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BRACING FOR SUSTAINABLE TECHNOLOGY

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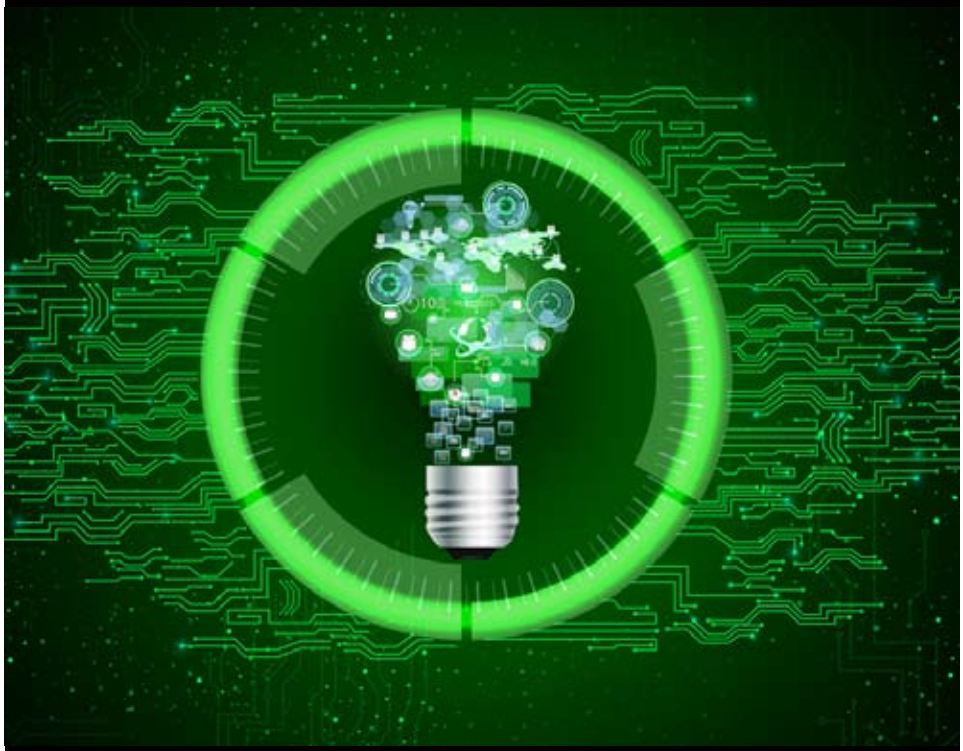

Bracing for Sustainable Technology

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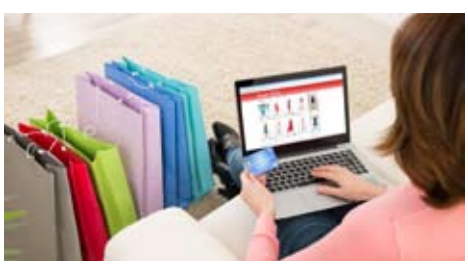

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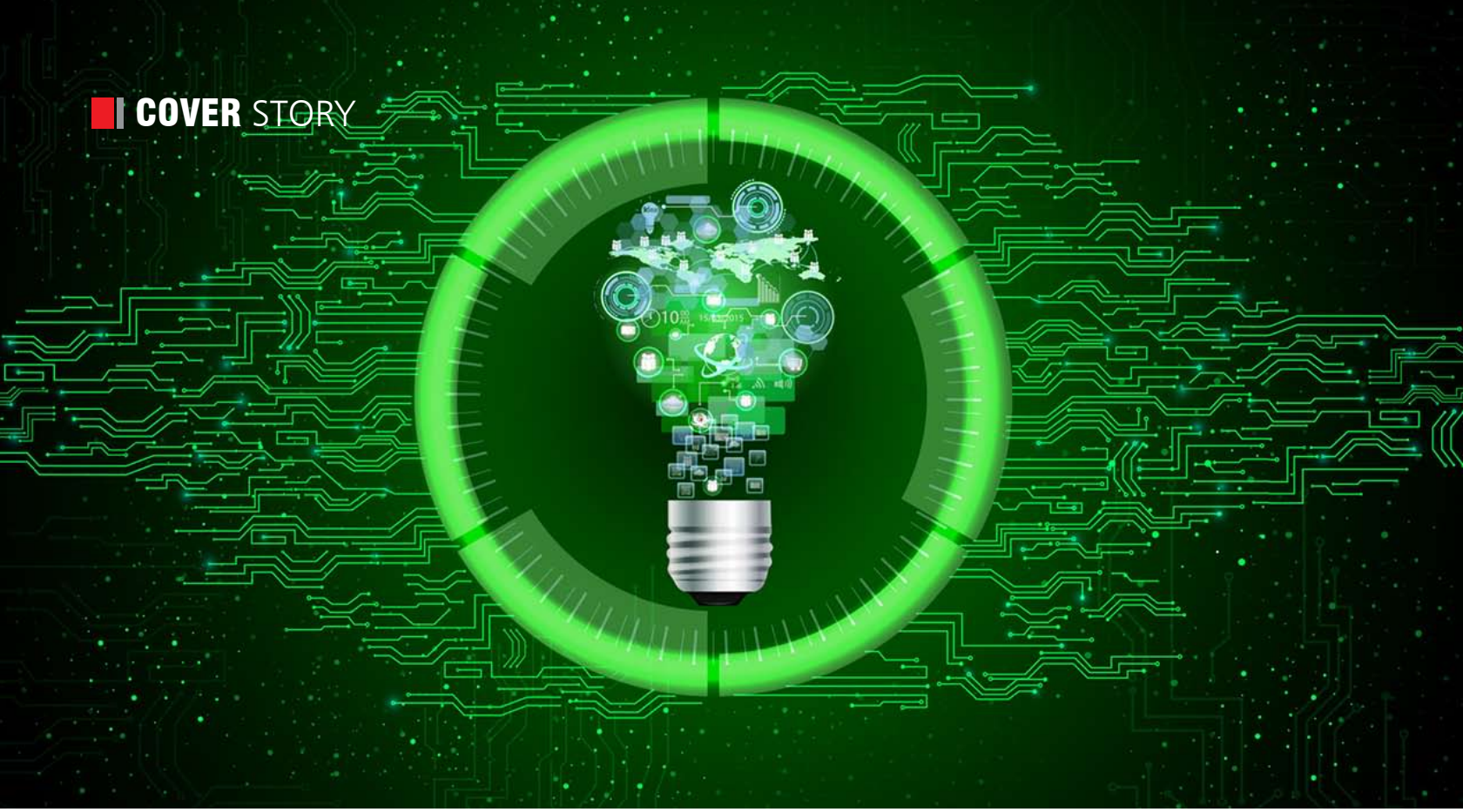


Bracing for Sustainable Technology

In the last few years, industries across the world have become increasingly aware of sustainability measures as well as Environmental, Social, and Corporate Governance (ESG) criteria. This has had the effect of throwing open fresh opportunities for the Indian IT sector. The sustainable technology market could emerge as the next big growth driver for domestic IT services providers; however, are we serious about sustainability? Read on as we analyze the sustainable technology landscape as well as the ground reality of its adoption

Amit Singh

With the world experiencing unpredictable weather conditions, people and global leaders are taking cognizance of the need to address climate change. In fact, the rising demand for environmental, social, and governance (ESG) accountability from customers, employees, shareholders, governments, and regulators is driving corporate attitudes about sustainability across many sectors.

India, at COP26, announced its ambition to become a net-zero emitter by 2070—an important milestone in the fight against climate change. While having low per-capita emissions (1.8 tons CO2), India is the third-largest emitter globally, emitting a net 2.9 gigatons of carbon dioxide equivalent (GtCO2e) every year as of 2019. Six industries—power, steel, automotive, aviation, cement, and agriculture—are responsible for the majority of these emissions (about 70 percent).

Interestingly, sustainability also found prominence in the Union Budget 2023 presented recently. Green growth – from green credits, green energy, and green mobility to green farming – was among the seven main priorities that made it to the Budget this year.

High on priority

As per the BCG report, COP26 has mobilized the private sector globally, with 5,200+ businesses and 450+ financial institutes, accounting for 40 percent of financial assets, committing to science-based net-zero targets. These commitments and growing awareness of net-zero places technology firms at the cusp of breakthrough growth, driven by companies embedding sustainability in their business models, instead of focusing on standalone use cases. This is evident given more than 60 percent CXOs across industries focus on sustainability when considering a digital project.

