

CIO & LEADER

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EQUITABLE WORKPLACE

Over to Women Leaders

The pandemic has come as a positive disruptor of workplace gender equality. It's time for women leaders to build the next-gen gender-balanced leadership team.

Page 12

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Neeti Wahi

Group Chief Information & Digital Officer at Sterlite Power



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The Inflection Point?



E Every group, community or section that have been victims of some intended or intended discrimination or bias goes through the same cycle.

First there is the fear to speak up and protest.

The second stage is that of a mild demand, almost always with some active helping hand from progressive elements of the 'discriminating' class.

The third is a larger scale movement and demand for rights, which incidentally sees most of the conflict, due to various reasons. They could be the discomfort of the section enjoying the privileges, too much of black and white portrayal leading to disharmony, selfish use by certain individuals to derive personal benefits, which are exposed and is used to discredit the entire movement.

And then comes the phase where, there is broad based realization about the need for the change but old biases and practices die hard. To change this, the strategy that was effective in the previous phase, may not suffice. It may occasionally backfire too.

This phase usually sees leaders taking over the responsibility of initiating wide ranging changes

Time has come for women leaders to take more assertive, confident and positive actions. This is the constructive phase where a set of confident leaders take over and inspire the rest by their examples and specific actions.

through positive interventions and leading by example. The change is not complete yet, but the phase of conflict gives in to a phase of confident and positive actions.

Our cover story, based on inputs from our conversations with women IT leaders, points to the dawn of

this phase in enterprise IT being an equitable area for women. It does not mean that it is 'equitable' already. All it means is that time has come for women leaders to take more assertive, confident and positive actions. Complaints may be there, as we cannot generalize all organizations, all situations, all management. But by and large, this is the constructive phase where a set of confident leaders take over and inspire the rest by their examples and specific actions.

The women leaders acknowledge this shift and give some – if not the entire – credit to the disruptive forces of the pandemic.

We hope the discourse on women in technology will change and will reflect this change. We will be there to chronicle it.

Last I saw was a list of more than 50 women CIOs and CISOs in large business organizations. Is it a huge percentage of total base? No, not yet. Forget in absolute terms, not in comparison with some of the developed markets, even though the workforce in the IT industries in those countries and in India are very much comparable.

But that is a good base to start with any collaborative positive actions in the community, as has begun happening in the industry. We will be happy to contribute in whichever way we can ■

CONTENT APRIL 2022

COVER STORY

12-17 Over to Women Leaders

The pandemic has come as a positive disruptor of workplace gender equality. It's time for women leaders to build the next-gen gender-balanced leadership team.



AROUND THE TECH

06-11

"Mission-Critical"
For 90% of Cos



SILLY POINT

28-29

Spotlight: Edge Computing
By Akash Jain



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CIO'S DESK

18-19



The rise of women leaders in a post-pandemic world
By Neeti Wahi

20-21



Digital Technologies In Pharma: Trends To Look Forward To
By Anjani Kumar

22-23



How Emerging Technologies are Improving Manufacturing Efficiencies
By Shobhana Lele

24-25



The Dawn Of The Intelligent Edge
By Natarajan Radhakrishnan

26-28



The role of data and analytics in the telecom infra
By Vinod Sivarama Krishnan



SPECIAL FEATURE

29-31

What Purpose Will The Digital Banking Units Serve?



INSIGHT

34-36

How Infra.Market Is Pushing Transformation In Construction



39-40

How Khatabook Is Empowering MSMEs To Make Data-Driven Decisions

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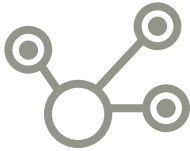


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40% of Indian Enterprises will Use AI by 2024

RESEARCH REPORTS

40% Inc Will Use AI By 2024

According to IDC FutureScape: Worldwide Artificial Intelligence and Automation 2022 Predictions – India Implications- by 2024, 40% of large enterprises will expand the use AI/ML across all business-critical horizontal functions like marketing, legal, HR, procurement, and supply chain logistics. Alongside having increasing adoption of new generation technologies, enterprises in India will combine human expertise with AI, ML, and deep learning technologies across a wide range of use cases in multiple industries, and others.

Industry 4.0 helping India's Mfg boom

From comprising 5% of manufacturing IT spend in 2011, to 20% by 2021, Industry 4.0 has witnessed over a decade of transition since 2011. According to the report by NASSCOM, Industry 4.0 adoption in India can help the manufacturing sector meet national growth targets and contribute 25% to GDP by FY26. With accelerated investment in foundational techs like Cloud and IoT, the Indian manufacturing sector has started pivoting to digitalization with USD5.5 - 6.5 billion spent on Industry 4.0 in FY21.

Top Security & Risk Mngt Trends

According to Gartner, Security and risk management leaders must address seven top trends to protect the ever-expanding digital footprint of modern organizations against new and emerging threats in 2022 and beyond. The following trends will have a broad industry impact across those three domains: attack surface expansion, digital supply chain risk, identity threat detection, and response, distributing decisions, beyond awareness, vendor consolidation, and cybersecurity mesh.

Global Oil & Gas Automation Mkt to grow

The digital transformation is occurring on a massive scale due to the need for increased efficiency, safety, and sustainability. New disruptive technologies, including artificial intelligence (AI) and the Internet of Things (IoT), are already in use and driving digital trends across the industry. They are expected to play a bigger role as the industry recovers from COVID-19. **From a revenue perspective according to Frost and Sullivan, the total oil & gas automation market is expected to reach USD24.63 billion by 2025, up from USD17.17 billion in 2020 and growing at a compound annual growth rate of 7.5%.**

Indian IT Majors Gear up for Metaverse

Indian IT majors are leaving no stone unturned to prepare a solid ground for bringing enterprise operations to the virtual world by piloting new initiatives, developing specialized practices, and proofs-of-concept. It's only been less than four months into 2022, and we've already seen announcements by the top Indian IT Services firms to develop Metaverse services. It is estimated that the global revenue opportunity from Metaverse could reach about USD800 billion in 2024. Infosys, Tech Mahindra and TCS are leading the efforts.

Cybersecurity talent in short supply

Gartner's research shows that there is a significant shortage of skilled cybersecurity professionals. Therefore, end-user organizations in India often engage with security service providers to meet their cybersecurity objectives. As a result, spending on security services is forecast to total USD1 billion in 2022, the highest among all segments. This will be followed by spending on network security equipment and infrastructure protection.

Cybersecurity will continue to be a top priority for Indian CIOs in 2022, as revealed in the 2022 Gartner CIO and Technology Executive Survey.

Looming IT talent retention issues for CIOs

While talent retention is a common C-level concern, CIOs are at the epicenter, with a huge chunk of their workforce at risk. IT workers are more inclined to quit their jobs than employees in other functions, with a 10.2% lower intent to stay than non-IT employees — the lowest out of all corporate functions, according to a survey by Gartner. IT workers aged under 30 are two and a half times less likely to stay than those over 50. Only 19.9% of 18 to 29 have a high likelihood of staying.

Large Enterprises to Focus on Data Literacy

Enterprises in India are prioritizing data literacy since the inability to effectively utilize the data deters the development of data culture and creates hindrances in the ability to optimally leverage data and content to raise overall enterprise intelligence. It is therefore critical for enterprises to empower their employees and the ecosystem too. According to IDC-By 2026, to elevate their data culture, 40% of large enterprises in India will have data literacy programs, including training to help employees spot misinformation.

97% Of Security Findings Are on Cloud

While many organizations continue to focus on security policies mainly and query around physical devices, the vast majority of an organization's assets — and security issues — are now in the cloud, according to a study published by JupiterOne. The study reveals that 97% of security findings come from cloud assets, such as applications, hosts, and containers. And in all, nearly 90% of all assets are cloud-based.

Analytical Skills, Security top skills in BFSI

The swift adoption of digital payments and the use of ever-evolving technologies such as AI, ML, and blockchain has largely enabled the growth of the Banking and Financial sector in India. With the increased adoption of digitization and new-age tech, which essentially paved the way for recovery in the industry, recruiters in Banking and Finance industry are on the lookout for professionals adept in technical and analytical skills. Financial Statements, Credit operations, Analytical skills, Wealth management, Investment banking, Internal Audit, and Cybersecurity are some of the top skills in demand in the industry today.

Reshaping Business Priorities for Planet

The enterprise data cloud company, reveals more than one quarter (29%) of business decision-makers in India are now putting increasing investment in environmental, social, and corporate governance (ESG) ahead of increasing market share (27%) or accelerating financial growth (24%), according to the new research. Workers believe 60% of the data their business uses should be for greater good.

Future of Health in the Power of Data

According to an EY report-The pandemic has demonstrated that health care organizations can become more resilient, agile, and innovative if they shift to digitally enabled business models with data at the core. A shift towards patient centricity, prevention, wellness, and anywhere and anytime healthcare delivery has created new opportunities to reimagine the entire patient journey. Data analytics and new technologies are reshaping the entire product value chain.



Privacy Is “Mission-Critical” For 90% of Cos

Privacy has become a business imperative and a critical component of customer trust for organizations around the world. For the second year in a row, 90% of the respondents said they would not buy from an organization that does not properly protect its data, and 91% indicated that external privacy certifications are important in their buying process, according to a study published by CISCO. Privacy's Return on Investment (ROI) remains high for the third straight year and more than 60 percent of respondents felt they were getting significant business value from privacy.

Predictive Maintenance is Crucial for Oil & Gas

Maintenance strategies in the oil and gas industry have come a long way from their early days in the nineteenth century. They have evolved from a reactive to a preventive approach to ensure continuous operations along the supply chain. The economic urgencies and technological support available at that time have shaped these strategies and will continue to do so in the future. According to GlobalData, Predictive maintenance tools will become more widespread across the critical infrastructure in the oil and gas industry over the next decade. However, predictive maintenance as a proof of concept has been around for over two decades.

GOVERNMENT NEWS

ISRO, UIDAI, MeitY sign MoU

Unique Identification Authority Of India (UIDAI), Ministry of Electronics and Information Technology (MeitY) and National Remote Sensing Centre (NRSC) of ISRO, Hyderabad have signed a memorandum of understanding whereby NRSC will develop Bhuvan-Aadhar portal providing information and locations of the Aadhaar centres across India. The portal will also provide a facility to search the relevant Aadhaar centres by location based on residents requirements.

NRSC will also provide web based portal to collect and store data pertaining to existing and new enrolment centres to improve citizen centric services by carrying out regular statutory inspections. Collected data will be moderated for quality through approved authorities at regional level to ensure the precise information for residents about the centres along with online visualization facility.

Bhuvan will facilitate complete geographic information storage, retrieval, analysis and reporting for Aadhaar centres, with a high resolution backdrop of natural colour satellite images.

Haryana launches portal to handle crop insurance grievances

Haryana has launched a portal where farmers can lodge their complaints regarding crop insurance. The government will take them with insurance companies.



Agri Min launches two portals

Ministry of Agriculture and Farmers' Welfare has launched two portals – Computerized Registration of pesticide (CROP) and Plant Quarantine Management System (PQMS).

