

THE MACHINIST

ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

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“WE WILL BE LAUNCHING NEW EVs IN THE NEXT 8-12 MONTHS”

Mercedes-Benz's Executive Director and Head of Operations, **Vyankatesh Kulkarni**, said that the company will be launching new EVs from their global portfolio suited to the Indian market.

EVENT REPORT

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MAKE IN INDIA – A SUCCESS STORY WORTH WATCHING

"Vision without action is merely a dream."

Inadians have always been rich in talent, hard work, and energy. The dedicated and trustworthy leadership of the Narendra Modi government, backed by strategic policies, played a pivotal role. It's not overstating to claim that the country has made remarkable strides in the past nine years, surpassing the collective achievements of all the years before 2014. Prime Minister Modi's vision has set the stage for the actualisation of Atmanirbhar Bharat.

And guess what? India is the second largest manufacturer of mobile phones, the third biggest manufacturer of automobiles, the pharmacy of the world, and the only country to land on the south pole of the moon.

Young Indians are actively shaping over 90,000 startups, with 110 unicorns among them, marking a remarkable contribution to various sectors. The success witnessed across these industries is both inspiring and almost surreal.

A staggering over 97 per cent of smartphones sold in India are now locally manufactured, propelling the country to the second-largest mobile phone producer globally. The exponential growth in mobile production is evident, skyrocketing from 5.8 crore units valued at Rs 18,900 crore in 2014-15 to a whopping 31 crore units valued at Rs 2,75,000 crore in 2022-2023. In the fiscal year 2022-2023, mobile phone exports surged to a record-breaking 90,000 crores and are poised to surpass Rs 1.2 lakh crores. Notably, May witnessed a historic high in iPhone exports alone, reaching a monumental Rs 10,000 crore, contributing significantly to the country's total mobile shipments of Rs 12,000 crore.

India's journey from a significant importer of defence equipment to an exporter marks a monumental transformation. The nation is strategically pivoting towards self-reliance, emphasising indigenous manufacturing capabilities in the defence sector. The surge in India's defence exports is staggering, soaring over 23 times from Rs 686 crore in 2013-2014 to an unprecedented high of approximately Rs 16,000 crore in 2022-23. With an eye on the future, India has set an ambitious target, aiming for a defence export milestone of Rs 35,000 crore by 2024-25.

At present, India holds the position of the world's third-largest automotive market. The nation has set an ambitious target of doubling its auto industry size to Rs 15 lakh crore by the conclusion of 2024. In the span between April 2021 and March 2022, the Indian automobile industry showcased an astounding production of 22,933,230 vehicles, generating a turnover of Rs 8.7 lakh crores.

The recent triumph of Chandrayaan-3 showcased India's remarkable prowess. India has become the sole country to achieve a soft landing on the moon's south pole, solidifying its place among the top four nations to land successfully over the moon and develop an anti-satellite technology.

In the timeframe spanning January 2018 to November 2022, ISRO achieved a significant feat by launching 177 foreign satellites hailing from 19 countries. These countries include Australia, Brazil, Canada, Colombia, Finland, France, Israel, Italy, Japan, Lithuania, Luxembourg, Malaysia, the Netherlands, the Republic of Korea, Singapore, Spain, Switzerland, the United Kingdom, and the United States. This endeavour resulted in earnings amounting to Rs 1,830 crores, underscoring India's growing prowess in the global space exploration arena.

When Modi rose to power in 2014, he came with a promise of change. The promise of Reform, Perform, Transform changed into belief. The next five years will be the years of unprecedented development. The next five years are the golden moments to realise the dream of 2047 – 'Atmanirbhar Bharat.'

Happy Reading

Rohit Gopakumar
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AI platform Altair® RapidMiner® to deliver generative AI capabilities

ALTAIR INDIA, a global leader in computational science and artificial intelligence (AI) announced that Altair® RapidMiner®, its data analytics and AI platform, is becoming more integrated, more powerful, and easier to use thanks to a new series of updates.

Sam Mahalingam, Chief Technology Officer, Altair, said, "Altair RapidMiner is a game-changing ecosystem for organisations in all industries, helping them reduce friction and accelerate their digital transformation journey."

