

Navigating Gender Equality Challenges in IT Leadership

In discussions surrounding workplace gender equality and women's representation in IT leadership, several key challenges emerge. One significant hurdle is the mid-level career break, where women often find it challenging to balance family and career responsibilities due to societal expectations. In

Women were 12% less likely than men to receive leadership skills training and 15% less likely to be assessed to gain insights into their strengths and development gaps as leaders. (Source: DDIWorld)

Moreover, women are often reluctant to seek support, influenced by societal norms and potential negative perceptions. Women may hesitate to ask for assistance, fearing judgment or repercussions, mainly if they are single and seeking support from male peers or mentors. This reluctance further compounds the challenges women face in navigating their careers and accessing opportunities for advancement.

Additionally, gender pay gaps persist in the tech industry, with eligible male counterparts often receiving more opportunities and higher pay than their female counterparts. This



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Now, the culture has changed wherein people are getting their testing done on a regular basis as a health checkup. BI is helping a lot internally in the organization, which actually was not there prior to when we have implemented this.

POOJA CHATRATH
CIO, Oncquest Laboratories Ltd.

many cultures, women are traditionally considered the primary caregivers for children, parents, and in-laws. This can lead to difficult decisions about prioritizing home or career, hindering women's progression to top leadership roles and perpetuating a gender gap in IT leadership.

disparity reflects systemic biases and discourages women from aspiring to leadership roles, knowing they may not receive equal recognition or compensation for their contributions.

Addressing these challenges requires multifaceted approaches. Organizational policies that support

work-life balance, such as flexible hours and parental leave, can help mitigate the impact of mid-career breaks and encourage women's continued participation in the workforce. Empowering women to advocate for themselves, challenge societal norms, and seek mentorship and support networks can also help overcome barriers to advancement.

In navigating this landscape, the importance of action over rhetoric becomes evident. Practical experience, rather than theoretical knowledge alone, is crucial for growth in an industry plagued by gender disparities. By actively participating in projects and embracing hands-on learning, aspiring women in tech can overcome obstacles and forge

comments, doubting their own abilities, and not having enough support to move up in their careers.

Even though there's been some progress, women still struggle to find their place and grow in the tech world. They are less likely to be in charge or to get promoted, even when they are just as qualified as men. This unfair treatment can make women feel like they don't belong or can't do well in tech.

Lack of Mentorship Hinders Leadership Climb

The persistent issue of women struggling to climb the leadership ladder in the tech industry, largely due to a lack of mentorship and sponsorship, is a critical challenge highlighted in McKinsey's "Women in the Workplace 2023" report. Despite some progress towards equality, the tech sector continues to grapple with significant hurdles that hinder women's career advancement. The report reveals a stark mentorship gap, with 58% of women aspiring to leadership roles, yet only 39% feeling they have the mentorship support necessary to achieve these ambitions. This gap not only stymies individual career growth but also impacts the industry's capacity to foster a diverse leadership pipeline.

Moreover, the report sheds light on the importance of being well-integrated and informed within one's company. A mere 20% of women reported feeling connected to their company's mission and fully in the loop, a deficiency that can lead to decreased engagement and higher turnover rates. The disparities extend to sponsorship and feedback, crucial for professional development, where women also report feeling underserved.

Highlighting the efficacy of mentorship programs, the McKinsey report suggests such initiatives as key to retaining women in tech and advancing them into leadership roles, with organizations implementing formal mentorship programs seeing notable improvements in diversity

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Information security should not be owned only by the CISO of the organization or the board. It needs to go to the Nth level, and it has to be everybody's responsibility.

MEETALI SHARMA

Director - Risk, Compliance, and Information Security, SDG Corporation



Efforts to close the gender pay gap and promote equitable compensation practices are essential for fostering an inclusive workplace where women feel valued and respected. Ultimately, achieving gender parity in IT leadership demands systemic changes and cultural shifts that recognize and address the unique challenges faced by women in the tech industry.

Leading with Action

Despite comprising 36% of India's tech workforce, women face a steep decline in representation as they climb the corporate ladder. Skillsoft's 2022 Women in Tech Report India Region reveals that only 7% hold executive-level positions, 13% work as directors, and 17% occupy mid-level managerial roles.

paths to leadership. As highlighted by Mehajabeen, the distinction between tasks is irrelevant; immersion in real-world scenarios cultivates invaluable insights and propels professional advancement.

Addressing the major challenges women in tech face

The tech industry is growing fast and offers lots of job opportunities for people good at coding, programming, and other tech skills. But, women in tech often face many challenges that make it harder for them to succeed compared to men. These challenges include not having enough women leaders to look up to, facing unfair treatment because they are women, dealing with unwanted attention or



Each individual has a role to play within the team. It is important for them to understand what kind of role they are playing and why that role is important.

SHOBHANA LELE

CIO, The Bombay Dyeing and Manufacturing Company Limited



at leadership levels. This serves as a call to action for the tech industry to embrace structured mentorship and sponsorship programs, equitable access to information and opportunities, and a culture that values constructive feedback. Such changes are not merely about fairness; they're strategic imperatives for fostering innovation, satisfaction, and success within the tech sector.

The tech industry, often perceived as a progressive bastion, is not immune to the age-old issue of gender pay disparity. Despite advancements in technology and society, the gap between what men and women earn remains a significant concern. According to a 2020 report by Hired, women in tech roles earn 3% less than their male counterparts, a disparity that is even more pronounced for women of color and in certain specialized positions. For instance, female data scientists and product managers face even wider gaps, with nearly 20% less and 7% more earnings compared to their male counterparts, respectively. Furthermore, the Bureau of Labor Statistics highlighted that women's annual earnings were only 82.3% of men's in 2020, underscor-

ing the systemic nature of this issue. With 78% of large tech companies acknowledging a gender pay gap, it's clear that this is not just an isolated problem but a widespread industry challenge. Addressing this disparity requires a concerted effort to overhaul pay structures, promote transparency, and foster an environment where equality is not just aspired to but achieved.

Venture Capital Challenges for Women-Led Startups

The challenge of securing venture capital funding is significantly pronounced for startups led by women, with a mere 2.3% of total investments directed towards them in 2022, according to Harvard Business Review. A strategy that has shown promise for female founders is seeking investment from women investors, who are reported to be twice as likely to invest in women-owned businesses compared to their male counterparts. Despite women founding only 25% of startups, and 37% having at least one woman on their board of directors, this approach suggests a potential pathway to bridge the funding gap.

However, recent analyses highlight a complex dimension to this strategy. While female-led startups might find it easier to obtain initial funding from women investors, this could inadvertently set the stage for challenges in future funding rounds. The perception of gender-based preferential treatment in these early investments might lead to skepticism or hesitancy among other potential investors later on. This situation underscores a nuanced obstacle: the initial advan-



Embracing emerging technologies like AI, ML, robotics, IoT, RFID, and sensors empowers organizations to optimize operations, enhance sustainability, and meet the evolving needs of the industry.

SHWETA SRIVASTAVA

Head IT, Matix Fertilisers and Chemicals Ltd.



tage of gender-aligned investment might complicate broader investment prospects for female entrepreneurs in the long term.

Main Challenges for Women in Tech:

1. Not Enough Women Leaders:

There aren't many women in top positions in tech companies. This makes it hard for other women to see themselves moving up or

people in powerful positions who can help them move up in their careers. This makes it harder for them to get ahead.

What is needed to be changed?

To make things better for women in tech, companies and the whole industry need to change. This means hiring more women, making sure they have the same chances to grow as men,

value collaboration as critical to success, the reality within organizations often falls short.

The data presented underscores the crucial role of managers in fostering team engagement and collaboration within organizations. Despite the recognized importance of cooperation, many employees report experiencing insufficient collaboration in their workplace. This gap between the perceived value of collaboration and its actual implementation suggests a disconnect between organizational priorities and managerial practices.

Managers play a pivotal role in shaping workplace dynamics and fostering a collaborative culture. Their leadership style, communication methods, and ability to facilitate teamwork directly impact employee engagement and collaboration. However, the high percentage of deviations in team engagement attributed to managers indicates a need for improvement in managerial practices. To address this discrepancy, organizations should prioritize leadership development and provide managers with the necessary training and resources to lead and motivate their teams effectively. Also, fostering a culture of open communication and inclusivity can encourage employee collaboration and mitigate the reported lack of cooperation.

Ultimately, recognizing the significant impact of managerial behavior on team dynamics and implementing strategies to enhance collaboration are essential steps toward creating a more engaged and productive workforce.

In this context, Shobhana Lele, CIO at The Bombay Dyeing and Manufacturing Company Limited, offers valuable perspectives on effective team management strategies and the importance of cultivating a supportive and inclusive work culture.

She emphasizes the importance of fostering connections between team members and senior leadership within the organization. Encouraging team



Creating an inclusive environment is essential for equal opportunities, ensuring everyone has the chance to succeed.

VERONIKA FOLKOVA

Sr. Director, People Business Partners, Global Legal Organisation and APAC Region



to find mentors who understand their challenges.

- 2. Being Treated Unfairly:** Women often don't get the same chances as men. They might be passed over for promotions or not taken as seriously, just because of their gender.
- 3. Dealing with Harassment:** Unwanted attention and comments are a big problem in tech. This can make the workplace feel unsafe or unwelcoming for women.
- 4. Feeling Like an Impostor:** Many women in tech feel like they're not good enough or that they're going to be found out as a "fraud." This isn't true, but it's a common feeling that can hold them back.
- 5. Needing More Support:** Women often don't have sponsors —

supporting them when they face challenges, and making the workplace safe and welcoming for everyone.