The PQMS portal will provide a transparent system with no physical touch points for the applicants and ensure convenience to the users, through online system including e-payments and uploading of documents, online accreditation and renewal of treatment agencies/facilities and downloading of certificates. The re-developed CROP portal will help in ease of doing business and provide Crop protection solution to farmers. The ministry has also published SOPs for use of drones in pesticide and nutrient application.

Odisha approves data center policy

The Odisha government has approved a data center policy to attract data center investment. The policy provides a number of fiscal and non-fiscal incentives. Fiscal incentives include subsidies allotment of land, building fees, electricity, internet bandwidth. Non-fiscal incentives include exemption from some provisions of Acts such as Factories Act and Shops & Commercial Establishment Act.

Odisha launches portal for transfer of EV subsidy

Odisha government has launched an online portal for the disbursement of incentives on electric vehicles (EVs) that have been announced under the Odisha Electric Vehicle Policy-2021. The owners of electric vehicles can now avail subsidy by logging on to odishatransport.gov.in. The vehicle information would be automatically collected from Vahana Portal. The vehicle owner will have to give his/her bank details, and the information regarding the disbursement of subsidy to the bank account would be intimated through SMS.



Coal India to have own e-auction platform

Coal India Ltd, currently using the e-auction portal managed by mjunction and state-owned MSTC, will launch its own e-auction platform. News reports say it has already informed new and existing bidders to register on the portal.

E-auction sales account for around 120 million tonnes annually for Coal India, while the rest is sold through fuel supply agreements and other special sales windows. The miner's dedicated e-auction portal has been developed by National Informatics Centre and supported by CIL subsidiary Central Mine Planning & Design Institute Ltd.

STARTUP NEWS

CoinDCX raises \$135 million in funding round

Crypto exchange platform CoinDCX has raised \$135.9 million from investors led by Pantera Capital and Steadview Capital. The other investors include Kingsway, DraperDragon, Republic, and Kindred Ventures.

The fresh round of funding has taken the total valuation of India's first crypto unicorn to \$2.15 billion. Founded in 2018, CoinDCX helps people purchase and sell crypto tokens. It plans to use the latest funds to hire more people, add more products,

Healthcare startup buys wearables firm LazyCo

Metabolic fitness platform Ultrahuman has acquired consumer-focused wearable startup LazyCo, which was founded in 2017. LazyCo is focused on developing artificial intelligence (AI)-based wearable products. The acquisition will enable it to generate deeper metabolic insights and better overall health insights for consumers. LazyCo will integrate with Ultrahuman's global in-house hardware development team as they look to enhance the user experience.

Vedantu is on track to become IPO ready by 2023

Edtech startup Vedantu is optimistic about Indian market sentiments and said it would be ready for an IPO by the next 18-24 months. The company raised US \$100 million last year and had entered the coveted club of Indian Unicorns. According to media reports, the Bengaluru-based online tutoring platform is also looking to launch several offline learning centers to strengthen its presence. Vedantu competes with startups like Byju's, Unacademy, Toppr, etc.

India to have over 250 unicorns by 2025: Study

India is expected to have over 250 unicorns or startups with \$1bn valuations by 2025, according to a Tech Unicorns Market Landscape Report IV by Iron Pillar, a venture growth investor firm.

In India, Iron Pillar has invested in software startups such as Uniphore, meat supply startup FreshToHome, and cloud kitchen participant Eatfit.

According to the Iron Pillar report, over 130 companies have already achieved the unicorn status to generate \$535 billion. The report adds that more companies are likely to expand their operations outside India in the coming years with an initial focus on the West and South-east Asia.

BigBasket gets fresh funding of US \$130 mn

Tata-owned Grocery unicorn BigBasket has received a capital infusion of US \$130 mn (INR 1000 crores) from its holding company, Supermarket grocery supplies. According to Tata's regulatory filing, the transaction was approved on 31 March this year.

BigBasket secured the funding shortly after the launch of Tata Digital's super app, Tata Neu.

BigBasket was founded by V. S. Sudhakar, Hari Menon, Vipul Parekh, Abhinay Choudhari, and V. S. Ramesh in 2011. In Feb 2021, the Tata Group acquired a 64.3% stake in BigBasket for about INR 9500 crores.



Zepto launches 10 minutes food delivery pilot

Media reports said that the total B2B spending in India might rise by 10.3 per cent in 2022 as the spend of businesses in India is growing three times faster than the expectations from its comparable peers in other countries in the third quarter of last year. The total B2B spend for India rose 9.4 per cent in Q3 2021 on a year-on-year basis, as per the India Business Spend Indicator (IBSI) report by American Express, India and Invest India in partnership with the Centre for Business and Economic Research (CEBR).

Pine labs raised \$50 mn funding

According to several media reports, Noida-based digital payments and financial service provider Pine Labs has secured US \$50 mn in another round of funding from London's private equity major Virtuvian Partners.

With this round of funding, the total valuation of the merchant commerce platform has reportedly gone up to US \$ 5 billion. Earlier this year, Pine Labs had also said that it was raising US \$200 mn in funding from the State Bank of India, the country's top public sector bank.

CIO & CISO MOVEMENTS



DR. AVADHUT PARAB has joined Parle Agro as CIO, after seventeen years at the pharmaceutical company, Wockhardt. He has been a NEXT100 winner in 2018.



DR. VINEET BANSAL has joined Surya Roshni as Group CIO. Previously, Dr. Bansal has held senior management level positions at Greenply Industries and Mankind Pharma.



PRAKASH PADARIYA has joined OYO as Global CISO. Earlier, Padariya was with PayU in a similar capacity.



RAJESH GOPAL has been appointed Chief Information & Digital Officer at ITC Foods & VP - Digital Tech at ITC. Earlier, Gopal was CIO at L'Oréal South Asia.



REEMA JAIN has joined Hero MotoCorp as CISO. Most recently, Jain served as Chief Digital Officer at Vodafone India.



REJIN SURENDRAN has joined Wipro Enterprises as Global CIO. Previously, Surendran has worked with companies like Coco-Cola, Unilever, and Oracle.



UMESH MEHTA has joined PI industries as President & CIO where he will be leading Technology & Digital initiatives. Before joining this, he was with Jubilant Group as CIO for 12 years. Being a technology professional, he has his expertise in the pharma, automotive & manufacturing industries



VIKAS GUPTA has been appointed Chief Digital & Innovation Officer at Hiranandani Energy. Gupta has moved from his earlier position as CIO & Head of IT in the same organization. Before joining Hiranandani Energy, he was with Essar Group as Head of IT.



SHIB RATH has joined Aluminium Business for Vedanta as CIO. In his previous role, Rath was with Milk Mantra, a Bhubaneswar-based startup

INDUSTRY MOVEMENTS



CHANDRESH MAITHIL has been appointed as Director of Engineering at Simpl.

Most recently, Maithil was with Groww. Before that, he worked with the modern banking stack at Zeta, having previously handled global payments processing as the Vice President at JPMorgan Chase & Co.



PRASHANT RAO has been appointed as Senior VP-Customer Value and Experience at Jio Haptik.

Prior to Haptik, Prashant was the leader for Global Services and Customer Success at Uniphore and at MetricStream.



GAURAV SHARMA has been appointed as Regional CEO at BluePi Consulting.

Sharma was formerly Vice President and Head of Industries Business for Australia & New Zealand at Cognizant.



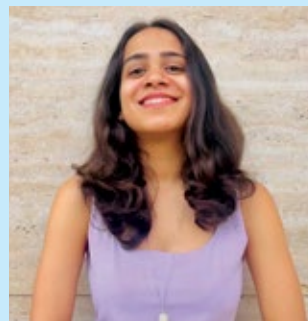
ROHIT ARADHYA has joined Barracuda as Vice President & Managing Director.

Aradhya joined Barracuda from Cisco Systems, where he was the Director of Engineering, India.



MEENU AGARWAL joins Automation Anywhere as Executive Vice President of Customer Success and Services.

Agarwal joins Automation Anywhere from VMware, where she was the senior vice president of Customer Success.



TANVI JADHAV has been appointed as Head of Products at ZFunds.

In her past stints with InCred Financial Services, Paisabazaar, HealthKart, and Kotak Mahindra Bank, Jadhav played a crucial role in building digital products.



NAVDEEP MANAKTALA has joined Coralogix to launch a cybersecurity venture, Snowbit.

Most recently, Manaktala was at AWS, where he established and led a startup business comprising tens of thousands of customers across Asia-Pacific & Japan.



VIRGINIA SHARMA has been appointed as the India Marketing Head for Google Cloud.

Sharma was previously associated with companies like JioSaavn and LinkedIn.



EQUITABLE WORKPLACE

Over to Women Leaders

The pandemic has come as a positive disruptor of workplace gender equality. It's time for women leaders to build the next-gen gender-balanced leadership team.

By Ekta Srivastava

"WE MEN" must change—male business leaders often stress while urging their male colleagues to do their bit for making the organization an equitable place for both genders. The light-hearted banter makes a very relevant point about the role of men in making it happen.

Not all women are convinced. Many allege that it is not the workplace where the significant gender gap exists. Even though they have to traverse some distance, modern organizations have changed a lot to bring in gender parity. Some industries like IT services have led the way.

The big gap, they allege, lies not at the workplace but in the home. While women and men are treated as equals in many offices and at home, women are expected to take most responsibility.

Like many other things, the COVID-19 pandemic seems to have changed that equation.

Does that sound surprising? Several studies say that the pandemic had negatively affected the working women as the support system to do the job efficiently had collapsed entirely. A study by Mckinsey revealed that post-pandemic, one in four women employees left the workforce. Another survey by Deloitte, titled 'Understanding the pandemic's impact on working women' revealed that 89% of working women saw their time and daily routine changing due to the pandemic, with 92% indicating that these shifts have had a negative impact. The Deloitte study also showed that satisfaction with their productivity, motivation at work, and work-life balance dropped significantly for women in the TMT sector. And they dropped by huge margins. Percentage of women who rated their 'productivity at work' as good or extremely good before the pandemic fell from 74% to 49% in 2021. Similarly, work-life balance, the most relevant parameter in this discussion, fell from 70% before the pandemic to just about 32% in 2021.

MANY WOMEN IT LEADERS HAVE NOW SHARED A DIFFERENT SIDE OF DISRUPTION, WHICH HAS NOT FEATURED IN ANY OF THE COVID-19 TRIGGERED IMPACT STUDIES CONDUCTED SO FAR: A SUBSTANTIAL SHIFT IN THE MINDSET OF THEIR PARTNERS AND SPOUSES.

Yet, some women leaders see a silver lining. They say that it has paved the way for a profound shift in caring responsibilities. It proved to be a lasting leveler for gender relations in the domestic setting. Men have now started devoting more time to housework, especially in families where men and women both are full-time workers.

"Men in the families have started accepting that household chores are not limited to women. If the family lady is outside for a meeting, it's perfectly fine for a man to take care of the home", says Neeti Wahi, Group Chief Information & Digital Officer at Sterlite Power.