According to IDC's Future Enterprise Resiliency & Spending Survey, sustainability is one of the top three business concerns of Indian enterprises. "Large enterprises in India have traditionally taken a more structured approach with dedicated functions to focus on sustainability initiatives and Chief Sustainability Officers in place. On the other hand, medium to small-sized organizations have been relying on their ESG-focused teams or CSR teams to drive their sustainability agenda. However, with SEBI mandating ESG reporting and Business Responsibility and Sustainability Reports (BRSR), there is certainly an increased focus on sustainability. Besides, regulators, even customers, and employees are choosing to engage with corporations that are committed to sustainability," highlights

> "Industries like data center providers, packaging, power & energy, agriculture, healthcare, and transportation are leading sustainable technology adoption. They are using technology for better yield and reduce carbon emissions, plastic waste, as well as costs."
>
> **AMIT LUTHRA,**
> **MD - India, Lenovo ISG**

Chittaranjan Meher, Principal, IBM Sustainability Software Business Unit, India/South Asia.

As per Gartner's report, 74 percent of CEOs agreed that bolstering ESG efforts attracts investors. Of the 80 percent of CEOs who intend to invest in new or improved products this year and next, environmental sustainability was cited as the third largest driver, just behind functional performance and general quality.

There is also a growing realization in the industry that ESG is not just about carbon reporting. Rather, it's about deriving the right insights on sustainability and bringing those insights back to action for business benefits.

Gartner says that by 2025, 50 percent of CIOs will have performance metrics tied to the sustainability of the IT organization.

$150-250 billion opportunity

- Sustainability will attract $150-250 billion of additional tech and operations spending by 2030
- Indian IT services leaders reorganizing to build $500 million to $1 billion worth of sustainability service lines in 203 years
- 50% of enterprises are allocating over 5% of their total investment budget toward sustainability
- 40% of enterprises are outsourcing 15-30% of their tech spending on sustainability

Major demand areas

- Carbon accounting and offsetting
- ESG analytics
- Supply chain analytics
- Sustainable mobility
- Green infrastructure and operations design
- Circular products economy

Tech to power green solutions

- AI/analytics
- IoT
- Cloud
- Block chain
- Digital twin
- AR/VR

> "A large private bank is going sustainable with an IoT-enabled solution. The AI-enabled IoT platform enabled the bank to monitor the energy consumption of their systems across branch networks and reduce energy consumption by 12.7 percent using predictive insights."
>
> **SHARATH SRINIVASAMURTHY,**
> **Associate Vice President, Enterprise Solutions & ICT Practice, IDC India**

Huge tech opportunity

A recent report from Nasscom and McKinsey says sustainability will catalyze $150-250 billion of additional technology and operations spending by 2030. The report says Indian IT services leaders are already reorganizing to build $500 million to $1 billion sustainability service lines in 2-3 years.

The report states that as over 75 percent of global CEOs view sustainability as the next big differentiator, technology plays a very meaningful role in addressing sustainability challenges. Organizations that are ahead on technology tend to be much more agile in being able to make purposeful moves in areas like tracking their emissions and reducing them, and in creating new sustainable businesses.

"In fact, 42 percent of Indian organizations increased their spending on technology associated with their sustainability program in 2022 as compared to 2021," adds Sharath Srinivasamurthy, Associate Vice President, Enterprise Solutions & ICT Practice, IDC India. Sustainable technology growth is driven by the increasing adoption of sustainable use cases across IoT (Internet of Things), cloud computing, data platforms & analytics, digital twin, and blockchain.

However, despite the growing interest and demand by companies, green tech in India is still at a nascent stage. Tech companies must focus on building a strong portfolio of sustainability products, by identifying priority use cases for clients, to capture this opportunity and disrupt the market.

The focus could be on the highest contributors to global emissions. Interestingly, 16 percent of global emissions are caused by transportation, 19 percent by agriculture, 27 percent by energy production, 31 percent by construction and production, and the remaining 7 percent caused by heating. Green technologies can be applied in all of these CO2-emitting sectors, thus offering broad solutions for sustainable growth.

In India, industries that are leading sustainable technology adoption are data center providers, packaging, power & energy, agriculture, healthcare, and transportation. Businesses in these segments are increasingly using technology to reduce carbon emissions, better yield, plastic waste, as well as costs, share Amit Luthra, MD - India, Lenovo ISG.

> "Sustainability goals revolve around the genuine cause of inducing sustainable practices across the supply chain. The idea is to create a circular economy with the recycling of products and components, and responsible manufacturing by sourcing materials from qualified smelters."
>
> **VINAY SHETTY, Regional Director, Component Business, Asus (India & South Asia)**

Broadly, industries such as oil and gas, automobiles, manufacturing, BFSI, textile, IT, retail and distribution, and facility & real estate are at the forefront of the sustainable technology revolution in India.

Crucial tech investments

Over the past decade, technologies such as AI, IoT, and robotic process automation (RPA) have dramatically changed how

businesses function and take products and services to market. Organizations are now harnessing new technologies to achieve their sustainability objectives.

"Most innovations are happening around the supply chain and there is a significant investment there. We have also seen IT Services companies and startups making a lot of progress in terms of coming out with solutions and many of them have built their ecosystem," shares DD Mishra, Senior Director Analyst, Gartner.

AI and automation to support sustainability agenda

Businesses are deploying AI and automation in tandem, not only to obtain granular insights into their operations but also to measure the impact on the environment across functions. According to a recent Capgemini Research Institute survey, nearly 60 percent of organizations said they were using AI and automation to achieve their sustainability objectives. In the energy (72 percent), retail, telecom, and utility sectors (65 percent each), it is even higher. TCS deployed its Clever Energy, an enterprise-level energy and emission management system for Landmark Group across its retail stores, warehouses, offices, and malls to ensure energy and cost efficiency, decrease carbon emissions and achieve carbon-neutral goals. Accenture helped develop and implement a self-learning AI-based ventilation system that minimizes energy costs by 25 percent and cut C02 emissions by 1,800 tons annually for Metro de Madrid.

IoT technologies to reduce energy consumption

IoT allows organizations to collect and analyze large amounts of data in real-time to optimize operations. With IoT, organizations are better placed to ascertain wastage levels and identify potential efficiencies and can streamline operations by predicting energy demands and usage patterns to reduce energy consumption. The Capgemini survey found that 56 percent of organizations globally are investing in IoT or IIoT to monitor and reduce energy consumption. Telecom (63 percent) and utilities (61 percent) are the two sectors with the largest proportion of organizations engaged in this. Capgemini bagged a systems integration deal from Siemens for implementation support to develop an IoT platform for next-generation building energy management solutions

> "With SEBI mandating ESG reporting, there is certainly an increased focus on sustainability. Even customers are increasingly choosing to do business with sustainable organizations, thus making sustainability even more critical to the bottom line."
>
> **CHITTARANJAN MEHER,**
> **Principal, IBM Sustainability Software Business Unit, India/South Asia**

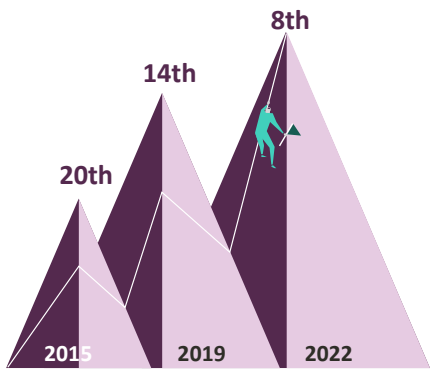
AR/VR and collaboration tools to reduce travel carbon footprints

As remote and hybrid working is now the norm at many companies across many sectors globally, organizations are in a better position to reduce non-essential travel. Digital technologies can make virtual interaction much more engaging and

Sustainability focus

Sustainability is now amongst top 10 priorities for CEOs

Environmental sustainability 8th strategic business priority for CEOs now



80% cited **environmental sustainability** as **3rd largest driver** to **invest** in new or improved products in the immediate future

74% of the CEOs surveyed agreed that **increasing ESG efforts attracts investors** towards their companies

36% of CEOs feel that **IT will play a significant role in** implementing ESG strategies of the firm

Source: Gartner Survey on Significant Shifts in CEO Thinking on Sustainability, Workforce Issues, and Inflation 2022 (400 CEOs surveyed); Verdantix Global ESG and Sustainability Governance Survey 2021 (400 CEOs)

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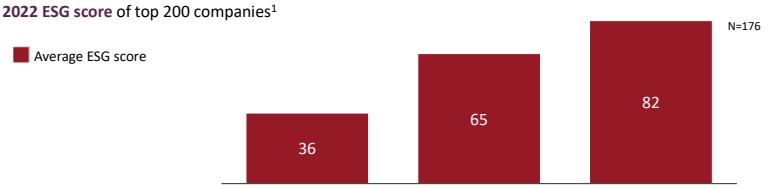
Sustainability focus