New, Advanced Tools for Integrating LLMs into Business Applications

Solutions in the Altair RapidMiner ecosystem with AI embedded now deliver generative AI capabilities, allowing users to simplify their workflow design and build unique versions of large language models (LLMs) like ChatGPT using their own data.

The Altair RapidMiner platform also uses ChatGPT's new API so users can enable further customisation without needing to write any code. In addition, users can access all 3,00,000 Hugging Face models with a single click and fine-tune models with billions of parameters.

Expanded AutoML and No-Code Development Features Bring Data Science to Everyone

Altair RapidMiner's comprehensive AutoML toolset now supports automated clustering in addition to predictive modeling, feature engineering, and time series forecasting.

The software also supports one-click deployment of AutoML models and simplifies operating predictive models trained with AutoML as REST API endpoints. Non-expert users like data analysts and citizen data scientists can deploy and integrate machine learning models in seconds using Altair RapidMiner's pre-configured deployment settings.

Streamlined Coding Experience for the SAS Language, Python, and R

Altair RapidMiner also includes Altair SLC™, an alternative SAS language environment, with a complete integrated development environment plus low-and no-code tools to support advanced analytics features, high productivity, and short development and deployment cycles. With Altair SLC, it's now easier than ever for enterprises to move to a flexible, modern analytics platform with minimal business impact. The enhanced

Python API allows users to test and run SAS language code from within their Python development environment.

New, Powerful Tools for Historical and Live Data Visualisation

Altair® Panopticon™, Altair RapidMiner's comprehensive data visualisation and streaming analytics solution, offers a streamlined user interface, including a new generation of data visualisation parts, new layout templates and tools, and new style settings that make building, publishing, and using dashboards more intuitive than ever. These improvements mean designers can spend less time on setup and focus on building and deploying better-looking, easier-to-understand dashboards.

Continued Investment in Patented Data Extraction and Prep

Altair RapidMiner continues its more than 30-year record of data extraction and preparation advancement – with Altair® Monarch® – offering improved performance and security, including direct read/write support for Azure Blob storage, Google Cloud storage, Oracle Cloud storage, and Azure Active Directory.

CHARGE+ZONE introduces India's first SuperCharging Network

CHARGE+ZONE, a growing EV charging company, has launched India's first-ever SuperCharging Network. This network places superchargers at major highways and city centres, offering amenities such as washrooms, restaurants, and shopping facilities. Selected stations also incorporate solar panels on canopies for sustainability.

The first supercharging will be operational in Mumbai and CCD, Vellore in November 2023. These stations are equipped with 180 KW dual gun chargers and 360 KW power cabinets, which include four guns that can deliver 60 KW each at 200 Amp, and one gun that can deliver 500 A (DC) current with liquid cooling.

The superchargers are designed to convert alternating current (AC) to direct current (DC), supplying high-power DC voltage and current directly to EV



batteries for swift charging.

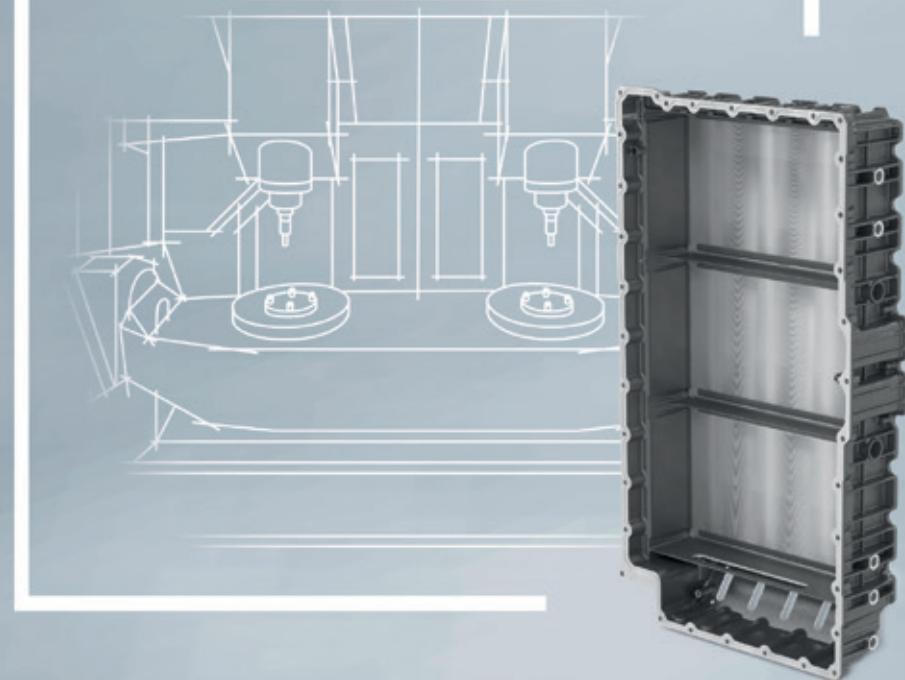
Kartikey Hariyani, Founder and CEO, CHARGE+ZONE, stated, "CHARGE+ZONE's SuperCharging Network is positioned to meet the growing demand for convenient and swift EV charging options, which are crucial for facilitating the widespread adoption of electric vehicles. Whether on long highway journeys or within city centers, the network provides accessible and high-speed charging."