She says it is not just needed to balance home and career for women. "This balance was required among the partners to have a happy and healthy life," she said while stressing that the pandemic did accelerate this.

Not everyone fully echoes this view, though. Says Supriya Dutta, Consultant - NSEIT, "Yes, there has been a shift in the mindset, but not everyone is lucky enough to enjoy this kind of support. With pandemic, women have grappled with a "double shift" of household responsibilities, mental health challenges, and a more difficult remote-work experience."

She says these burdens come on top of structural barriers for working women, including being the "only" woman in the room and playing an allyship role for others in the workplace.

She has a point. Women did take on extra work during the Covid pandemic. They have adjusted their schedules and efficiently navigated work-life challenges. Hopefully, with a bit of help from the partners, it will have a long-term positive impact.

Some women leaders believe that organizations have a role in ensuring household chores get equally shared between partners. To foster a culture of allyship, organizations must inspire their employees to be allies in



"The pandemic and all this work from home culture, many men have started devoting more time to housework, especially in families where men and women are full-time workers."

Neeti Wahi
Group Chief Information & Digital Officer,
Sterlite Power

EFFORTS OF WOMEN IN THE TECH INDUSTRY GOING UNRECOGNIZED HAS LED TO THE PERCEPTION THAT WOMEN HAVE NOT MADE ANY SIGNIFICANT CONTRIBUTIONS, HENCE THE LACK OF FEMALE ROLE MODELS.

all spheres of their lives.

"What could be the better time to do this than the post-COVID business recovery time, when the learnings of our lives are still fresh with us," asks Meetali Sharma, Head-Risk, Compliance & Information Security SDG Software India Pvt Ltd.

BARKING THE WRONG TREE?

All the discussions about women in the workplace often center around numbers. How many women are employed in the industry? Though an essential primary indicator, numbers are not the right indicator of how equitable the workplace is.

Take, for example, the share of



"With the pandemic, women have grappled with a "double shift" of household responsibilities, mental health challenges, and a more difficult remote-work experience."

Supriya Dutta
Consultant, NSEIT

women in the Indian IT industry. It is about 34%. In a country like India—and in comparison to the output of technical institutions— which is a significant factor affecting these numbers—it is not bad.

"Technology continues to be a high growth sector globally, and historically the sector has been dominated by men. However, this is slowly fading away as many companies and organizations are hiring deserving women for STEM roles. With the right exposure and mentors, a sustainable ecosystem of skilled women workforce can be created within the industry," says Shalini Nair, CTO & Co-founder of Ennoventure.

Sakshi Vidur, Director, Enterprise IT Security, Philips, adds, "Gender inequality and a lack of professional prospects for women in the tech domain are particularly prevalent in the developing countries. I feel the issue is that enterprise technology is still more of a perception problem. People don't see technology or even security as a viable career path for women because tech still is often considered a very masculine profession. Girls should opt this not that kind of notions are engraved in their minds way before they acknowledge their strengths and skills- the reason we see hardly one or two women in boardrooms."

THAT PRECISELY IS THE PROBLEM.

There are very few women in the boardroom. And that affects everything downwards.

Numbers and special recruitment drives were significant. But probably, they are not as important today to address the overall issue of an equitable workplace as they were, say, a decade back.

Numbers alone cannot change the situation.



"To foster a culture of allyship, organizations must inspire their employees to be allies in all spheres of their lives."

Meetal Sharma,
Head-Risk, Compliance & Information Security,
SDG Software India

WOMEN LEADERS BELIEVE THAT BEING A LEADER, THE ONUS LIES ON THEM TO ENSURE THAT ORGANIZATIONS HAVE THE RIGHT BALANCE OF MEN AND WOMEN WORKFORCE.



"Increasing workplace diversity requires an overall shift in an organization's culture, which is often easier said than done."

Auti Saritha Nilesh
Global CISO, UD Trucks

WHY WOMEN LEADERSHIP IS ESSENTIAL?

If today's workplaces have many things stacked against women, it is not so because every man is a misogynist.

In their evolution over hundreds of years, men have dominated the workplaces. The way the workplaces work has also catered to the needs of men. In other words, it was not an intentional bias but a quantitative bias that has made the workplace more optimized for men. It is not designed to exclude men deliberately. We need some changes in the workplace to make them more comfortable for women.



"People don't see technology or even security as a viable career path for women because tech still is often considered a very masculine profession."

Sakshi Vidur
Director, Enterprise IT Security, Philips



"With the right exposure and mentors, a sustainable ecosystem of skilled women workforce can be created within the industry"

Shalini Nair
CTO & Co-founder of Ennoventure

How can that be achieved?

Ostensibly, it is only women leaders who can make that happen. How many men really know what women want, as a woman leader quipped? And someone like Freud admitted as much.

Only women leaders can influence the decisions to make the organization more equitable for women. While it may be partly about raising their demand, it is mostly about presenting a more mature and emic view of women.

ROLE OF WOMEN LEADERS

"There is much we can do as women leaders to create an inclusive space at work - using gender-neutral pronouns, being sensitive to the needs and situations of other women colleagues, amplifying women's voices to ensure that their opinions are heard, or even creating forums where such conversations can be had safely. This ensures open and focused dialogue that emphasizes real change, not just for women but for the entire organization," says Sakshi Vidur, Director, Enterprise IT Security, Philips.

Experts suggest that the best way to boost the visibility of women in tech roles is to make them feel that tech is not a male-dominated industry. Moreover, having key women in senior leadership roles will undoubtedly encourage other women to join the tech industry. Fortunately, women are increasingly holding the top and apparent positions in big tech companies

In addition, "We also help them upskill according to current trends and markets for a positive progression in their career path. This would help us encourage professional women and their talents to create a culture known for providing equal opportunity and respect," adds Auti Saritha Nilesh- Global CISO, UD Trucks.

Many women leaders agreed that being a leader, the onus lies on them to ensure that organizations have the right balance of men and women workforce, especially in odd areas where they can recruit as many females as possible.

"Increasing workplace diversity requires an overall shift in an organization's culture, which is often easier said than done. Leaders play a critical role in establishing and promoting workplace culture. Employees look to leaders to set the context in which they will function within an organization. They need more than just words from leadership; it requires action and the embodiment of these values. Women leaders can do a lot to make this happen," added Auti.

While leaders drive a cultural change within an organization, it does not solely revolve around changing follower/employee attitudes; it also involves self-reflection and personal transformation. Leaders should first identify and understand their feelings and biases toward diverse populations to understand what they will face when working with their employees.

MANTRAS OF SUCCESS

While there are many challenges that a woman faces in her career as a leader, what are the significant setbacks a female leader faces as told by Supriya Dutta, Consultant-NSEIT – "One of the most significant challenges of leadership is shouldering the responsibility it confers. Part of that responsibility is to deal with those aspects of yourself that can keep you from being an effective leader. That's not easy, but the rewards are great. With females, scenarios are more complex, as they have to balance themselves on the personal and professional front. And those who are and will be able

WOMEN HAVE BEEN THE BRAINS BEHIND SOME OF THE MOST SIGNIFICANT ACHIEVEMENTS WITHIN THE TECH INDUSTRY.

to balance this act shares a higher percentage of being successful in their career.

Then, of course, is adapting to the continuous changes and learnings that technology is bringing every day. With that said, one cannot miss on healthy body and spirit. As a woman, you always have ten battles to fight at one time, so always keep your spirit and head high."

Adding to the success mantra, Vidur says, "Women in general, when they are doubtful of anything, tend to keep quiet while men on the other side will speak with confidence even if they know much less than their counterparts. They enter tech at a lower rate than men and leave at a higher rate, resulting in male-dominated teams.

"Don't feel ignored if you are not heard. Be confident and learn to voice your opinion and put your thoughts upfront. Diverse talent is an essential element in every innovation process, yet many companies are still failing to foster equitable and inclusive working environments that enable diverse voices to be heard," added Vidur.

It's time to move beyond the "think manager, think male" mindset that penalizes women on their way up and atop the corporate ladder.

"No one is going to come and make a change for you. If you want to see some changes, you must be that change, and if you have that continuous learning path- there are lots of possibilities and opportunities by which you can have that presence

in the boardroom," adds Sharma.

"There is no shortcut to hard work. Performance speaks for itself. The ball is always in your court. Please don't expect someone to spoon-feed you. You will get the directions and advice, but you have to catch the bull by its horns and take the plunge nobody else can do that on your behalf," says Wahi.

THE WAY AHEAD

"It is time that we all see gender as a spectrum instead of two sets of opposing components. Women today are not looking for superiority, but they are looking to be equal in every sphere. Equality in terms of respect, opportunity, and visibility are the three major steps towards the sustainability of this balance," concluded Auti.

It has taken years of patience, perseverance, and battling the minds of men and women, which have led to this shift, but the cultural change is still partially finished work. Professional women still face many challenges at the workplace that impede their career – be it gender bias in the workplace, career advancement, limitations on the type of jobs women can hold remain palpable difficulties.

We are at an inflection point. With no end to the pandemic currently in sight, organizations need to step up to meet this moment and its specific challenges, or we risk facing a significant setback in our pursuit of reaching gender parity across the global workforce ■

The rise of women leaders in a post-pandemic world

Lockdown and its disruption had increased dependency of families on women. Taught lessons on how to maintain work-life balance early on, women have coped with the pandemic better than men and evolved stronger than before

By Neeti Wahi



Within these last two years of the pandemic, there has been a complete 360-degree change in our viewpoints, looking at and managing a workforce. The pandemic has brought extraordinary pressure on everyone- families, companies, employees by turning lives upside down and shaking the economy.

While some studies say that women in technology feel their organization's commitment to supporting them during the pandemic has been sufficient, others are feeling less optimistic about their career prospects now than before the pandemic and expect to leave their employer for a new role citing a lack of work-life balance as the biggest reason.

Nevertheless, a lot has changed around the women's world. They look, feel, and live differently. Lockdown and its disruption had increased more dependency of families on women. Thus, post-pandemic women leaders around the industry

are rising to the moment as stronger leaders. They are meeting this moment and taking on the work that comes with it. They have started putting forth their points and making their presence felt in the boardroom.

Women in tech roles

According to recent research by Deloitte predicts global technology firms will have a 33 percent overall female presence in their workforces by 2022. We have a large number of female entrepreneurs and top-level female executives all around the world who have demonstrated that women can be just as successful as men.

If we talk about the tech industry, there was a time when leadership roles were generally given or offered to men but the number of women in a leadership role has gradually increased in all walks of life. From India's first Prime Minister late Indira Gandhi to Falguni Nayyar, a lot of women have proved that there is nothing that a woman can't do.

■ The author is Group Chief Information officer and Digital Officer, Sterlite Power



With women comes empathy and it can be noticed that women leaders are doing more than men in similar positions in supporting the people on their teams—for example, by helping team members navigate work-life challenges, ensuring their well-being

To instill a belief that the tech industry is a place for women to work and succeed, the issue of gender stereotypes needs to be addressed long before women enter the workplace.

Women are receiving more leadership opportunities compared to years past. There is still room for growth in women's presence across boardrooms and more and more people have now started recognizing this characteristic as a strength.

