

THE MACHINIST

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ERP SYSTEMS:

THE CRUCIAL ROLE OF ERP IN
LEAN MANUFACTURING: ENHANCING
EFFICIENCY AND REDUCING WASTE

CONSUMER ELECTRONICS:

WE ARE EXPANDING OUR
PRODUCT PORTFOLIO BEYOND
TRADITIONAL POWER BANKS

“WE ARE COMMITTED TO A
CARBON-NEUTRAL
ENERGY FUTURE”

In an exclusive interaction MD and
CEO of Hitachi Energy for India
and South Asia, **N Venu** talks
about how he oversaw the
establishment of Hitachi Energy,
which unites the histories of
Hitachi and ABB Power Grids.





CAPITAL GOODS: PRIVATE CAPEX TO DRIVE THE NEXT LEG OF GROWTH

Digitalisation, de-carbonisation, de-globalisation, these 3Ds constitute the macro themes globally and are especially relevant in India today. These themes have been brewing but factors such as global warming, Covid-19 and the China+1 were catalysts. The effect is that India today is on the path to its next industrial revolution, Industry 4.0. Multinationals are either ramping up capacity or setting up plants to transform India into another export hub for their global supply chains; small industries are moving up to mid-size, and mid-size to large, in the process creating momentum in the capex cycle.

This capex cycle is expected to be driven by core and new-age industries with impetus from public and private spending. However, till now, demand from many core industries has been subdued (cement, metal, mining, textiles, chemicals, pharma, etc.); meanwhile, demand from power T&D, urban infrastructure and the railways has been robust. The latter falls under the purview of the government and has seen record investment. This, I believe, has created the perfect condition for pulling in private investment.

As per the estimates, opportunities of Rs 300 billion in Vande Bharat till FY26, which is based on the tenders awarded till now. Of this, Rs 120 billion is potential for propulsion systems. That said, opportunities worth Rs1.5 trillion in inter-state transmission systems till FY27, based on the CEA's latest electrification plan. This includes sub-systems and transmission lines. What's more? Rs 4.4 trillion potential from the PLI scheme till FY28 with an estimated investment under PLI scheme at Rs 5.5 trillion (Rs 1.1 trillion already made).

We are expecting opportunities worth Rs 376 billion in data centres till FY26. This is the development cost based on past transactions and an estimated 1,800 MW of cumulative capacity by FY26. Of this, 45 per cent would be in power distribution and electrification.

While the opportunity is immense, as I have not considered EV ecosystems, hydrogen-fuel cells, battery-storage solutions, etc., India Inc. has a strong enough balance sheet to undertake this investment. In the last 10 years of cumulative gross assets added by India Inc., the highest was in FY23 across sectors, followed by FY22. Thus, I could see an upward momentum in investments.

R Kamat
Editor

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THE ULTIMATE GUIDE TO PROFITABLE MANUFACTURING
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L&T Switchgear rebrands itself as 'Lauritz Knudsen'

L&T SWITCHGEAR (L&T ELECTRICAL AND AUTOMATION), one of India's leading electrical and automation brands and a pioneer in energy management, has unveiled its new brand identity, 'Lauritz Knudsen Electrical and Automation'.

Taking the 70+ years legacy of the L&T Switchgear brand forward with an even stronger customer focus, Lauritz Knudsen is poised to fortify its core LV and MV business. It will also continue to build capabilities in areas like the new energy landscape encompassing renewables power generation and e-mobility solutions, serving varied segments including infrastructure, industries, buildings, homes, and agriculture.

In 2020, L&T Switchgear became a part of the Schneider Electric Group following L&T's strategic divestment of its Electrical and Automation (L&T E&A) business. L&T Switchgear will now be known as Lauritz Knudsen. The



company will strategically uphold its core values and continue to conceptualise, design, and 'Make In India, for India and for the Globe.'

Speaking at the launch, Peter Herweck, Chief Executive Officer at Schneider Electric, underscored Lauritz Knudsen's pivotal role in driving innovation while enhancing global competitiveness. "Lauritz Knudsen's vision prioritises innovation and excellence, aligning closely with India's growth story. Lauritz Knudsen aims to strategically

invest approximately Rs 850 crores over the next three years, further establishing its role as a significant player in India's rapid growth trajectory in the electrical sector."

On this momentous occasion, Deepak Sharma, Zone President - Greater India, MD & CEO of Schneider Electric India, said, "As we embrace the 'Two Brands Two Sales' strategy in India with Schneider Electric & Lauritz Knudsen brands, our aim will be to make an even stronger contribution in the transformative journey of India by offering unparalleled choices for our customers. We will continue to listen, partner, and innovate for a Viksit Bharat."

Lauritz Knudsen (formerly known as L&T Switchgear) boasts a robust manufacturing footprint spanning 2.1 million square feet of state-of-the-art factories, coupled with a nationwide presence encompassing 33+ offices across 500+ cities.

Alstom handovers the first train for Pune Metro Line 3

ALSTOM, global leader in smart and sustainable mobility, has successfully delivered the first Metropolis metro train for the Pune Metro Line 3, from its world-class manufacturing facility in Sricity (Andhra Pradesh). These 100 per cent Made-in-India manufactured trains have operation speed of 85km/h, connecting Hinjewadi's IT hub with Shivajinagar's central business district, in the second largest city in Maharashtra.

As a part of this contract, Alstom is manufacturing 22 Metropolis trainsets of three cars each that can carry 1,000 passengers per train.

Commenting at the handover ceremony, Olivier Loison, Managing Director - Alstom India said, "We are thrilled to be contributing to this prestigious project by Tata Group. We are confident that our locally manufactured technologically advanced Metropolis metro trains will play a key role in enhancing the quality of life of the citizens and the overall development of the city. At Alstom,

we focus on developing sustainable products and solutions that stand the test of time by operating efficiently for decades to come."

The work on 23 km elevated metro rail project has been jointly undertaken by Tata Group and PMRDA based on the Public Private Partnership (PPP). Tata Group has established Pune IT City Metro Rail Limited as a special purpose vehicle (SPV) company to build this corridor with 23 stations.

In 2021, a joint venture between Alstom India, TRIL Urban Transport Private Limited (a Tata Group Company) and Siemens Project Ventures GmbH (subsidiary of Siemens Financial Services) under Public Private Partnership route (PPP) was awarded the contract by Pune Metropolitan Region Development Authority to provide the rolling stock, electrical and mechanical system works for this elevated metro line. The project would be developed and operated on a design, build, finance, operate and transfer (DBFOT) basis.

Pinnacle Industries Limited to set up a new facility in MP's Pitampur

INDIA'S LEADING integrated commercial vehicle seating and interiors company, Pinnacle Industries Limited, has announced its additional state-of-the-art facility in Pithampur, Madhya Pradesh (MP).

Expected to be operational by Q4-FY25, this facility will primarily focus on producing advanced ambulances and railway seating systems. The facility will also support the company's growing export business.

The new Pithampur plant is designed to incorporate cutting-edge green technologies and practices, aligning with sustainable and environmentally friendly manufacturing principles. The facility will utilise renewable energy sources, incorporate water recycling systems, and adhere to waste management standards and emissions control. The facility will also house an R&D centre dedicated to continuous product development and improvement, aiming to meet evolving market needs.

BASF India Limited inaugurates its Polyurethane Technical Development Centre India in Mumbai

BASF INDIA LIMITED

inaugurated its Polyurethane Technical Development Centre India on May 28th, 2024, in Mumbai. Located within the BASF innovation campus, the newly inaugurated Polyurethane Technical Development Centre will support market development of polyurethane applications in industries such as transportation, construction, footwear, appliances, and furniture.

The centre houses state-of-the-art applications equipment in approximately 2,000 sq metre space. It offers improved customer support services ranging from troubleshooting to customised formulations, line trials, and customer training sessions. It can further harness the know-how, synergies, and competencies within our existing global polyurethane network, to provide fast



and advanced technical service to customers. This will help drive innovation with customers alongside the Creation Centre, located at BASF's Innovation Campus in Mumbai.

Furthermore, BASF India will increase the production capacity of its Ultramid® polyamide (PA) and Ultradur® polybutylene terephthalate (PBT) compounding plant in Panoli, Gujarat and

Thane, Maharashtra.

“The capacity expansion of Ultramid and Ultradur in Panoli and Thane, as well as the inauguration of the centre shows our commitment to enhancing local production and capabilities. With this Made-in-India-for-India strategy, we increase our speed-to-market and stay close to our customers, enabling us to shorten our delivery time in terms of products, solutions, and technical service,” said Andy Postlethwaite, Senior Vice

President, Performance Materials Asia Pacific, BASF.

With the production capacity increase of over 40 per cent in Panoli and Thane, BASF is well-positioned to meet the strong market demand for the high-performance material solution in India. The increased capacity will be available in 2H 2025.

Brakes India & ADVICS join hands for advanced braking in India

BRAKES INDIA, a TSF Group company and India's leading braking systems manufacturer together with ADVICS, an AISIN Group company and Japan's leading premium brake system supplier, plan to form a joint venture to design, develop and manufacture advanced braking products for the Indian light vehicle market.

The joint venture entity will focus on developing advanced braking products in a phased manner for the Indian market, of which Electronic Stability Control (ESC) will be among the initial products to be rolled out. A green field project, this JV entity will be funded by both Brakes India and ADVICS with a 51:49 shareholdings respectively. Based out of the southern part of India, the company will be set up with an investment of over Rs 500 crores employing more than 300 people over the next few years. Together, this partnership will leverage strengths of both companies across advanced global technology, localisation capabilities, quality systems, manufacturing processes and superior customer connect.

Vasudevan K, President Light

Vehicles, Brakes India says, “Looking at the growth of hybrid and battery electric vehicles (HEV/BEVs) in India and the increased demand for autonomous driving features, it is imperative for us to bring superior offerings to our customers. Our investments in R&D and localisation combined with proven global technology of ADVICS will accelerate adoption of these advanced braking systems while leveraging decades old collaboration between the TSF and AISIN Group. To begin with, the products manufactured at the JV company will be supplied to the Indian light vehicle market through the parent companies.”

Keizo Oda, Chief India Officer, ADVICS says, “We are respecting decades of experience and capability of Brakes India in Indian automotive industry. We are proud of our advanced technology preferred by Japanese carmakers and are further expanding to the global markets. We believe the partnership shall bring operational



synergies by integrating the strengths of both companies and further reinforcing the safety offerings for Indian customers and consumers.”

Over the years, Brakes India has been investing heavily in R&D and has continuously strengthened its localisation efforts across its braking systems offerings. With the ever-evolving global mobility, the company feels that having a technology partner with global exposure and technology expertise will further its capability in advanced braking solutions, and efficient braking for alternatively fueled mobility.

SUN Mobility announces a strategic collaboration with IndianOil

SUN MOBILITY, the leading provider of energy infrastructure and services for electric vehicles (EVs), announced a strategic collaboration and a joint venture with IndianOil, a diversified, integrated energy major to establish and deploy one of the largest batteries swapping infrastructure networks by 2030.

The joint venture expects to scale up to over 10,000 battery swapping stations across 40+ cities in next 3 years and will enable seamless adoption of electric mobility across 2W, 3W and small 4W vehicles, by providing a convenient “Battery as a Service” (BaaS) mobility solution.

Chetan Maini, Co-Founder & Chairman, SUN Mobility, said, “Seven



years ago, SUN Mobility was founded on the premise of making electric vehicles affordable, reducing range anxiety and time for charging electric vehicles. Since then, we have created the world's leading

open architecture platform for battery swapping that seamlessly supports various electric vehicle form factors across multiple OEMs and are deploying globally in partnership with the world's leading energy companies.”

This strategic joint venture brings together the might of IndianOil's network of over 37,000 fuel stations across the country, with SUN Mobility's unparalleled battery swapping technology making it as accessible as conventional fuel stations. It will thus streamline the customer's EV experience by conveniently offering Battery as a Service (BaaS) nation-wide and alleviate worries of battery cost, maintenance, replacement, and charging time.

TI Clean Mobility signs definitive documents for additional investment

TI CLEAN MOBILITY PRIVATE LIMITED (TICMPL), a subsidiary of Tube Investments of India Limited (TII), has signed definitive documents on 5th June 2024 with M & G Investments (M&G) to raise a capital of about Rs. 310 crores in the form of equity and compulsorily convertible preference shares (CCPS).

As announced earlier, TICMPL planned to raise capital to the tune of Rs. 3,000 crores to fund its multiple verticals of electric vehicles. Upon closing of the proposed investment, the overall fund raising would aggregate to Rs. 2,840 crores.

TICMPL is focused on creating EV-native commercial vehicle platforms across three-wheelers, tractors, small and heavy commercial vehicles.

TICMPL, directly or through its subsidiaries, sells electric heavy commercial vehicles and is in the advanced stages of developing electric tractors and electric small commercial vehicles which are expected to be launched in the coming quarters.

Commenting on the above fund raising, S. Vellayan, Vice Chairman, TICMPL said “We are happy to announce participation of M&G in providing an impetus to our commitment in delivering EV solutions for commercial mobility. Together, we stride towards a cleaner future and smarter transportation.”

On its investment into TICMPL, Praveg Patil, Head of Asia Pacific Impact and Private Equity at M&G said “M&G Catalyst is pleased to invest in one of India's fastest growing commercial electric vehicle manufacturer, TI Clean Mobility Private Limited, part of the Murugappa Group. We share the company's mission to develop an indigenous EV eco-system by leveraging local manufacturing and technology capabilities. We are excited by the potential of this investment to reduce fossil fuel dependency and decarbonise substantial parts of India's commercial vehicle fleets.”