Early movers on sustainability tend to outperform on top-line growth and value creation

Performance analysis for top 200 companies in Fortune 500 list

2022 ESG score of top 200 companies[1]



	Laggards[2]	Fast followers[2]	Early movers[2]
Number of companies	24	90	62
2-year revenue CAGR[3]	6.6%	6.8%	8.4%
2-year market cap growth[3]	6.5%	14.7%	17.3%

1. Refinitiv ESG score for 176 out of top 200 F500 companies where data was available
2. Classification based on ESG rating (R): R<=50: Laggards, 50<R<=75: Fast followers, R>75: Early Adopters
3. Growth comparison done between pre-pandemic (2019) and post-pandemic periods (2021). Numbers weighted on 2019 revenue

Source: FS00 list 2021; ESG ratings from Refinitiv

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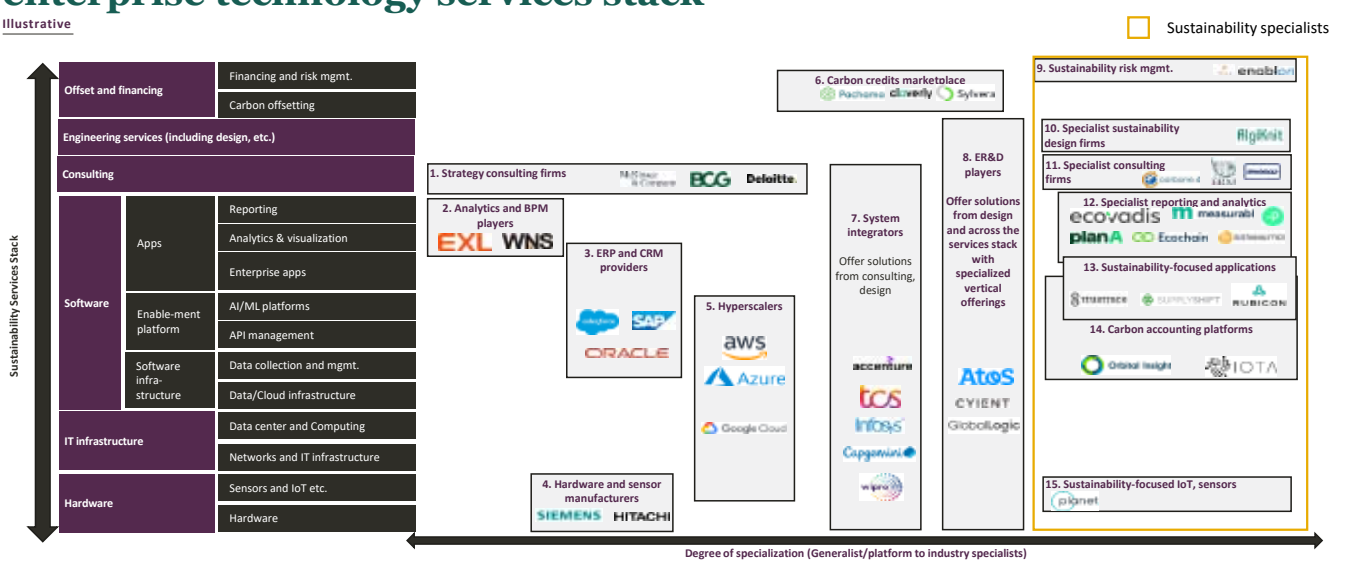
immersive and reduce the need for in-person meetings. The Capgemini survey found that over half (54 percent) of organizations globally are investing in digital technologies such as AR/VR or collaboration tools to reduce employee travel and, ultimately, carbon footprints. By sector, healthcare and life sciences have the largest proportion of organizations adopting tools to reduce employee travel (59 percent), followed by utilities (58 percent).

Further, there are a lot of sustainable initiatives by private sector firms in India. "One of the largest banks in India reduced emissions by more than 10 percent by leveraging IoT solutions. World Economic Forum has recognized Hindustan Unilever for innovation at their facilities for technology solutions related to sustainability in manufacturing. In addition, many other large Indian conglomerates are taking initiatives to reduce their carbon footprint which is a step in the right direction," informs Srinivasamurthy of IDC. He further adds that Bengaluru Water Supply and Sewerage Board (BWSSB) is planning to implement an AI-powered operational intelligence platform for Sustainable Water. A large private bank is going sustainable with an IoT-enabled solution. The AI-enabled

Provider archetype(s)

Technology providers have developed solutions across the enterprise technology services stack

Illustrative



Source: Company websites (including, but not limited to, sources available at aws.amazon.com, salesforce and pachama.com); 10+ expert interviews with provider CXOs

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IoT platform enabled the bank to monitor the energy consumption of their systems across branch networks and reduce energy consumption by 12.7 percent using predictive insights.

In addition, Lenovo launched the fifth generation of Lenovo Neptune Direct Water-Cooling technology along with a range of sustainability services to help customers reach their sustainability goals. The technology helps industry-leading data centers with a broader range of servers that recycle loops of warm water to cool systems and enable customers to reduce power consumption by up to 40 percent.

Further, we are seeing multiple hyper scalers like AWS, Azure, GCP, and other data center players like Equinix and Adani setting up massive data centers in India focusing on sustainability.

Creating an accountable value chain

Most people think of sustainability as somebody else's problem. Technology leaders and solutions providers have a great responsibility and incredible opportunity to combine the power of technology and leadership to impact not just sustainability but all three pillars of ESG. Tech leaders generally focus on the tech domain and technology's impact on the environment, but they need to think about how to use technology to advance sustainability for their entire company and their entire industry.

To make a significant impact, they should tackle indirect emissions that occur through the value chain.

This approach will likely require tech leaders to carefully analyze data exchange norms and procedures and reevaluate not only whom they work with but also how they hold those partners responsible for sustainability goals. For example, CIOs intending to invest in cloud services can take into account the type of energy and power usage of their providers' data centers and give preference to those that are signing renewable energy purchase agreements and have increased the grid's capacity for renewable energy.

Tech leaders should also collaborate strategically with businesses in their sectors to standardize the data needed from shared suppliers. While it is undoubtedly possible to influence partners through KPIs and reporting requirements, they can genuinely change the way the supply chain operates.

> "To stay on top of ESG initiatives, we monitor critical parameters like energy use, raw material usage, and waste treatment, which finally leads to lower energy bills and cost savings. Companies that maintain ESG compliance face fewer fines, risks, and penalties, which benefits their bottom line."

MINAKSHI SAMANT,
Executive Director – HR, Ingram Micro

"These goals revolve around the genuine cause of inducing sustainable practices across the supply chain. The idea is to create a circular economy with the recycling of products and components, and responsible manufacturing by sourcing materials from qualified smelters. We also have an e-waste management program wherein customers can recycle their old computers and other electronic equipment so that we can

recycle components before it ends up in a landfill," states Vinay Shetty, Regional Director, Component Business, Asus (India & South Asia).

Sustainability and profitability at the same time

Investments in sustainable technology have the ability to improve operational resiliency and financial performance while opening up new growth opportunities. "Our surveys indicate that organizations are exploring improved brand visibility, resource efficiency, and customer satisfaction as the top three benefits of sustainable practices. But, less than 5 percent of businesses view sustainability to enable improved revenues and profitability. However, there are enough studies that indicate that sustainability translates into better economic outcomes," elaborates Mishra of Gartner.

"Customers are increasingly choosing to do business with sustainable organizations, thus making sustainability even more critical to the bottom line," adds Meher of IBM.

A recent study by Oxford Economics and SAP has revealed that Indian businesses today recognize the potential of sustainability to unlock business value, with 62 percent of companies noting it's not difficult to be sustainable and profitable at the same time.

"Sustainability initiatives help organizations in brand building leading to increased sales, profits, and ultimately market share. Through improved corporate governance, they can attract and retain talent as we are seeing a trend where employees are increasingly evaluating their employers' sustainability-related initiatives," explains Srinivasamurthy of IDC.