Women leaders stepping up to support their women mates

We, as women, are all fighting our own battles. But what drives us to keep going heads-up against the discriminations, biases, and daily struggles is the unity shown to us by fellow

women. It sure does feel encouraging when you raise your voice and hear its echoes from all directions. Be it your friend, mother, daughter, sister, or office colleague, learn to stand up for them! We need to hold hands to break the glass ceiling and shatter the myths that have restricted us for years.

We say, with women comes empathy and today it can be noticed that women leaders are doing more than men in similar positions in supporting the people on their teams—for example, by helping team members navigate work-life challenges, ensuring that their workloads are manageable, and checking in on their overall well-being. They also spend more time than men on diversity, equality, and inclusion work that falls outside

their formal job responsibilities. And finally, women leaders are showing up as more active allies to their other women teammates. They are more likely to educate themselves about the challenges that women face at work, speak out against discrimination.

There is a lot we can do as women leaders to create an inclusive space at work - using gender-neutral pronouns, being sensitive to the needs and situations of other women colleagues, amplifying women's voices to ensure that their opinions are heard, or even creating forums where such conversations can be had safely. This ensures open and focused dialogue that emphasises real change, not just for women but for the entire organisation ■

Digital Technologies In Pharma: Trends To Look Forward To

AI and big data/analytics will be major game-changers in the pharma industry

By Anjani Kumar



■ The author is CIO, Strides Pharma

There has been a greater focus on digital transformation among organizations of all scales in recent years. Pharma, as compared to the other sectors, has historically been seen as little behind in harnessing the benefits of technology. While the sales and the marketing teams still had taken a step or two to transform their processes a decade back, other functions were really slow to embrace the change.

But things are now heading towards the transformation.

As per an industry survey, over 35% of industry leaders in the pharma and healthcare sector believe that digitization has taken a major shift in the sector over the last five years. This includes the rapid growth generic medicine industry, which has experienced acceleration in the last three years. The pandemic has further augmented the growth of the industry. Several experts have termed this as a golden era for digital transformation in the pharma industry.

Now with so much digitization happening across the pharma sector, the

three things that the pharma industry will look forward to :

1. Digital Health and Effective Patient Engagement

For long, pharma companies are trying to track the real-time parameters of a patient who are prescribed new pills, earlier which was a concern only in a clinical trial situation. The process which we are looking at should not be invasive but something which can be tracked by smart-watches and trackers, and this is what effective patient engagement through digital health is.

The process also provides pharma companies with a huge amount of data efficacy of medicines and helps to channel patient engagement in real-time.

2. Future of work – Future of work has 4 parts:

a. Digital workplace- Is pharma getting converted to a digital workplace? Yes, it is but at a very slow

pace, however, the pandemic has helped in ramping up the digitization in the sector. Along with this, it has also increased digital compliance. Anything which helps in compliance gets a big thumbs up for the future of pharma companies and it reduces the risk. That's where I see a lot of digitization in form of logbooks, batch records, analytical recalls, certificates of compliance, and many more artifacts. Apart from this, integration of equipment with the software system is enabling pharma organizations towards a digital workplace which further boosts digital compliance for sure.

b. Automation- There are now numerous examples of how robotics and automation have catapulted the industry to make major leaps in terms of efficiencies. As the demand for new drugs and medicines grows, pharma is continuously looking for new ways to increase productivity, which will lead to an increased reliance on automated equipment and robotics.

This dramatic growth is underpinned by a solid platform of what benefits robots can bring for manufacturers and distributors. These are clear: - lower operating cost, reduced production downtime, no labour turnover, increased production flexibility, improved production output, and product quality. These benefits will continuously boost demand for automated systems.

The pharma industry has reached a point where it is heading towards being reliant on robotics and automation to achieve a greater competitive advantage and increased profitability. And this is only set to increase as the pressure remains on the industry to continually improve its manufactured and distribution capabilities.

c. Hybrid work environment- A hybrid work environment is where people could work virtually as well physically or a combination of both. A

Analytics, and AI are sure to be the drivers of this industry. In R&D, AI can be used to design treatment plans, develop drugs, or improve clinical trial outcomes, thereby making drug development cheaper and faster

lot of companies are already offering the facility to work virtually. However, pharma companies due to the nature of the industry and regulatory framework have been slow in adopting this as compared to many other industries. Despite the pandemic accelerating the adoption of the hybrid work environment for this sector, it has a long way to go.

d. Gig workers- Gig workers are freelance specialty workers. Today many sectors like- IT, Knowledge, telecom, FMCG, and Consumer Product and Good Industry, have deployed gig workers a big-time, pharma due to its regulatory compliance, intellectual property rights, long learning cycles is yet to adapt to that level.

3. AI & big data

The drug development and reuse process has been shortened drastically which was evident during the Covid vaccine development. Major companies have already been using data. Recently there was a survey report published by GlobalData that showed that 28 percent of companies will be using AI and big data to optimize drug discovery and development processes in the next years, while 32 percent would be relying on big data to streamline sales and marketing. The drug development and reuse process have been shortened

drastically which was evident during the Covid vaccine development. Major companies have already been using data

With the increasing volume and complexity of data being generated by the sector from multiple sources, the need to organize and streamline information is a constant challenge. Especially considering the amount of data that can be mined from patient records and registries, real-world evidence, sales and marketing, and connected devices. Herewith so much data, Insight, Analytics, and AI is sure to be the driver of this industry like many. In R&D, AI can be used to design treatment plans, develop drugs, or improve clinical trial outcomes, thereby making drug development cheaper and faster.

The imperative for doing AI on the edge comes from practical needs, such as agility in response-time, the possibility of repurposing the drug, handling a large volume of data, complex what-if analysis, and finally finding the effective drug without compromising the patient safety, fulfilling compliance and privacy regulation.

It is also helping pharma companies to bring resiliency to the supply chain. The digital control tower concept has matured to the next level where the supply of the raw materials, as well as finished goods, could be synced with upcoming demand and capacity of the manufacturing plans using AI-based predictive solutions.

However, despite numerous benefits, many pharmaceutical manufacturers are still wary of AI and Big data, seeing it as a new technology that is too complex to implement. Worries relating to cost, ease of use, and acceptance by staff often discourage companies from adopting the technology, especially SMEs that believe only large manufacturers can afford it. Nevertheless, AI and big data/analytics will be major game-changers in the pharma industry ■

How Emerging Technologies are Improving Manufacturing Efficiencies

Technology is making a significant impact in making manufacturing operations smarter – whether related to updating existing products and services, innovating, or finding new ways to manufacture products

By Shobhana Lele



■ The author is CIO, The Bombay Dyeing and Manufacturing Company

In the age of digital transformation, it has become pivotal for manufacturers to harness advanced technologies for driving digital transformation initiatives. While pilot initiatives and scaling of these technologies were underway before the pandemic, in these times, manufacturing companies must accelerate the pedal toward automating their processes to be cost-effective, innovative, and deliver exceptional business outcomes.

The post-pandemic era has brought several challenges for manufacturers: they need to differentiate themselves, have a more eye on costs, increase speed to market and be ready for demand fluctuations. The future factory cannot rely on archaic processes and technologies as it will not only impact their production effi-

ciencies but also make it impossible to meet the timely expectations of customers.

Technology is making a significant impact in making manufacturing operations smarter – whether related to updating existing products and services, innovating, or finding new ways to manufacture products. And hence it has become highly pivotal to the IT leadership teams of manufacturing firms to help their companies achieve growth by weaving a determined focus towards harnessing the potential of the new age and intelligent technologies.

This is how they can achieve better production capabilities, consistent product innovations, and cost-effective operations.

Some of the critical technologies that are making an impact are:



While organizations are in a hurry to implement and adopt technology, it is equally important to keep the security, governance, and compliances as topmost priorities and not compromise on them in lieu of faster execution

ing operations. Today's digital times need connectivity on the cloud to meet the erratic demands of customers. Cloud enables manufacturers and IT teams centralized visibility and helps enterprises stay connected through their supply chains to address a wide range of business challenges in real-time.

Key considerations

While manufacturing organizations must get into technology adoption, it is imperative to study the right fit for the organization. One can always leverage the expertise of partners and peers but still build one's processes as per the organization's needs. Finally, while organizations are in a hurry to implement and adopt technology, it is equally important to keep the security, governance, and compliances as topmost priorities and not compromise on them in lieu of faster execution.

To get the best out of the above technologies, manufacturing companies must have a clear roadmap, leadership buy-in, and vision to roll out the use cases across locations. With constant changes and a very evolving world of technology, one has to evaluate the model of implementation that is best suited for the business. The "one size fits all" concept cannot be applied as each organization has its unique products, processes, and capabilities ■

Robotic Process Automation (RPA): Robotic Process Automation: Although "robotics" as technology was prevalent earlier, the new avatar of RPA gives an enhanced control and extends automation in factory operations. It can drive end-to-end automation of manufacturing from packing a product to capturing systemic data of the manufacturing operations, lower operation costs, and free-up time of the exceptional talent to focus on more meaningful tasks. Companies that fail to integrate automation in their processes do not have a great chance to compete against forward-looking competitors.

Information technology and Operational Technology (IT/OT): OT is machine-oriented, IT is business-oriented. The convergence of IT and OT has opened up enormous opportunities for the manufacturing sector. A simple case would be to analyze power consumption data or reduce maintenance downtime by using convergence.

Artificial intelligence (AI)/ Internet

of Things (IoT): Artificial intelligence and the Internet of Things are revolutionizing several aspects of manufacturing. The data-driven insights can provide impetus to logistic operations by improving the agility of the supply chain and ensuring real-time monitoring of production processes. According to an Economics report, titled Beyond the Crisis, about 34% of manufacturing firms are already using AI or AI-built technologies to solve operational complexities, leveraging their talent for meaningful tasks and accelerating their digital transformation initiatives.

Augmenting the integration of these technologies can help provide specific inputs concerning consumer experience and help build customization or personalization capabilities. This, however, requires strong leadership from the top management so that a comprehensive list of use cases can be generated.

Cloud: Cloud technology offers enterprises tremendous scalability and agility for new-age manufactur-

The Dawn Of The Intelligent Edge

Edge Intelligence lies at the confluence of multiple technologies, particularly Artificial Intelligence, Machine Learning, Data Analytics, Internet of Things, and Cloud

By Natarajan Radhakrishnan



Picture a scenario. On your way home, you see a fleet of delivery trucks driving toward-stoward a popular supermarket in your neighborhood. You notice that except for the first vehicle the others are driverless. Yet, each is closely followed by the next and every move is seamlessly imitated across the entire fleet. The next day, you visit the supermarket to buy groceries. You swipe in with your smartphone and proceed to the aisles. You pick up everything you need and head straight for the exit – there is no checkout counter. On leaving the building, a notification on your phone informs you that the payment for your groceries has been debited from your bank account..

This episode could be an everyday experience in a few years. Thanks to recent technological developments, business operations, and customer experiences are more frictionless than ever. Today, driverless cars are in the works, and online purchases

can be made with a voice command. The intelligent edge is set to drive such advances up a notch.