Ravindra Mohan, Director (Operations & Technology),

CHARGE+ZONE, stated, "These superchargers possess high capacity, with at least one capable of delivering 400/500 A DC current. They serve the needs of long-haul transportation and city based EVs, providing a comprehensive charging solution with an estimated charging time of 15 to 20 minutes, depending on the vehicle's battery capacity."

This network is a component of CHARGE+ZONE's larger strategy to establish over 150+ superchargers throughout the country, creating a robust and reliable EV charging infrastructure. The decision to expand the supercharger network in these specific cities was prompted by the high traffic volume on the Chennai-Bengaluru highway, one of South India's busiest routes, and the need for fast and convenient charging options in prime commercial complexes like BKC, Mumbai.

AUTOMOTIVE



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VE Commercial Vehicles November sales reach 5,194 units

VE COMMERCIAL VEHICLES LTD.

VE COMMERCIAL VEHICLES LTD. recorded a sale of 5,194 units in November 2023 as compared to 4,903 units in November 2022, recording a growth of 5.9 per cent. This includes 4,989 units of the Eicher brand and 205 units of Volvo.

In the domestic CV market, Eicher-branded trucks and buses recorded sales of 4,686 units in November 2023 as compared to 4,483 units in November 2022,



representing a growth of 4.5 per cent.

On the export front, Eicher-branded trucks and buses recorded sales of 303 units in November 2023 as compared to 237 units in November 2022, representing a growth of 27.8 per cent.

Volvo Trucks and Volvo Buses recorded sales of 205 units in November 2023 as compared to 183 units in November 2022, representing a growth of 12.0 per cent.

Delta Selected Among the Best Taiwan Global Brands for 13 Years



DELTA was selected as one of the “2023 Best Taiwan Global Brands” for the 13th consecutive year. Delta's brand was also valued at US 544 million dollars, an increase of 28 per cent from 2022, establishing a new record. “The Best Taiwan Global Brands” is organised by the Industrial Development Administration, Ministry of Economic Affairs, and executed by Interbrand, an international brand valuation institution commissioned by the Taiwan Institute of Economic Research.

Shan-Shan Guo, Chief Brand

Officer, Delta, stated, “Delta has closely aligned its business with its ESG strategy. Currently, 63 per cent of the electricity consumed by our global operations comes from renewable sources, in line with Delta's RE100 goal by 2030. Additionally, Delta has also established an internal carbon pricing (ICP) system that charges a carbon fee of US 300 dollars. per ton of carbon emissions. The funds collected from carbon fees are then invested in developing low-carbon innovation, energy resource management and renewable energy solutions.”

Siemens Limited to invest Rs 416 crore in capacity expansions

FOR THE FOURTH QUARTER OF FY23 ended September 30, 2023, Siemens Limited registered a revenue of Rs 5,297 crore, a 25 per cent increase over the same quarter in the previous year. New Orders stood at Rs 4,498 crore, registering a 12 per cent increase over the same period last year. The Company's Order Backlog is Rs 45,518 crore. Profit after Tax was Rs 534 crore, an increase by 36 per cent over the same period last year.