Kotak Investment Banking acted as TICMPL's exclusive financial advisor for this transaction.

Aegeus Technologies raises venture debt for expansion

AEGEUS TECHNOLOGIES, a IoT driven green robotics solution provider, has raised undisclosed amount from Caspian Debt. The green robotics solution provider has raised venture debt for its working capital and expansion requirements.

The transaction was introduced by firm, Innoxpark Ventures Pvt Ltd, founded by Jyoti Prakash.

Aegeus Technologies is harnessing robotics, AI and ML to revolutionise the O&M of solar plants. Its flagship product is the Intelligent Waterless Solar Panel Cleaning Robots which are installed in more than 8GW plants across India.

“The face of the solar sector in India is evolving dramatically with technology transforming its every facet. Waterless technology will save a lot of water and manual effort. It thus will bring enhanced return on investments and efficiency in solar panel cleaning and predictive monitoring of health of modules for both utility scale and rooftop solar panel cleaning along with vegetation management.”

Founded in 2017 by Suraj Vernekar and Nishith Shah, Aegeus Technologies has a focus on AI and IoT enabled robotics for automating the O&M of solar plants.



Kia India reports 3.9 per cent Y-o-Y growth in May 2024

KIA INDIA, one of the fastest-growing premium carmakers in the country, registered the sale of 19,500 units in May 2024. The company recorded a Y-o-Y growth of over 3.9 per cent compared to 18,766 units in the corresponding month of last year.

Launched in January 2024, the new Sonet emerged as the highest-selling model for Kia India in May 2024, with 7,433 units, closely followed by Seltos and Carens with 6,736 and 5,316 units, respectively. Kia also dispatched 2,304 units to overseas markets in the month, taking the production figure of Kia to 21,804 units. With this, the company surpassed the



2.5 lakh export milestone to over 100 countries, banking on its steady export strategy. Seltos contributes the majority, with almost 60 per cent of exports from India accounted for by the model. Sonet and Carens follow Seltos with 34 per cent and seven per cent of the company's overseas dispatches, respectively.

Hardeep Singh Brar – Senior Vice President and Head Sales & Marketing

at Kia India, said, “So far in this year, we have been aggressive in introducing new competitive variants of our models, which has contributed significantly to our sales. With a robust network expansion strategy in place, we shall continue to grow in the rest of the year and cross the 1 million domestic sales milestone soon”.

The company has sold more than 9.8 lakh units in the domestic market, with Seltos contributing almost 50 per cent of the total. Kia India has announced that its two global models, World car of the year EV9 and the new Carnival, will be launched in India in the second half of the year.

Hyundai Motor India installs Chennai's first 180 kW DC fast charging station



HYUNDAI MOTOR INDIA LIMITED (HMIL) announced the inauguration of its first 180 kW DC fast public electric-powered vehicles (EV) charging station in Chennai, Tamil Nadu, comprising of 150 kW and 30 kW connectors. As part of HMIL's commitment to Tamil Nadu, it is the only fast public EV charging station currently installed in Chennai and is a first of HMIL's target of installing a total of 100 fast public EV charging stations at key highways and cities across Tamil Nadu.

Commenting on the installation of first fast charging station in Chennai, Jae Wan Ryu, Executive Director - Corporate Planning, HMIL, said, “Tamil Nadu is home for Hyundai Motor India Limited, and we have been committed to Tamil Nadu since our inception. As we celebrate 28 years of HMIL in India,

we are delighted to inaugurate our first ever 180 kW fast public charging station in Chennai. In line with Hyundai's vision of ‘Progress for Humanity’, we aim to enhance convenience of all EV users, and hence our charging stations can be utilised by any four-wheeler EV user. HMIL envisages to install 100 charging stations across Tamil Nadu, to enhance the EV ecosystem and motivate more customers towards EV adoption across the state.”

All EV customers stand to benefit from a quick charging experience with HMIL's public 180 kW DC fast charging station. EV owners can access the charging facility on HMIL's own Charger Management System in the myHyundai App, for easy location, navigation, and pre-booking of charging slots, making digital payments and remote charging status monitoring. In addition to the fast public charging station, more than 170 of the charging points currently available in Tamil Nadu are mapped in the “EV Charge” section of myHyundai app for customer convenience. This app is open and accessible to all Hyundai as well as non-Hyundai EV users.

ASPA to host knowledge exchange meet at Drupa 2024

THE AUTHENTICATION SOLUTION PROVIDERS' ASSOCIATION (ASPA), a leading organisation dedicated to combating counterfeiting, hosted a networking event at Drupa 2024 in Düsseldorf, Germany, on June 2nd. ASPA invited Authentication and Traceability industry stakeholders to learn about its work and explore opportunities with ASPA. This event is a part of ASPA's Industry Connects campaign. During the event, ASPA's team presented its initiatives and mission to unite the entire ecosystem against counterfeiting.

This networking event aimed to raise awareness, drive discussions, and foster collaboration on innovative solutions to protect economies and consumers worldwide. Leveraging the platform of Drupa 2024, industry stakeholders engaged in impactful dialogue to strengthen the authentication and traceability ecosystem. Attendees were able to connect with ASPA's efforts and cutting-edge innovations in the fight against counterfeiting and consider joining ASPA to further these goals together.

By Sachin Sawant, Business Line Manager, Chicago Pneumatic Compressors

THE VITAL ROLE OF EFFICIENT CNG COMPRESSORS IN CNG STATION OPERATIONS: EXPLORING THE DODO SCHEME

Efficient CNG compressors are essential for the optimal operation of CNG stations, ensuring fast, safe, and energy-efficient refuelling. The article sheds light on how Dealer Owned and Dealer Operated (DODO) scheme enhances these benefits by empowering local dealers, improving accountability, and boosting customer satisfaction

In the realm of alternative fuels, Compressed Natural Gas (CNG) has emerged as a viable and eco-friendly option, gaining popularity globally as a cleaner alternative to traditional fossil fuels. However, the efficiency and reliability of CNG stations heavily rely on one crucial component - the compressor.



THE IMPORTANCE OF EFFICIENT CNG COMPRESSORS:

Fuel Dispensing:

Compressors play a pivotal role in dispensing CNG to vehicles. They are responsible for compressing natural gas to high pressures, enabling efficient refuelling within a short period. An inefficient compressor can lead to slow refuelling, causing inconvenience to customers and hampering the overall throughput of the CNG station.

Safety:

The safety of CNG operations hinges on the reliability of compressors. Properly functioning compressors ensure that CNG is dispensed at the required pressure levels, minimising the risk of leaks or accidents. A malfunctioning compressor can compromise the integrity of the dispensing process, posing potential hazards to both personnel and customers.

Energy Efficiency:

Efficient compressors contribute to the energy efficiency of CNG stations by minimising energy wastage during the compression process. By employing advanced technologies and optimal design configurations, modern compressors can achieve higher compression ratios while consuming less power. This not only reduces operational costs but also aligns with sustainability objectives by conserving energy resources.

Maintenance and Downtime:

Investing in high-quality, efficient compressors can significantly reduce maintenance requirements and downtime for CNG stations. Robust compressors with minimal maintenance needs ensure uninterrupted operations, enhancing the overall reliability and availability of refuelling services for customers.

HOW THE DODO SCHEME IS

BENEFICIAL FOR THE INDUSTRY:

The Dealer Owned and Dealer-operated (DODO) scheme presents a novel approach to CNG station management, offering several benefits for both dealers and consumers alike.

Enhanced Accountability:

Under the DODO scheme, dealers have a direct stake in the performance and profitability of the CNG station. This fosters a sense of accountability and ownership, incentivising dealers to invest in top-notch infrastructure, including efficient compressors, to ensure optimal operations.

Local Expertise:

Dealer-operated CNG stations benefit from the expertise and familiarity of local dealers with the surrounding community. Dealers are more attuned to the needs and preferences of customers, enabling them to tailor services and address specific challenges more effectively.

Streamlined Operations:

By entrusting operations to dealers, CNG station management can be streamlined, leading to improved efficiency and responsiveness. Dealers can leverage their local networks and resources to promptly address maintenance issues, manage inventory, and optimise workflow, resulting in smoother operations.

Customer Satisfaction:

The DODO scheme emphasises customer-centricity, empowering dealers to prioritise customer satisfaction and service quality. With direct control over operations, dealers can implement customer-friendly policies, such as extended operating hours, expedited refuelling, and enhanced facility amenities, enhancing the overall refuelling experience.

Efficient compressors form the backbone of CNG

station operations, facilitating safe, reliable, and energy-efficient refuelling services. The adoption of the Dealer Owned and Dealer-operated (DODO) scheme further augments operational efficiency and customer satisfaction by empowering local dealers to take ownership of CNG station management. By investing in advanced compressor technology and embracing innovative management approaches, the CNG industry can continue to thrive while promoting sustainable transportation solutions. 

WIDMA UNVEILS NEXT-GEN HORIZONTAL MACHINING CENTRE & BLANK PROFILE GRINDING MACHINE AT PMTX 2024

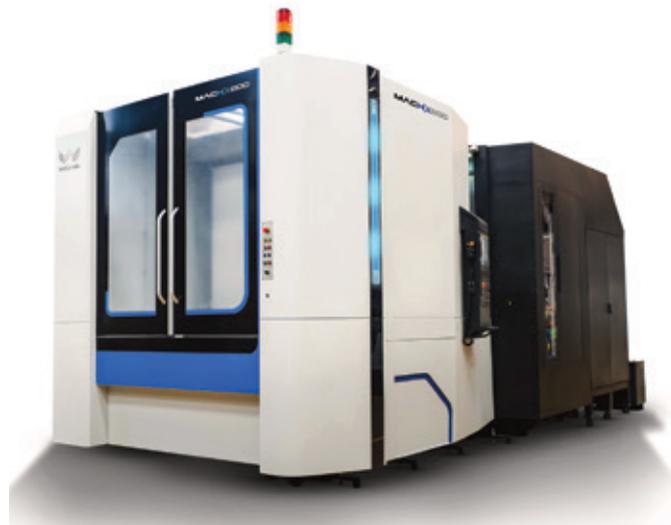
WIDMA® Machining Solutions Group of Kennametal India Limited, a leading manufacturer of metal cutting CNC machines, showcased a range of cutting-edge machining solutions at the Pune Machine Tool Expo (PMTX) 2024—including a newly introduced next-gen horizontal machining centre, MacHX800 and blank profile grinding solution, BPG 15.

The event hosted by Indian Machine Tool Manufacturers' Association (IMTMA) PMTX, was held from 25 – 28 May at the Pune International Exhibition and Convention Centre in Moshi.

On 25 May, Dadasaheb Gore, COO, Ultra Corpotech Private Limited, an engineering and energy solutions major and esteemed customer, inaugurated the WIDMA booth no. C-107 at the show. “Indian manufacturing is undergoing continuous innovation; skill enhancement and benchmarked processes are making our products and solutions set high performance standards on a global platform. The indigenously created machines on display are testament to the advancements in this sector,” said Gore.

WIDMA featured its newly launched MacHX800™ Horizontal Machining Centre (HMC) at PMTX. This next-gen HMC is designed for large part machining across industries including commercial vehicles, construction and farm equipment, aerospace, and general engineering. It is IoT 4.0 enabled and delivers the rigidity, productivity, accuracy, and versatility required to machine a variety of materials in the toughest of conditions.

The other solutions that were showcased included BPG-15 Blank Profile Grinding Machine: Dedicated to the preparation of cutting tool blanks (dia. 3 to 32 mm) in one setup. This machine augments the



Tool & Cutter Grinding machines portfolio, enabling customer to choose from a comprehensive range of solutions.

VT850 Vertical Turning Lathe (VTL): Launched in 2023 for manufacturers seeking accuracy and best-in-class productivity. This 2-axis, standard ‘plug-and-play’ VTL is designed for machining large components that require heavy metal removal. Users can combine several operations without compromising quality.

“We’re excited to leverage the PMTX platform to showcase our expanding portfolio of general purpose and standard machining solutions for the India market. One of our newer machines and the highlight of the show, MacHX800 demonstrates our experience in delivering cutting edge solutions to customers that ensure optimum quality with consistent performance. I look forward to seeing WIDMA’s next-gen solutions at work, helping our customers achieve their most demanding machining goals,” said Vijaykrishnan Venkatesan, Managing Director, Kennametal India Limited.

3 flutes Ball End Mill for High efficient deep cutting

EMBE-ATH/EMBPE-ATH

Epoch Mega Feed Ball Evolution

Employs a strongly helical ball edge geometry to achieve reduced cutting force and improved chip removal!

Features of EMB(P)E-ATH

- 01** **Newly developed high helix variable pitch ball edge geometry**
Newly developed ball edge shape greatly improves cutting performance. Cutting force is reduced, vibrations are suppressed, and chip removal is improved so tool damage is reduced even when performing deep cutting. Provides good cutting capabilities even on high-performance materials (high-toughness materials) that have poor machinability!
- 02** **Improved heat resistance and wear resistance (ATH Coating)**
Employs ATH Coating to provide even more improved heat resistance and wear resistance compared to conventional products. Achieves long tool life even in high-efficiency conditions.
- 03** **Broad lineup (Total of 117 items)**
Abundant lineup to respond to customers needs for deep cutting molds.
- 04** **Capable of high-accuracy machining (Improved R accuracy)**
R accuracy is improved compared to conventional 3-flute products.
(R accuracy is $\pm 0.005\text{mm}$ for small diameters of below $\phi 4\text{mm}$.)
- 05** **Capable of high-efficient side milling cutting (high helix peripheral cutting edge)**
Smooth connection at joint between ball edge and high helix peripheral cutting edge. Enables high-efficiency side-surface cutting using the outer peripheral cutting edge, making it compatible with new machining methods.