Pushing the digital envelope

Edge Intelligence lies at the confluence of multiple technologies, particularly Artificial Intelligence, Machine Learning, Data Analytics, the Internet of Things, and the Cloud. Simply put, it involves collecting, analyzing, and drawing insights from data close to the source. In the above scenario, the autonomous trucks could capture data on road conditions and vehicle speeds through sensors and relay it to the rest of the fleet. Similarly, data on supermarket purchases could be captured by sensors near the aisles. In both cases, real-time insights are generated by analyzing data through AI and ML near the source, or the 'edge'.

Traditionally, data collected at the source is sent to a centralized server

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The intelligent edge is a game-changer. That said, it has certain disadvantages. Increased hardware costs are a notable case in point. It heavily relies on sophisticated hardware

to access environment data. Systems can analyze weather patterns and alert farmers in the event of possible natural disasters. In entertainment, the delivery of content - be it music, video, or websites - can be made quicker and more customized by caching data at the edge.

The intelligent edge is a game-changer. That said, it has certain disadvantages. Increased hardware costs are a notable case in point. Edge intelligence heavily relies on sophisticated hardware to capture and analyze data close to the source. This is not the case with a purely Cloud-based architecture, where local hardware is more basic. It also presents security and privacy issues. Not every device has the same degree of protection. Further, the greater number of storage points makes it more difficult to monitor. On the other hand, hardware prices are reducing, and data distribution over multiple edges can make it more secure than storing it in a distant data center. Therefore, businesses must weigh the pros and cons accordingly.

As adoption grows, edge intelligence could enable a wave of cutting-edge innovation that will define Web 3.0 and Industry 4.0. According to Gartner, 75% of enterprise-generated data is expected to be processed at the edge by 2025. The age of autonomous fleets and retail stores does not appear to be too far ■

or cloud, where it is processed and relayed to the end-user. This presents bandwidth and latency issues in situations where real-time data is crucial. Delays could be costly for an autonomous fleet on a collision course or a drone monitoring a hazardous gas leak at a power plant.

Edge intelligence will be critical as the number of Internet-enabled devices continues to grow exponentially. By 2030, 125 billion devices are expected to be connected through IoT, pushing the need for more location-driven, decentralized, and distributed services. However, as a Deloitte report points out, edge intelligence will not replace the cloud or data centers. Rather, it will enable a more holistic cloud-to-edge architecture. Some parts will run at a data center, others at a centralized cloud, and many more on the edges.

What lies at the edge?

The world is becoming increasingly data-driven, fueled by rapid advances in next-gen technology. Customer

expectations continue to grow in tandem. Bringing powerful computing capabilities closer to the origin of data can enhance operational efficiency and address new challenges in several ways. In less than a decade, 125 billion connected devices could generate an unprecedented amount of data. Transferring such huge volumes to data centers across geographies or a centralized cloud will cost enormous time and money. The intelligent edge allows near-instant responses at significantly lower costs through ultra-low latency and more efficient bandwidth use.

Consider its impact in different industries. Automobile plants could see machines seamlessly communicating with each other to build vehicles. Manufacturers can pre-empt technical failures and safety hazards right on the shop floor through predictive maintenance, enabled by IoT sensors closely monitoring machine conditions. In agriculture, autonomous tractors and robots can communicate with nearby sensors

The role of data and analytics in the telecom infra

It is necessary for Information Technology teams to understand the inflection points at which the current components of their technology solutions become inefficient or even dysfunctional and create their roadmap with their own milestones

By Vinod Sivarama Krishnan



The Telecom infrastructure space has a lot in common with other diversified infrastructure providers, for example, support power or water distribution companies. The challenges faced by these sectors are very similar. These are:

- a geographically dispersed network of points of presence across different environments and climatic conditions
- multiple assets deployed at these points of presence requiring operations and maintenance support
- a large and distributed field force to handle operations and maintenance of the equipment placed at these points including preventive and corrective maintenance
- diverse project teams to handle installation and commissioning/ decommissioning of assets at these points of presence based on changes to the network

In addition, these companies need to build and maintain applications that help to:

- continuously or periodically monitor these points of presence for ser-

vice availability and performance

- ensure that all company assets at these points are in good working condition delivered in the required functionality
- ensure the physical security of the assets and that they do not pose any safety risks to the surroundings in which they are placed, and that they are not tampered with by unauthorized personnel
- manage their diverse partner networks to ensure that services are being delivered as per their agreements and that the work that is expected to be done is actually being done in the field as per the specifications of the work

From a commercial perspective, companies need to accurately measure the services they provide, and service levels maintained and a robust mechanism to accurately (and promptly!) bill their customers for services received, as well as robust financial systems to manage their costs, receivables, and payables.

Needless to say, all of these transactions need to be carried out with full

■ The author is CIO, Indus Towers Limited



There are also statutory and business requirements for time series data over multiple years to be archived, processed, and analyzed to provide inputs

and momentum. In addition, CIOs in these businesses need to understand the value of their data and treat it as a precious asset, i.e., build in the levels of security and access control to ensure this data does not get exfiltrated into the public space due to the commercial and (in some cases!) even security implications of this data being available to the larger public.

At Indus Towers, we have, over the last several years, integrated much of our available data into a state-of-the-art data warehouse, designed in such a way as to cover every data source in the organization and organized to facilitate combining of this data to make relevant analyses (and identify exceptions) – something that is not possible in siloed traditional business applications like ERP and CRM platforms. By intelligently combining data into relevant business areas, we can provide a layer of abstraction to our user community to be able to analyze data across different filters and parameters, providing regional management a day-to-day reporting for operations support while also providing corporate functions and senior leadership with strategic trends in usage and business parameters.

The mechanics of “feeding the beast” and ensuring appropriate capacity and performance for this system end up being a top priority for the Information Technology teams at these organizations. There is an obvi-

observation of all legal and statutory requirements ensuring the highest standards of corporate governance.

From a transactional point of view, therefore, such companies have a huge scale in terms of the number of transactions and need processes and systems that are capable of handling both high volume and velocity with speed and accuracy. Data volumes also tend to increase exponentially with new and innovative products and services being introduced.

Beyond the transactional space comes the entire gamut of the analytical space i.e. using the data generated from transactional systems to analyze process adherence for the company with a view to continuous improvement as well as compliance reporting. This involves the identification and management of exceptions, the establishment of dashboards and workflows with approval/escalation hierarchies to ensure appropriate controls in managing these transactions. Some useful metrics in asset and service-intensive businesses also include

price-performance-quality, SLA adherence, bonuses and penalties, and the establishment of standards and norms across different geographies and environments.

There are also statutory and business requirements for time series data over multiple years to be archived, processed, and analyzed to provide inputs to commercial, sourcing, and partner strategies.

Advances in equipment technology across industries have given rise to “smart” equipment that continuously reports their status and progress, providing both diagnostic and performance data that must be continuously consumed and processed since corrective action needs to be taken in near real-time to avoid waste or other risks in case of malfunctions.

All of the above indicates that these businesses are extremely data-intensive and that CIOs in these businesses need to pay special attention to the challenges of collecting, standardizing, maintaining, and analyzing these data sets or risk losing out on their competitive advantages of scale



ous tradeoff between multiple times a day refreshes vs. (say) daily end-of-business-day replication and synchronization of data and processing of dashboards etc. The value of measuring data in the movement has to be keenly weighed (and the use cases and benefits clearly understood) before creating the massive infrastructure and visualization involved in real-time or streaming data situations. I believe that most business cases permit overnight refreshes so as to ensure that systems can be checked for consistency and that we do not place excessive load on operational systems at the same time that users of these systems are trying to get their day-to-day jobs done!

On the visualization front, it becomes important for IT Teams to deliver to their citizen analysts - a good documentation and understanding of the underlying data structures, their metadata, and the business association of that metadata with the parameters that they seek to measure. Ideally (as we have done in Indus) providing training and a self-service interface to build your reports, with access to the data

across levels helps us in managing transactional reconciliations as well as allowing for free-flow strategic analyses.

From a technology landscape, there are very different stacks of solutions that are appropriate for differing levels that data size and complexity, the sophistication of citizens and other analysts, and archiving/backup and restore efficiencies which may be required by the business or industry. It is necessary for Information Technology teams to understand the inflection points at which the current components of their technology solutions become inefficient or even dysfunctional and create their roadmap with their milestones that indicate the need to augment, upgrade and sometimes replace their technology stack with bigger and better solutions that are more appropriate to the size, complexity and, scale of their transactional, tactical and strategic analytics needs.

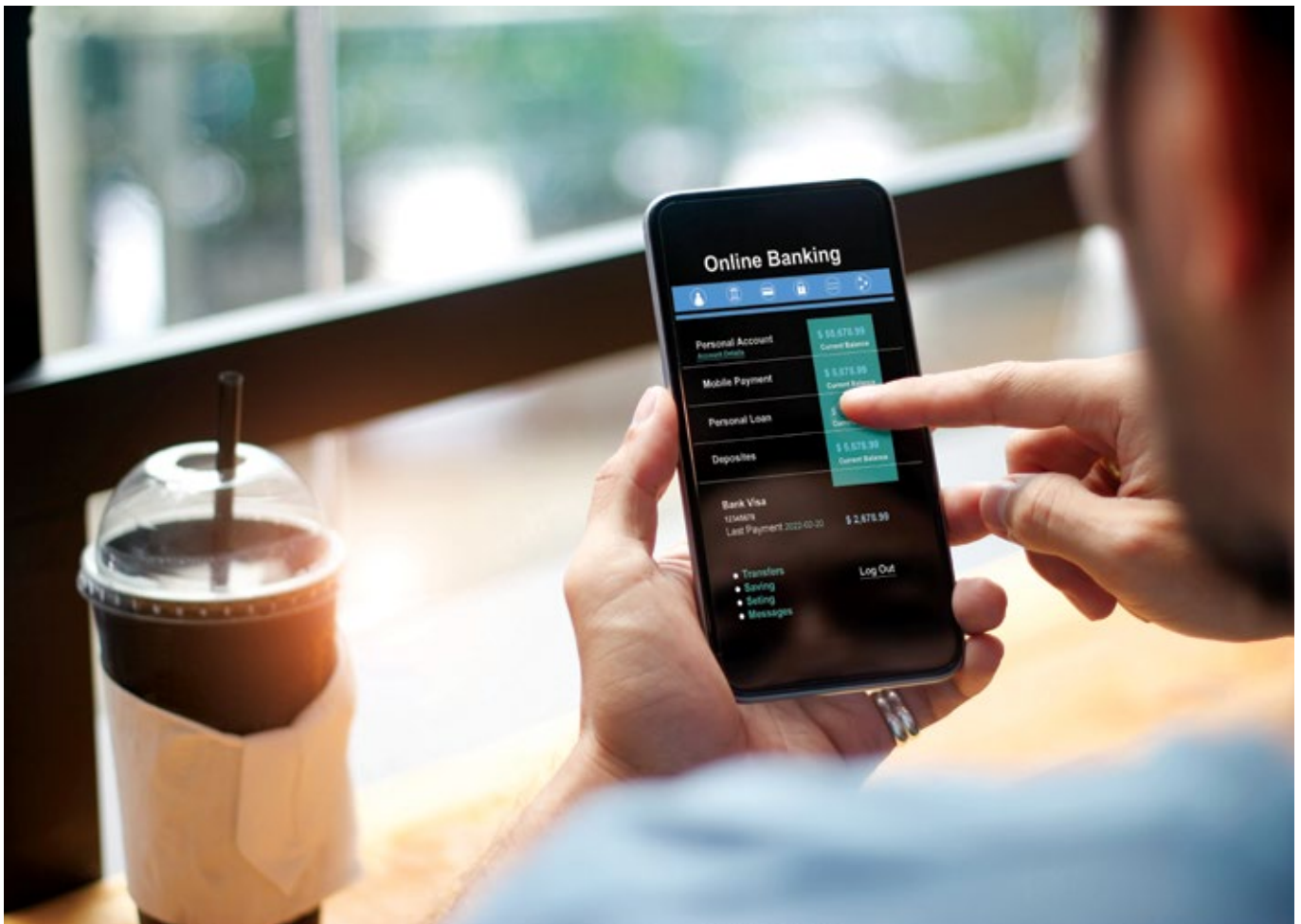
Indus' own journey from disparate siloed applications and citizen analysts combining data in Excel has been long and arduous but totally worth the investment. From one