By understanding these problems and working to fix them, we can help more women succeed in tech. This isn't just good for women; it's good for the tech industry and everyone who uses technology because it brings in new ideas and perspectives.

Strategies for Motivating and Aligning Teams

As per a report by Team Stage, managers wield significant influence over team engagement, accounting for 70% of deviations. Yet, 39% of employees cite a lack of collaboration despite its acknowledged importance. While three-quarters of employers

members to engage with business leaders provides them with valuable insights into the organization's broader objectives, reinforcing their sense of purpose and aligning their efforts with overarching strategic goals.

Driving Success through Feedback

Feedback is pivotal in driving continuous improvement, a crucial aspect of success in any field, including women in tech. Emphasizing the importance of feedback mechanisms, the women IT leaders highlight the need to define clear goals and objectives before soliciting feedback, ensuring that the input received aligns with the intended outcome. According to Pooja Chatrath, by involving relevant stakeholders, including clients, internal team members, and subject matter experts, feedback can be targeted and actionable.

Moreover, the importance of choosing appropriate communication channels to gather feedback effectively is highlighted. Whether through emails, social media, or direct communication, the goal is to create a conducive environment for open and constructive feedback exchange.

The example of developing an app illustrates the transformative power of feedback. When users provide input on the app's usability, one should emphasize the importance of responding positively and making necessary modifications. This approach enhances user experience and fosters a culture of receptivity to feedback within the tech team.

Fostering feedback through incentivization by recognizing team members who detect the highest number of errors during testing is another example. This proactive strategy nurtures a culture of consistent enhancement and creativity.

Conclusion

The tech industry boasts impressive contributions from women across various roles, yet significant gen-

CONQUER TECH WITH A POWERFUL PERSONAL BRAND

Unleash your full potential in the tech industry by crafting a stellar personal brand.

Self-Discovery is the Foundation:

- **Strengths & Interests:** Identify your unique skills and what sparks your passion within the tech realm.
- **Career Vision:** Define your ideal career path and the image you want to cultivate.

Bridge the Skills Gap:

- **Continuous Learning:** Stay ahead of the curve by acquiring new skills and staying updated with the latest trends and technologies.
- **Communication Mastery:** Refine your written and verbal communication skills for clear and concise expression.

Seek Valuable Feedback:

- **Mentorship Matters:** Connect with experienced professionals in your field and seek honest feedback on your personal brand.
- **Peer Reviews:** Request insights from colleagues on how you're perceived professionally.

Harness the Digital Landscape:

- **Active Social Media Presence:** Share your work and industry insights, and engage with relevant tech communities on platforms like LinkedIn and Twitter.
- **Content Creation:** Contribute blog posts and articles or participate in online discussions to showcase your expertise and establish thought leadership.

Consistency is Key:

- **Professional Online Presence:** Ensure your profiles and content reflect your desired brand image.
- **Regular Engagement:** Participate in online communities, respond to comments, and build meaningful connections.

Network Strategically:

Attend industry events, conferences, or online forums to connect with potential collaborators and expand your professional network.

der disparity persists. Women face hurdles like underrepresentation in leadership and limited access to funding. These challenges, along with bias and harassment, stifle both women's careers and the industry's potential for innovation. However, inspiring stories of successful women in tech demonstrate the need for change. By prioritizing mentorship, equal pay, and fostering a safe work environment, the industry can unlock its full potential. Furthermore, supporting women through feedback, cybersecurity awareness, and personal branding empowers them to thrive. Achieving gender equality in tech requires a collective effort, but the rewards – a more

creative, innovative, and successful industry – are well worth the pursuit.

Establishing a network of mentors and advisors is key to advancing one's career across all fields. Guidance can be found among colleagues, supervisors, or leaders you respect. It's a strategy I strongly recommend for those just beginning their professional journey.

To foster equal opportunities, it's critical to cultivate an inclusive culture. This involves elevating women to leadership positions, expanding mentorship initiatives, and broadening educational opportunities. Such measures are crucial for eliminating obstacles and enabling success for all. ■



Pushkar Rege, CIO, UPL

A strong cultural fit and commitment reduce IT turnover rates

Pushkar Rege, CIO at UPL, sheds light on the importance of attitude and cultural fit over mere technical knowledge.

In an era where digital transformation significantly impacts every industry, the agrochemical sector is no exception. Integrating technology into agricultural practices is not merely an option but necessary to address the dual challenges of enhancing productivity and ensuring global food security. This transition towards a more technologically integrated approach brings to light several critical facets: the readiness to adapt to remote work as demonstrated during global crises, the pivotal role of information technology in streamlining operations across mergers and acquisitions, and the strategic deployment of digital innovations in manufacturing to boost efficiency and sustainability.

Central to this transformation is the evolution of vendor relationships into more profound, more collaborative partnerships. This shift underscores the recognition that achieving lasting progress in the digital age requires a synergy of efforts, where mutual benefits and shared goals drive technological advancements. Furthermore, the narrative emphasizes the importance of cultivating a workforce that is not only technically proficient but also culturally aligned and adaptable to the rapid pace of change. This includes a focus on insourcing tal-

ent based on attitude and fit rather than just technical skills, highlighting a broader trend towards valuing human elements in the digital transformation journey.

This exploration offers a lens into the broader implications of digital adoption in the agrochemical sector, reflecting on how strategic IT decisions can catalyze significant advancements while fostering a culture of innovation and collaboration that extends beyond the confines of the industry.

An enlightening conversation between Nisha Sharma, Principal Correspondent at CIO&Leader, and Pushkar, the Chief Information Officer (CIO) of UPL, sheds light on how technology and innovation are spearheading advancements in agriculture and food security, a sector fundamental to the well-being of the global population. This dialogue discusses the transformative power of digital solutions in tackling real-world challenges faced by farmers across the globe, emphasizing the necessity for industries to embrace technological preparedness and agility, especially highlighted during the COVID-19 pandemic's unprecedented challenges.



From automating manufacturing processes to employing IoT for preventive maintenance, the industry sets new standards in digital agriculture.

Embracing technology for growth and sustainability

The commitment to leveraging technology goes beyond mere innovation; it's about solving real-world challenges that impact farmers worldwide.

"We were ready with our laptops and remote working... giving a laptop even to a junior person was not thought of. But that's how we've been working." - Pushkar Rege, CIO at UPL.

The readiness to adapt to remote operations and digital workflows, especially during the COVID-19 crisis, underscores the vital role of technology in ensuring business continuity and resilience.

Mergers, acquisitions, and the power of technology

The narrative highlights how strategic acquisitions have expanded global reach, underpinned by robust IT integration. The seamless assimilation of new entities through technology exemplifies operational excellence and amplifies the company's ability to foster synergy across borders.

"IT has a mainstay... we've always been building the technology layer first... we could derive synergy only because we could do an ERP of 55 countries in less than 12 months." - Pushkar Rege.

Digitization at the core of operations

At the heart of operational success lies a deep-rooted adoption of digital technologies. From automating manufacturing processes to employing IoT for preventive maintenance, the industry sets new standards in digital agriculture. This shift towards action-oriented adoption reflects a culture where technology is ingrained in every operational facet, driving unparalleled efficiency and productivity.

Partnership over Vendorship

A refreshing take on vendor management as partnership management emerges, emphasizing mutual benefit and shared success. This approach fosters a collaborative ecosystem, wherein technology partners become integral to achieving the overarching mission, marking a departure from transactional relationships to strategic alliances.

Looking ahead: technology and talent management

The future of technology and talent management is envisioned through a lens that prioritizes attitude and cultural fit alongside technical acumen. "Insourcing is all about attitude. The technology knowledge will always change... the right cultural fitment becomes very critical at the source." - Pushkar Rege.

This focus on insourcing talent that embodies the right mindset highlights a proactive approach to building a resilient, innovative workforce adept at navigating the complexities of the modern technological landscape.

Conclusion

Through the lens of these discussions, it's evident that the journey toward technological advancement in agriculture and beyond is about making a substantive impact. The strategic deployment of technology, the importance of nurturing partnerships, and a commitment to sustainable growth present a blueprint for businesses aiming for transformative success in the digital era. This narrative transcends the confines of any single company, offering universal insights into technology's role in driving business success and contributing to a better, more secure world. ■

NEW IN TECH



Apple MacBook Air 2024 vs MacBook Air 2023: What's new/improved

Apple has unveiled the new MacBook Air with the M3 chip.

By [Ayushi Jain](#) | editor@cioandleader.com

Apple has unveiled the new MacBook Air with the powerful M3 chip, taking its combination of power-efficient performance and portability to a new level.

Apple claims that with the M3 chip, MacBook Air is up to 60 percent faster than the model with the M1 chip and up to 13x faster than the fastest Intel-based MacBook Air. But how is the Apple MacBook Air 2024 different from the MacBook Air released last year? Let's find out.