Features / High helix edge shape and special pocket shape tip

EMBE-ATH



Conventional



Evolution

High helix edge shape **▶** Reduce cutting force, improve chip removal flow
Optimize chip pocket of cutting edge **▶** Improve chip removal performance



MMC Hardmetal India Pvt. Ltd.
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By Diwakar Dayal, Managing Director and Country Manager, SentinelOne

BE THE CHANGE: LEVERAGING AI TO FAST TRACK NEXT-GEN CYBER DEFENDERS

The article delves into how AI technologies can not only fill resource gaps but also empower junior staff to shoulder greater responsibilities safely, fundamentally changing the approach to cybersecurity operations.

Cybersecurity is among the top concerns keeping CISOs up at night. To keep their infrastructure and data safe, security teams have to manage an ever-growing number of data sources on the scale of petabytes. While the know-how to protect these assets exists, the lack of skilled talent stretches existing manpower to the limit, introducing opportunities for a breach.

With 40,000 cybersecurity positions remaining unfilled last year in India alone, it's time for the cybersecurity community to readjust its focus to adopting AI technologies. Not only will AI quickly fill resource gaps, but it will also allow more junior positions to safely take on greater responsibility.

However, what we are seeing is that many CISOs get caught up in the relentless cybersecurity talent marathon, fruitlessly chasing the mirage of highly skilled cybersecurity talent to close the gap. And they are coming up short. The real key to filling the gap lies in artificial intelligence.

Bad actors are increasingly employing AI-based, automated tools to infiltrate all facets of networks with unprecedented speed. By leveraging this same technology, organisations can quickly scale their cybersecurity operations to stay ahead of evolving threats and create a strong structural foundation to secure their future.

THE POWER OF AI IN CYBERSECURITY

With AI, enterprises can detect and prevent threats with speed and efficiency and secure a broader range of assets better than humans alone. They are no longer limited by the number of people in their 'Security Operations' centre or the expertise of their team. Instead, they are empowered to see things in real time and defend their environment against attacks in an infinitely scalable way.



But AI can't act alone, and automation can only go so far. Humans will always be needed in the loop to decide what to do with the data and insights AI provides. AI can be used to support these people and supercharge their capabilities.

Consider the following: The job of a threat hunter is to translate these concepts into queries. But this requires knowledge of complex languages and coding skills that are in short

supply. AI-based platforms allow security teams to ask complex threat and adversary-hunting questions using natural language, and within seconds provide insights and recommended response actions that can be immediately executed. Entry-level threat hunters, once limited in what they could solve, can move to the next level, and veterans can become more efficient, effective, and strategic.

BUILDING THE WORKFORCE OF THE FUTURE

By integrating AI into the training and development of both current employees and new recruits, companies can reduce the learning curve and make security operations more accessible to a larger pool of talent.

Looking towards the future, this approach will enable cybersecurity decision-makers to not only fill immediate vacancies but also ensure a pipeline of well-trained professionals who understand both the nuances of network protection and the strategic application of AI tools.

LOOKING AHEAD: THE ROLE OF AI IN SHAPING CYBERSECURITY TALENT

The impact of AI on the workforce has already been immense. We are more efficient and productive and can do more with less. It's hard to calculate the ripple effects of all this with the pace at which technology is moving. But one bet is safe: in the race to attract and retain cyber talent, companies that leverage AI will sprint ahead. 

By Raghav Gupta, Vice President, Endiya Partners

INDIA'S INDUSTRIAL RENAISSANCE: HARNESSING ROBOTICS & AUTOMATION FOR MANUFACTURING GROWTH

The article delves into how India can augment its global competitiveness and long-term productivity by leveraging digital transformation and robotic automation.

India's manufacturing industry is at a pivotal moment today. With the world's supply chains undergoing a shift, India is perfectly positioned to become a major player, offering a strong alternative to our eastern neighbor. However, we must act swiftly to accomplish our ambitious objectives.

The Government of India's objective is to increase the manufacturing sector's share to 25 per cent of GDP, up from the current roughly 15 per cent, as part of the Make in India initiative. To achieve this, the Economic Survey of India 2019-20 paints a compelling narrative of an export-led strategy focused on product assembly and discrete manufacturing. While this presents a real and significant opportunity, it would require focusing efforts on industries within the product assembly space where large economies of scale and vertical integration can be achieved on a war footing. Notably, the current industrial policy and fiscal incentives have been designed to achieve exactly this—eight out of 14 sectors covered under the PLI constitute high-growth product assembly.

These sectors have already begun to show results. Auto component exports exceeded 30 per cent of industry revenue in FY24. Similarly, we witnessed a 22.24 per cent surge in electronics exports in FY24, breaching the \$20 billion milestone three quarters into the year.

Emerging signs of progress, evidenced by the rise in exports, credit, and tax payments for both SMEs and large enterprises in these sectors, underscore the potential.

BUILDING AND INCREASING COMPETITIVENESS

To empower our companies to compete in global markets, we need to focus on increasing ecosystem competitiveness.



This will not only increase firm-level growth and profitability but also secure higher living standards for workers. Increasing competitiveness will depend on improving long-term productivity (not low wages or currency arbitrage), majorly led by digital transformation and robotic automation.

Notably, product assembly-based industries, globally (particularly automotive and electronics) have been at the forefront of adopting robotic

automation to streamline operations, improve quality, and increase productivity. This trend is starting to take hold in India as well.

The World Robotics Report 2022 highlights the correlation between the presence of large manufacturing hubs and investment in robotics. China, Japan, the US, South Korea, and Germany account for 78 per cent of global robot installations. India showed up in the 10th spot on the list, underscoring its nascent journey. With considerable whitespace waiting to be filled, the potential for the growth of robotics in India is immense.

ROBOTICS FOR THE INDIAN MARKET

While Indian manufacturing is progressing towards establishing its global presence, automation solutions that are effective globally don't pass the ROI test in India. There exists an optimal balance between fully customised solutions and generalised autonomy that is waiting to be built at a price point suitable for Indian industrial applications.

Moreover, the vision of taking manufacturing to 25 per cent of GDP should go beyond profitability to encompass improvements in productivity, the production of higher-quality goods, and the creation of highly skilled job opportunities. These are all advantages that will materialise as we devise indigenous solutions for digital transformation and robotic automation tailored to our specific requirements and ecosystem. 

By Rahul Kumar, Business Head ERP & HRMS, Embee Software

THE CRUCIAL ROLE OF ERP IN LEAN MANUFACTURING: ENHANCING EFFICIENCY AND REDUCING WASTE

The article explores how ERP systems play a pivotal role in lean manufacturing by enhancing efficiency, reducing waste, and improving quality and collaboration across the production process. It also discusses upcoming trends and innovations in ERP technology that will further enhance the future of manufacturing.

With the global market value for public cloud services expected to reach \$678.8 billion by 2024, thanks mainly to generative AI and growth in scalable cloud technology, the importance of ERP systems for lean manufacturing has never been greater.

Lean manufacturing focuses on reducing waste while increasing efficiency to ensure only value-added activities occur, using fewer resources. Enterprise Resource Planning (ERP) systems have played a pivotal role in the lean manufacturing revolution.

As industries evolved, these systems became relevant to uphold those principles as more streamlined, defects-based matrices emerged. Comprehensive and versatile, ERP systems are designed to unite discrete business processes on a single software platform that offers real-time data analytics throughout the entire manufacturing operation.

This integration not only improves functionality but fuels the continuous improvement process, leading to quality management and enhanced communication and collaboration.

This article explains how ERP systems boost performance, eliminate waste, guarantee security management, and improve communication and cooperation. It also discusses upcoming trends and innovations in ERP technology that will further improve manufacturing in the future.

ENHANCING EFFICIENCY AND REDUCING WASTE

Data Integration and Real-Time Information: ERP systems provide real-time data and analytics related to the complete manufacturing process. Immediate



visibility into operations helps identify and eliminate waste. With real-time information access, managers can make informed decisions that enhance efficiency and reduce costs.

Inventory Management: ERP systems optimise inventory levels by providing accurate forecasts and managing supply chain activities efficiently. This optimisation aligns with lean manufacturing, emphasising just-in-time (JIT) inventory practices to

minimise excess inventory and reduce holding costs. By aligning inventory management with production schedules, ERP systems ensure that materials are available precisely when needed, reducing waste and storage costs.

Production Planning and Scheduling: The lean manufacturing process relies on efficient production planning and scheduling techniques. ERP systems streamline the production process, reduce downtime, and improve workflow. They can automatically modify schedules based on live data to ensure production lines run efficiently and smoothly.

CONTINUOUS IMPROVEMENT AND QUALITY MANAGEMENT

Monitoring and Reporting: Continuous improvement is a core tenet of lean manufacturing. ERP systems provide continuous monitoring and real-time reporting of manufacturing processes. These capabilities enable businesses to monitor performance and identify areas for improvement. ERP systems allow manufacturers to quickly identify deviations from standards and make necessary corrections to improve processes.

Quality Control: Maintaining high-quality standards are essential in lean manufacturing. ERP systems



Integrating artificial intelligence (AI) and machine learning (ML) with ERP systems is set to revolutionise lean manufacturing. Predictive analytics from AI and ML can help manufacturers anticipate problems before they occur, significantly enhancing efficiency and reducing waste.

incorporate quality management to ensure consistent quality checks during production. This leads to early identification of defects, reduce wastage, and a final product that meets customer expectations.

Feedback Loop and Process Improvement: ERP systems gather data on manufacturing processes to create a feedback loop. This information is crucial for process improvement. Manufacturers can capture inefficiencies, measure the impact of changes, and ensure sustained improvements over the time using their ERP systems.

STREAMLINING COMMUNICATION AND COLLABORATION

Cross-Departmental Collaboration: ERP systems streamline communication and collaboration between various departments of a manufacturing unit. They provide a unified platform for information sharing, ensuring all departments are aligned and working towards common goals. This results in better collaboration, more streamlined operations, and quicker problem-solving.

Supplier and Customer Relationship Management: Managing relationships with suppliers and customers is critical for lean manufacturing. ERP systems enhance supplier management by ensuring timely deliveries and maintaining optimal inventory levels. For customers, ERP systems improve satisfaction by providing accurate and timely information, ensuring that customer needs are met promptly and effectively.

CASE STUDIES AND REAL-WORLD EXAMPLES

Successful Implementation of ERP in Lean Manufacturing: Several companies have successfully integrated their supply chain with ERP systems and lean processes. For example, Toyota uses ERP systems to streamline production processes and maintain high quality. Similarly, Harley-Davidson has applied ERP solutions to improve manufacturing efficiency and reduce waste.

Challenges and Solutions: Implementing ERP systems in lean manufacturing environments can be challenging, but these challenges can be addressed with right strategies. Common challenges include resistance to change, high implementation costs, and

data integration issues. Solutions include involving stakeholders in the planning process, ensuring thorough training, and selecting an ERP system that integrates seamlessly with existing processes.

FUTURE TRENDS AND INNOVATIONS

AI and Machine Learning Integration: Integrating artificial intelligence (AI) and machine learning (ML) with ERP systems is set to revolutionise lean manufacturing. Predictive analytics from AI and ML can help manufacturers anticipate problems before they occur, significantly enhancing efficiency and reducing waste.

IoT and Industry 4.0: The development of IoT and Industry 4.0 is transforming manufacturing industries. Integrating IoT devices with ERP systems allows real-time monitoring and control of production processes, leading to smarter and more efficient manufacturing.

Cloud-Based ERP Solutions: Cloud-based ERP solutions offer scalability, flexibility, and cost-effectiveness. These solutions allow manufacturers to access ERP functionalities without significant upfront IT infrastructure investments, making it easier to scale operations as needed.

CONCLUSION:

ERP systems are essential for supporting lean manufacturing principles due to their ability to enhance efficiency, reduce waste, and improve quality and collaboration. By integrating real-time data, advanced analytics, and automated processes, manufacturers can achieve continuous improvement and maintain high performance levels.

While the benefits of ERP systems for manufacturing businesses are numerous, simply deploying any software will not achieve your organisation goals. Partnering with an experienced ERP solution provider, such as Embee is crucial to finding the right software for your business.

As a leading SAP Gold Partner, Embee is strategically positioned to provide the best ERP solution, tailored to your needs, helping you resolve challenges and explore new growth possibilities. Scale new heights of success with Embee's ERP solution, based on the world's leading technologies. 

“WE ARE COMMITTED TO A CARBON-NEUTRAL ENERGY FUTURE”

As the *MD and CEO of Hitachi Energy for India and South Asia*, **N Venu** oversees over 11,000 passionate professionals from India to New Zealand to deliver cutting-edge technologies that enable smart cities and sustainable power grid infrastructure. In an exclusive interaction with **Rahul Kamat**, he talks about how he oversaw the establishment of Hitachi Energy, which unites the histories of Hitachi and ABB Power Grids and embarked on a new chapter, combining the adaptability of a newly formed company with the century-long expertise of both organisations.

To begin with, what drew you to the energy sector, and what inspired you to take on leadership roles within Hitachi Energy?