source of data, we are able to provide business-as-usual operational data that drives the day-to-day activity as well as the periodic exception analysis and medium-term reporting that provides inputs for tactical and strategic decision-making. Significant investments have gone into ETL and data organization/storage as well as in front-end visualization and we are now in an optimization phase, removing unwanted data sets and eliminating duplications across functional areas while continuing to find the blind spots of data that had not made it to our radar so far. Some advanced use cases of "closing the loop" i.e., using decision support data to drive transactional corrections or actions without human involvement through RPA or scripting are giving us significant benefits in terms of TAT and productivity.

It is a testament to the quality of thought put in while setting up this decision support system that over a short period of two to three years, this has become one of the core platforms of the organization and ranks on par with our ERP, CRM, or field force management systems in terms of utilization or strategic importance. Over time a lot of our strategic measures have been defined and their logic sharpened till we now have a repository not just of our data but the basic algorithms of our business in terms of how we operate. While data in and of itself has tremendous strategic value, that value cannot be unlocked without a robust and flexible way of collecting, securing, storing, and expressing the data to drive operational, tactical, and strategic decision making and reporting.

Future directions are to further optimize the data collected and stored as well as develop more unique use cases, particularly to feed the shift from reactive to responsive (which has largely happened) and now from responsive to predictive analytics ■

SPECIAL FEATURE



What Purpose Will The Digital Banking Units Serve?

The government wants to drive financial reach and inclusion through the digital banking units. But they may also help banks to try out new technology and business model innovations before taking them mainstream.

By Shyamanuja Das



The Reserve Bank of India (RBI) has developed guidelines for establishing Digital Banking Units (DBUs). This is in accordance with the Indian finance minister Nirmala Sitharaman's announcement in this year's budget speech that the government was proposing to set up 75 Digital Banking Units (DBUs) in 75 districts by scheduled commercial banks.

"In recent years, digital banking, digital payments, and fintech innovations have proliferated in the country. The government is continuously encouraging these sectors to ensure that the benefits of digital banking reach every nook and corner of the country in a consumer-friendly manner. Taking forward this agenda, and to mark 75 years of our independence, it is proposed to set up 75 Digital Banking Units (DBUs) in 75 districts of the country by Scheduled Commercial Banks," the FM had said in her Budget speech on 1 February 2022.

The detailed guidelines have come in less than three months after the announcement. The RBI circular says that further to the budget announcement, a 'committee for the establishment of Digital Banking Units (DBUs)' was set up by the Central Bank to outline a roadmap for the establishment of DBUs. The guidelines are based on the recommendations of the committee. However, the circular doesn't provide any more details of the committee or a link to any circular or notification regarding the announcement of committee, a usual practice in RBI circulars.

The Guidelines

A Digital Banking Unit is essentially a physical front-end facility of a bank.

It is a physical banking outlet that houses specific digital infrastructure that will provide existing services (like banking, cash withdrawal, loans) and kiosks for carrying out digital banking or purchasing an insurance/investment product distributed by the bank.

RBI defines a DBU as 'a specialized fixed point business unit/hub housing specific minimum digital infrastructure for digital banking products & services and digitally servicing existing financial products & services. The benefits could be offered in both self-service and assisted mode to enable customers to have cost-effective/convenient access and enhanced digital experience to/of such products and services in an efficient, paperless, a secured and connected environment with most services being available in self-service mode, all year round.

Scheduled Commercial Banks (other than RRBs, PBs and LABs) with past digital banking experience are permitted to open DBUs in Tier 1 to Tier 6 centers, unless otherwise specifically restricted, 'without having the need to take permission from RBI.

RBI mandates each DBU to be housed distinctly, with the separate entry and exit provisions and to be separate from an existing banking outlet. Banks may choose suitable digital infrastructure to provide the services. RBI explicitly mentions that these facilities can be insourced or outsourced while complying with relevant regulatory guidelines. RBI even allows current core banking and other systems for digital banking to be shared with logical separation. RBI allows banks to choose an in-sourced or out-sourced model for the entire operations of the digital banking segment, including DBUs, as long as the outsourced model complies with the relevant regulatory guidelines on outsourcing.

Interestingly, RBI also says that 'banks can adopt more core-independent digital-native technologies offering better scalability, flexibil-

ity in creating new/reusable digital environments through continuous development/software deployment and interconnectivity specifically for this business segment, based on their digital strategy.' It further mandates that 'If the digital banking segment of a bank uses an API layer (integration layer) to connect with external third-party application providers, the same should be tested in an isolated/test environment before being integrated to bank's core systems backed by a comprehensive risk evaluation and adequate documentation.

RBI also outlines guidelines such as DBUs being aligned with the digital banking strategy of the bank. It also mandates that each DBU—and this is important—to be headed by a Scale III officer or above in a PSU bank and their equivalent in private banks. It also mentions cyber security requirements, balancing between assets and liabilities, and need for customer education and financial reporting structure in the guidelines.

"Expansion of digital financial services and financial inclusion being overarching objectives of DBUs and given the operational flexibility given to banks in this domain, the board should ensure regular on-site and off-site monitoring system covering all aspects of the guidelines," the guidelines add.

The Impact

The developments have been so fast that even some of the scheduled commercial banks seem unprepared. In the usual deliberation period, banks start planning for the new policies of RBI in advance. However, conversations with IT leaders of two private commercial banks regarding their DBU plans revealed that they are still in wait-and-watch mode.

That is not too surprising considering that both the banks we spoke to are new private sector banks, operating mainly in urban areas, with their customer base already used to online



While the immediate gains of the DBUs may only be incremental and remain limited to less-banked areas, they can open up substantial innovation opportunities for banks

banking. So, it may not be such an enormous value add for them.

So, how will the DBUs take forward the digital banking agenda? The RBI circular talks of 'cost-effective' access, 'convenience' to customers, 'enhanced customer experience', and 'efficient' operations of banks.

The DBUs are phygital banking outlets. In the urban areas, there is a significant number of online banking users. The DBUs cannot be more cost-effective than online banking, either from a customer's viewpoint or a bank's perspective. While it may be slightly more convenient for a certain section of users, it is not a significant improvement on that account, considering the high density of banks and ATMs in those areas. While by definition, digital banking is more efficient than branch banking, the DBUs may not be significantly better than traditional branches, considering that they have to be built from scratch. Also,

with no specific target for individual banks in the guidelines, they will have minimal impact on the overall large operations of many scheduled commercial banks. Customer experience will, of course, depend on how the services are actually provided.

In effect, DBUs will add little to urban banking. They may, however, expand the reach of digital banking in rural areas. And that is anyway the real objective behind the plans. The FM's speech gives that away when she said that the idea is to 'ensure that the benefits of digital banking reach every nook and corner of the country'. Even the RBI guidelines talks about 'expansion of digital financial services and financial inclusion being overarching objectives of DBUs'.

The Other I

While the initial reaction of the private banks may not be that enthusiastic, considering the overarching

'inclusion' objective behind DBUs, DBUs may innovation in the long term if used smartly.

This is how.

RBI says banks can adopt more core-independent digital-native technologies offering better scalability and flexibility in creating new/reusable digital environments through continuous development/software deployment and interconnectivity specifically for this business segment. This gives the banks an opportunity to experiment with disruptive technologies on cloud, one thing at a time. With so many innovations happening out there by fintechs, banks do not have to bother about getting them to work with their core banking system, picking up best of breed solutions available on the cloud. The solutions tried and tested (on a production basis) can then be added to the bank's core banking system. They may build an alternate distributed and the loosely integrated equivalent of the core banking system on the cloud with best of breed solutions. Hopefully, regulators will catch up.

One of the CIOs we spoke to singled out testing of the outsourced model allowed in DBUs as a great opportunity. If that succeeds, more and more banking operations can be outsourced. The banks would have tested them on production scale, under all regulatory compliance norms.

While the immediate gains of the DBUs may only be incremental and remain limited to less-banked areas, they can open up substantial innovation opportunities for banks if they play them smartly.

At this moment, we do not know if the RBI is working to give some quantitative targets on a number of DBUs. Unless that happens, the whole initiative may fizzle out and may remain just a showpiece for building DBUs in just 75 districts. In the huge world of Indian banking, that is like a drop in the ocean ■

SILLY POINT

By Akash Jain



Spotlight: Edge Computing

IT has travelled the path from big Data Centres to the cloud to data capture at the source. Computing at source is the inevitable next step

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This is the 3rd column of the 12-part series called Navigator MasterClass, wherein we will find our way through the myths and realities of one Bleeding Edge technology each month; in terms of where it truly stands at the time of writing, and its business applications- implemented, being attempted, or speculative. This month's topic is Edge Computing. It is a technology that has hundreds of "gurus", each with their perspective. Let's sift through that; we will however start with this columnist's personal experience, which may seem unrelated at the start, but is interestingly similar.

In the early part of my career, I worked for a consulting company in the US. And their focus was offshoring to India, a concept that was resisted politically, socially, and technically. And there were two selling points: take the work to the people (and not the other way around), and continuous workday. Now the similarity is obvious. IT has travelled the path from big Data Centres to the cloud to data capture at the source. Computing at source is the inevitable next step.

We are now saying this after taking the computing remote to the cloud! Gartner says that edge computing complements cloud computing. And this is where the confusion starts. "How can something remote be complemented by something so near?". The answer is in the question itself. Computing At Source was delayed by the cost of IoT, no longer an issue now. AND its feasibility was determined over by baby steps like cars, refrigerators, etc.