Performance

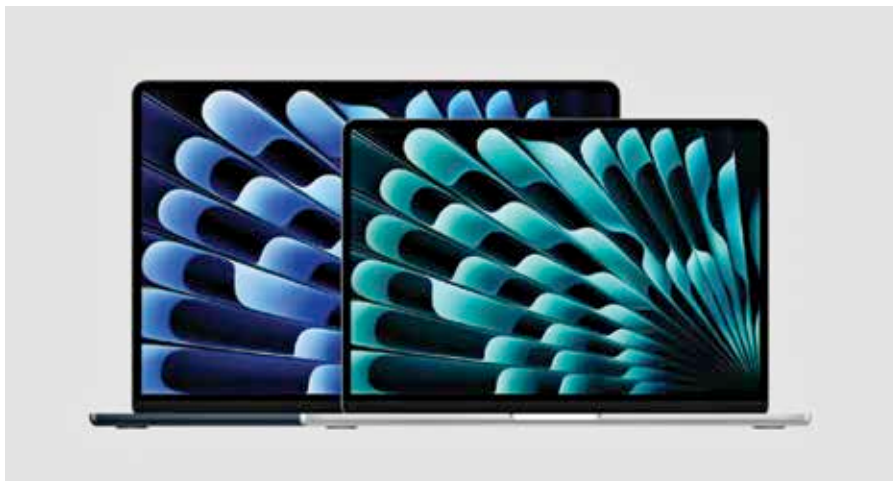
The major difference between Apple MacBook Air 2024 and MacBook Air 2023 is the chip. The MacBook Air 2024 is equipped with the M3 chip, while the MacBook Air 2023 is powered by the M2 chip.

Built using 3-nanometer technology, the M3 chip brings even faster performance and more capabilities to MacBook Air. With the next-generation GPU of M3, the new MacBook Air supports hardware-accelerated mesh shading and ray tracing, offering more accurate lighting, reflections and shadows for improved gaming experiences.

The Apple MacBook Air 2024 also includes the latest media engine with support for AV1 decode, providing more efficient and higher-quality video experiences from streaming services.

Support for up to two external displays

MacBook Air with M3 supports up to two external displays when the laptop lid is closed. For comparison, the MacBook Air with M2 only supports one external display.



Apple claims that the M3 chip includes a faster and more efficient 16-core Neural Engine, along with accelerators in the CPU and GPU to boost on-device machine learning, making MacBook Air the world's best consumer laptop for AI.

Connectivity & enhanced calls

MacBook Air with M3 features Wi-Fi 6E, which delivers download speeds that are up to twice as fast as the previous generation.

On the other hand, the MacBook Air with M2 chip features Wi-Fi 6.

The MacBook Air with M3 Chip also comes with enhanced voice clarity on audio and video calls.

Anodization seal

Like MacBook Air 2023, the new MacBook Air also comes in four colour options: Midnight, starlight, space grey, and silver. However, the midnight variant of the MacBook Air 2024 features an anodization seal to reduce fingerprints.

AI

Last, but not the least, Apple claims that the M3 chip includes a faster and more efficient 16-core Neural Engine, along with accelerators in the CPU and GPU to boost on-device

machine learning, making MacBook Air the world's best consumer laptop for AI.

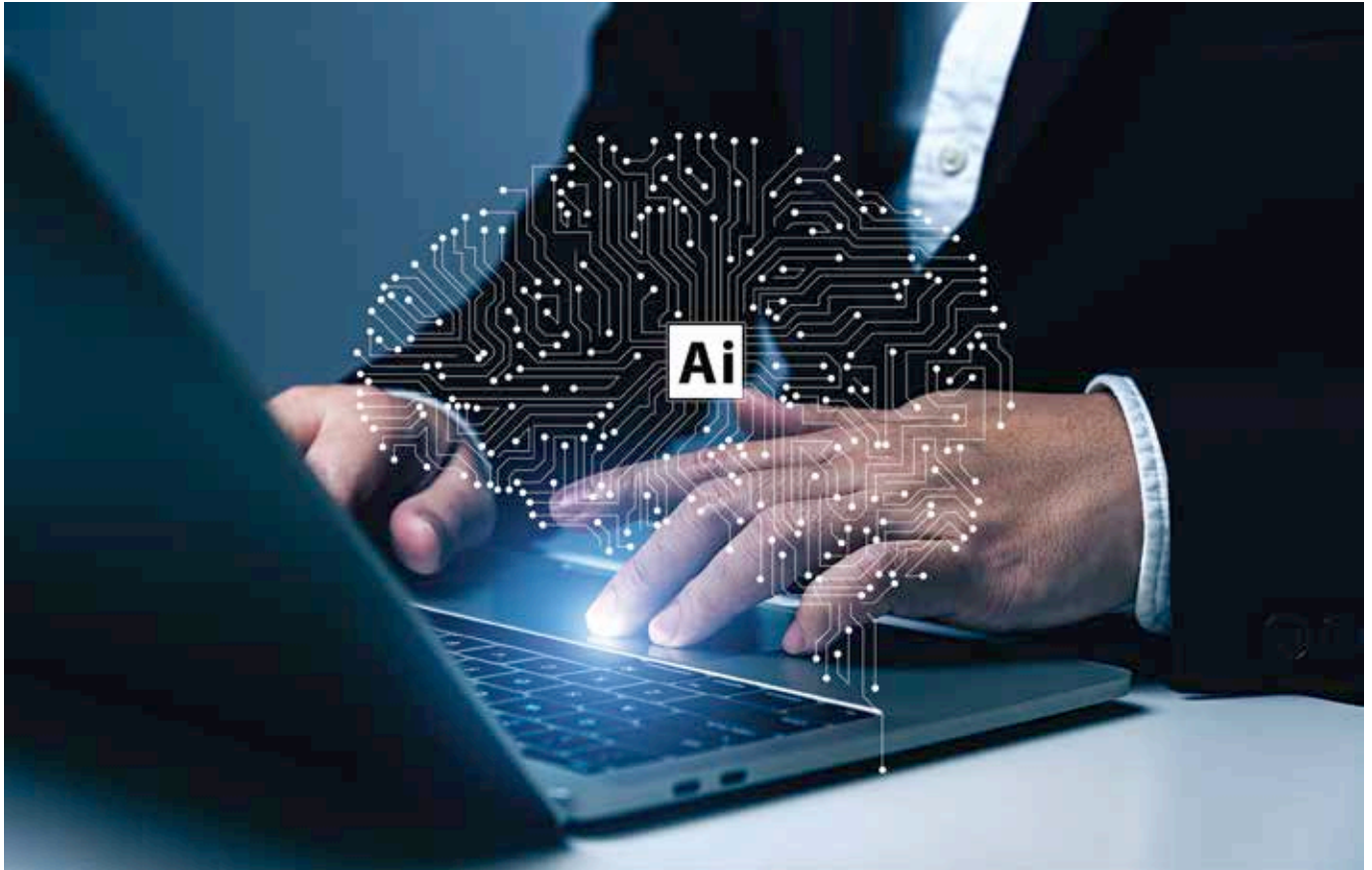
Leveraging this AI performance, macOS delivers intelligent features that enhance productivity and creativity, so users can enable powerful camera features, real-time speech to text, translation, text predictions, visual understanding, accessibility features, and much more.

You can check your homework with AI Math Assistance in Goodnotes 6, enhance photos in Pixelmator Pro, and remove background noise from a video using CapCut, and much more.

MacBook Air can also run optimised AI models, including large language models (LLMs) and diffusion models for image generation locally with great performance.

Moreover, MacBook Air supports cloud-based solutions, allowing users to run powerful productivity and creative AI apps, such as Microsoft Copilot for Microsoft 365, Canva, and Adobe Firefly. ■

SURVEY



India's AI/ML talent surges by 30%, traditional roles decline

India's employment landscape sees a surge in AI/ML talent in all sectors. The rise in demand reflects the growing relevance of AI-driven technologies in various sectors, creating new job roles and opportunities.

By **Praneeta** | praneeta@9dot9.in



The employment landscape in India is undergoing a significant transformation, with technological advancements paving the way for new opportunities and challenges. As highlighted in the recent India Employment Report 2024, jointly released by the International Labour Organisation (ILO) and the Institute of Human Development (IHD), youth unemployment remains a pressing concern. However there is still potential to address unemployment and create sustainable pathways for economic growth by leveraging AI.

According to data presented by staffing firm Randstad, the demand for AI and Machine Learning (ML) roles has been steadily increasing, with a growth rate of 30% annually since the pandemic. It is estimated that there are approximately 200,000 professionals skilled in AI/ML in India. This surge in demand reflects the growing relevance of AI-driven technologies in various sectors, creating new job roles and opportunities.

Data from talent solutions at professional services firm Aon highlights the lucrative nature of AI and ML roles, with salaries substantially higher than those of other digital tech roles. Salaries for AI/ML professionals with 0-5 years of experience range between Rs 14 lakh and Rs 26 lakh, significantly higher than those of other digital tech roles.

Rohit Kishore, Randstad's global delivery and talent officer, emphasized integrating AI and ML into the core of digital transformation initiatives within organizations. Implementing AI and ML technologies has demonstrated significant potential in automating processes and enhancing

productivity, thereby driving economic growth.

The big gap

Despite the opportunities in AI and ML job roles, challenges persist in addressing youth unemployment in India. The India Employment Report 2024 indicates that more than 80% of the unemployed workforce comprises youth, with structural changes in the economy offering potential employment opportunities, particularly in non-farm sectors such as machinery manufacturing and computer programming.