There is no singular factor but a few key ones. The first was aptitude and aspiration. When I started, electrical and electronics as a sector was a budding field that engineers in my generation aspired to. It equipped you to work on nation-building projects, something that was gaining significant pace in the late 80s and early 90s. Bringing power and, with it, opportunities to millions of people, gave you a sense of pride and fulfilment.

What kept me in the energy space was the rapid evolution that began soon after I joined the sector. In my time at ABB, the grid was embracing more and more, and electromechanical relays were being replaced by those with microprocessors, and later India, became one of the first countries to adopt the IE61850 standards.

Subsequently, the energy sector aligned with my beliefs about the environment and our impact on the earth. My role has expanded over the years, this is in part due to the drive to do more but mainly should be attributed to my leaders and mentors, who taught me the ropes and how to harness my potential.

At Hitachi Energy, we are not just working to make infrastructure improvements and encourage the transition to clean energy sources and technologies. We are committed to accelerating progress towards a carbon-neutral energy future.

In less than two years since announcing our goal of reaching Net Zero by 2030, Hitachi Energy has accomplished several significant milestones and one of them is the 100 per cent deployment fossil-free electricity throughout its offices and plants. We have

lowered our carbon emissions by more than 88 per cent already through innovative processes and other creative improvements.

Being able to shape our impact – be it economic, environmental or societal – is the true privilege of being in a leading company such as ours. It keeps me committed to helping partners and customers use power effectively and increase industrial productivity sustainably. It also offers me an opportunity to develop projects close to my heart – such as an ecosystem for women in STEM, focusing on underprivileged women students who have talent and enthusiasm in the field. With the help of scholarships, summer camps, soft skills training, and industry experience, this project is expanding.

Hitachi Energy is a prominent player in the energy sector. Could you share some key highlights of the company's operations and its focus in India and South Asia?

Over the years, we have completed several renowned nation-building projects and emerged as a leader in several fields, including HVDC space, which provides millions of people with dependable power.

We are also activating the HVDC link in the Mumbai region, which will help 20 million people in and around the city receive nearly 50 per cent additional power. This initiative will hasten the transition to renewable energy and strengthen the nation's energy infrastructure. By integrating conventional and renewable power sources, the link improves grid resilience and stabilises the power infrastructure. We implemented numerous nation-building initiatives, including the historic North-East Agra HVDC connection, which can transmit 6 GW





of clean hydropower to demand centres, and solar-powered microgrids that power Indonesian islands, which help hasten the country's transition to renewable energy.

With regards to electrification, we are collaborating closely with Indian Railways to electrify all of their trains in keeping with the government's goal of electrification. Currently, our transformers are used by every third Shatabdi and Rajdhani, and we have locally designed transformers to support the Vande Bharat high-speed rail project.

This year, Hitachi Energy has reached a significant milestone in its commitment to Indian Railways. The company has produced (designed, engineered, and manufactured) India's highest power-rated Scott transformers of 100 MVA at its Maneja facility in Vadodara. This marks a significant achievement as the transformers are the first of their kind within the Hitachi Energy group worldwide. Hitachi Energy's Made in India Scott Transformers truly signifies the commitment and innovation that the company brings to the Indian Railways, furthering the country's journey towards a modern, efficient, and sustainable transportation network.

Over the last two years, we have focused on growing our Indian footprint—making in India, for India, and around the world. In just the last two years we have added four new facilities that have introduced essential, pioneering technologies that will be critical in advancing the electrification of energy networks. Today, 80 per cent of Hitachi Energy's portfolio is locally manufactured in India, and the manufacturing base in India also caters to the global requirements of five products. Our global feeder factories have been gaining ground around the world, helping us gradually expand our export markets. Doubling the capacity of power quality manufacturing with the greenfield establishment in Doddaballapur, and the new HVDC factory in Chennai is geared towards such requirements.

In the South Asia region, we undertook several key projects contributing to the energy ecosystems of the respective countries. We have successfully deployed a microgrid in Nusa Penida, Klungkung, Bali (in late 2022). Also, through our high-tech Grid-eMotion® infrastructure used for charging the Brisbane metro. The high-performance charging system is the first of its kind in Australia and will play a key role in supporting the turn-up-and-go Brisbane Metro services. Similarly, Hitachi Energy powered the Red Line mass transit rail system in Greater Bangkok, Thailand, across, which connects suburbs and satellite cities with the new central station and makes trans-city travel easier and cleaner for millions of people.

What are the emerging trends and challenges within the energy industry in India and South Asia, and how is Hitachi Energy positioning itself to address them?

The energy industry in India and South Asia is experiencing significant shifts, with a strong emphasis on renewable energy growth, energy storage solutions, digital transformation, and decentralised energy systems. Challenges such as grid integration and stability, infrastructure development, navigating complex regulatory environments, and minimising environmental impacts are prominent. Hitachi Energy is addressing these trends and challenges through advanced technologies like HVDC systems, battery energy storage, smart grids, and microgrid solutions. Their focus on digital platforms and eco-efficient products further enhance the efficiency and sustainability of energy systems.

Hitachi Energy is strategically positioned to support the region's energy transition. By integrating renewable energy efficiently, modernising infrastructure, and ensuring compliance with evolving policies, we contribute to a more resilient and sustainable energy future. With electricity becoming the backbone of

the entire energy system, the urgency of the energy transition requires us to collaborate and innovate across stakeholders and sectors. The challenge is much bigger than one individual, company and nation.

We remained committed to innovation and sustainability to reduce carbon footprints and environmental impacts, this makes us a key player in driving the energy industry's transformation in India and South Asia.

Now, it's time to discuss Hitachi Energy's strategic initiatives and plans for growth within the Indian and South Asian markets.

At Hitachi Energy, we have a clear and crucial purpose to advance a sustainable energy future for all. With electricity becoming the backbone of our sustainable energy future, our most important role is to ensure that we have a modern energy system that is fit for this future. In order to deliver a sustainable energy future for all, we focus on three key; parts of the Hitachi Energy 2030 Plan for advancing a sustainable energy future for all.

Strengthening our leadership role in core technologies: with an increased urgency to strengthen, expand and evolve the power grid, we are delivering on our future grid promises and supporting the acceleration of the energy transition. We are pushing the boundaries through innovative technologies such as EconiQ™- eco-efficient portfolio, new business models (product-based to market-driven solutions), and collaborating with customers and partners. These initiatives validate the momentum behind Hitachi Energy's commitment to deliver real customer outcomes and enable a more sustainable, flexible, and secure energy system.

In addition, we are expanding our digital solutions and services, enabling carbon reductions. We are evolving the power system through partnerships and new business models, and innovations/new technologies such as BESS and H2.

What is the current orderbook position (y-o-y comparison) and which are the avenues that have contributed to this orderbook? What is the order backlog?

A strong cyclical revenue performance along with a favourable external environment helped us improve our revenue and bottom line. The focused and proactive approach has helped us achieve better revenue vis-a-vis QoQ and YoY.

In the quarter ended March 31, 2024, orders totalled Rs1406.7 crore, up 13.9 per cent QoQ and 11.5 per cent YoY. Industries led the charge with electrification and digitalisation of energy networks, across sectors from steel to silicon. Contribution from transmission projects followed, with orders from EPCs. Orders for hydro, wind and solar plant operations and

integration continued the momentum of the renewable.

Furthermore, service and export orders were up by 43 per cent YoY each, maintaining their strong contribution to the overall order book. Service orders included replacement equipment, Annual Maintenance Contracts (AMCs) and upgrades, as well as innovative solutions like RelCare and RelScan for remote condition monitoring and maintenance. Exports of transformers, power quality technologies and other key products to markets like the Middle East, Southeast Asia and neighbouring countries in South Asia accounted for around 25 per cent of the order book.

Our order backlog stood at Rs 7,229.5 crore, providing revenue visibility for approximately 20 months.

How does Hitachi Energy approach innovation and technology adoption to stay competitive in the rapidly evolving energy landscape?

Firstly, it takes a certain foresight and anticipation to stay relevant for more than a century. Hitachi Energy approaches innovation and technology adoption with a multi-faceted strategy centred on substantial investments in human capital, research and development (R&D), and capability enhancement.

By prioritising these areas, Hitachi Energy ensures it remains at the forefront of the rapidly evolving energy landscape. The company invests heavily in its workforce, fostering a culture of continuous learning and development to equip employees with the latest skills and knowledge. This investment in human capital is crucial for driving innovation and maintaining a competitive edge.

In the region, a key component of Hitachi Energy's innovation strategy is the establishment of Global Technology and Innovation Centres (GTIC). These centers serve as hubs for advanced R&D, bringing together experts from various fields to collaborate on cutting-edge technologies and solutions. The GTIC focuses on areas such as digitalisation, energy storage, grid stability, and renewable energy integration.

By leveraging the collective expertise within these centers, Hitachi Energy can rapidly develop and deploy innovative solutions that address the dynamic needs of the energy industry. This approach not only enhances the company's technological capabilities but also ensures that we can meet the evolving demands of customers and the broader market.

Thus, at Hitachi Energy, there is always a constant endeavour to upgrade its portfolio to strengthen and support the ever-expanding and evolving power system. We will continue to focus on customising our global product portfolio (for local use) and building indigenous capabilities and products. Also, our focus will remain on continuously evaluating the energy and demand



“The company remains committed to advancing a sustainable future for all. And for this, rely heavily on development, innovation, and employee wellness.”

landscape and the necessary steps we must take to keep ourselves relevant to deliver cutting-edge solutions to our customers in India and around the world.

Sustainability and renewable energy are increasingly important factors in the energy sector. What is Hitachi Energy’s approach to sustainability, and how does it integrate renewable energy solutions into its offerings?

Our sustainability goals are closely aligned with the UN Sustainable Development Goals, adding social, environmental, and economic value. Focusing on People, we place safety at the heart of our operations, foster inclusion and diversity in our workforce, and proudly promote our commitment to integrity and the highest ethical standards working with customers, partners, and suppliers.

Hitachi Energy’s approach to sustainability is rooted in its commitment to creating a more sustainable and resilient energy future. Central to this commitment is the 2030 sustainability plan, which outlines ambitious targets for reducing carbon emissions, enhancing energy efficiency, and promoting circular economy principles. This plan aligns with global sustainability goals and demonstrates Hitachi Energy’s dedication to environmental stewardship and social responsibility.

To integrate renewable energy solutions into its offerings, Hitachi Energy leverages its advanced technological capabilities and extensive expertise in energy systems. The company provides a range of solutions that facilitate the integration of renewable energy sources, such as high-voltage direct current (HVDC) systems, grid stabilisation technologies, and energy storage systems. These solutions help to efficiently harness and manage renewable energy, ensuring reliable and stable power supply even with the intermittent nature of sources like solar and wind.

Additionally, Hitachi Energy’s digital platforms enable real-time monitoring and optimisation of energy systems, further enhancing the integration of renewables. Through these initiatives, Hitachi Energy not only supports the transition to a cleaner energy landscape but also reinforces its role as a leader in sustainable energy solutions.

Can you highlight any notable sustainability projects or initiatives undertaken by Hitachi Energy in India and South Asia?

In 2021, Hitachi Energy announced a comprehensive program to achieve carbon-neutrality targets under our sustainability roadmap for 2030, combining innovative solutions with a diverse and inclusive company culture to contribute to a more sustainable society. As a first step to achieving our goals, Hitachi Energy India has been running factory and office operations on 100 per cent fossil-free electricity since December 2021.

In our customer operations, we have reduced diesel consumption with solutions for rail electrification and eco-efficient alternatives to SF6 for high-voltage products. We have taken several sustainability measures in our other factories including rooftop solar electrification, off-grid solar electrification, replacing diesel with clean piped natural gas and more with a projected reduction of 33 per cent in CO2 emissions in our processes going forward.

The sustainability projects in FY 2023-24 primarily focused on energy and emission, conservation of water and robust waste management. These projects helped us keep track our greenhouse gas (GHG) emissions, energy consumption, usage of freshwater, and waste management.

Similarly in the South Asia region, we have undertaken various sustainability projects and targets. Like in Vietnam, we have been using clean electricity (from renewable sources) since February 2022 by offsetting our electricity purchases through carbon credits. However, in Australia, environmental protection is one of its top priorities. Environmental Monitoring Reports for applicable facilities are assessed regularly to ensure the operation maintains high levels of environmental performance. We also strive to improve the sustainability of our operations, for example with solar panels in our factories, and focus on improving recycling and circularity.

These are just some of the examples of sustainable projects undertaken by us to lead by example by in energy sustenance in day-to-day operations.

With the growing demand for energy and the need for modernising infrastructure, how does Hitachi Energy contribute to grid modernisation efforts in India and South Asia?

The energy system is amid a fast-paced transformation. Renewables, grid-edge technologies and digitalisation will drive the evolution of future power systems. To keep pace with the energy transition, the existing network must be upgraded and modernised to handle the flexibility required to achieve this.

The future of the grid lies in the adoption of new technologies such as big data analytics for predictive maintenance, artificial intelligence technologies, use of robotics and VR-AR augmented kits for better O&M of transmission networks.

Smart grids offer significant advantages in enhancing the efficiency of electricity transmission while facilitating the integration of renewable energy sources during the ongoing energy transition. Considering the changing

energy landscape, there is a need to upgrade the existing grid systems for better functioning and efficiency. The evolving connectivity of resources necessitates a shift in approach. Smart grids bring substantial benefits by improving the efficiency of electricity transmission and seamlessly adapting to the ongoing energy transition.

Establishing standardisation of technology is crucial to ensure cybersecurity, reliability, and safety for both consumers and utilities. Currently, the industry is actively pursuing the development of standards and protocols focused on enhancing cybersecurity measures specifically for smart grids.