ESG initiatives not only

Sustainable IT initiatives

Be it the footprint of data centers, e-waste, or emissions resulting from various software programs, the environmental footprint of IT initiatives must be reduced. Technology leaders must guide organizations in strengthening sustainable IT practices including:

- Conduct a diagnostic assessment to understand the environmental impact of IT and where emissions savings could be made.
- Create a comprehensive sustainable IT strategy aligned with the organization's global sustainability strategy
- Ensure the transformation toward sustainability relies on trusted data processes
- Set a carbon cost for IT operations
- Make environmental impact a criterion for IT vendor selection
- Leverage digital twins for design and operational efficiencies
- Harness technologies like AI, automation, IoT, 3D printing, and collaboration tools to achieve sustainability goals

Technologies for sustainability efforts:

- Cloud services can be used to achieve sustainability benefits within economic, environmental, and social systems. The elasticity of cloud service models allows organizations to use only what they need, increasing the utilization of shared resources, and reducing environmental impacts.
- GHG management software facilitates data collection, analytics, and reporting of past, present, and future emissions data across all three scopes (direct, indirect, and nonspecific emissions). These solutions allow businesses to meet reporting requirements while also giving information to encourage action for better emissions performance. They also support planning, forecasting, and initiative portfolio optimization.
- AI can optimize operations and difficult-to-abate processes to reduce carbon and environmental footprint and mitigate material risks.
- Supplier sustainability applications help companies collect and assess the ESG performance of suppliers.
- Supply chain blockchain can protect, verify, and trace transactions; for example, to ensure ethical sourcing.

make a company more impressive to lenders, but they may also enhance a company's overall financial performance. Even simple steps toward sustainability, such as going paperless, recycling, or installing energy-efficient equipment, may boost a company's financials.

"To stay on top of ESG initiatives, we monitor critical parameters like energy use, raw material usage, and waste treatment, which finally leads to lower energy bills and cost savings. Companies that maintain ESG compliance face fewer fines, risks, and penalties, which benefits their bottom line," shares Minakshi Samant, Executive Director – HR, Ingram Micro.

"It's a positive sign that Indian organizations believe it is viable to improve profits and protect the environment at the same time," says Kulmeet Bawa, President & Managing Director, SAP Indian Subcontinent. "The use of technology can aid us strategically to assist companies to realize real, genuine, and quantifiable business value," he adds.

There's more smoke than fire

While sustainability has become a buzzword and its significance is well understood, the Oxford Economics and SAP study revealed that much work remains to be done to ensure sustainability ambition translates into action. The study found that just 17 percent of respondents have calculated their total organizational carbon input. More importantly, only 7 percent of firms that have implemented a sustainability plan are reaping considerable benefits from it.

While some companies are willing to invest to achieve a sustainability posture, many organizations are not investing, or at least not a sufficient investment.

"The share of organizations that have translated their aspirations into action is not significant while the efforts are underway. What surfaced from one of our studies is that only 36 percent of Indian organizations have annual CO2 emission reduction targets, irrespective of whether they have a specific net zero date. Furthermore, 62 percent of organizations indicated that they do not currently collect data and report on CO2 emissions," reveals Srinivasamurthy of IDC.

Although a majority of companies include sustainability as a key agenda item for top leadership, this is not necessarily translating into action. While organizations may have long-term objectives for 2040 or 2050, many are failing to define clearly and prioritize sufficiently their sustainability initiatives in the short term. As per the recent Capgemini Research Institute survey, less than 49 percent of executives said their company has defined a priority list of sustainability initiatives.

> "There are three reasons companies go for sustainability: meet compliance requirements, improve brand reputation, and commit to society. Most of the companies fall in the first and second categories. The business has to be sustainable, built around purpose and empathy to sustain for a long time."

DD MISHRA,
Senior Director Analyst, Gartner

The study reveals that the average annual investment in environmental sustainability initiatives and practices across industries represents 0.91 percent of total revenue. While total spending on sustainability trends upward with company size, larger companies are investing less as a percentage of total revenue – on average, only 0.41 percent of total revenue compared to 2.81 percent among smaller companies.

In fact, many organizations have not transitioned to green cloud architecture. For instance, a mass migration to a cloud architecture that uses renewable energy sources could prevent 629 million metric tons of CO2 emissions by 2024. The Capgemini research found that only 48 percent of executives say their organization uses low-energy-consumption green cloud architecture for its data centers. By sector, 57 percent of respondents in automotive say the same, compared with only 43 percent of respondents in telecom.

"We have seen just a few isolated commitments across the board for environmental, social, and governance-related parameters, and CSR expenditures. Most of these commitments are driven by mandatory CSR spending or regulatory compliance by organizations," says Mishra of Gartner.

Regulatory compliance is both driver and a challenge

Starting with the FY2023, the Securities and Exchange Board of India has mandated that the top 1000 enterprises in India by market capitalization must file a Business Responsibility and Sustainability Report (BRSR) alongside their yearly filings to the stock exchanges.

According to the Oxford Economics and SAP study, 60 percent of Indian respondents noted that regulatory mandates are the primary drivers of their sustainability strategies. This is in line with the fact that regulatory compliance (45 percent) is the most significant advantage ahead of lower carbon emissions and better operational visibility.

It's evident that organizations may need to refocus their strategies to derive more value from sustainability. Too much emphasis on compliance was rated as the third most significant impediment to long-term success by Indian respondents..

Data is the major gap to going green

Access to reliable and insightful data throughout the business value chain is crucial to maximizing sustainability outcomes. However, as per the Capgemini Research Institute study, just four in ten (44 percent) of respondents said they have invested in data analysis to measure sustainability in their business, and a similar amount (43 percent) said they were training staff how to capture sustainability data.

Many Indian organizations still rely on manual methods to collect internal ESG data such as water consumption, carbon emissions, workforce demographics, and so on, and as a result, these data resources are frequently scattered across databases in various formats According to a Dun & Bradstreet survey outlining top compliance and procurement concerns, 51% of respondents stated they needed additional data to verify entities, and 43% said it was difficult to discern the application of ESG rules while conducting due diligence on a customer. Such difficulties are rooted in inefficient data utilization and management.

"Identifying the right sources of data, identifying the right technology to monitor, record and transmit the data, and implementing the right technology to analyze the data is still a lingering challenge for Indian enterprises," says Srinivasamurthy of IDC. Organizations must use technology to gather data, optimize business processes, and make more sustainable business decisions.

Sustainability is seen as a cost driver, not an investment

Sustainability is frequently seen as a cost center, rather than a value center, particularly in light of budgets imperiled by the Covid-19 pandemic, geopolitical tensions, and macroeconomic factors. Over 57 percent of executives in the Capgemini Research Institute survey shared that the principal reason for their organization's focus on improved environmental sustainability is to preempt stricter future regulation, which can be interpreted as spending now to avoid much more costly potential outlay down the line.

The business case for sustainability is often underappreciated as executives still fail to perceive it as a source of strategic value creation. Only one in five (21 percent) respondents believe that the business case for sustainability is clear. Over half (53 percent) of respondents believe that the cost of pursuing sustainability initiatives outweighs the potential benefits. The research suggests that organizations often see

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sustainability initiatives as obligatory and unprofitable. However, organizations that consider sustainability an obligation fail to realize that sustainability is fast becoming the 'license to operate.'

Governments across the world have drafted regulations that call for reduced emissions, started green taxation, and are enforcing stricter regulations and allowing grants and subsidies for meeting environmental standards. For example, the EU is overhauling its Energy Taxation Directive, which taxes energy products such as motor fuel and electricity to ensure that the directive reflects its climate-neutral ambitions.

Road toward sustainability

Businesses and their executives are under unprecedented scrutiny from investors, clients, staff, legislators, and society at large. Against this backdrop, companies must operate sustainably, and bake sustainability principles into product and service design, while striving to create a positive impact on their ecosystems and workforces.

To transform effectively requires enterprise-level coordination, functional involvement, and a redesign of the operating model and business processes to allow sustainability to permeate the organization and not just at top-level strategy.

Importantly, sustainability cannot be handled as a project for compliance. Instead, a comprehensive enterprise transformation is needed, much like when corporations implement digital transformation initiatives across all of their businesses and operations. This transformation affects all parts of the business – from business model and product design to operations and IT – and needs proper governance headed by a C-suite leader.

"Globally, digital transformation and societal transformation are getting intertwined and design thinking and societal thinking are increasingly seen complementing each other. Sustainability is being considered as a part of the decision-making process globally, but it will take some time in India," says Mishra of Gartner.

He further adds that there are three reasons companies go for sustainability: meet compliance requirements, improve brand reputation, and commit to society. "We see that the majority of the businesses fell into the first and second categories. The business has to be sustainable, built around purpose and empathy to sustain for a long time. Unless digital transformation revolves around societal transformation, it is difficult to achieve those goals. The shift towards sustainability first and profits second makes sense as both complement each other. Mindshare can be translated to market share."