Bridging the gap between supply and demand for skilled workers still remains a key challenge. The mismatch between the skills acquired by the workforce and the requirements of employers underscores the need for targeted skill development initiatives. The digital economy is expected to add an estimated 6.4 million jobs for youth by 2030. However, addressing the digital skills gap and ensuring inclusive access to digital literacy are crucial steps in harnessing the potential of technological advancements for employment generation.

The emergence of the platform or gig economy further underscores the changing nature of work. While offering new economic opportunities, particularly for youth, the gig economy also presents challenges related to informal work arrangements and a lack of social protection mechanisms. Addressing disparities in access to digital skills and promoting inclusive participation in the digital landscape is essential for ensuring equitable opportunities for all segments of society.

In light of the shifting dynamics of the job market and the increasing importance of technological competencies, upskilling has emerged as a critical strategy for both individuals and enterprises in India. According to a 2023 Skill Report, 88% of Indians recognize the significance of upskill-

ing in ensuring job security and future-proofing their careers.

This sentiment underscores a growing awareness among the workforce about the need to continuously enhance their skills to remain competitive in today's rapidly evolving landscape. With the rise of online learning platforms and e-learning technologies, individuals now have access to courses tailored to their interests and career aspirations, facilitating the pursuit of lifelong learning.

The practical approach by enterprises

Enterprises, too, are increasingly acknowledging the imperative of investing in the training and upskilling of their workforce. Companies are taking measures to support their employee development by recognizing the importance of upskilling in enhancing workforce productivity and adaptability to technological advancements. This includes conducting regular internal training sessions, allocating individual training budgets, and facilitating access to external training programs.

By prioritizing upskilling initiatives, enterprises can foster a culture of learning and innovation and strengthen their competitive edge in a rapidly evolving business landscape. Additionally, catering to the career growth aspirations of different age groups, such as Gen X, Millennials, and Gen Z, through flexible learning and development strategies can help organizations retain top talent and mitigate attrition, thereby ensuring long-term sustainability and success.

In conclusion, leveraging technological advancements, particularly in AI and ML, presents significant opportunities for addressing youth unemployment and driving economic growth in India. However, collective efforts are needed to bridge the skills gap, promote inclusive access to digital literacy, and address challenges associated with the evolving nature of work. ■



AI in Cybersecurity, Friend or Foe? A CXO's Guide to Responsible Implementation

Artificial Intelligence (AI) has emerged as a powerful tool with the potential to revolutionize the cybersecurity landscape

By Dr. Vamsi Mohan | editor@cioandleader.com

Cybersecurity threats are becoming increasingly sophisticated in today's rapidly evolving digital landscape. As organizations strive to protect their critical data and infrastructure, Artificial Intelligence (AI) has emerged as a powerful tool with the potential to revolutionize the cybersecurity landscape. However, AI also raises concerns surrounding potential misuse and unintended consequences. This begs the question: Is AI a friend or foe in cybersecurity?

For CXOs, navigating this complex terrain requires a balanced approach. While embracing the potential of AI to enhance security posture, it's crucial to understand and mitigate associated risks. This article explores the dual nature of AI in cybersecurity, offering insights and best practices for responsible implementation:

AI as a Friend- boosting security defenses

AI offers several advantages in the fight against cybercrime:

- **Enhanced threat detection:** AI algorithms can analyze vast amounts of data in real-time, identifying anomalies and suspicious patterns that might escape human analysts. This allows for proactive detection of potential cyberattacks, enabling organizations to respond swiftly and mitigate risks.
- **Improved Security Automation:** AI can automate repetitive and time-consuming tasks like security log analysis and vulnerability scanning, freeing up human resources to focus on strategic initiatives and complex investigations.
- **Predictive Analytics:** AI can predict potential attacks by analyzing historical data and identifying patterns associated with past security breaches. This enables organizations to prioritize resources and take preventative measures to bolster their defenses against specific threats.

AI as a Potential Foe- addressing risks and challenges

While promising, AI implementation in cybersecurity also presents certain challenges:

- **Bias and explainability:** AI algorithms can inherit biases from the data they are trained on, potentially leading to discriminatory or inaccurate decisions. It's crucial to ensure unbiased training data and implement explainable AI models to understand how algorithms arrive at their conclusions.
- **Security vulnerabilities:** AI systems themselves can become targets for cyberattacks. Hackers could exploit vulnerabilities in AI models or manipulate training data to compromise security measures. Robust security protocols and continuous monitoring are essential to mitigate these risks.
- **Ethical considerations:** The use of AI in cybersecurity raises ethical concerns about privacy, transparency, and accountability. Organizations must establish clear ethical guidelines and ensure responsible AI development and deployment aligning with legal frameworks and societal values.

In this context, I'd like to share a case study of a Global Logistics Firm (GLF, actual customer name changed).

Challenge: GLF recently faced a sophisticated ransomware attack that encrypted critical data, disrupting operations and causing significant financial loss. Traditional security measures failed to detect the attack in its early stages.

AI solution:

- GLF implemented an AI-powered threat detection system that analyzes network traffic for anomalies.
- The AI identified unusual data transfer patterns associated with the ransomware deployment, triggering an immediate alert.
- Security teams quickly isolated the affected systems and contained the attack, minimizing data loss and downtime.

Benefits:

- AI's real-time analysis helped detect the attack significantly faster than manual methods.
- Early detection minimized the impact of the attack and expedited recovery efforts.
- The successful mitigation bolstered confidence in AI as a valuable security tool within GLF.



By adopting a balanced and proactive approach, CXOs can leverage the power of AI to enhance their security posture while mitigating potential pitfalls and upholding ethical considerations.

Implementation challenges:

- Integrating the AI system required initial investments in technology and training.
- Ensuring the AI model's accuracy and avoiding potential biases in its detection algorithms is crucial.

This case demonstrates the potential of AI to enhance security posture by proactively detecting and mitigating advanced threats. GLF is exploring further AI applications, such as automating security tasks and improving incident response processes.

This real-time case study highlights AI's potential as a "friend" in cybersecurity by showcasing its effectiveness in mitigating a real-world ransomware attack. It also acknowledges the ongoing challenges and emphasizes the importance of responsible AI implementation to maximize its benefits and minimize potential risks.

A CXO's Guide to Responsible AI Implementation in Cybersecurity

As CXOs, navigating the potential of AI while mitigating risks requires a proactive and responsible approach:

- **Clearly define objectives:** Define the specific security challenges you aim to address through AI. This ensures focused implementation and avoids the temptation to adopt AI for the sake of novelty.
- **Invest in explainable AI:** Choose and implement AI models that offer transparency and explain-

ability in their decision-making processes. This allows for human oversight and ensures alignment with ethical guidelines.

- **Prioritize data security:** Implement robust data security practices to protect training data and AI models from unauthorized access or manipulation. Regularly audit and monitor data quality to prevent bias and ensure accurate results.
- **Build a culture of security awareness:** Foster a culture of security awareness within your organization. Educate employees about potential risks associated with AI and their role in upholding responsible use practices.
- **Collaborate with experts:** Partner with cybersecurity experts with the necessary skills and experience to guide AI implementation and address potential security vulnerabilities.

Conclusion

AI is a powerful tool with immense potential to transform the cybersecurity landscape. However, responsible implementation requires careful consideration of both benefits and risks. By adopting a balanced and proactive approach, CXOs can leverage the power of AI to enhance their security posture while mitigating potential pitfalls and upholding ethical considerations. Remember, AI in cybersecurity is not a silver bullet solution but a powerful tool that requires careful handling and integration within a comprehensive security strategy. ■

—Dr. Vamsi Mohan is a Cybersecurity expert.



On-Device AI

Your personal smart assistant

By **Mithun Mohandas** | editor@cioandleader.com

Hyped-up technological phenomena are quite common, and most of them end up being a bubble. One that pops without mercy and takes out most of the companies in that domain. The surviving few have truly innovated or offered a little more than just a buzzword. AI is no different. There are several key players whose names we all know for they've become synonymous with AI, for example, ChatGPT. It's a Large Language Model (LLM) based chatbot and the most popular of all AI services currently available to the public. There are many like it, but most people will only recall ChatGPT.

ChatGPT basically consists of a weighted AI model that's running on a server somewhere with access to petabytes of information which it can access at the drop of a hat. For anyone who's used ChatGPT, they'll be all too familiar with the time taken for each response. That's because it takes time for the model to run through all its information and generate an adequate response. The reason why it can give you a response as fast as it currently does is because the model is running on some of the most powerful hardware that money can buy. So, does that mean that AI will forever remain on the cloud? Not quite.

On-device AI

AI requires a lot of horsepower for the training stage i.e., when it is learning. Once deemed worthy of being put to use, the AI model no longer requires powerful hardware, it can make do with a fraction of the processing power. This stage is termed as inference. So once an AI is trained, it can function on a relatively low-power processor. You can opt for a more energy-efficient application using a processor designed for AI applications. Say, something like your average smartphone. And if you haven't realized, most smartphones have already incorporated some form of AI processor for a few generations. A lot of companies call this specialized processor the Neural Processing Unit (NPU). And unlike the cloud-reliant AI systems of the past, on-device AI brings the power of artificial intelligence directly into the hands of users, offering a blend of personalization, security, and efficiency previously unimaginable. Previous iterations of the NPU have been quite subtle with very small AI models running off of it for purposes of polishing up that photo that you just shot with your phone camera. With the advent of the AI arms race, all smartphone hardware manufacturers have ramped up efforts significantly, allowing for much more capable models to operate directly on your personal device.