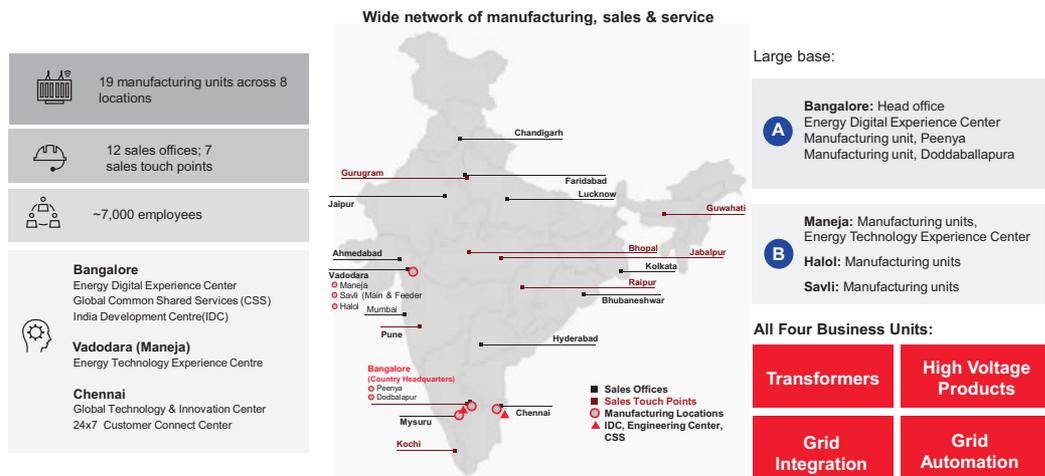
Hitachi Energy has been generating synergies by combining digital and energy technologies, contributing to the global energy transition. We will further accelerate the drive for synergies, digitalisation, and service, and we will continue to offer deployment of both IT and operational technology (OT) at scale and with speed. To help our partners and customers in grid optimisation routine-cause-analysis to detect harmonising the effectiveness of the grid.

Hitachi Energy provides mission-critical technology for its customers across various sectors – with products and services being a bridge between generation and consumption. It is enabling renewable energy integration, transmission, management and consumption with technologies that make grids flexible, secure and sustainable, like HVDC Light, EconiQ™, Grid-eMotion®, and IdentiQ™.

What are some of the key challenges faced in implementing grid modernisation projects, and how does Hitachi Energy overcome them?

Grid modernisation projects hold the key to a future powered by renewables and a more efficient energy infrastructure. Each clean GW that we add to the





energy system needs to be balanced with an increase in grid capacity and flexibility to meet security, reliability, and resilience. Today, more than 3,000 GW (world over) of renewable generation capacity are in grid queues, and half of these projects are in advanced stages of development. This challenge holds for both advanced economies and emerging and developing countries.

Integrating renewables will be a challenge keeping in mind their variability and unpredictability. Grids need to adapt to these fluctuations to maintain a stable power supply. Upgrading the existing infrastructure is a big ask, as ageing transmission and distribution lines suffer from significant energy losses. Modernisation requires replacing them with smarter technologies, which can be expensive. Also, the smart grids rely heavily on digital infrastructure, making them vulnerable to cyberattacks.

Furthermore, on the financial side, the total operational cost for modernising projects requires significant investments in new technologies, grid upgrades, and data management systems. And the complexity involved in cost allocation and recovery in terms of who bears the cost and how to recover the cost especially when we are talking about intra – regional grid. These are some of the elements which pose challenges to the grid modernisation.

At Hitachi Energy, we support our partners and customers through our technologies and services – from transformers, high voltage switchgear, grid integration, grid automation, power quality and HVDC solutions. We partner with customers to expand and modernise the grid to make it reliable, sustainable, and cost-effective.

Hitachi Energy effectively harnesses its technological prowess and strong research and development capabilities to address this, ensuring the best output with minimum cost escalation.

How does the regulatory environment in India and South Asia influence Hitachi Energy's operations and strategic decisions?

The journey to net zero ambition is long and arduous, and every country has its own set goals and is at different stages in its journey of energy transition. Hence, we have to recognise that several countries may not be at the same stage of the journey. Despite being at different stages of their journey, none of the countries are immune to the impending climate change.

Within this framework, we have witnessed some remarkable strides – from the percolation of EVs to public transport in Australia, to the hydropower+BESS project in the Philippines; from microgrids in the Indonesian Archipelago to India's 500 GW renewable ambitions.

At Hitachi Energy, we believe in adapting and adopting policies and regulations that enable the deployment of technology and facilitate new business models to support secure (strong), sustainable (green) and scalable (smart) energy infrastructure.

Are there any regulatory or policy changes that you anticipate will impact the energy sector soon?

The energy sector is on the cusp of transformation across regions. Governments across the world are continuously contemplating introducing policies which will expedite the journey of energy transition toward a sustainable, cleaner energy ecosystem.

With the rapidly evolving energy ecosystem especially in India, we expect more reforms or policy changes in segments like electric vehicles, energy storage policies, (battery energy storage system), green hydrogen, transmission, and green energy corridor to mention a few.

The government of India intends to have EV sales penetration of 30 per cent for private cars, 70 per

cent for commercial vehicles, 40 per cent for buses, and 80 per cent for two and three-wheelers by 2030. Furthermore, electric vehicles are spearheading India's last-mile connectivity efforts and bolstering the nation's economic development to ensure connectivity with rural areas. Hence, one expects policy reforms to see more traction in the segment.

Similarly, as per the National Electricity Plan (NEP) 2023 of the Central Electricity Authority (CEA), the energy storage capacity requirement is projected to be 82.37 GWh (47.65 GWh from PSP and 34.72 GWh from BESS) in the year 2026-27. This requirement is further expected to increase to 411.4 GWh (175.18 GWh from PSP and 236.22 GWh from BESS) in the year 2031-32.

Also if you see, the National Green Hydrogen Mission launched (January 2023) with an outlay of Rs 19,744 crore intending to make India a global hub for the production, utilisation and export of green hydrogen and its derivatives. The same will have a positive green hydrogen ecosystem in the country.

These are just a few examples of policy reforms which will positively influence the energy sector soon. As we have said the energy sector is very dynamic, and we will not be surprised to see various other reforms to address growing energy needs.

What are some of the key factors that you believe will shape the future of the energy industry in the region, and how is Hitachi Energy preparing for them considering its expansion plans in India? What kind of investment we are looking?

The urgency toward energy transition through clean energy sources will shape the future of energy across the globe to reach the net zero target. Thus, things like seamless integration of renewables, battery storage systems, digitalisation, and smart grids are some of

the key factors which will influence the future energy ecosystem.

Hitachi Energy is at the centre of the energy transition and well positioned to help accelerate these fundamental changes with the purpose-driven growth encompassed in our '2030 plan'. In this plan, we will continue to deliver the record high order backlog in line with customer and partner commitments, hence securing and accelerating earnings and cash growth. Secondly, our focus will be on growing digital and services, expanding at the edge of the energy system. Last but not least, we will continue to drive innovation, and synergies with customers and Hitachi Group companies, and find new partnerships to accelerate growth.

While we already have the technologies to support energy transition and consequent high growth segments – HVDC, PQ, data centres, e-mobility – there will be a need for product evolution, such as EconiQ, OceaniQ, etc. Fundamental technology areas for the power system evolution (potential scope for investment in short to medium term) – Sustainable products (like EconiQ), digitalisation (IdentiQ) and power electronics.

In the last two years in India, we have invested in four new facilities and one global technology and innovation centre. We are constantly evaluating the need, and bringing our centuries of expertise for some foresight, and on average, if you see – we have maintained an average annual capex of Rs 100 crore.

Apart from factories, we are investing in people and technologies. We are readying the future talent pool for the energy sector. We believe that Diversity + Collaboration = Great Innovation. So, we will continue to invest in our talent, technology and infrastructure to build a diverse base for tomorrow's energy systems and expand and diversify our world-class manufacturing base in India. 



SYSTEM INTRUSION REMAINS A MAJOR CYBERSECURITY THREAT FOR MANUFACTURERS

As manufacturing becomes more interconnected, it becomes increasingly vulnerable to crippling cyber-attacks that can disrupt production lines or compromise sensitive data. In an interview with **Nisha Shukla, Anshuman Sharma, Director of VTRAC Cybersecurity Consulting Services at Verizon Business**, shared interesting findings from their recently unveiled survey: The Verizon Data Breach Investigations Report 2024. He also delves into recommended standards and frameworks for managing cybersecurity and how businesses can protect themselves against cybersecurity threats in 2024.

What are the unique cybersecurity challenges faced by manufacturing companies compared to other industries? How do legacy systems in manufacturing plants affect cybersecurity strategies?

Manufacturing companies operate in a dynamic landscape where the intersection of technology and production processes presents unique cybersecurity challenges. The convergence of IT and operational technology (OT) creates a complex attack landscape which exposes both IT data and critical industrial processes to cyber threats. Additionally, manufacturing companies face the challenge of securing complex supply chains, which creates a web of vulnerabilities, making it difficult to secure interconnected networks.

Legacy systems further complicate things. Manufacturers build new systems on top of legacy systems, and this may result in outdated protection measures. These systems often lack robust security features, making them especially vulnerable to cyberattacks. Their limited visibility and control make it hard to implement modern security tools. Upgrading these systems can be expensive and disruptive to production. However, failing to address security vulnerabilities in legacy systems leaves manufacturers exposed to a wide range of cyberattacks that can disrupt operations, steal intellectual property, or even cause physical harm.

According to The Verizon Data Breach Investigations Report 2024, system intrusion continues to hold the top spot in the manufacturing sector when it comes to cybersecurity breach. What other patterns did you observe in the report, and how manufacturers can avert such breaches in advance?



Anshuman Sharma, Director of VTRAC Cybersecurity Consulting Services at Verizon Business

The Verizon Data Breach Investigations Report 2024 confirms that system intrusion remains a major cybersecurity threat for manufacturers. The report also highlights a concerning 83 per cent of breaches in the manufacturing sector stem from three main attack patterns:

- **System intrusion:** Often involving the use of stolen credentials to gain access, is the most common pattern, present in 25 per cent of manufacturing breaches. Attackers frequently deploy ransomware, which was involved in 35 per cent of breaches in this sector.
- **Social Engineering:** Social engineering attacks

target the human element of cybersecurity. Malicious actors manipulate employees into revealing sensitive information or granting access to systems.

- **Miscellaneous Errors:** Errors particularly misdelivery, accounted for 48 per cent of error-related breaches. Data loss (20 per cent) and misconfigurations (18 per cent) highlighted the importance of robust device security and standardised system configurations.

Additionally, attackers exploit vulnerabilities in web-based applications used by manufacturers, such as supplier portals or customer order systems, to steal data or compromise systems.

What role does the Internet of Things (IoT) play in increasing cybersecurity risks in manufacturing? What are the other factors exposing businesses to cybersecurity risks?

Manufacturing facilities are embracing the Industrial Revolution 4.0, with interconnected machines and sensors promising increased efficiency and productivity. However, this integration with the Internet of Things (IoT) introduces a new set of cybersecurity challenges.

- **Increased Entry Points:** Every connected sensor, machine, and device represents a potential entry point for attackers. These devices often have weaker security protocols compared to traditional IT systems, making them easier targets.
- **Complex Networks:** With a multitude of interconnected devices, manufacturing networks become intricate, making it challenging to monitor and identify vulnerabilities.
- **Limited Security Features:** Many IoT devices prioritise functionality over robust security features. They might lack regular software updates or have weak encryption, leaving them exposed to exploits.
- **Data Deluge:** IoT devices generate massive amounts of data, creating challenges in data security and privacy. Sensitive manufacturing data, including product designs and production schedules, could be intercepted, or compromised if not properly secured.

31 per cent of all breaches over the past 10 years have involved the use of stolen credentials. How can manufacturing look at safeguarding their crucial credentials?

Given that 31 per cent of all breaches over the past 10 years have involved stolen credentials, it is crucial for manufacturing sector to safeguard them. Manufacturers should implement robust access controls like multi-factor authentication, conduct regular employee training on security best practices to combat social

engineering and phishing attacks, and secure IoT devices and industrial control systems to prevent unauthorised access. Additionally, manufacturers should conduct regular security assessments of web applications and segment networks to limit breach damage. Regularly updating and patching systems can also mitigate vulnerabilities that could be exploited.

What frameworks or standards do you recommend for managing cybersecurity risks in manufacturing?

In the manufacturing industry, where cybersecurity risks are prevalent, it is essential to adopt comprehensive frameworks and standards to protect against potential threats. Implementing a Zero Trust Framework to cover the key seven pillars (identities, endpoints, applications, networks, data, automation & orchestration, continuous monitoring & visibility) is crucial for protecting the identities, authentication and authorisation.

ICS/OT are physically air-gapped networks and systems. But manufacturers have expanded the connectivity, exposing OT devices to cyber criminals. To better manage the OT components, organisations have opened connectivity between their internal IT network and ICS systems, further exposing the OT infrastructure to compromise through IT systems and then lateral movement to OT.

Implementation of Zero Trust establishes a protective framework, helps to reduce the attack service and complexities, provides adequate protection of identities, authentication and authorisation. Leveraging a Zero Trust framework helps organisations better manage remote access, offers a viable and secure option to replace VPN and aids in micro-segmentation and hiding the infrastructure components from attackers.

What emerging technologies or trends do you see as game-changers for cybersecurity in the manufacturing industry?