What Edge Computing is delivering is the ability for a business to collate and learn. In other words, combine it with Artificial Intelligence, Augmented Reality, Virtual Reality, Gaming, Natural Lan-

■ *The author managed large IT organizations for global players like MasterCard and Reliance, as well as lean IT organizations for startups, with experience in financial and retail technologies*



MIT starts by saying that the cloud was “bad enough” for cybersecurity, and now we have Edge Computing! But they go on to opine that with globalization and location being the challenges at the same time, ONLY Edge Computing can provide the solution

guage Processing, etc. This is an outstanding division of work.

Gartner says four laws will take the majority of data outside data centers; McKinsey names them differently:

1. Law of Physics (speed Matters). McKinsey calls it the “Need for Real-time Decision Making”.
2. Law of Economics (bandwidth issues). McKinsey calls it “Varied Connectivity and Data Mobility”.
3. Law of the Land (regulatory). McKinsey calls “New Storage and Security Needs”.
4. Murphy’s Law (connectivity goes down). McKinsey calls it “Intermittent Power”.

McKinsey has listed over 100 potential use cases in Travel/ Transport/ Logistics, Retail, Healthcare, Public Sector/ Utilities, Energy, and Materials. And none of them are conceptual; 3000 companies are in the process of deploying these. They do go on to point out that the major risks are Privacy and Data Security. They finally go on list 3 “habits” for Edge Computing to succeed:

1. Begin with what you already, make, or sell (not with new and unfamiliar).
2. Learn through multiple use cases (not a single one).
3. Embrace opportunities for Business Process changes.

McKinsey also says that the biggest advantage is quantitative decision-making, which is no longer a scary concept. For example, an agricultural farm manufacturer can analyze soil and water, and send it to farmers through

satellites. Or autonomous plants that use Edge Computing, Augmented Reality, Artificial Intelligence, and Analytics.

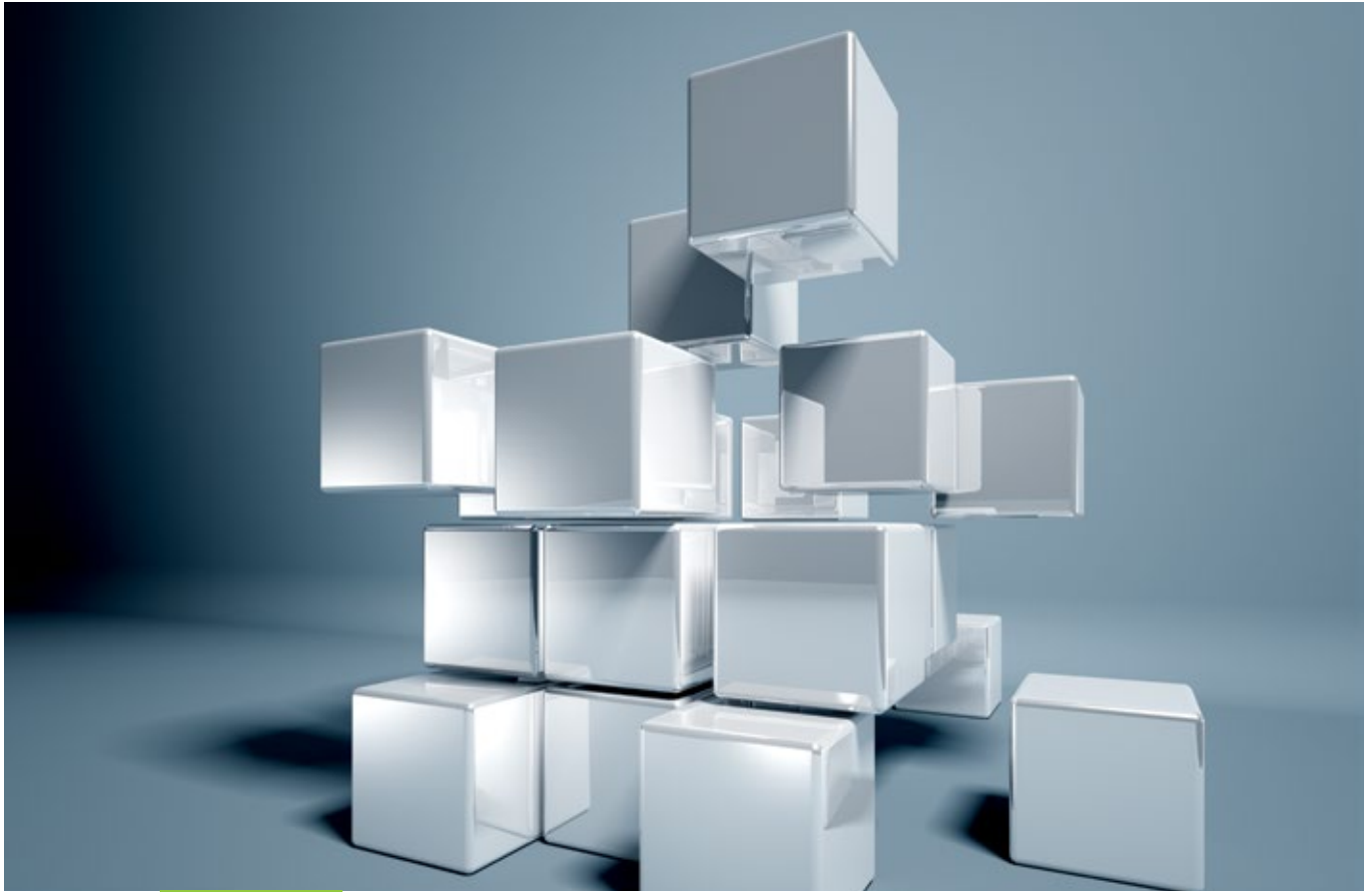
MIT starts by saying that the cloud was “bad enough” for cybersecurity, and now we have Edge Computing! But they go on to opine that with globalization and location being the challenges at the same time, ONLY Edge Computing can provide the solutions. The two changes that they foresee as being needed are:

- Requires new relationships with vendors, customers, employees, and even competitors.
- Strong Analytics is a requirement to realize full value.

We will close by listing some potential uses of Edge Computing:

- Information Gathering and Collation
- Entry Gateway
- Decision Making (for example, maintenance decision to halt a production line instantly)
- Real-Time Transactions
- Autonomous activity
- Immersive Experience

At some time or another, every business will be using Edge Computing. In various degrees and uses. This brings us to the very final point: Edge Computing IoT devices will be highly specialized (unlike generic cloud computing); from visual processing in autonomous vehicles to freezer temperatures in trucks carrying frozen food, and so on ■



How Infra. Market Is Pushing Transformation In Construction

By harnessing innovative technologies, the B2B unicorn is helping the construction sector to overcome supply chain challenges

By Jatinder Singh



The Indian construction sector contributes significantly to India's GDP. In FY21, the infrastructure sector attracted about a 13% share of the country's total FDI inflows of USD 81.72 billion. The industry is also the country's second-largest employer, employing over 49 million people.

For India to achieve its target of becoming a USD 5 trillion economy by 2024-25, the construction and real estate sector has a pivotal role to play. However, the highly unorganized sector is battling poor supply chain visibility, inefficient logistics, significant price variation in materials, quality management, and project cost overruns. Due to this, many projects fail to deliver what they promise, delaying the successful completion of construction projects.

The new-age technologies have the potential to address many of the above challenges. But due to the lack of training and resources, not many construction companies have been able to simplify these longstanding complexities. The challenge is even more significant in not-so-large construction companies who do not give large orders at one go. To solve these challenges, in 2016, Infra.Market, a business-to-business (B2B) tech-enabled startup, entered the market and took on the challenge of revolutionizing the supply chain and delivering sustainable performance improvements for the construction sector.

With over 4000+ customers, to begin with, today, the unicorn caters to several leading institutional customers (B2B) and retail outlets (D2R) in the construction materials sector.

Key challenges

"The idea of Infra.Market started with knowing that the current marketplace

in this whole industry and ecosystem is very vertical focused. All the major players have done a fantastic job leveraging technology in their category, dominating end to end. But the construction industry operates more horizontally," says Satya Kaliki, Chief Technology Officer, Infra.Market.

"Nobody – not a single player in the entire ecosystem – is connecting people on a horizontal platform. If [in the construction segment] someone has to buy outside of the category, the experience is not uniform as they [consumers] have to use multiple applications and platforms," Kaliki explicates.

One of the biggest industry challenges, according to Kaliki, is procuring materials locally. And considering the highly unorganized nature of the local dealer-distribution retailer channel is, working with the same retailers and distributors across India is not always possible. The procurement of materials within the specified timeframe and at the right cost, especially for small companies, is a significant challenge.

Infra.Market says they are extensively harnessing technological solutions – cloud, data analytics, artificial intelligence (AI), and augmented and virtual reality (AR/VR) – for the B2B customers and efficiently enabling a direct communication chain between the manufacturer-dealer-distributor-retailer network and the end customer. "A lot of the time, the customer has a specific requirement. For instance, an independent home builder or a regional contractor walks into a retail store and says that I want 50 bags of a particular cement brand. What is the guarantee that the supplier or retailer will deliver the required quantity of the cement in the next 24 or 48 hours? If there is a particular supply shortage of a brand, the retailer should be able to recommend that there is an equivalent grade or better-quality product available at a certain price point, with a guarantee that they

can deliver in 24 hours," Kaliki says.

"But for that, the retailer should have the visibility of the entire supply chain. So today, that supply chain visibility is also missing. They place the order, and after that, they assume that the order will be delivered. But there is no visibility of the exact arrival time of the truck at the godown of the retailer or maybe directly at the customer site," Kaliki adds.

When the purchase order is large, but the material is required to be delivered in phases, project builders may not always get the same quality material. The real-time scheduling of delivering construction material has been a challenge that the industry has faced for too long.

The Mumbai headquartered company says its tech platform intends to make the supply chain more transparent and efficient and help companies/customers gain cost advantages. However, it also recognizes that the path is not so easy as acquiring tech talent is a continuous challenge, and the company has been extensively focusing on demonstrating its culture and the value it brings to the economy to the new age generation.

Another hurdle that it has been facing is the less tech readiness of the industry. "How many people can relate with technology and automation in our industry? Convincing them [its partners] to leverage and realize the value of technology is a continuous challenge and focus area for us. We want more and more believers that tech will play a major role. The market size is too huge. We want to be true enablers, so convincing the customers and partial competitors on the benefits of the technology is extremely important for us," says Kaliki.

The solutions and the impact

Infra.Market offers a unique value proposition to all its users – contractors, designers and engineers, materials manufacturers, and com-

ponent manufacturers. Its technology platform connects client requirements directly to the supply chain infrastructure and provides complete visibility in ordering, tracking, and manufacturing until onsite delivery.

"In our sector, pricing fluctuations are very heavy. The prices of cement and steel change very frequently, and then, there are derived products that are get impacted by them. From a sales point of view, we have the right technological tools that equip our people to know what right pricing is so that we make decisions to put the right quotations in front of our customers." says Kaliki.

Customers can also access the best price through its dashboard and compare it with historical data and future price fluctuations trends. Kaliki says that the company also ensures that its customers get specific quality material needed for their project. "If our customer is delivering a metro project, quality has to meet a certain requirement.