Tracing back the lineage of on-device AI, we uncover a history rich with innovation and breakthroughs. From the initial, simple algorithms to today's sophisticated models capable of running directly on devices, the journey has been nothing short of remarkable. Take, for example, the recent announcements by Samsung and Google. Their new devices can actually translate real-time phone calls in entirely different languages, ramp up image and video quality, transcribe conversations generate minutes of the meetings, and manipulate photos and videos like a

On-device AI brings the power of artificial intelligence directly into the hands of users, offering a blend of personalization, security, and efficiency previously unimaginable.

movie studio from the '80s. I say the '80s because there are a lot of funny artifacts produced when you try out these features. While Google has its own arm-based processor for its Pixel devices, the other device manufacturers have to rely on the industry giants to bring the power of AI to their devices. Qualcomm, a frontrunner in this revolution, has been instrumental in pushing the boundaries of what's possible, pioneering the development of sub-10 billion parameter models that bring generative AI to small and large devices without compromising performance. This evolution underscores a significant trend: the movement towards making AI ubiquitous, yet unobtrusive, in our daily lives.

Today, on-device AI is not confined to smartphones and tablets; those are just the most visible applications. Its footprint extends across various form factors, including wearables, automotive systems, and IoT devices. This widespread adoption has been made possible by leaps in AI algorithms and hardware optimization, allowing even the most compact devices to boast AI capabilities. This democratization of AI technology signifies a future where intelligence is embedded in every digital interaction, from how we drive to how we live and communicate.

The perks

The benefits of on-device AI extend far beyond mere convenience.

Enhanced privacy, reduced latency, and offline functionality are hallmark benefits. By processing data locally, these AI models ensure that sensitive information never leaves the device, offering a fortress of privacy in an era of increasing data breaches. Moreover, eliminating cloud dependency means instant responses to user commands, transforming user experience into something seamless and intuitive. As it stands right now, instant responses are a far cry since we're looking at the first iterations of AI models that directly respond to the user. The term 'near-instant' is more appropriate. Nevertheless, these benefits are not just theoretical; they manifest tangibly across all devices, making technology faster, safer, and more aligned with human needs.

True democratization cannot happen with proprietary AI models. Every manufacturer wants to keep their AI refinements close to their hearts. The rise of open-source AI models will be the true game-changer in the democratization of AI technology. By making cutting-edge models accessible to all, they lower the barrier to entry for developers and small companies, sparking a wave of innovation that was previously confined to tech giants. This open ecosystem fosters a collaborative environment where advancements are shared, not hoarded, propelling the entire industry forward and ensuring that the benefits of AI are widespread and equitable.

The challenges

Despite its promise, the road to ubiquitous on-device AI is fraught with challenges. Hardware limitations, energy consumption, and ethical dilemmas such as bias and privacy concerns are significant hurdles. Not a day goes by without a news article showcasing how certain AI models used copyrighted information to train their models. In fact, several major corporations are holding back on the



Whether it's providing critical health insights on the go or breaking down language barriers in real time, on-device AI is reshaping our world in profound ways.

mass adoption of popular AI models for this very concern. You wouldn't want to issue a recall or patch an AI feature because you later discovered that it was trained on data obtained illegally. Especially not when you've charged a premium for the 'AI features'. Industry giants such as Google, Qualcomm, Samsung, and OpenAI are leading several initiatives in this domain, including collaboration with industry partners and investment in ethical AI research, highlighting a comprehensive approach to overcoming these obstacles, ensuring that on-device AI can scale responsibly and sustainably. You'll still come across the occasional article or two stating that even these biggies have inadvertently used data that shouldn't have been, but such instances will go down. Especially since artists have started fighting back with poisoning tools that embed tiny pieces of data that mess up the AI models that train on them.

Where else?

From healthcare monitoring via wearable devices to smart home automation and real-time language

translation on smartphones, the applications of on-device AI are as diverse as they are transformative. Not everyone's bodies are the same. The polymorphism of certain genes across races among human beings results in different responses to certain medicines. So healthcare is one domain with a huge potential for personalization. Your wearables will become much smarter in the coming years to enable personalized care.

While self-driving cars have been a reality for a while, not all come with the same smarts. That's changing thanks to the Advanced driver-assistance systems (ADAS) that companies such as Qualcomm have pioneered. Real-time decision-making, automatic braking, maintaining lane discipline, and detecting pedestrians are some smart features creeping into premium cars. It won't be long before they're present, even in the cheapest cars you can buy. After all, the hardware enabling these services isn't that cost-prohibitive anymore.

Smart home devices such as thermostats, lights, and security cameras have also started incorporating AI models, albeit not as smart as the

ones on our phones. Portable diagnostic devices are also seeing AI models being built into them. Patients with chronic conditions can be alerted in advance, and ailments can be detected way before they become chronic. Our life expectancies can only go up with such smart health monitoring devices. Whether it's providing critical health insights on the go or breaking down language barriers in real time, on-device AI is reshaping our world in profound ways.

The new normal

The impact of on-device AI extends far beyond mere technological innovation; it heralds a new chapter in our relationship with technology – a new normal where devices act as extensions of ourselves, understanding and anticipating our needs while safeguarding our privacy. As we stand on the brink of this new era, it's clear that on-device AI is not just transforming our devices; it's reshaping our world, making technology more personal, intelligent, and, ultimately, human. ■

—Mithun Mohandas is a Tech expert at Digit.

Deploying AI without purpose can lead to a path to uncertainty and stagnation



AMIT LUTHRA
Managing Director – India,
Lenovo ISG

In a recent discussion with Jatinder Singh, Executive Editor of CIO&Leader, Amit Luthra, Managing Director – India, Lenovo ISG, highlighted the company’s strategic focus, latest innovations, and its approach to tackling AI workload challenges within organizations.

By **Jatinder Singh** | jatinder.singh@9dot9.in

Amidst the evolving landscape of high-speed computing infrastructure demands, organizations face the challenge of improving efficiencies while meeting the growing demand for AI workloads. Lenovo’s Infrastructure Solution Group (ISG) claims to tackle these challenges head-on.

With a focus on AI integration, Lenovo’s ISG division offers a comprehensive suite of servers, storage, net-

working, and solutions; It says that it focuses on enabling organizations to maximize their data center potential.

Expecting robust double-digit growth in the ISG business due to the expanding adoption of hybrid AI, Lenovo foresees a wave of new and promising opportunities emerging for its ISG business in India.

In a recent discussion with Jatinder Singh, Executive Editor of CIO&Leader, Amit Luthra, Managing Director – India, Lenovo ISG, highlighted the company’s strategic focus,

latest innovations, and its approach to tackling AI workload challenges within organizations.

As Managing Director of Lenovo Infrastructure Solution Group in India, Amit is responsible for driving Lenovo ISG's business growth in the country and advocating its end-to-end offerings from the pocket to the data center to the cloud while driving customer confidence in the data center business across the market. Excerpts from the interview.

CIO&Leader: With AI workloads becoming more important and CIOs focusing on modernizing infrastructure, what's your specific vision for this market? And how do your data center solutions deal with these challenges?

Amit Luthra: Our approach is always to focus on outcomes and provide a better end-to-end customer experience. In this process, we do not differentiate between large or small organizations; we provide the same experience regardless of scale. Our global manufacturing facilities and supply chain are rated among the best in the world, focusing on sustainability in everything we do. From an artificial intelligence standpoint, AI has changed how people live and play and how businesses operate. Each organization we engage with seeks to understand how AI can benefit them. Our engagements focus on delivering clear outcomes, regardless of workload or deployment, ensuring an end-to-end experience for our customers.

CIO&Leader: You mentioned customer experience is crucial in the digital era, but integrating existing infrastructure with new solutions remains a challenge for CIOs. How do you ensure these environments' seamless transition and coexistence to add value for the enterprises?

Amit Luthra: In today's landscape, organizations often encounter two distinct types of workloads: tradition-

Unlike traditional workloads, transformative workloads often exhibit dynamic scaling needs and may necessitate a different approach to infrastructure provision.

al business workloads, sometimes referred to as legacy workloads, and newer, transformative workloads. While "legacy" may suggest outdat- edness, these established workloads have matured over the past decade or two, forming the backbone of many operations. Organizations typically have dedicated infrastructure to manage these traditional workloads, which continue to perform reliably.

However, the popularity of social media, mobile technology, cloud computing, and other modern innovations has ushered in a wave of transformative workloads. These new workloads have the potential to revolutionize business practices, requiring organizations to adapt and evolve their infrastructure accordingly. Unlike traditional workloads, transformative workloads often exhibit dynamic scaling needs and may necessitate a different approach to infrastructure provision.

Our approach to addressing these evolving workload demands begins with a comprehensive workshop. During this engagement, we delve deep into understanding each workload's specific requirements and characteristics. By thoroughly understanding the workload, we can explore opportunities to optimize deployment, leveraging existing resources wherever possible. This tailored approach ensures that our solutions align closely with each organization's unique needs.

Ultimately, the success of any project hinges on an organization's ability to grasp and effectively man-

age the complexities of different workloads accurately. By prioritizing workload-centric engagement and demonstrating tangible value to our clients, we pave the way for more successful outcomes and sustainable business transformation.