The manufacturing industry is undergoing a major transformation with smart factories that rely heavily on interconnected systems. This creates a larger attack surface for cybercriminals. Here are some emerging technologies that are poised to be game changers for cybersecurity in manufacturing:

- **Artificial Intelligence (AI) and Machine Learning (ML):** These technologies can analyse massive amounts of data from sensors and machines to identify unusual patterns that might indicate a cyberattack. AI and ML can also automate security tasks, freeing up human experts to focus on more strategic initiatives.
- **Zero Trust Architecture:** The Zero Trust model is a security concept centered on the belief that

- organisations should not automatically trust anything inside or outside its perimeters and instead must verify anything and everything trying to connect to its systems before granting access. This can be particularly effective in a manufacturing environment with a complex network of interconnected devices.
- **Regularly Update and Patch Systems:** Regularly updating and patching systems is essential for addressing vulnerabilities and protecting against known exploits. Manufacturers should establish a systematic process for identifying, testing, and deploying updates across their IT and OT networks.
 - **Blockchain:** This technology can be used to create a secure and tamper-proof record of transactions and data. This can be helpful for tracking the provenance of materials and products, which can help to prevent counterfeiting and fraud.

What do you see as the biggest cybersecurity challenges for the manufacturing sector in the next five years?

The manufacturing sector faces a rapidly evolving landscape of cybersecurity challenges, driven by technological advancements and increasingly sophisticated cyber threats. Over the next five years, manufacturers must navigate these complexities to safeguard their operations, data, and intellectual property.

- **Evolving Attack Landscape:** The rise of Internet of Things (IoT) devices and increasing automation will create a vast network of interconnected systems, expanding potential entry points for attackers. These devices may have weaker security measures, making them vulnerable to exploitation.
- **Legacy Systems:** Many manufacturers still rely on legacy equipment and operational technology (OT) that wasn't designed with cybersecurity in mind. Upgrading these systems can be expensive and disruptive.
- **Skilled Workforce Shortage:** The manufacturing sector faces a shortage of cybersecurity professionals with the expertise to secure these increasingly complex industrial environments. This makes it harder to implement and maintain robust security measures.
- **Convergence of IT and OT systems:** The blurring of boundaries between IT and OT systems has increased the attack surface. Securing the integration of IT and OT is a significant challenge, as OT systems were not designed with security in mind.
- **Human factor:** New technologies require new skills. Factory personnel need cybersecurity awareness training to understand the risks of handling novel data and systems. Without this knowledge, they can become a weak link in the security chain, susceptible to social engineering attacks or data breaches. 

LAPP INDIA SHOWCASES THEIR LATEST TECHNOLOGIES AT ELASIA 2024

LAPP India, a leading supplier of cable and connectivity solutions for transmitting data, signal, and power, showcased their products and solutions at ELASIA 2024, India's premier electrical and electronics exhibition. The event was held from May 24th to 26th, 2024, at the BIEC-Bangalore International Exhibition Centre.

LAPP India highlighted a diverse range of products, including their well-known brands ÖLFLEX® (Power and Control Cables), UNITRONIC® (Data and Communication Cables), ETHERLINE® (Industrial Ethernet Cables) and a range of accessories like glands, conduits, and connectors.

They also showcased the newly launched packaging of ÖLFLEX® INFRA – ISI-marked single core wires for residential and commercial buildings. The single core wires are available in flame retardant (FR), flame retardant low smoke halogen-free (FR-LSH), and halogen-free flame-retardant Z (HFFR

Z) variants. These wires are safe to use in public infrastructure and home environments as they slow down the spread of fire and generate harmful chemicals detrimental to human life.

"ELASIA is a great platform for us to connect with our customers and partners and to showcase our comprehensive offer for the buildings and infrastructure segment, a fast-growing segment in India. Besides, wires and cables are essential components of electrical systems in both residential and commercial settings, making it crucial to choose the right type of wires and cables for each application to guarantee the efficient and safe functioning of the electrical system. LAPP offers high quality, reliable and safe products, making it the trusted and preferred partner for all your cabling requirements," said Marc Jarrault, Managing Director of LAPP India. "We are excited to be a part of this year's event and to share our wide range of products focusing on building and infrastructure segment," he added.

By Helen Blomqvist, President, Sandvik Coromant

HOW CAN MANUFACTURERS ADAPT TO INDUSTRY CHALLENGES IN 2024?

The article outlines reflections from the past year in manufacturing, and for the rest of 2024. It specifically focuses on strengthening sustainability, developing digital capabilities to meet demand, and planning for more flexible production processes.

Despite 2023 being a challenging year for manufacturers, global manufacturing output is set to achieve a compound annual growth rate of three per cent between now and 2027, according to technology insight business Interact Analysis. Here, Helen Blomqvist, President of metal cutting tools and manufacturing solutions expert Sandvik Coromant, explores how manufacturers can embrace current industry trends to tackle challenges and remain resilient in 2024 and beyond.

From digitalisation and demand forecasting to economic uncertainty and emissions targets, 2023 presented several challenges for the manufacturing industry. However, these difficulties also provide opportunities for manufacturers to innovate and increase their competitiveness as the industry transforms.

STRENGTHENED SUSTAINABILITY FOCUS

The focus on reducing environmental impact intensified in 2023, with IBM's Institute for Business Value data



As 2024 progresses, there will be increased adoption of artificial intelligence (AI) tools to analyse data, with this level of automation helping to meet renewed demand while reducing costs. Incorporating AI tools is a core part of the Manufacturing Wellness mindset, outlined in the second habit of embracing new technology and the eighth habit of automation.



showing that 86 per cent of companies now have a sustainability strategy in place. While this figure is promising, data shows that only around a third of businesses have acted on their strategy since its implementation.

2024 will hopefully see the rise of businesses treating sustainability as a priority. This is especially important within the manufacturing industry, which is responsible for one-fifth of global carbon emissions, according to

World Economic Forum data. Currently, the sector is not sustainable enough, and we can do a lot more.

Ensuring that sustainability is not just a strategic ambition but a tangible, integrated part of daily operations is key to reducing emissions and achieving green targets. By combining strategic alignment, employee engagement, and continuous data-driven improvements, manufacturers can not only achieve environmental and social goals but also drive innovation, reduce costs, and enhance the company's reputation and competitiveness.

This multifaceted approach is outlined by Sandvik Coromant's new brand promise of Manufacturing Wellness, which aims to drive sustainable progress through impactful partnerships. Manufacturing Wellness is a relentless pursuit of improvement, made up of eight habits found in successful and resilient manufacturing companies. Sustainability and eliminating waste are the third and fourth habits of this mindset, which allows us to drive sustainable progress towards a better tomorrow for people, industry, and society at large.

This commitment is underscored by the recent validation of our net zero target by the Science Based Targets initiative (SBTi). As demand for sustainable products continues to grow, such certifications will become increasingly important for manufacturers looking to stay competitive in a transitioning market.



Ensuring that sustainability is not just a strategic ambition but a tangible, integrated part of daily operations is key to reducing emissions and achieving green targets. By combining strategic alignment, employee engagement, and continuous data-driven improvements, manufacturers can not only achieve environmental and social goals but also drive innovation, reduce costs, and enhance the company's reputation and competitiveness.

DEVELOPING DIGITAL CAPABILITIES TO MEET DEMAND

2023 saw manufacturers feel the aftershocks of several supply chain issues. This particularly impacted the aerospace manufacturing sector, which was still in recovery mode post-pandemic.

However, with demand bouncing back, there has been a revived need from airlines looking to expand or renew their fleets to accommodate the resurgence in passenger travel and meet new environmental standards with more fuel-efficient aircraft. The industry's growth in 2024 will likely depend on how well manufacturers and the broader ecosystem can adapt to these evolving challenges and opportunities.

Aerospace manufacturers can increase their productivity by focusing on resilience, innovation,

agility, and sustainability. A keyway to achieve this, especially for those involved in metal cutting processes, is to integrate digital manufacturing tools for enhanced operational efficiency. A 2021 study of manufacturing companies conducted on behalf of Sandvik shows that over two-thirds of manufacturers now implement these tools. Use cases include areas such as digital twins, computer numerical control (CNC) integration, process monitoring systems, and cloud computing.

Digital tools support data-driven manufacturing, the fifth of Sandvik Coromant's Manufacturing Wellness habits, which helps businesses spot potential improvements and accelerate productivity from CAD to delivery. Processes informed by data can help improve equipment uptime and extend working life by enabling manufacturers

to identify potential failures before they occur. As 2024 progresses, we are likely to see the increased adoption of artificial intelligence (AI) tools to analyse data, with this level of automation helping to meet renewed demand while reducing costs. Incorporating AI tools is a core part of the Manufacturing Wellness mindset, outlined in the second habit of embracing new technology and the eighth habit of automation.

PLANNING FOR FLEXIBLE PRODUCTION

As well as allowing businesses to meet resurgent demand, digital manufacturing tools also facilitate the resource planning process for industries where demand is difficult to predict. This is particularly useful for automakers, who are facing increasing pressure to prepare for the upcoming fossil fuel car phase-out. It is important that manufacturers have sufficient EV capacity in time for the 2035 fossil fuel car ban in the UK and the EU, which has made resource planning difficult.

Data-enabled manufacturing allows for more flexible production systems that can quickly adapt to changes in product design or customer demand, facilitating the production of customised or small-batch items without significant efficiency loss. Integrating digital tools with supply chain management systems can improve forecasting, reduce inventory levels, and enhance coordination with suppliers and customers, leading to a more responsive and efficient supply chain.

As the year progresses, the importance of industry trends such as sustainability, digitalisation, and demand forecasting will continue to grow. However, viewing these challenges as opportunities to innovate will help develop successful, resilient manufacturers that thrive in 2024 and beyond. 

By Suresh Tanwar, Head of Audit and Consultancy - India, British Safety Council

ASSESSING CRITICAL RISKS IN WORKPLACES IS AN IMPERATIVE, NOT AN OPTION

Assessing critical risks in workplaces is essential to prevent accidents and save lives. The article sheds light on how regular safety audits in high-risk industries can identify hazards and improve safety measures, ensuring a secure work environment.

As per a recent International Labour Organisation (ILO) study, nearly three million workers worldwide lose their lives annually due to work-related accidents and illnesses, marking an alarming increase of over five per cent since 2015. In India alone, according to a 2021 report from the Labour Ministry to Parliament, over the past five years, at least 6,500 employees lost their lives while working in factories, ports, mines, and construction sites. These figures highlight the constant struggle to ensure the health and safety of employees, particularly in high-risk sectors such as Construction, Metals, Chemicals, Power, Oil & Gas, Pharma and Automotive.

Critical safety risks refer to events that pose seminal threats to business operations, potentially resulting in worker fatalities or permanent disabilities. These risks



often stem from process oversights and can include accidents due to fire, falls from heights, and other mishaps. Investing in prevention efforts is more beneficial in terms of both human lives and business profitability, making the regular assessment of critical risks essential.

HOW CAN ORGANISATIONS ASSESS CRITICAL RISKS?

A critical risks safety audit delves deep into situations that pose significant risks of injury or harm to individuals and assets. It rigorously assesses high-risk tasks such as working at heights, confined space entry, lifting operations, electrical and fire safety, ground excavation, contractor safety, and specific areas like molten metal handling.

Additionally, it examines commitment of the

Key benefits of a critical risks' safety audit include:

- Enhances employee hazard reduction skills through hands-on learning.
- Establishes a platform for identifying safety hazards, analysing root causes, and implementing corrective actions.
- Boosts employee awareness and encourages positive safety behaviours.
- Supports achieving safety performance benchmarks and reduces costs related to injuries.
- Improves factory safety records by reducing accidents, injuries, near misses, and physical hazards.
- Enables thorough root cause analysis and implementation of corrective measures to eliminate hazards.
- Provides opportunities for on-the-job training for team leaders and shop-floor employees.
- Raises awareness about factory safety hazards among employees.
- Establish department-specific safety audit teams through employee participation.
- Develops detailed checklists aligned with industry standards.
- Facilitates pre-audit meetings to review checklists, address queries and plan audit routes under management guidance.
- Documents safety hazards and outlines corrective actions.
- Conducts post-audit discussions to review hazard findings and corrective measures.
- Organises post-audit meetings to track progress on corrective actions, address inquiries, and adequately address safety concerns.

organisation's leadership, accountability, risk assessment and management, and permit-to-work procedures. This comprehensive process involves extensive engagement with all employees, on-site inspections, and thorough examination of documentation.

HOW DOES A CRITICAL RISKS SAFETY AUDIT WORK?

Conducting a critical risks safety audit involves a detailed examination of all safety controls related to hazardous activities and checks the efficacy of existing safety measures to prevent severe injuries.

The audit employs a tailored method to evaluate an organisation's safety performance in high-risk activities, benchmarking it against global best practices. The findings are compiled into a customised report that offers insights into the organisation's current standing and pinpoint areas of improvement.

Consultancy service then offer recommendations, knowledge sharing and training to enhance safety measures.

STEP-BY-STEP CRITICAL RISKS SAFETY AUDIT PROCESS

The audit process calls for the active engagement of every employee within the organisation. It takes place in 4 phases: leadership commitment and careful planning, implementation and operation, performance monitoring and measurement, evaluation and continuous improvement. Collective participation and commitment from all levels of the organisation are essential for the audit's success.

BENEFITS OF THE CRITICAL RISKS SAFETY AUDIT

Research indicates that adhering to occupational safety regulations is crucial and should be seamlessly integrated into day-to-day business operations, especially for organisations that engage in high-risk activities. Non-compliance not only jeopardises the safety of individuals but also exposes businesses to potential injuries, risks, and legal liabilities.