In fact, the role of leadership will determine organizations' progress on sustainability. Decision makers need to make more conscious decisions (by assessing potential risks) when choosing technology for their sustainability purposes. "However, it is not just about technology, so the strategy needs to be stakeholder centric; it needs to address the demands of investors, employees, and customers. Hiring the right skills (technology and social skills) while keeping in mind diversity and inclusion, creating sustainable products to keep up with the customer's views, and finally satisfying the investors by demonstrating progress around sustainability will be the key," concludes Srinivasamurthy of IDC.

CHITTARANJAN MEHER
Principal, IBM Sustainability Software Business Unit, India/South Asia

Customers are Choosing to do Business with Sustainable Businesses: IBM

Elaborating on how sustainability has become much critical for bottom lines, Chittaranjan Meher, Principal, IBM Sustainability Software Business Unit, India/South Asia, in a brief interaction with Amit Singh, highlights how technology is now anchoring the boardroom discussions around sustainability and how organizations are tying sustainability to economic outcomes as they adopt sustainable practices, solutions, and technologies

What is the gravity you are seeing among the organizations toward sustainability in India?

Some of the larger enterprises in India have traditionally taken a more structured approach with dedicated functions to focus on sustainability initiatives and chief sustainability officers in place. On the other hand, medium to small-size organizations have been relying on their ESG-focused teams or CSR teams to drive their sustainability agenda. However, with SEBI and other regulatory agencies in India mandating ESG reporting and Business Responsibility and Sustainability Reports (BRSR), and, there is certainly an increased focus on sustainability. Besides, regulators, even customers, and employees are choosing to engage with corporations that are committed to sustainability.

There is also a growing realization in the industry

that ESG is not just about carbon reporting. Rather, it's about deriving the right insights on sustainability and bringing those insights back to action for business benefits.

How are organizations tying sustainability to economic outcomes as they adopt sustainable practices, solutions, and technologies?

Sustainability initiatives are often focused on building operational efficiencies, taking sustainable decisions concerning repairing/replacing assets, investing in renewable energy, and bringing greater visibility across the business (internal as well as external across the supply chain). All of these are tied to better economic outcomes. In addition, as mentioned earlier, customers too are increasingly choosing to do business with sustainable organizations, thus making sustainability even more critical to the bottom line.

How is technology critical in addressing sustainability challenges and creating sustainable businesses?

Technology has a key role to play in driving sustainability initiatives. For instance, for the organization to have the right visibility into the current carbon footprint, data is required. This data comes from various source systems. The technology collects the IT and OT data together. Data also comes directly from meters, sensors, PLCs, SCADA, BMS, and DCS. This needs to be translated from OT protocols to IT understandable formats.

Technology is now able to connect to the source systems, collect the dataset, process it at speed and with the required accuracy, and derive the right insight. This insight then translates into actions/ execution. Technology is now anchoring the boardroom discussions around sustainability to the larger team for execution. Organizations are also investing in advanced technology that can take them along the path to achieving their sustainability objectives.

> "As the top 1000 listed organizations in India have a mandate for ESG reporting as per SEBI guidelines, we are seeing several organizations appointing Chief Sustainability Officers to drive the sustainability agenda and initiatives from the top."

What are the government initiatives or private sector innovations you see in India to promote sustainable technologies in India?

New regulations are coming up. For example, the top 1000 listed organizations in India have a mandate for ESG reporting as per SEBI guidelines. We see several organizations appointing Chief Sustainability Officers who report directly to the CEO/MD and drive the sustainability agenda and initiatives from the top.

Private sector organizations are also broadening the scope of their sustainability agenda beyond CSR and EHS initiatives. The government is also awarding new contracts on a TCO basis, making the respective OEM/EPC responsible for not only building the assets but also operating and maintaining them through their lifespan, thus putting the focus on sustainability.

Where do we stand at innovations for sustainable technologies to meet the green demands of industries?

The recently published Verdantix report on 'Green Quadrant Carbon Management Software' has called out IBM as a technical leader among all global providers. Our technology is built to capture and manage over 500 quantitative and qualitative data types to support expanding sustainability reporting requirements. They are also well-suited for frameworks and reporting schemes such as: Advancing Net Zero, SBTi, RE100, GRESB, SASB, TCFD, GHG Protocol, Energy Star, NABERS, EPRA, INREV, Better Buildings Partnership, SECR, and others.

How are organizations adopting sustainable technologies in India?

The best and immediate sustainable action for all organizations is to adopt renewable energy for their consumption and India is leading this with huge solar and wind energy transfer. This not only reduces immediate scope-2 emissions but also makes organizations eligible for REC certificates, hence facilitating carbon off-setting. The Indian government is also supporting and promoting sustainable technologies such as EVs in intra-campus transport or public transport, thereby growing their adoption. Other examples include Sustainable Supply Chain that empowers not only the customers but also their consumers with visibility/awareness about the environmental impact which ultimately encourages sustainable practices.

42% of Indian Businesses Increased Their Sustainable Tech Spending in 2022: IDC

Elaborating on the increasing mindshare and awareness of sustainability among Indian enterprises, Sharath Srinivasamurthy, Associate Vice President, Enterprise Solutions & ICT Practice, IDC India, in a detailed interaction with Amit Singh, highlights how organizations are leveraging technology to reduce their carbon footprint and grow sustainability KPIs. He also underlined major government initiatives and private-sector innovations in India to promote sustainable technologies

SHARATH SRINIVASAMURTHY
Associate Vice President,
Enterprise Solutions & ICT Practice, IDC India

Sustainability is about adopting new behaviors, practices, and ways of living to better support our planet's health. What is the seriousness among the organizations toward sustainability in India?

We are seeing increased awareness and efforts toward sustainability among Indian enterprises. Sustainability is among the top 3 business priorities of Indian organizations according to IDC's Future Enterprise Resiliency & Spending Survey.

However, the share of organizations that have translated their aspirations into action is not significant while the efforts are underway. What surfaced from one of our studies is that only 36 percent of Indian organizations we surveyed have annual CO2 emission reduction targets, irrespective of whether they have a specific net zero date. Furthermore, 62 percent of organizations indicated that they do not currently collect data and report on CO2 emissions.

The positive thing to note is that 42 percent of Indian organizations increased their spending on technology associated with their sustainability program in 2022 as compared to 2021.

Considering India's ambition for faster GDP growth, energy consumption is set to increase which means more needs to be done by Indian organizations in terms of sustainability.

Despite the government's attempts to achieve sustainable development goals through policies, Indian organizations are yet to address a few challenges that are hindering their progress in the sustainability journey. The lack of clarity from senior management, lack of in-house skills related to sustainability topics, and the collection of data distributed across the organization are the top challenges that Indian organizations are facing while striving to attain sustainability goals.

How are organizations tying sustainability to economic outcomes as they adopt sustainable practices, solutions, and technologies?

Implementing sustainable business practices has multiple business benefits while contributing to the larger cause. Businesses with Environmental, Social, and Governance (ESG) principles weaved into their strategy can mitigate risks better and prevent possible reputational, legal, and financial damages.

Sustainability initiatives help organizations in brand building leading to increased sales, profits, and ultimately market share. Through improved corporate governance, they can attract and retain talent as we are seeing a trend where employees are increasingly evaluating their employers' sustainability-related initiatives.

How is technology critical in addressing sustainability challenges and creating sustainable businesses?

Data is critical in an organization's sustainability journey. Increasing mandates and regulations related to energy consumption and emission reductions require monitoring, measuring, reporting, and verification of usage data. Increased use of technology and professional services can support tracking and analyzing operational performance on various Environmental, Social, and Governance (ESG) parameters.

Organizations can choose to opt for standalone off-the-shelf tools, third-party custom-built tools, in-house custom-built tools, or even use core enterprise business applications (such as ERP) for reporting their CO2 emissions, employee health and safety, governance, and other purposes supporting sustainability goals. Solutions that empower organizations with analysis, predictability, and data governance and security among others are most suitable for sustainability practices.

Identifying the right sources of data, identifying the right technology to monitor, record and transmit the data, and implementing the right technology to analyze the data is still a lingering challenge for Indian enterprises.

> "Technology vendors that offer a comprehensive cost justification model for pursuing a sustainability initiative, and have ESG reporting frameworks and standards are preferred by Indian organizations to achieve their sustainability goals."

What are the government initiatives or private sector innovations you see in India to promote sustainable technologies?

Green investment and sustainability are part of the priority list in India's public policy. Renewable energy, energy efficiency, and low-carbon transport initiatives are central to the public sector to tackle climate change. The Government has also implemented new sustainability-related reporting requirements for the top 1,000 listed companies (by market capitalization) by FY2023.