CIO&Leader: How do you see the overall development of the AI ecosystem? And what particular challenges is Lenovo addressing in this regard?

Amit Luthra: In today's landscape, AI has become a buzzword, with many organizations feeling pressured to jump on the bandwagon without fully understanding its potential. This phenomenon often leads to the "FOMO effect" — a fear of missing out on AI's promised benefits. However, simply deploying AI for the sake of it can leave organizations in a state of uncertainty, stuck in the whiteboard stage without a clear understanding of its practical applications.

On the flip side, we've observed a common thread among successful organizations: forming cross-functional teams, or what some refer to as "tiger teams." These teams bring together individuals from IT, data science, business analysis, and finance to collaboratively explore how AI can drive meaningful change within their operations. Rather than diving into AI unquestioningly, these teams start by asking critical questions: What specific business challenges are we aiming to address with AI? Are we looking to enhance customer satisfaction, streamline operations, or improve fraud detection?

Organizations can embark on a successful AI journey by defining clear objectives and assembling the right talent. For example, one organization we worked with aimed to streamline content creation using generative AI. By aligning their AI efforts with their core objectives, they could transform verbose content into concise, visually appealing infographics, significantly reducing production time.

From our perspective, AI isn't a new concept; it's rooted in years of research and development. Leveraging our legacy in high-performance computing, we've tailored over 150 platforms specifically for AI applications. Rather than offering one-size-fits-all solutions, we work closely with our clients to understand their unique data needs and design custom AI platforms accordingly. Ultimately, the key to successful AI implementation is marrying AI with data. Whether deploying AI at the edge for real-time data analysis or leveraging AI to derive insights from vast datasets, the goal is to empower organizations to make data-driven decisions effectively.

CIO&Leader: Do you think AI and Automation will significantly change how businesses operate in the next two to three years?

Amit Luthra: When we look at AI and automation, it's evident that they walk a fine line, divided by nuanced differences. AI is primarily geared towards handling non-repetitive tasks, whereas automation thrives in managing repetitive tasks efficiently. While there's a common misconception that AI automates processes outright, it's crucial to recognize their distinct roles. To truly revolutionize business operations, AI and automation must complement each other seamlessly.

The true power of AI lies in its ability to facilitate decision-making processes. For instance, AI-driven robotics can autonomously make decisions, whereas automation typically entails following predefined rules learned through training. Herein lies the synergy: AI contributes the intelligence, while automation provides the structured execution. The harmonious collaboration of these technologies holds the key to transformative outcomes.

I firmly believe that harnessing the synergy between AI and automation

holds immense potential to drive substantial business growth in the foreseeable future. As organizations refine their deployment strategies and optimize efficiency, we can anticipate a palpable surge in productivity and innovation across various sectors.

Consider, for instance, the manufacturing domain, where AI-enabled robotics can streamline operations significantly. While AI creates the robots themselves, automation steps in to train and fine-tune their capabilities, encompassing modules such as inference and generative AI. This holistic approach underscores the synergistic relationship between AI and automation, likely to reshape industries and unlock unprecedented possibilities.

CIO&Leader: But one of the biggest challenges for the industry has been the talent shortage, especially in AI and other emerging technologies. Are you undertaking any collaboration programs or initiatives to address this issue?

Amit Luthra: Indeed, talent shortage is a significant concern. We collaborate with ISVs and OEMs to identify niche vendors and innovative solutions. Our focus is on educating the industry on AI basics and enabling them to understand the potential of AI. While there's still much to learn, collaboration and continuous learning will drive progress in the AI space.

Whether deploying AI at the edge for real-time data analysis or leveraging AI to derive insights from vast datasets, the goal is to empower organizations to make data-driven decisions effectively.

CIO&Leader: How is Lenovo advancing in terms of new innovations and partnerships?

Amit Luthra: With the rise of IoT and increased data analytics at the edge, we've developed purpose-built edge platforms. These platforms allow for GPU deployment in harsh environments, enabling real-time analytics without transmitting data to centralized locations.

Regarding ecosystems, it's essential to understand the three areas where AI can benefit data center infrastructure: We collaborate with cloud providers in the public cloud to deploy AI-specific platforms for hyperscalers. In private cloud environments, we offer optimized platforms to accelerate AI adoption, fostering centers of excellence and AI discovery. We provide uniquely tailored solutions for sectors like retail, facilitating the transition to AI-powered computing.

Our commitment to AI innovation is substantial, with a billion-dollar investment in our AI Innovators Program. We collaborate closely with ISVs through this program to optimize infrastructure for specific use cases. For example, we have partnerships with Deep Brain in Korea and the US and others in retail, IoT, and BFSI sectors.

CIO&Leader: Considering Lenovo's substantial growth in the ISG business in India, what are your expectations for the next year, and how do you foresee addressing the industry's challenges and opportunities?

Amit Luthra: This year holds promise for significant growth, with a focus on hybrid cloud management, infrastructure modernization, and hyper-convergence. We're seeing a trend toward repatriating AI workloads, indicating a shift in IT strategies. Investments in as-a-service models and AI-driven solutions will drive innovation and address the evolving needs of the industry. ■

Enhancing Digital Transformation and Reducing TCO



ROHIT SACHDEVA
VP-Account Management & Client
Unit Leader, Kyndryl India

Rohit Sachdeva, Vice President of Account Management and Client Unit Leader at Kyndryl India, provides a comprehensive understanding of how organizations can effectively reduce their Total Cost of Ownership (TCO) while advancing their technological capabilities.

By **Nisha Sharma** | nisha.sharma@9dot9.in

In an era where digital transformation is paramount, organizations face the dual challenge of advancing their technological frontiers while managing their IT infrastructure's Total Cost of Ownership (TCO). This Q&A session between Nisha Sharma, Principal Correspondent, CIO&Leader, and Rohit Sachdeva, VP-Account Management and Client Unit Leader at Kyndryl India, offers a deep dive into this critical business dynamic.

The discussion is set to revolve around the strategies and solutions Kyndryl employs to assist Chief

Information Officers (CIOs) in optimizing their digital infrastructure. It will explore how organizations can leverage cloud technologies, modernize legacy systems, and integrate innovative solutions like AI and Machine Learning to enhance efficiency and reduce costs. Rohit Sachdeva's insights will provide a window into the complexities of balancing cost-effective IT operations with the need for digital agility and competitiveness.

This Q&A is poised to offer valuable perspectives for businesses looking to navigate the rapidly evolving digital landscape, highlighting the importance of strategic investment and efficient resource management

Interview

in achieving long-term success in the digital age.

CIO&Leader: What are the key trends shaping the enterprise IT landscape 2024? How are your solutions positioned to address these trends?

Rohit Sachdeva: In the current business environment, resilience is crucial due to its complexity and challenges. Kyndryl aids enterprises by offering comprehensive solutions in AI integration, cloud optimization, network modernization, and data and app modernization. Investing in strong data governance is essential as companies embrace innovations like Gen AI. This involves fostering a data-centric culture, developing roadmaps, and establishing data management processes.

Enterprises in financial services face cybersecurity threats, regulatory compliance requirements, and the need to adopt new technologies due to their extensive IT infrastructure and growing digital user base. Market leaders aim to differentiate their products and seek partners to enhance efficiency, quality, and speed in IT operations.

With the increasing adoption of cloud technology, enterprises focus on cost management using FinOps and AIOps to optimize cloud investments. Modernizing network infrastructure is vital for utilizing technologies like embedded security solutions and AI analytics.

Kyndryl offers capabilities through its Consult and Kyndryl Bridge Platforms, providing advice, integration, monitoring, and operations management in more intelligent and cost-effective ways.

CIO&Leader: What are your top priorities for 2024?

Rohit Sachdeva: In 2024, Kyndryl focused on delivering innovative solutions in critical areas, with Kyndryl Consult providing expertise for technology integration. Partnerships

with hyper scalers like Google, Microsoft, and AWS enhance our cloud infrastructure and security capabilities. Kyndryl has 37000 hyperscaler-certified professionals globally.

We emphasize AI integration, tailoring solutions to customer needs and evolving security challenges. Our approach to cloud adoption includes strategic guidance for cost-effective operations, especially in hybrid cloud models. Our security solutions target vulnerabilities in legacy systems, improving security and efficiency. Data integrity and governance are priorities, acknowledging their role in security.

The Kyndryl Bridge platform offers AI-enabled insights and automation, enhancing system availability and operational efficiency.

We're expanding partnerships in the Global Capability Centers segment, focusing on deep tech skills and innovation.

Kyndryl Collaborative Centers manage systems for global customers, with significant talent in India contributing to advanced delivery and customized solutions.

CIO&Leader: With the growing importance of digital transformation, what strategic initiatives and product offerings can your company provide to help organizations stay competitive in 2024 and beyond?

Rohit Sachdeva: Kyndryl Consult, our technology consulting division, provides advisory, implementation, and integration services to accelerate digital business outcomes. It supports businesses at any stage of digital transformation and fosters co-innovation.

Our expertise helps organizations explore new business models and investments. For example, Kyndryl's financial services solutions for Google Cloud are customized for the financial industry, ensuring compliance and digital modernization. Through our partnership with Micro-

soft in the Joint Innovation Center, we're expanding our patent portfolio in data and AI. Access to Microsoft 365 Copilot, Azure OpenAI Service, and Microsoft Fabric enables us to develop generative AI innovations and solutions.