KEY TAKEAWAYS

High-risk and hazardous industrial operations demand prioritised critical risks safety audit. Continuous review and enhancement of safety and health management systems are imperative to improve safety performance across all departments.

The audit process enables management to gain insights into high-risk areas and the potential hazards, leading to a focused approach to safety management and a positive, confident, and secure work environment for all stakeholders.

Choosing the proper partner organisation to conduct a comprehensive critical risks safety audit is essential. The right partner will have experienced auditors trained for internal quality assurance and meet professional body standards. Their audit reports should undergo technical verification and quality endorsement before being issued to clients. It is best to partner with globally recognised audit and consultancy services firms that offer reliable means to ensure robust organisational health and safety systems. 

PANASONIC TIES UP WITH AEREM TO FACILITATE FINANCING TO ITS SOLAR CUSTOMERS

Aerem Solutions, a leading provider of end-to-end solar solutions and the parent company of NetZero Finance Private Limited – India's only RBI licenced Solar Focus NBFC, have signed a Memorandum of Understanding (MOU) with leading player in distributed solar energy sector Panasonic Life Solutions India Private Limited (PLSIND). Through this strategic collaboration Panasonic aims to sell over 500 crores worth of solar products by facilitating financial assistance for its homeowners and C&I customers.

The MOU outlines a framework where Aerem Solutions, through its financial arm NetZero Finance, will provide tailored loan facilities to customers of



Panasonic's solar products, thereby facilitating the adoption of solar energy solutions of Panasonic across India.

Anand Jain, CEO of Aerem Solutions, expressed his enthusiasm about the partnership, "We are thrilled to collaborate with Panasonic Life Solutions India to drive the adoption of solar energy solutions. Since our inception we have enabled over 350MW of solar capacity. This partnership

aligns perfectly with our mission to provide financial support for solar energy projects, making renewable energy more accessible to a broader audience. Together, we aim to empower individuals and businesses to transition to cleaner energy sources, thereby contributing to a greener planet."

By Dr. Surya Prakash, Associate Professor, Operations, Great Lakes Institute of Management, Gurgaon

MANAGING SUPPLY CHAIN WITH CHINA+1: THE ROLE OF INDIA

The article discusses the recent supply chain disruptions caused by decreasing cost advantages, the COVID-19 pandemic, geopolitical conflicts, and the China-US trade war. These issues have led to a need for self-sufficiency and alternative options for traditional manufacturing locations such as China. The article also highlights India's role as a promising destination for companies interested in implementing the C+1 model.

The emergence of China as the manufacturing centre or factory of the world has given wings to many global manufacturing corporations and solved their supply problems with significant cost advantages. Modern supply chains are intertwined with the Chinese ecosystem, and it is expected that it will not be fully possible to replace them in the global supply chain soon. However, every global company will be interested in minimising the risk posed by China. Additionally, supply chain disruptions caused by diminishing cost advantages, the Covid-19 pandemic, geopolitical conflicts, and the China-US trade war have created a further need for self-sufficiency and alternative options for conventional manufacturing locations such as China.

The China-Plus-One (C+1) strategy is one of these tactics that is becoming increasingly popular. Companies are looking to countries other than China to set up their supply chain facilities to mitigate future supply chain risks. Possible locations include South Asian emerging countries such as Vietnam, Bangladesh, Thailand, Indonesia, Malaysia, and India. Mexico is also an attractive destination for global manufacturing and sourcing, but South Asian countries are more relevant to the China-Plus-One strategy due to their proximity to China. India, with its unique advantages, is proving to be a promising destination for companies looking to implement the C+1 model.

India is witnessing growth in the global supply chain industry. Even amid challenging global economic conditions, India is expected to witness a GDP growth of 6.0 to 6.8 per cent in 2023-2024. The Indian economy has shown consistent and robust growth,



making it an attractive choice for companies thinking about relocating.

This trend has already started, with several global companies shifting their production and sourcing to India. Apple, for example, has ambitious plans to produce iPhones, iPads, and MacBooks at its Chennai factory in collaboration with Foxconn and Wistron. Korean giant Samsung already operates a world-class facility in Noida, India, the largest mobile

phone manufacturing facility. Aerospace giant Boeing is exploring options in Indian states to relocate its manufacturing and critical supply chain activities. Tesla is also considering India as an option to set up a manufacturing facility for its cars. Walmart plans to import \$10 billion worth of goods from India annually and recognises its potential as a manufacturing hub.

India has many unique advantages. It has a young population and low labour costs, a former characteristic of China. Compared to Vietnam, labour costs in India are significantly lower, making the country an attractive manufacturing destination. Due to its colonial heritage, the Indian population has a strong language advantage over other South Asian countries. Although, there is skills gap compared to China, targeted training and the introduction of new technologies can close this gap. With a strong domestic consumption-based market, India is a good candidate for the global supply chain.

Economic growth in India will be strengthened through the expansion of public digital platforms and initiatives such as PM GatiShakti, the National Logistics Policy, and production-related incentive programs to increase manufacturing output. For example, India has seen rapid growth in the construction of national

highways. Budget expenditure increased from Rs 1.4 lakh crore in FY20 to Rs 2.4 lakh crore in FY23, leading to an increase in capital expenditure.

Policy reforms, including the introduction of the National Logistics Policy, aim to make Indian logistics globally competitive. The World Bank's Logistics Performance Index 2023 ranks India at 38th, better than Vietnam, which is at 43rd. This shows the potential of the Indian supply chain ecosystem to provide a competitive advantage over other South Asian countries and be the preferred choice for the China-Plus-One strategy of global companies.

Of late, India has invested heavily in improving its digital infrastructure, introducing initiatives such as e-waybills, UPI, and GST. India's improved business ecosystem and strong startup culture have resulted in many new companies becoming unicorns in recent years. This demonstrates India's technical prowess, its ability to grow rapidly, innovate, and scale. It has a

robust political system that gives its economy a strong position as an ally of international organisations. However, India's goal of being the plus-one partner in the global supply chain system may face stiff competition from Vietnam, Thailand, Bangladesh, and other Asian countries as India lags in a few indicators such as ship turnaround time, labour productivity, skilled workforce, etc.

The world sees India as an ideal replacement or alternative for China. India has numerous positive attributes and the potential to be a partner in global supply chains. It can de-risk the global supply chain and provide global supply chain companies with a demographic advantage, a technological edge, a strong economy, a startup culture, and a huge domestic market. India's potential as a supply chain partner is immense, and industry leaders should leverage this opportunity to build robust and resilient supply networks in India. 

HHV GROUP BAGS QUALIFICATION VALIDITY CERTIFICATION FROM SAC, ISRO

Hind High Vacuum Advanced Technologies (HHVAT), a subsidiary of the Bengaluru-based HHV group, has announced that its Hybrid Micro Circuit (HMC) Lab has once again bagged the prestigious qualification validity certification from the Space Applications Centre (SAC), Indian Space Research Organisation (ISRO) for its metallisation and lithography processes on alumina substrates for space flight applications.

SAC, one of the major centres of ISRO, focuses on the design of space-borne instruments for ISRO missions and development and operationalisation of applications of space technology for societal benefits. The applications cover communication, broadcasting, navigation, disaster monitoring, meteorology, oceanography, environment monitoring and natural resources survey.

The HHV Group has been associated with ISRO for the last six decades and has built and supplied India's first space simulation chamber. From providing machines and components for various applications, HHVAT has a long history with various ISRO units.

HHVAT's HMC lab is capable of two-layer and three-layer Thin Film Metallised Circuits (TFMC) with a line accuracy of 40 micron using photolithography process. The lab is equipped with three production sputter coating systems, a stylus profiler for measuring the thickness of the coatings, a four-probe sheet resistance metre to qualify the sheet resistance of the coatings, a laser writer for mask fabrication, UV exposure and aligner system for carrying out the



photolithography process, an etching room with a chemical wet bench, dicing machines to cut metallised substrates to required sizes, and high-performance microscopes and profile projectors for inspection and measurement of the plain and patterned substrates.

The HMC Lab is housed in an ISO 7 clean room and has ISO 5 laminar flow stations for substrate handling. With these facilities the HMC lab can produce annually 25,000 numbers of 1 inch sq. metallised substrates for space and defence applications.

"HHV works closely with scientists of ISRO on these Hybrid Micro Circuits in realising various Flight Mode projects. The Chandrayaan-3's landing on the moon has made India proud and put a feather on the cap of HHVAT for its contribution towards Make in India. We are proud to be a part of this successful journey of ISRO and India" said Prasanth Sakhamuri, Managing Director, HHVAT.

SPINTLY'S INGENUOUS MESH NETWORK TRANSFORMS EVERY DEVICE INTO A DATA RELAY

In an interview with **The Machinist Magazine**, **Rohin Parkar**, Co-founder and CEO of Spintly, discusses their cutting-edge solution and how it addresses prevalent issues in smart building spaces. He also highlighted the company's plans to diversify its solutions for smart industrial applications, expand operations, and relocate its entire contract manufacturing to India.

How is Spintly aiming to leverage and adapt their underlying technologies such as IoT and cloud computing for smart manufacturing applications in the future? Do you see any scope for such diversification?

In the manufacturing industry, control over machinery and processes is essential to maximise machine uptime. Machine components generate vast amounts of data essential for optimising processes, and in large facilities, millions of sensors are wired to centralised controllers to gather and manage this data. With the automation of manufacturing processes on the rise, there is a growing demand for sensors. However, traditional automation methods relying on centralised wired systems are becoming more expensive.

Spintly addresses this challenge by leveraging wireless sensors within a mesh network with a distributed architecture. Ideal for applications like process control and preventive maintenance, this technology provides a solution that caters to the demands of modern manufacturing. With over 4,000 deployments across India and globally, Spintly has developed an access control system using a distributed architecture on a wireless mesh platform. As Spintly continues to evolve, it aims to expand from access control into smart buildings and eventually into sophisticated smart industrial applications.

What sets Spintly's innovative architecture apart from competitors?

Spintly simplifies and reduces the cost of installation compared to traditional, centralised systems. Unlike other solutions that require extensive wiring and bulky hardware, Spintly's ingenious mesh network transforms every device into a data relay, eliminating the need for complex cabling and minimising upfront costs. Additionally, the distributed nature of the mesh network allows for effortless scalability, seamlessly



Rohin Parkar, Co-founder and CEO, Spintly

integrating more devices as needed without significant infrastructure changes.

Moreover, Spintly's architecture facilitates intelligent and distributed processing at the edge of the IoT network, empowering devices to communicate and make data-driven decisions based on local information. This eliminates the need for a central processing unit, reducing reliance on centralised hardware and enhancing system efficiency and reliability.



In 2021, Spintly relocated its entire contract manufacturing to India, prompted by significant challenges encountered during the COVID-19 pandemic. Disruptions in global trade halted production, leading Spintly to swiftly transition its manufacturing operations to India. Despite initial setbacks, the move proved pivotal for Spintly's business growth and market opportunity.

How does Spintly intend to allocate and deploy the funds raised in its recent funding round?

Most of the funds will be allocated towards fueling growth, focusing primarily on expanding its presence in both Indian and US markets. A significant portion of these funds will be directed towards strategic investments in marketing, sales, and business development initiatives. Additionally, Spintly plans to allocate resources to R&D, aiming to further expand its product and technology portfolio.

How is Spintly addressing prevalent problems in the Smart Building space? How are Spintly's solutions, which have been adopted by prominent customers such as Manipal Hospitals and Tata Consumer Products, facilitating seamless operations for manufacturers?

Traditional access control systems often lack flexibility, control, and integration with modern cloud and software platforms, relying on physical means of access such as badges, keys, or fobs. These methods not only pose security risks but also create management challenges. Biometric access control using fingerprint or facial recognition devices is not scalable for large organisations with offices in multiple locations. Spintly addresses these limitations with a cost-effective wireless, smartphone-based physical access control solution for visitor and attendance management in commercial and residential buildings.

Spintly's solutions have made a significant impact on various sectors, serving customers like Manipal Hospitals across 32 sites and Tata Consumer Products across 11 sites. Collaborations with industry leaders such as JLL, Anarock, and Brookfield Properties in India and globally have notably enhanced access management and tenant satisfaction across multiple locations. With over 250,000 users and an annual recurring revenue (ARR) growth of 300 per cent in 2023, Spintly has demonstrated its ability to streamline operations and simplify infrastructure without extensive cabling or additional hardware. This not only reduces costs for customers but also positively impacts their bottom line.

In the year 2021, Spintly relocated its entire contract

manufacturing to India. How has this strategic move impacted on your business growth and market opportunity? What triggered the relocation to India?

In 2021, Spintly relocated its entire contract manufacturing to India, prompted by significant challenges encountered during the COVID-19 pandemic. Disruptions in global trade halted production, leading Spintly to swiftly transition its manufacturing operations to India. Despite initial setbacks, the move proved pivotal for Spintly's business growth and market opportunity. By partnering with local manufacturers in Gujarat and Tamil Nadu, Spintly not only addressed immediate supply chain challenges but also supported local manufacturing, generating employment opportunities within India. This strategic shift enabled Spintly to control hardware costs and lead times, enhancing its competitiveness in the market.

Kindly highlight the company's strategic milestones and expansion plans.