To achieve the net-zero carbon emissions goal by 2030, the government is taking several initiatives including the recent complete ban on single-use plastics. Additionally, the Indian Government implemented initiatives such as Green Corridors, Atmanirbhar Bharat, and Make in India supported by Industry 4.0 in a bid to encourage the private sector to utilize digital tools for meeting their sustainability goals.

The government also emphasizes and urges international companies to make use of the opportunities in the digital and technology space and invest in India. For instance, Bosch's establishment of a smart campus in India which features multiple smart solutions based on sustainability, security, and user experience is a notable example of how the government welcomes futuristic companies with sustainable practices to invest in India.

There are a lot of initiatives by private sector firms as well. One of the largest banks in India reduced emissions by more than 10 percent by leveraging the right IOT solutions. World Economic Forum has recognized Hindustan Unilever for innovation at their facilities for technology solutions related to sustainability in manufacturing. Further, many other large Indian conglomerates are taking initiatives to reduce their carbon footprint which is a step in the right direction.

What are segments/ industries which are leading the sustainable technology adoption in India?

Manufacturing, retail, government, telecommunications, and other industries betting high on digital transformation are making progress with their sustainability goals. However, progress across industries is uneven. According to a recent study published by RBI, amongst

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thirty-four leading Indian commercial banks, only 6 percent of banks either have an existing green product or intend to offer one shortly. Additionally, only 35 percent of surveyed banks have dedicated coverage on sustainability, ESG, and climate risks on the company website.

The telecommunications sector in India has rolled out many sustainability initiatives around ESG and green environment, with Airtel, Vodafone, and Reliance making notable efforts. The onset of 5G will aid sustainability benefits across industries as it supports several use cases that require connectivity such as logistics, fleet management, smart agriculture and smart meters/utilities, and smart manufacturing, among others. As the 5G ecosystem will effectively increase power requirements, telecommunication companies will be under immense pressure to embrace green energy to power their networks and data centers. The telecommunications industry, therefore, is likely to become aggressive with sustainable practices in the next few years.

Further, data center operators in India are looking to make a transition toward using renewable sources of energy to meet their power consumption needs, prioritizing sustainability and climate responsibility. As data center operators in India continue to cater to the increasing demand for edge services, they expect the average power provisioned for low-capacity racks (2–8kW per rack) in the core data center to be reduced to 9.4 percent in 2023 compared to 21 percent in 2021.

Sustainable manufacturing in India is also picking up, with organizations acting upon the material aspects (raw material and packaging material), machinery efficiency, and optimized energy usage.

“As data center operators in India continue to cater to the increasing demand for edge services, they expect average power provisioned for low-capacity racks (2–8kW per rack) in the core data center to be reduced to 9.4 percent in 2023.”

Innovative implementation of advanced technologies is prevalent across industries such as agriculture, and forestry for purposes such as soil conditions, water usage, crop yields, erosion, weather monitoring, etc. While sustainability does not hold the same level of importance as in other industries (relatively) these sectors will be at the top of the mind when it comes to case studies where technology is applied to address the sustainability challenge.

■ Please brief us on the use cases of sustainable technologies in India.

Many of the technologies used for Digital Transformation (DX) initiatives are also used for sustainability. Organizations that are already further along on their DX maturity journey reported higher improvements regarding their sustainability efforts through additional investments in their digital transformation initiatives. IDC's data shows that organizations globally see annual improvements of up to 74 percent in their sustainability KPIs based on their DX investments. In India, the average annual improvements were only around 24 percent, as per IDC's FERS wave study.

Technologies that contribute to sustainability goals include data management (aggregation, management), data analytics/AI, cloud, IoT, blockchain, and 5G to name a few. For instance, data management platforms aggregate data from multiple sources and provide a centralized and contextualized view for organizations. These platforms address the data collection aspect for measuring and monitoring sustainability metrics.

Similarly, there are many other use cases across different industries including:

- Bengaluru's water utility, Bengaluru Water Supply, and Sewerage Board (BWSSB) is planning to implement an AI-powered operational intelligence platform for Sustainable Water.
- A large private bank is going sustainable with an IoT-enabled solution. The AI-enabled IoT platform enabled the bank to monitor the energy consumption of their systems across branch networks and reduce energy consumption by 12.7 percent using predictive insights.
- Bharti Airtel, in partnership with Avaada, has commissioned a 21-megawatt solar power unit spread over 80 acres to supply clean energy to Bharti Airtel's Nxtra data centers and switching centers in Maharashtra.
- Another leading data center provider CtrlS has announced the deployment of the Gas Insulated Substation (GIS) in Mumbai.

We are also seeing multiple hyper scalers like AWS, Azure, GCP, and other data center players like Equinix, Adani, etc. who are setting up massive data centers in India focusing on sustainability.

■ Technologies like AI/ML and blockchain

are creating immense value for businesses; however, these technologies come with hidden costs including huge energy consumption. How are we making technologies more sustainable?

The rapid adoption of cloud, AI/ML, and other technologies as part of digital transformation in Indian contributes to the demand for energy-hungry hardware (such as servers, cooling equipment, power backup, generator, and networking equipment) across data centers.

Although data centers currently contribute to a small share of energy consumption in India, energy production will be burdened as the country is well-positioned to receive a larger share of global data center investments in the next few years.

However, Indian ICT companies are actively pursuing green/sustainable practices. The adoption of renewable energy resources for data center operations is a key priority identified by market players and is also encouraged by the government through various policies, such as the 'Data Centre Policy' 2020 draft. Some of the Indian ICT organizations consciously switching to renewable sources of energy include CtrlS, Sify, ST Telemedia, NTT, and Nxtra, among others.

Apart from energy sources, the adoption of innovative technologies and solutions, such as rainwater harvesting, close-coupled cooling, and the use of fuel cells for storing energy to improve energy efficiency, is increasingly picking up pace in India. An IDC study on Datacenter Operational Survey, Asia/Pacific (Excluding Japan) revealed that around 36 percent of respondents stated that they currently use rainwater harvesting technology to improve data center energy efficiency, whereas around 43 percent of respondents stated that they have plans to deploy rainwater harvesting technology by 2023. These findings validate that both enterprises and data center organizations are making conscious efforts and look forward to a more sustainable world.

Tech buyers are also acting towards sustainability in terms of selecting their service providers. In addition to the quality of service and cost, investments made by providers in renewable energy sources are also a key criterion affecting the selection of colocation service providers in the industry, as per IDC's study.

Recent studies show that more than 60 percent of CXOs across industries focus on sustainability when considering a digital project. As businesses commit to science-based net-zero targets, how is this phenomenon impacting the growth of technology firms?

Sustainability is becoming a priority among organizations across all industries; technology spending in this space has opened new opportunities for technology and service firms. Several Indian IT service vendors (consulting and managed service providers) have rightly identified sustainability consulting as a major opportunity and are leveraging technologies such as AI, IoT, and digital twin among others to serve the purpose. They are executing sustainable practices and developing offerings to suit the organizations' needs – in line with the vendor selection criteria identified through our surveys.

For instance, in February 2022, TCS announced a new suite of offering for sustainability solutions to help organizations gain insights into energy usage and reduce waste and emissions to accelerate toward their net-zero goals. In September 2022, NTT unveiled Sustainability as a Service to help organizations achieve Net-Zero Goals.

As per the IDC study, technology vendors that have developed a comprehensive cost justification model for pursuing a sustainability initiative can identify and address the transition risk associated with a sustainability transformation and is well versed with ESG reporting frameworks and standards are preferred by Indian organizations to partner to achieve their sustainability goals.

Sustainability is about more than just technology. To be sustainable, how do you think companies may look at the big picture and understand how their actions fit into the larger world?

Understanding best practices with an emphasis on governance and processes will give organizations a good start to evolve in their sustainability journey. Organizations need to realize or make a clear distinction between the monetary and non-monetary value of sustainability practices. Organizations can also create a road map for sustainability and digital use cases while taking note of regulations.

The role of leadership will determine organizations' progress on sustainability. Decision makers need to make more conscious decisions (by assessing potential risks) when choosing technology for their sustainability purposes. But again, it is not just about technology, so the strategy needs to be stakeholder centric i.e., it needs to address the demands of investors, employees, and customers. Hiring the right skills (technology and social skills) while keeping in mind diversity and inclusion, creating sustainable products to keep up with the customer's views, and finally satisfying the investors by demonstrating progress around sustainability will be the key.

D-Link Launches Eagle Pro AI Series of Smart Routers

Networking and connectivity technology provider D-Link has launched its flagship router series 'Eagle Pro AI' in India. The latest series offers a gamut of rich features in its Wi-Fi 4 routers (R03 & R04), Wi-Fi 5 router (R12), and Wi-Fi 6 routers (M15 & R15).