The Kyndryl Bridge platform utilizes AI and Machine Learning for automation, problem prediction, and performance optimization, reducing annual operational costs for early adopters. We prioritize cybersecurity, offering a full range of services to protect data and applications from cyberattacks.

Kyndryl Experience Management as a Service delivers end-to-end digital workplace solutions, enhancing employee and customer experiences and driving business value.

Alongside these initiatives, we're partnering with significant cloud hyperscalers (AWS, Microsoft Azure, Google Cloud) and continuously innovating to develop new products and services. Our efforts also contribute to India's goal of becoming a \$5 trillion economy by 2025.

CIO&Leader: How are your solutions adapting to support automation and AI? What innovations can we expect in this space in 2024?

Rohit Sachdeva: At Kyndryl, we integrate AI and automation seamlessly into our solutions. We prioritize intelligence, speed, and precision by integrating state-of-the-art technology into our services, driving innovation, and continuously refining them with each new project to amplify their value for clients. Through Kyndryl's AI-readiness program, we offer comprehensive services for clients to explore and embrace cutting-edge AI solutions. We leverage AI to expedite categorization while balancing automation and manual tasks for customer service interactions such as ticket resolution.

Kyndryl Bridge, our open integration services platform, harnesses AI to expedite automation, improve

efficiencies, and bolster security and resilience.

In 2024, the industry will focus on cost-efficient integration, recognizing well-organized data's pivotal role in effectively enabling AI tools. Cautious discussions among leaders center around privacy, IP protection, data leaks, and cost management guiding a collective commitment to responsible AI adoption in the evolving digital landscape.

CIO&Leader: As organizations value their intelligence, what enhancements can we anticipate in your solutions?

Rohit Sachdeva: Our solutions are being enhanced by integrating artificial intelligence (AI) and machine learning (ML) capabilities to provide deeper insights from data. This will involve developing AI-powered tools for data discovery, anomaly detection, and predictive analytics. In addition, we are bringing intelligence to the network's edge, closer to where data is generated, to enable real-time decision-making. This will involve developing edge-based AI and ML solutions that can operate autonomously and with minimal latency. We also enable organizations to manage and operate their data and applications across hybrid and multi-cloud environments by developing cloud-native solutions that seamlessly integrate with on-premises infrastructure. Finally, we are committed to providing secure solutions and protecting sensitive data by developing advanced security and privacy technologies, such as data encryption, access controls, and SOC capabilities.

CIO&Leader: The talent gap in IT remains a concern. How are you supporting CIOs/enterprises in addressing the skills shortage, and what initiatives are in place to foster education and training for IT professionals in the coming year?

Rohit Sachdeva: At Kyndryl, we are committed to upskilling our employees. A key aspect of our cloud hyper scaler partnerships is a commitment to helping them acquire valuable cloud expertise and certifications. Kyndryl earned more than 37,000 cloud hyper scaler certifications in 2023. All employees have a Career Profile that outlines their skills and expertise, and for those working customer accounts, these skills are matched with the customer project needs to get the right match. Our personalized and intelligent learning programs connect with the Career Profile and suggest recommendations based on the listed skills, enabling the employee to reskill themselves for career growth.

CIO&Leader: Can you provide examples of successful customer use cases from the past year demonstrating the value of your products and solutions, and how do these success stories inform your 2024 strategy?

Rohit Sachdeva: We are working with customers across multiple sectors, at varied stages of their digital adoption and with different requirements, to deliver some of the most unique and first-of-its-kind business solutions. For example, in the education sector, we have developed a state-of-the-art university management platform for USDC that provides personalized learner experiences, streamlines and optimizes learner onboarding, and enhances the administration processes of universities for greater operational efficiency and regulatory governance. The unique, cloud-based University-in-a-Box solution streamlines third-party integrations, regulatory compliance, accreditation, audit support, and scalability to higher education institutions.

In the telecom sector, we are working with a major telecom company to create a near-edge network across India for deploying applications that

need real-time data processing. We are developing hyper scaler-native software for a gaming sector customer and are exploring Gen AI models for robotic service delivery and solving business problems for multiple customers. We are driving IT modernization with Honda Motorcycle and Scooter India (HMSI) by managing infrastructure services, increasing uptime with automation, and enhancing resiliency. Dr. Lal Path Labs chose us to implement a cloud-based IT infrastructure to improve their agility, scalability, and security, enabling expansion into new markets. Our strategy continues to focus on delivering innovative solutions that integrate AI, IoT, cloud, and other cutting-edge technologies to help customers improve efficiency, enhance their end-customer experience, and reduce costs.

CIO&Leader: CIOs are always concerned about the total cost of ownership. How are you optimizing cost and providing value for your customers in 2024?

Rohit Sachdeva: Kyndryl offers solutions to reduce CIOs' Total Cost of Ownership (TCO), including cloud optimization for workload right-sizing and better pricing negotiations. Infrastructure management services also help save on energy, maintenance, and support costs.

Kyndryl Bridge reduces cost by minimizing the need for on-premises hardware and offering scalable cloud-based services, thus reducing manual tasks and improving system availability.

Our Digital Workplace Services enhance employee and customer experiences, focusing on productivity and satisfaction through Experience Level Agreements (XLAs).

As a leading mainframe service provider, Kyndryl supports modernization efforts, integrating these with cloud strategies to optimize customer investments in IT infrastructure. ■

One in Three Indian Customers Leave Brands After Poor App Experiences



ROB NEWELL
VP of Customer Adoption APJ,
New Relic

Rob Newell, VP of Customer Adoption APJ at New Relic, highlights the challenges in ensuring super app reliability and how companies can use advanced solutions to anticipate and solve potential issues, improving app performance and user satisfaction.

By **Nisha Sharma** | nisha.sharma@9dot9.in

In a rapidly evolving digital landscape, super apps are becoming increasingly important, particularly in markets like India with a growing digital consumer base. Gen Z's expectations for seamless service integration and a low tolerance for poor app experiences raise the stakes for app developers and companies. Observability and data-driven engineering are crucial for navigating these challenges, offering ways to improve app performance, reliability, and user satisfaction.

The recent interaction between Nisha Sharma, Principal Correspondent at CIO&Leader, and Rob Newell, VP of Customer Adoption APJ at New Relic, dives into the challenges and strategies of developing and maintaining super apps that meet modern consumer expectations. Newell discusses the engineering challenges in the digital ecosystem, the importance of customer experience, and how companies can stand out through app performance and reliability.

The conversation reveals that the future of super apps depends on technology, user expectations, and market trends. Observability and data-driven

engineering are key to addressing future demands. Through this discussion, we understand the strategic needs of companies aiming to succeed in the competitive super app market.

CIO&Leader: Can you elaborate on the unique engineering challenges that super apps face in today's digital ecosystem, mainly considering Gen Z consumers' high expectations?

Rob Newell: Gen Z consumers in India, where smartphone use is rising, seek apps that consolidate payment and daily activities for convenience and smooth digital experiences. Due to compatibility and data synchronization issues, this demand challenges super apps integrating diverse third-party services, such as payment systems and ride-sharing.

Inadequate integrations disrupt services and degrade user experiences. Enhancing digital agility poses a significant hurdle, as engineering teams rely on disparate app performance monitoring tools. This fragmentation complicates timely and proactive issue resolution. High traffic spikes intensify the urgency to address problems before affecting customers. Still, the reliance on isolated tools complicates issue identification and resolution, potentially causing downtime, unsatisfactory digital interactions, and customer loss. Addressing these obstacles is crucial for the evolution of India's super app ecosystem.

CIO&Leader: Why do you believe customer experience is pivotal for the success of super apps, and how should companies prioritize this in their development and maintenance strategies?

Rob Newell: In India, one-third of customers may abandon a brand after a single negative experience, highlighting users' high expectations from super apps for seamless digital interactions. A significant 58% of users have pointed out poor user

experience as a primary reason for uninstalling an app.

As super apps grow more integral to daily life, ensuring quick and reliable response times becomes crucial for maintaining customer loyalty. Organizations that focus on identifying and resolving customer pain points stand to benefit significantly. For instance, Navan, initially a startup travel app, evolved into an international corporate travel and expense management platform by partnering with major tech and retail brands. Facing the challenge of scaling and enhancing user experiences, Navan's engineering teams recognized the limitations of using multiple monitoring tools. By embracing observability and establishing key performance indicators (KPIs) to track incidents identified proactively rather than through customer feedback, Navan significantly improved its issue detection rate—from detecting only 20% of issues through monitoring tools to identifying nearly 90% with observability. This shift allowed the app to address potential problems before negatively impacting users. Thus, prioritizing innovation and continuously refining super apps through observability is a critical competitive advantage.

CIO&Leader: In the context of fierce market competition among super apps, what elements constitute a great customer experience, and how can companies differentiate themselves on this front?

Rob Newell: For super apps, great customer experience translates to consistent, reliable performance 24/7. It includes smooth integration of third-party services onto the app, maintaining uptime, and resolving any issues as quickly as possible so that there's minimal impact on the end user. These are the tenets of great user experience and are often the greatest challenges super apps face. To differentiate themselves in a saturated market, super apps

must be able to overcome these challenges. Super apps require all-in-one observability that collates, analyses and provides actionable insights on what's going wrong, where it's going wrong, and how to fix it.

CIO&Leader: How do observability solutions enhance super apps' performance and reliability, and could you provide examples of how they've been successfully implemented?