Spintly has forged partnerships with five of the largest global property management firms, representing a significant milestone in its growth trajectory. Additionally, Spintly has integrated its technology stack with major tech players, such as Cisco Meraki, facilitating the seamless incorporation of video analytics into its platform. Another key achievement is the successful launch of smart locks in collaboration with Godrej, a prominent partnership in the Indian market. Furthermore, Spintly has expanded its operations beyond India into the Middle East and the US. By targeting these new markets, Spintly aims to capitalise on emerging opportunities and solidify its presence within the smart building industry.

How has Spintly evolved since being a part of Accel's pre-seed accelerator program Atoms 3.0?

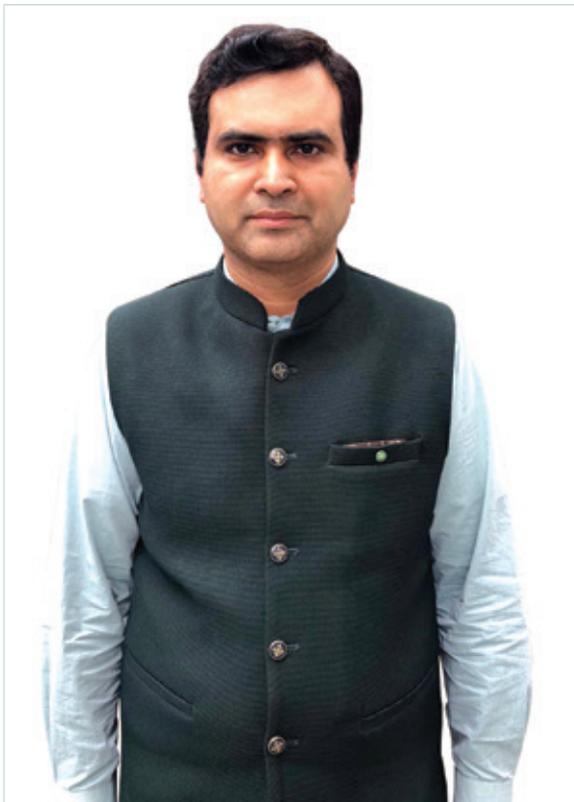
Atoms 3.0 has proven to be transformative for Spintly, catalysing significant growth and development. By tapping into Accel's extensive network, particularly within the enterprise and real estate sectors, Spintly has gained access to valuable resources and opportunities. This program has helped foster strategic thinking, refine its GTM strategy, and provided guidance for Spintly's continued evolution and success. 

WE ARE EXPANDING OUR PRODUCT PORTFOLIO BEYOND TRADITIONAL POWER BANKS

Ambrane India has established itself as a leader in the power bank category, capturing over 30 per cent of the market share. To continue its dominance, the leading consumer electronics and mobile accessories brand has developed a two-pronged strategy for further growth and expansion. In an interview with **Nisha Shukla, Ashok Rajpal, Managing Director of Ambrane India**, reveals details about their sales strategy, expansion plans, and diversification of products. He also provides insights into the latest trends in consumer electronics and the significance of locally sourced components.

As one of the dominant players in the Power Bank category, Ambrane India holds over 30 per cent market share. What steps are you taking to continue your dominance?

Ambrane India has carved a dominant position in the



Ashok Rajpal, Managing Director of Ambrane India

power bank category, capturing over 30 per cent of the market share. To retain this leadership, we prioritise understanding and meeting evolving consumer demands. This translates into continuous innovation and technological advancements in our power banks. We focus on features and functionalities that enhance user experience and stay ahead of the curve. Additionally, we are expanding our product portfolio beyond traditional power banks.

This diversification caters to a wider range of customer needs, including laptop power banks, wireless charging solutions compatible with MagSafe and the Qi-2 standard, and even solar power banks for eco-conscious users. We are also introducing innovative multi-functional products that combine functionalities, like wireless chargers with integrated power banks, diverse wall chargers, and powerful hubs capable of charging even larger devices like mini-fridges and televisions.

India still imports a significant amount of consumer electronics components from other countries. What steps/measures are you taking to reduce this dependency and ensure end-to-end localisation?

We have significantly increased domestic sourcing to 70 per cent of our materials, including crucial components like consumable plastics and battery materials. Partnering with vendors across Andhra Pradesh, Mumbai, and Uttar Pradesh strengthens our domestic supply chain and fosters a more sustainable manufacturing ecosystem. Furthermore, we have expanded our manufacturing facility threefold, enabling the in-house production of certain components previously imported. This not only reduces reliance on



We are expanding our product portfolio beyond traditional power banks. This diversification included laptop power banks, wireless charging solutions compatible with MagSafe and the Qi-2 standard, and even solar power banks or eco-conscious users. We are also introducing innovative multi-functional products that combine functionalities, like wireless chargers with integrated power banks, diverse wall chargers, and powerful hubs capable of charging even larger devices like mini-fridges and televisions.

external suppliers but also allows for greater control over product quality. We anticipate continued support from government initiatives and industry leaders to establish domestic semiconductor manufacturing facilities in India. This will ultimately help us achieve complete localisation of our production process.

What trends are you observing in consumer electronics and mobile accessories manufacturing that are shaping the industry's direction? How are you capitalising on these trends?

One of the most prominent trends is the preference for portable and compact devices, especially when it comes to charging solutions. Consumers are seeking convenient and easy-to-carry gadgets. We are addressing this by developing smaller and lighter power banks that perfectly suit this need for portability. Another significant trend is the growing popularity of wireless charging solutions, with MagSafe being a prime example. To cater to this demand, we are introducing Qi-2 technology, offering magnetic charging options for a wider range of devices beyond those compatible with MagSafe specifically.

Finally, faster charging times are a major concern for consumers. We understand this, and that's why we are constantly innovating to integrate the latest fast-charging technologies into our products, ensuring our power banks meet the demands of today's fast-paced world.

How has the "Make in India" initiative contributed to the growth and development of the consumer electronics landscape in India?

The "Make in India" initiative has had a significant positive impact on the Indian consumer electronics landscape by encouraging domestic manufacturing, allowing companies like Ambrane to thrive through local production from the very beginning. Localised production has resulted in accelerated innovation cycles. With manufacturing conducted domestically, we can promptly adjust to evolving consumer preferences and technological advancements.

This results in a broader range of innovative products reaching the market more quickly. Additionally, the rise in domestic manufacturing has fostered competition within the industry. This healthy competition has led to a wider range of high-quality electronic products at competitive prices for Indian consumers. Finally, by reducing import dependency, the "Make in India" initiative strengthens the industry's resilience and promotes a self-sufficient manufacturing ecosystem within the country.

What are your future plans? Are there any plans for further expansion?

We have already tripled our manufacturing capacity to cater to the growing demand. Additionally, we aim to expand our global presence beyond the current 17 countries, including Europe, the US, and the UAE. Domestically, we will focus on increasing our presence in Tier-2 and Tier-3 cities by onboarding new distributors and developing a stronger market presence in these regions.





Recognising the ever-evolving needs of our customers, we also plan to introduce new products across various categories beyond just charging solutions. This diversification will ensure we remain a one-stop shop for consumer electronics needs, offering a wider range of high-quality products under the Ambrane brand.

As per a report, India's Consumer Electronics Market is valued at US\$ 80.8 billion in 2024 and is expected to reach US\$ 149.1 billion by 2033, at a CAGR of 6.10 per cent during the forecast period 2024–2033. How would you capitalise on this opportunity?

India's booming consumer electronics market, projected to reach \$149.1 billion by 2033, presents a golden opportunity for Ambrane India. We are focusing on three key areas: innovation through R&D to meet evolving consumer needs, building brand trust with exceptional quality and customer care, and implementing strategic marketing and sales across all channels. This includes expanding our reach through a stronger distribution network and enhanced online presence to capture the growing digital consumer base, solidifying our position as a leader in the Indian market.

How does the company plan to enhance its sales strategy, and which are the key markets you would be targeting for growth and expansion?

We are enhancing our sales strategy for both domestic and international growth in two ways. Firstly, we are adjusting our approach to international markets, building on our recent entry into those markets. We will establish strategic partnerships with established local companies to expand our reach and leverage their existing sales networks. Additionally, we will prioritise

multilingual customer support to ensure a positive brand experience for our international customers.

Secondly, we are establishing an omnichannel network to provide a seamless customer experience across all platforms, whether online or in-store. We are focusing on deeper penetration within India by expanding our distributor network in Tier-2 and Tier-3 cities. To resonate with these local audiences, we will implement personalised marketing campaigns tailored to their specific needs and preferences.

How have government policies, such as the Production Linked Incentive (PLI) scheme and tax reforms, supported or hindered the growth of indigenous manufacturing in this sector?

Government initiatives have played a vital role in bolstering indigenous manufacturing within the consumer electronics sector. The Production Linked Incentive (PLI) scheme has emerged as a major driving force. This program acts by increasing investment in crucial areas like R&D and domestic production. This not only strengthens our domestic capabilities but also fosters innovation for future growth. Furthermore, the PLI scheme creates a more attractive environment, enticing foreign companies to set up manufacturing facilities in India. This fosters a robust and competitive ecosystem, with a wider range of players contributing to advancements in the sector. Beyond the PLI scheme, streamlined tax reforms and improved infrastructure have further streamlined operations, creating a more favourable environment for domestic manufacturing to flourish, allowing Indian manufacturers to compete more effectively on a global scale. 🇮🇳



IGUS TO LAUNCH 247 NEW PRODUCTS WITH ZERO LUBRICATION AT HANNOVER MESSE 2024

Lubricants are as much a part of everyday industrial life as a cup of coffee every morning. Every year, 240 billion dollars are spent on lubricants across the globe. In addition, studies have shown significantly higher costs for maintenance personnel. Nevertheless, machine downtime worth 750 billion dollars occur every year due to inadequate lubrication.

igus now combines 60 years of motion plastics expertise with hundreds of thousands of test data and millions of applications in an AI that immediately takes users to lubrication-free movements in their systems. From excavators and agricultural tractors to water turbines, everything has already been successfully tried and tested. A study by RWTH Aachen University demonstrates the explosive nature of the topic. At the Hannover Messe, the plastics specialist is presenting 247 new products, showing that everybody can achieve “zero lubrication”.

People discussing the most important innovations of the future rarely mention a lubrication-free world. However, a study by RWTH Aachen University is the first to prove the positive impact that lubrication-free plastics have on companies' profitability and sustainability. One example of a world-renowned beer-bottler shows: by using lubrication-free polymer bearings in all conveyor belts at its 160 sites, the company was able to save €6 million a year otherwise spent on lubricant and staff. The positive environmental impact is also considerable: At the same time, annual CO₂ equivalents totalling 28,814 kg could be saved. At Hannover Messe 2024, igus will be showcasing hundreds of proven applications that operate completely without lubrication for as long as the machines were designed – and often even longer. New products are constantly expanding the industry's possibilities, whether for linear guides, rollers, gears or gearboxes.

A clean revolution with artificial intelligence

“igus, make my excavator lubrication-free!”: The prototype's new version of the igusGO app, which was presented for the first time last year, makes this possible. By voice, photo or text, users are now immediately shown the proven solutions for various points in their excavator and 600 other applications. If they cannot find their application, they can request it via AI chat in the app and are guaranteed to receive an answer. The AI is based on data from millions of applications of igus products over the past decades. It also provides functions for determining the application's service life in their individual scenario - based on hundreds of thousands



of test values from the in-house laboratory, which igus describes as the largest of its kind in the world. “Today's role of AI is overwhelming,” says Tobias Vogel, CEO of Plain Bearings and Linear Technology at igus. “All of a sudden, we can turn all the ‘zero lubrication’ proof of the last decades into a safe and simple tool for everyone in the industry.” Another brand-new feature is the calculation of saved lubricant in the igusGO app, which is indicated when users select a plain bearing or gear, for example. The “Next Best Catalogue Part” AI service is also new. If customers upload the CAD file of a plain bearing, they have designed, which is to be installed in a bicycle without lubrication, for example, the AI automatically displays the catalogue part that comes closest to the special part. By using the catalogue part, the customer not only saves costs, but also benefits from fast delivery times. For even greater functional reliability, igus is now extending its 4-year guarantee for chainflex cables to all other motion plastics products with an online service life calculation.

247 innovations for zero lubrication

In total, igus is launching 247 new products in time for Hannover Messe 2024 - many of them in line with the principle “Go Zero Lubrication”. igus offers a

further three product series of high-load plain bearings for construction machinery, cranes and agricultural machinery, all of which have been tested and proven in practice. One of them is based on regranulated igus plastics from production waste. The new PTFE- and PFAS-free materials for plain and linear bearings as well as a new slewing ring bearing made of 50 per cent wood and 50 per cent high-performance plastic are also important components for real sustainability. New, separable igubal flange mounted bearings reduce the time it takes to replace lubricated ball bearings by up to 80 per cent, for example in conveyor belts with bearings close to the motor. New 3D printing materials and liners combine freedom from lubrication with explosion protection (“ESD capability”). In the same way, a new series of linear systems in hygienic design merges food suitability with “zero lubrication”.

In terms of intelligent condition monitoring, an abrasion sensor for spherical bearings now complements the existing smart plastics solutions for bearing technology. The final innovative example is a completely new evoloid gearbox. It works with electric drives with an 18:1 transmission in one stage, requires less installation space, costs 70 per cent less than metallic versions and requires no lubricating greases or oils. “We are looking forward to the dialogue with users at the Hannover Messe, where they can experience all of this live and try it out for themselves,” says Tobias Vogel. “We are certain that we can already avoid at least 10 per cent of global lubrication costs. And the ‘Zero Lubrication’ journey continues - we still have a lot of development work to do.”