To address the real-time delivery challenge, the company leverages cloud, GPS-enabled trucks, and WhatsApp-based API to inform the users. "Supply decision has to be in real-time. This is very complex in nature. In 2 to 3 hours, we have to deliver concrete in workable condition from our manufacturing facility to the customer site. Forty tonne trucks need to be route planned in traffic. If the truck is late, say, by half an hour, concrete-like M90 grade may have to be just thrown out as it cannot be consumed," Kaliki explains.

Factors such as weather, strikes, or any other unforeseen circumstance can impact the scheduled deliveries and coordination. "What if the weather changes? Labor is ready. Pumps are ready. Everything is ready at the construction site. Now suddenly, at 9 a.m., the weather has changed. And it started raining. So, they will say that I can't do it now. You have to shift it either later in the day or tomorrow.

"We want to be true enablers. So, convincing the customers and partial competitors on the benefits of the technology is extremely important for us."



Satya Kaliki, Chief Technology Officer, Infra.Market

This real-time scheduling and coordination among all the people currently operate on the phone and SMS. As a delivery coordinator, I will initiate the delivery of the product if I don't get to see the SMS asking for re-scheduling," says Kaliki.

From an infrastructure standpoint, Infra.Market uses AWS, Google, and Azure. It uses native frameworks to build applications that are based on micro-services architecture, go-language for programming, and PostgreSQL, an open-source relational database management system (DBMS).

Infra.Market has built an app ecosystem for its suppliers and buyers' partners to optimize the delivery by leveraging GPS-enabled trucks and intelligent process-based dashboards to inform all its partners. It says that it has built data and analytics-based

dashboards for each of its stakeholders that have resulted in improved visibility of schedules, fill rates, fleet utilization, customer feedback, sales, and payment cycles.

What's ahead?

Infra.Market is now expanding AR/VR technologies to give users a beforehand experience of its offerings. "The idea is to leverage AR/VR to give users a fair amount of idea about their purchase. For instance, if I have a 3D diagram of my living room, can I take that living room picture and say can I browse through the tile option. What will my room look like if I apply a particular tile? How will my kitchen cabinet look if I apply this particular lamination available from different plywood suppliers? So, providing consumers with that kind of experience is also important for us," Kaliki says.

Along with the same, it is also looking to expand the franchise stores in certain cities where consumers can experience the physical products and get a digital experience. It currently has over 4000 retail stores across 17+ states in India and expanding rapidly.

"Certain consumers are comfortable seeing catalog digitally. It may not look as easy as looking at a t-shirt, jeans, or an e-commerce store. It requires more thought than impulsive buying. But a lot of time customers come to buy a particular product, say an electrical product. There will be other products that they will be interested. So, we can give them the same [like that of a physical store], experience to browse through the catalog digitally, from the comfort of their own homes," Kaliki explains.

The company says that it has a dedicated account management and sales interface to give an exceptional e-commerce experience to its users. However, unlike the B2C platform, the buying decisions may not happen instantaneously and hence users can browse the catalog and ask for a quotation or revision of pricing. ■

The Future Is Phygital



The future is phygital and the blending of physical and digital in the customer experience strategy is certainly here to stay

By Rakesh Jaitly

Phygital is mutually beneficial for both the producer and the end-user when it comes to promoting the aspects of accessibility and personalization. It enables producers to save on a variety of variable expenditures while also reaching a larger audience.



India is one of the fastest-growing economies today, well on the path to becoming a USD1-trillion digital economy by 2025. Driven by digital acceleration, new technologies, and increased Internet penetration, India's growing consumer market has expanded rapidly over the last few years. Research firm International Data Corporation (IDC) forecasts India's ICT Spending to reach USD111 billion by 2024.

The last couple of years have also seen the concept of hybrid work grow exponentially. Remote working has shifted the attention towards digital or online platforms, where companies have been forced to grow their digital presence to meet consumer demands. Thus, retailers and marketers are now creating a "phygital" world, which is the blending of physical and digital in the customer experience strategy to create the ideal integrated experience for the consumer.

What is a Phygital Strategy?

In the Digital-first environment, an integrated approach is used where physical and digital are interdependent. This includes a centralized repository for both digital and physical transactions and a platform that integrates inventory, sales, and customer profiles, among other things. For emerging economies, the full potential of marketing and financial

inclusion can be realized through the seamless and comprehensive route of Phygital. The Phygital model combines physical and digital experiences emphasizing aspects such as ease of use, convenience, speed, and support. Phygital is mutually beneficial for both the producer and the end-user when it comes to promoting the aspects of accessibility and personalization. It enables producers to save on a variety of variable expenditures while also reaching a larger audience. Customers, on the other hand, can make purchases from the comfort of their own homes. In addition, as customers want to connect with a brand on a personal level, companies are formulating tactics to reward them with unique experiences and perks such as membership cards, loyalty points, special events, and festival discounts. Brands can do the same online while maintaining the traditional purchasing experience through the phygital model.

A few companies have already started to implement the phygital model. For instance, Bausch+Lomb, a leading eye-care brand, has put a lot of emphasis on their online shopping platform by introducing features like virtual trials to ensure customers make a more informed purchase. Similarly, BPCL, a leader in the Gas and Petroleum space, is driving customer campaigns that provide personalized engagement based on customer lifecycles. Under their digital marketing pilot under Project Anubhav, BPCL is focussing on customer experience and provide insight and intelligence that has stemmed from

the AI powering Oracle's CX cloud.

TATA Teleservice, a telecom giant, is yet another example of Phygital adopters. This provider is embracing automation and data analytics and integrating the Phygital business component to increase customer engagement, improve marketing strategies, and maximize business performance.

Creating a phygital experience in the financial services industry is important as customers need to experience a technologically advanced space that is simple, safe, and efficient for financial transactions yet has some semblance of in-person, physical services. Companies such as HDFC Ergo and Federal Bank have been early adopters of the Phygital model, leveraging their technology-based customer interactions to make them more human. Under the Phygital model adopted, the entire process right from filing an application to making the payment is executed digitally thus minimizing the possibilities of human error and other delays while offering customer service on a real-time basis.

As the world evolves and the difference between digital and physical experiences becomes "phygital," brands and companies need to embrace this change proactively and start thinking about the strategy that will work best for their business. The future is phygital and the blending of physical and digital in the customer experience strategy is certainly here to stay ■

— The author is Senior Sales Director - Oracle Applications

How Khatabook Is Empowering MSMEs To Make Data-Driven Decisions



The fintech startup harnesses AI-ML-driven models to help merchants digitize bookkeeping and deliver benefits from data-driven insights.

By Jatinder Singh



Technological obsolescence has been one of the most significant pain points for micro, small and medium enterprises (MSMEs). Due to the lack of resources, budgets, and experience, it has become more challenging for micro and small enterprises to upgrade and modernize their business capabilities.

One of the biggest hurdles for merchants is to keep instant track of pending receivables from customers and make decisions around giving credit or not to their specific customers. Bangalore-based fintech startup Khatabook which offers digital ledger services is trying to address some of these problems by digitizing the accounts of micro and small business enterprises and giving them a much-needed competitive edge in the post-pandemic business environment.

User retention and training a big challenge

Khatabook offers a suite of digital solutions powered by AI and ML technologies, helping merchants track their transactions, send periodic reminders to creditors and collect payments securely in a seamless manner. According to the company, convincing offline merchants to switch to online and training them for digital transactions is the biggest hurdle they've been facing.

Khatabook is persistently making solid efforts to educate its target user base about the advantage of digital and how these tools can provide better cash flow visibility and strengthen business performance. "While the trust in the digital platforms have gone up, all of them [MSME] have some common and different needs. So we are working to build generic solutions that meet all of their use

cases and focusing on unique solutions that can meet our users' diverse needs," says Gaurav Lahoti, Vice President of Engineering, Khatabook.

Leveraging the advantages of cloud

Khatabook began its operations in 2019 and has primarily grown as a remote-first company because of the pandemic-triggered lockdown and intermitting work-from-home decrees in the last two years. "In today's market, businesses – be it small or big – have any data that can help them do risk modeling for lending. There are a lot of emerging technologies that can enable that. And we want every merchant to benefit from such technologies and better their decision-making," Lahoti says.

The digital bookkeeping app, which has recently raised USD 100 Mn in a Series C round, says it has been continuously innovating to identify how a software product can help India's MSMEs overcome such obstacles and improve their business efficiency and incomes by harnessing tech.

Khatabook says that it runs a security-conscious business, and to ensure the data security and privacy of its users, it has robust processes and compliance in place. "For instance, folks who have access to the data only have access to the personally identifiable information. The phone numbers are completely masked. Addresses are entirely hidden unless someone requires them within the company. And when someone asks for the data, they have a complete log of who asked for what data at what point in time?"

The road ahead

The company's AI-embedded easy-to-use interface is being offered in 13 vernacular languages, which has helped it to expand its user base to over 4500 cities and towns in record time. Khatabook has recently launched an exclusive cashbook android app and unveiled automated

bot call reminders, one of the firsts of IVR tech designed for Indian MSMEs. Khatabook users can also receive payments directly into their bank account with UPI payments through its platform.

Being a data-driven company, it plans to simplify its interface further and make customer onboarding easier. It also focuses on retention metrics to hold its users to its platform.

"We are like a new age evolved software layer. The new-age technology has made the lines blurred. Largely because it has become easier and easier to build technologies concerning controls, many third-party SaaS companies are coming and building solutions. It makes it easy to assemble things such as lego pieces and put technology on top. A good amount of work can be done by that. That has helped provide more functionality in a single place," Lahoti elucidates. "While most large enterprises have successfully harnessed the potential of data, the market had very little to offer for MSMEs when we started," Lahoti adds.

"A simple example is like, if an SMS is sent to a user, you want to check probably a few seconds later, whether it was delivered or not, if not, then you will want to send it to WhatsApp if not, you would want to do something else, but there is some time gap that you need between all these actions in that alignment. So those kinds of things have been dealt with in the infrastructure," says Lahoti.

Targeting the next growth phase, Khatabook also plans to provide diverse financing options to micro and small businesses through its SaaS accounting software BiZ Analyst, which it recently acquired for \$10 million. Khatabook has conducted some pilots and will soon unveil its app's short-term and long-term lending options. Earlier this year, it shared its intentions to become a digital bank for MSMEs before the end of the current calendar year ■

डिजिट अब हिंदी में

देश का सबसे लोकप्रिय और विश्वसनीय टेक्नोलॉजी वेबसाइट डिजिट अब हिंदी में उपलब्ध है। नयी हिंदी वेबसाइट आपको टेक्नोलॉजी से जुड़े हर छोटी बड़ी घटनाओ से अवगत रखेगी। साथ में नए हिंदी वेबसाइट पर आपको डिजिट टेस्ट लैब से विस्तृत गैजेट रिव्यू से लेकर टेक सुझाव मिलेंगे। डिजिट जल्द ही और भी अन्य भारतीय भाषाओ में उपलब्ध होगा।

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