The Eagle Pro AI series optimizes home wireless networks by delivering robust, high-quality online experiences in device-dense homes. The series combines home Wi-Fi with artificial intelligence (AI) to provide not only exceptional Wi-Fi coverage and speed but also an optimized and upgraded network suitable for home users and small businesses.

A few of the salient features include:

- AI parental control enables parents to restrict website access, set online time limits, etc.
- AI Wi-Fi Optimizer scans and monitors the network to keep users connected to the best and cleanest Wi-Fi channels.
- AI Traffic Optimizer allocates bandwidth to different applications for the best connectivity. It informs users which activities are causing congestion and allows them to de-prioritize.
- The Eagle Pro AI App has a built-in SpeedTest to test Internet speed, and it has a special Health Mode feature that enables families to schedule internet access, keeping family members offline during designated times to maintain a balanced family lifestyle, and completely turning off Wi-Fi to save energy.
- AI Assistant feature collects data on internet performance over time and then gives a thorough report. This enables users to preserve network performance at its best for the entire family by dynamically monitoring network usage and providing straightforward suggestions for taking action.

Redis Enhances Global Partner Program

The real-time data platform Redis has enhanced its global partner program to enable its growing ecosystem of consultancies and distributors to build, deploy, and run real-time applications with Redis Enterprise for their customers. The development and expansion of the Redis Partner Program are crucial to the business's objective of giving businesses all the tools and assistance they need to succeed and provide bottom-line outcomes in any consumer technology environment.

Redis builds on the simplicity and sub-millisecond performance of the NoSQL database with multiple deployment options that range from on-premises to fully managed services on AWS, Google Cloud, and Microsoft Azure. This makes it possible for businesses to construct their applications' real-time data processing requirements with a cloud-native approach, regardless of where they are in their modernization journey.

New and improved financial reward plans, technical assistance, and marketing tools are now available to Redis' channel partners, giving them better access to client projects and services that could use Redis Enterprise. In the end, the initiative will promote even closer ties between Redis partners and shared clients with the business, fostering a vibrant application development community. The program's new features are as follows:

- **Improved program tiering system:** For Redis partners of all levels, the program tiering system streamlines the road to revenue. New standard discounts, partner-initiated discounts, and additional partner incentives are all part of the straightforward two-tiered approach, which consists of Community and Enterprise.
- **Enhanced partner enablement:** To support partner success in stand-alone and co-sell possibilities, a new partner enablement program, suitable for Community and Enterprise levels, combines technical training, certification, and sales training.
- **More partner perks:** Added perks promote growth and awareness among Redis, its partners, and their shared markets. Community involvement targeted collaborative marketing possibilities, and combined brand visibility at prestigious events across the world are some of the new advantages.

Savex Partners with Accops for Remote Access Solutions

Information and communication technology distributor Savex Technologies has partnered with Accops, a remote access solutions provider for building a secure digital workspace for sustainable growth. Savex will market, sell, and support the complete range of Accops products.

JAYANT GORADIA,
MD, SAVEX TECHNOLOGIES

The Accops Digital Workspace suite, which consists of a zero trust-based access gateway, EUC virtualization (VDI), identity management tools, and thin client/zero client hardware endpoints, offers a comprehensive hybrid work solution by replacing numerous point products, ensuring a speedy rollout and faster support. The solution assists businesses in saving 20–40 percent on operational costs and lowering their carbon footprint.

HARISH MENON,
CEO, Accops

With seamless access to contemporary web applications, SaaS applications, client-server applications, legacy programs, virtual applications, and virtual desktops, Accops is the one-stop shop for creating an integrated workspace for corporate users. Headquartered in Pune, the company has a sizable presence in more than 10 nations and serves over 750 clients in a number of crucial industries, including BFSI, healthcare, pharmaceuticals, government, information technology, and education, and defense.

Businesses can Grow Revenues by 13.6% by Harnessing the Power of Data

Indian organizations that harness the power of data can grow their annual business revenue by 13.6 percent on average. For large organizations, this is equivalent to ₹7,451 million in additional annual revenue, as per a recent research report commissioned by AWS and prepared by Deloitte Access Economics.

The majority of businesses (almost 63 percent) agreed that better data collection and analysis can result in higher productivity, followed by higher sales and revenue (60 percent) and better customer experiences (56 percent). Despite the growing significance of data capabilities in a world that is becoming more digital, the survey revealed that 93 percent of Indian firms are still in the Basic and Beginner stages of data maturity.

Retail trade companies had the greatest data maturity scores, with 78 percent of them earning Advanced or Master levels. Information, media, and telecommunications companies came in second with 68 percent, and financial and insurance companies came in third with 67 percent. On the other hand, firms in the education and training sector had the lowest levels of data maturity, with less than 30 percent of those surveyed in that sector reaching Advanced or Master levels.

Businesses can benefit from increasing data maturity, yet organizations in India still struggle to

move up the data maturity ladder. Data security and risk (60 percent) and a lack of a data and analytics strategy (59 percent) were the three primary obstacles highlighted by firms as preventing the use of data and analytics.

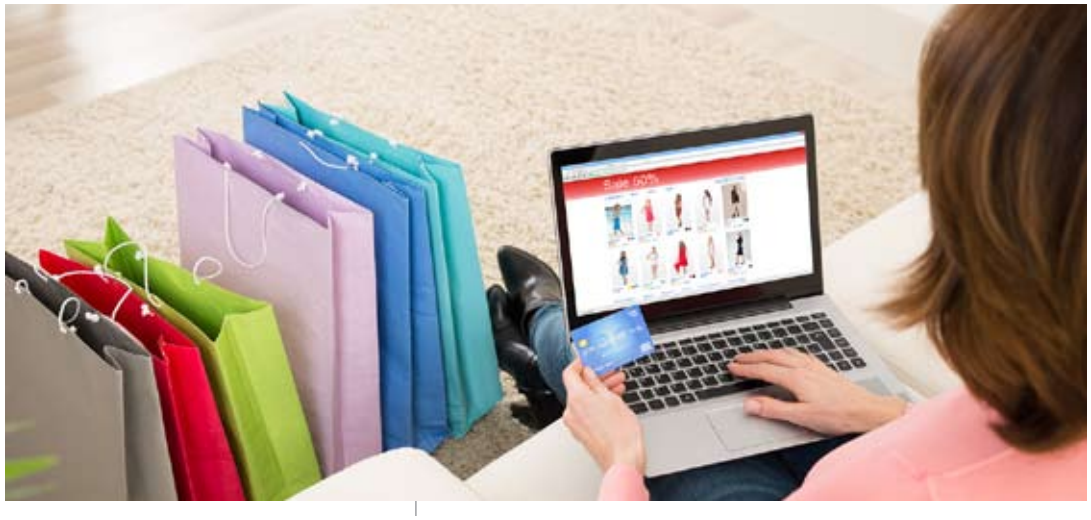
"As businesses spend more in digital transformation, it has opened up possibilities for increased data use to boost productivity, bring in revenue, and have a good effect on the economy. However, according to our analysis, only 6 percent of Indian businesses have made essential investments in personnel, technology, and business procedures to fully exploit the value of their data," said Monojit Mazumdar, Partner, Deloitte. "Businesses can accelerate their data maturity levels and get data-driven insights by investing in cloud solutions. In contrast to firms that have not utilized the cloud, those who have invested in artificial intelligence or machine learning capabilities are 94 percent more likely to have done so."

AWS opens the AWS Data Lab in India to assist businesses in advancing their data maturity

In India, more than half of firms (55 percent) cited a lack of access to qualified personnel as a hindrance to the growth of their data and analytics capabilities. However, nearly two out of every five (38 percent) of the studied firms prefer to increase their data and analytics capabilities via hiring personnel. Another 29 percent of the firms polled want to train their present workers.

AWS has opened the AWS Data Lab in India to assist more businesses in accelerating their journey toward data maturity. It is a free service that teams together users and AWS data experts to use AWS to solve real-world problems with complicated data. AWS Data Lab Solutions Architects and AWS service professionals support customers throughout the engagement by offering direction, sharing best practices, and addressing technical obstacles. Customers walk away from the engagement with a prototype that is specifically tailored to meet their needs, a production path, and a broader understanding of AWS services. India's AWS Data Lab is now a part of a global network of labs that also includes locations in Australia, ASEAN, New Zealand, Brazil, Korea, the United Kingdom, and the United States.