Rob Newell: Observability significantly benefits super apps, offering engineers insights to improve efficiency, drive growth, ensure uptime and reliability, and enhance customer experiences. The 2023 Observability Forecast reports an average annual ROI of 114% for observability in India, with 53% of organizations identifying it as essential for achieving business objectives.

For example, BigBasket, India's online food and grocery store with quick commerce, faced error rates of 5-10% due to configuration, logging, or status message issues at the API level. By implementing observability strategies, BigBasket reduced error rates to under 1% in a month. Using incident alerts, mobile, and customer event integrations, BigBasket gained visibility into issues, allowing the company to identify and fix problems faster and before they escalate, resulting in improved customer satisfaction.

CIO&Leader: Could you define data-driven engineering in the context of super apps and explain why it's essential for their success? How does it influence decision-making in app development?

Rob Newell: Data-driven engineering involves leveraging telemetry data from engineering tools and platforms to enhance the efficiency of software engineering teams. This approach emphasizes making decisions based on concrete data insights rather than subjective opinions or instincts.

Adopting a data-driven engineering strategy is essential for super apps, where performance is critical. It brings transparency to decision-making and allows engineers to monitor, comprehend, and improve performance using data across the software development lifecycle. Additionally, analyzing data to measure customer impact helps identify customer needs, ensuring that the super app's business decisions, products, and services effectively address those requirements.

CIO&Leader: How can observability solutions enable data-driven engineering practices for super apps, and what are the key metrics or data points should teams focus on?

Rob Newell: Adopting a data-driven approach to engineering ensures super apps improve uptime and operational efficiency while fuelling innovation and growth that's sustainable and scalable. Super app operators must connect data from customer experiences to broader business teams, engineering, and operations. As these apps generate vast amounts of data, they often dwell in silos, and most of it isn't put to good use. With centralized data management platforms like all-in-one observability, organizations can consider all the moving parts required to provide a holistic view of the digital experience. This ensures that customer experience isn't compromised and that issues are proactively fixed before they spiral into bigger problems for app users.

CIO&Leader: Considering super apps' bandwidth and storage space concerns, how can developers optimize their apps to minimize these issues while maintaining a high-quality user experience?

Rob Newell: Super apps can be resource-intensive, impacting device and battery life. Balancing functionality with resource optimization is

crucial because slow apps can be frustrating. Engineering teams are challenged with optimizing code to eliminate inefficient algorithms and memory leaks. All-in-one observability captures error details device and environment data, like CPU data, memory, available storage space, battery level, internet connectivity status, number of users affected, and more. Such data is essential for engineering teams to act quickly on corrections.

CIO&Leader: From your perspective, what is the future of super apps in terms of technology evolution, user expectations, and market trends? How should companies prepare to meet these future demands?

Rob Newell: Technological evolution fuels the growth and impact of super apps, revolutionizing traditional business models with personalized, cost-effective experiences. These apps integrate AI, machine learning, and blockchain to enhance customer interactions in a secure, efficient way. Super apps serve as centralized platforms for various services like healthcare and education, promising deeper market penetration and industry expansion. As they gain popularity, competition increases, emphasizing the need for exceptional customer experiences. Ensuring success involves delighting users with unmatched performance and availability. Adopting full stack observability enables a data-driven approach, offering insights for developing performant, reliable, and secure apps.

CIO&Leader: What are the biggest challenges in ensuring the reliability of super apps, and how can observability help preemptively identify and address potential issues?

Rob Newell: App developers are undoubtedly familiar with the headache of pinpointing the root cause of an outage. Traditional error reporting tools provide insight into outages, but they only provide basic information

like stack trace and console logs. On the other hand, Observability captures comprehensive information like network logs, repro steps, and session profiles about each crash, enabling engineering teams to find and fix issues faster. Such tools help teams understand how many users are impacted by an outage and the segment they belong to, offering insights into how each downtime incident impacts users and assisting engineers in prioritizing issues.

The time taken to launch an app once it is opened is a crucial moment in user engagement. It marks the first interaction with an app, and the bounce rate will be high if it takes too long to launch. Mobile app users expect apps to launch between two to three seconds. Issues that delay an app's startup time can significantly impact the user experience and bottom line. Observability solutions can help organizations detect issues like slow app startup times and identify their root cause, ensuring that teams focus on optimizing launch time.

CIO&Leader: With 70% of customers willing to warn others about poorly performing apps, how can companies proactively leverage observability and data-driven engineering to improve app performance and user satisfaction?

Rob Newell: By leveraging full-stack observability, engineers can take a data-driven approach to their work because they have all the telemetry data at their fingertips to make informed decisions. They can pinpoint potential degradations in the stack before they turn into incidents. Full stack observability combined with a data-driven engineering approach also turns reactive practices into proactive habits, resulting in higher uptime, greater reliability, and happier customers. Together, they empower engineering teams to understand how their work positively affects critical business drivers and the bottom line. ■

CIOs are no longer just enablers but strategic business leaders



SEEMA AMBASTHA
CEO of L&T Cloudfiniti

Seema Ambastha, CEO of L&T Cloudfiniti, discusses data centers and what enterprises need to work well.

By **Nisha Sharma** | nisha.sharma@9dot9.in

India is making significant strides in the digital world, and a vital part of this journey is the expansion of data centers across the country. These data centers are like giant libraries that store and manage the enormous amount of information we use every day on the internet, from watching videos to sending emails and everything in between.

Right now, India's data centers have much room to grow. At the close of 2023, their estimated power handling capacity reached 1048 megawatts (MW), a significant increase from the 880 MW managed in June 2023. And by the end of 2024, this number is predicted to jump even higher to around 1,300 MW, accord-

ing to APAC News. This development showcases the rapid pace at which India is moving digitally.

In a recent conversation with CIO&Leader, Seema Ambastha, CEO of L&T Cloudfiniti, sheds light on how crucial data centers are for everything from big businesses to everyday internet users in India.

This growth is not just about having more space to store data. It is also important to ensure that these data centers are environmentally sustainable, making sure they function optimally. They consume copious amounts of electricity, so finding ways to make them more energy-efficient is a big focus.

The growth of data centers in India shows how quickly the country is becoming a significant player in the digital age. With focus on sustainability and skill development, India is on

the right track to make the most of this digital boom.

CIO&Leader: How is digital transformation impacting data centers in India?

Seema Ambastha: There's been a two-pronged shift. Firstly, the sheer volume of data has exploded, especially from AI and machine learning applications. These applications are data-hungry, requiring a significant increase in processing power. Traditional data centers weren't built for this level of demand.

Secondly, businesses are no longer just focusing on storing traditional enterprise data. They're also planning for future AI workloads, necessitating even greater processing capabilities.

CIO&Leader: In what ways are data centers adjusting to accommodate these changing demands?

Seema Ambastha: Businesses increasingly choose certified Tier 3 and Tier 4 data centers for superior reliability, flexibility, and efficiency. This signifies a shift towards outsourcing data center management, allowing businesses to focus on core competencies.

CIO&Leader: How are data centers catering to diverse business needs?

Seema Ambastha: Enforcing a client-centric approach with customizable cooling options allows businesses to optimize their Power Usage Effectiveness (PUE). Essentially, businesses can choose solutions that best suit their power consumption needs. They're not locked into a one-size-fits-all approach.

CIO&Leader: How are data center providers working with hyperscalers like Google and Amazon?



The company prioritizes building eco-friendly data centers with renewable energy to minimize environmental impact and ensure compliance with regulations.

Seema Ambastha: Hyperscalers are a significant force in the market. Our consulting, implementation, management, and design expertise positions us well to collaborate with them. This partnership is instrumental in scaling up India's digital infrastructure to meet the ever-increasing demand for data storage and processing power.

CIO&Leader: What are the anticipated implications of edge computing on the functionality and infrastructure of data centers?

Seema Ambastha: Edge computing is the future! Edge data centers process data closer to its source, crucial for applications like 5G and the Internet of Things (IoT). India's vast geography highlights the need to strategically place edge data centers in Tier 2 and 3 cities. This ensures seamless connectivity and supports digital transformation across the nation.

CIO&Leader: How is data security responsibility shared between data centers and businesses?

Seema Ambastha: Data center providers offer secure storage infrastructure, but businesses are respon-

sible for implementing robust security and privacy protocols. Regulations require firms to prioritize data security investments and stay updated. Fortunately, readily available tools and technologies exist to address these challenges.

CIO&Leader: How will upcoming data security regulations impact the industry?

Seema Ambastha: The anticipated changes are positive. They will force businesses to tighten security measures and update agreements, ultimately leading to a more secure data ecosystem in India.

CIO&Leader: What are the most significant trends shaping the data center market?

Seema Ambastha: A growing focus on building eco-friendly data centers is a key trend. We're committed to incorporating renewable energy solutions right from the start. This reduces our environmental impact and ensures long-term viability in the face of stricter environmental regulations.

CIO&Leader: In what ways is the role of the Chief Information Officer (CIO) adapting to the evolving digital landscape?

Seema Ambastha: CIOs are no longer just operational enablers but crucial to strategic business leadership. Their ability to leverage technology effectively, optimize time-to-value for their businesses, and ensure a competitive edge is vital for success. Their technology decisions and implementation speed significantly impact their organizations. ■

With inputs from Sachin Mhashilkar



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