5 Ways Retailers will turn to Technology to Meet Evolving Customer Expectations



As retailers compete for wallet share, they must deliver flexible, tailored shopping experiences to attract new footfall and keep online and in-store customers loyal, according to a study from Aruba, a Hewlett-Packard Enterprise company.

New predictions from Aruba and global trends agency Foresight Factory outline five ways retailers will turn to technology to meet and exceed evolving customer expectations. According to the study, this will put a heavy burden on IT teams to support the pace of technological change and deliver the seamless running of operations.

The findings provide a compelling argument for a more flexible and agile network consumption model, like Network-as-as-Service (NaaS), to help take some of the strain off the network and IT team, allow for greater scalability, and help deliver a more business-outcome-focused networking solution.

Retailers give in-store shoppers immersive digital experiences

Retailers will strive to invest more in technologies to deepen and distinguish the immersive experience of in-store shopping journeys as they fight to re-engage customers with physical venues. Expect AR and VR to be fully integrated into a retailer's user experience so that customers can visualize how things will fit into their life before they arrive at the point of sale (UX).

Options for delivery become more sporadic and diversified

On-demand, time-shifted, and location-flexible delivery alternatives are becoming increasingly more popular with consumers. Retailers and supermarkets will use a more hybrid approach to completing orders, providing conventional delivery options with grab-and-go "pop-ups," dark storefronts, and micro-fulfillment centers. Retailers will have the ability to bring the point of sale right to the customer's home or place of employment through the use of enhanced geolocation services and even mobile storefronts.

In-store smartens up to drive delight and efficiency

Due to the more sophisticated competition offered by e-commerce, in-store environments will be redesigned with an emphasis on both improved consumer pleasure and personalization as well as more effective business operations. The Internet of Things (IoT) sensor capabilities will deliver real-time information to assist operational savings and sustainability goals as physical stores become more connected, with innovations like smart fitting rooms and cashier-less exits helping to please customers.

Consumer loyalty will be maintained by intelligent inventory insights

Consumers expect shops to give what they want when they want it in today's age of rapid gratification. Any deviance from what has been promised will not be tolerated. Anticipate a rise in automation and predictive technologies to aid in more precise inventory tracking and real-time consumer demand fulfillment. The employment of intelligent robots in distribution centers and warehouses will also increase efficiency, bringing made-to-order commerce into the mainstream while lowering waste and overstock.

Showrooming turns to streaming

As firms work to develop the next stage of showrooming, which gives customers a peek behind the scenes, live streaming from real stores will become increasingly widespread. Delivering such experiences would help shops make the most of their remaining physical areas and satisfy consumer needs for a local touch.

To accomplish this, retailers must rethink their network strategy and consider alternative consumption models like NaaS to make sure they not only have the flexibility to adapt as demands change, but are also set up with a high-performing, secure, dependable, and automated network that can support all this technology and use real-time insights to facilitate new customer-facing and smart store initiatives.

Tech Trends From CES 2023

Consumer Electronics Show (CES) 2023 was back in Las Vegas physically this year, and technology companies showcased plethora of products and solutions. Key trends on the CES show floor included:

- **Human Security for All** – With unprecedented global challenges, the HS4A campaign was a central theme at CES 2023 highlighting the importance of collaboration and innovation across all industries, and all countries, to improve the human experience.

- **Automotive and Mobility** – With some 300 vehicle tech exhibitors, CES 2023 was one of the largest auto shows in the world. Keynotes from BMW, John Deere and Stellantis and products launches from global companies focused on self-driving tech, electric vehicles and personal mobility devices for land, air and sea.
- **Digital Health** – CES 2023 brought more digital health innovations and brands to the global stage, showing how rapidly the market is growing. Innovations included digital therapeutics, mental wellness, women's health tech and telemedicine.
- **Sustainability** – Global brands like John Deere, LG, Samsung and Siemens showcased how innovation can conserve energy and increase power generation, create sustainable agricultural systems, power smart cities, and support access to clean water.
- **Web3 and Metaverse** – For the first time, CES 2023 had a dedicated Metaverse area on the show floor, highlighting groundbreaking sensory technology building immersive, interactive digital worlds. A Web3 Studio, produced by CoinDesk, was the focal point of the Web3, Metaverse and Blockchain area at CES.
- **Startups** – Eureka Park at CES featured 1000 startups from countries, regions and territories, including Japan, Korea, France, Italy, Taiwan, Turkey, Hong Kong, Netherlands, US, and Ukraine. Technology included renewable paper solutions to reduce CO2 emissions; AI technology used to reduce food waste; solar technology to capture both electrical and thermal energy; personal safety apps and more.

Dell Partners with Startup India to Empower 75 Startups & be Future-Ready

Dell Technologies has joined hands with Startup India, a government of India initiative, to help Indian technology start-ups grow and establish their own marketplace. In order to establish a market opportunity for startups in the growth stage and put them on a route to generating working capital through market access agreements, this partnership will work with Department for Promotion of Industry and Internal Trade (DPIIT) registered startups.

The association will focus on supporting and enabling 75 startups, which will be selected through applications submitted on the platform website. Dell will support the selected firms with special Tech-Teardown sessions, experienced engineering advice targeted at technology scaling challenges, and go-to-market partnerships with Dell's client ecosystem. In addition, 15 founders will be selected for an exclusive business masterclass led by Dell executives and supported by IIM Udaipur based on the issue description and potential demonstrated during the process.

Dell wants to promote startups that use cutting-edge technology to solve problems in the corporate world through this cooperation. It is dedicated to assisting startups in becoming future-ready and thriving in the new digital era. Dell has a cutting-edge technological engine as well as expertise in strategic advice and consulting. Additionally, Dell will provide each of the 7 startup winners with $5,000 in financing support and a micro-tinkering lab to help them lay the proper IT foundation.

Channel Point

Tech for a Sustainable Future

Sustainability has moved swiftly up the executive agenda in recent years. Even at the height of the Covid-19 pandemic, becoming a truly sustainable and responsible business was a top priority for most CEOs.

Beyond the great promise of protecting people and the planet, companies with a higher sustainability performance—across environmental, social, and governance (ESG) indicators—perform better financially than their peers.

Just as digital transformation required every company to become a technology company, with technology at its heart, now every business needs to become sustainable—and technology is again taking center stage.

Technology is—and will continue to be—the fundamental driver of sustainability for organizations, and their supply chains, customers, and broader business ecosystems. As per a recent Accenture survey, 92% of companies aim to achieve net-zero targets by 2030, which will require the deployment of advanced technologies to measure, reduce, and remove an organization's carbon footprint. Technology is essential to improving transparency and traceability in global supply chains. It helps companies uncover insights to spur action, whether that means transforming customer experiences or building a more sustainable organization.

While technology is a fundamental driver of sustainability, the solution itself needs to be monitored so that it doesn't become a problem. Technology can and does create sustainability issues. For example, training a single AI model can emit as much CO2 as five relatively ordinary cars do in their lifetimes. And using a mobile phone for just one hour a day for one year produces some 1.4 tons of CO2—that's more carbon emissions than two round-trip flights between London and Glasgow. This brings technology within the ambit of the sustainability efforts of organizations. Hence, the priority must be to design and deploy sustainable, green technology to harness the benefits of meeting the sustainability agenda.

There are clear benefits to harnessing technology to drive sustainability. In fact, companies that adopt sustainable technology to a significant extent achieve 4% higher ESG scores on the Arabesque S-Ray dataset—a global specialist in measuring ESG metrics—than those that do not. This can translate into an 11% jump in their ESG ranking. And between 2013 and 2020, companies with consistently high ESG performance tended to generate 2.6-times higher total shareholder returns, compared to those with mid-range ESG scores.

So, what's holding back organizations? For many, the transformation is daunting. Nearly one-fifth of the organizations say their biggest challenge is that they are not aware of the unintended consequences of technology. Lack of ready solutions is a big concern, as is the complexity associated with adopting these solutions. And then, there's what we call the intent–action gap—only 7% of companies have fully integrated their business, technology, and sustainability strategies.

As sustainability strategies take shape, the IT Leader of the business will be the common denominator as different members of the C-suite take "ownership" of specific aspects and become reliant on technology to achieve their objectives.

Moving ahead, CXOs must take a fresh look at their technology through the lens of sustainability. In this issue of ITPV Magazine, we have highlighted comprehensive sustainable technology strategy—one that makes technology more sustainable and uses that technology to drive sustainability at scale. It is time to push the reset button and reimagine a healthier, wiser, and sustainable world!

Enjoy reading and please don't forget to share your feedback at kalpana@techplusmedia.co.in

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Exceed Customers Service level agreements (SLAs) while increasing margins & revenue

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