For FY 2023, Siemens Limited reported an increase of 139 per cent in new orders, 21 per cent increase in revenue and 53 per cent increase in Profit after Tax over the previous financial year.

The company also announced investments of Rs 416 crore in capacity expansions of Power Transformers used in the power transmission business and

of vacuum interrupters for medium voltage switchgear used in the power distribution sector. The expansion in capacities of both these products will enable the company to meet the growing demand both in India and globally.

Sunil Mathur, Managing Director and Chief Executive Officer, Siemens Limited, said, “The resilient year-on-year performance across all our businesses is representative of the continued growth in Capex and Digital spending by both public as well as private sectors.”

“With 31 factories in the country, serving both domestic and global demand, Siemens has the engineering prowess, strong supplier base and a portfolio that addresses customer requirements across the value chain,” added Mathur.





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Cargill Ocean Transportation establishes presence in Pune

CARGILL OCEAN TRANSPORTATION

inaugurated their new office in Pune on November 22, 2023. This will allow the company to strengthen its presence in the country, get closer to its customers and be more in touch with the Indian maritime industry.

Being a satellite city of Mumbai and one of the largest shipping hubs globally, Pune together with Bengaluru and Varna in Bulgaria will form the core of Ocean Transportation Operations and allow the business to access a large diverse talent



pool and key customers of the company.

The new facility which will join other businesses of the company located in

Pune, will initially house a team of 25 Ocean Transportation experts responsible for the execution of Cargill's global trade of physical vessel voyages and time charters, with plans for further expansion in the years to come.

"This is an important step for us which not only brings us closer to the heart of the Indian shipping community but also allows us to tap into one of the best talent pools available," shared Eman Abdalla, Global Operations and Supply Chain Director, Cargill Ocean Transportation.

Continental's Radar Vision Parking Named CES 2024 Innovation Award Honoree

CONTINENTAL'S RADAR VISION PARKING

was named as a CES 2024 Innovation Award Honoree under the product category Vehicle Tech and Advanced Mobility. By combining high-resolution surround radars with high-resolution cameras, Continental enables parking use cases that require very precise and close-range measurement around the vehicle.

Early parking slot detection, for instance, lets users park in a single stroke without driving past the spot. As radars are very compact, they can be mounted behind all painted bumpers. Together with cameras, they provide a redundant, seamless 360° view around the vehicle. The Radar Vision Parking solution thus cannot only be a substitute for ultrasonic sensors, which are typically used for parking, but even provides better design and performance – while meeting the New Car Assessment Programme's (short NCAP) safety requirements.

On top, Radar Vision Parking provides enhanced object height

detection and can determine object over-rideability, such as low curbstones, or under-rideability, such as a hanging bicycle in a garage. The next-generation environmental model in the combined solution makes it possible to reduce accidents in the parking garage and avoid unnecessary waiting queues. Additionally, it is more efficient in using existing and future parking facilities and the needed space. These enhancements in driver assistance and parking technology will be a huge benefit to end users both in convenience, comfort, and safety.

Daniel Förster, Head of Product Line Parking and Product Line Human Vision, Autonomous Mobility Business Area at Continental said, "Parking can be a stressful experience for drivers. From finding your spot, to maneuvering into it in tight spaces and having enough



clearance for loading and unloading, Radar Vision Parking takes what can be an unpleasant experience and brings future mobility to drivers, today. With this technology, OEMs can reduce the complexity in their vehicles with less sensors, wiring, and overall hardware. Vehicle Designers can aesthetically design vehicles without being forced to integrate ultrasonic sensors wrapped around the front and rear bumpers on today's vehicles."

Schneider Electric unveils battery lab in Bangalore

SCHNEIDER ELECTRIC

the global leader in the digital transformation of energy management and automation, has unveiled their state-of-the-art Battery Lab.

The newly inaugurated Battery Lab will focus on research and development in battery technologies. This state-of-the-art facility will advance diagnostic

equipment and have modern safety systems and dedicated testing chambers to ensure optimal performance of the batteries and adherence to stringent safety standards. This emphasis on safety and performance underscores Schneider Electric's commitment to delivering high-quality, reliable energy solutions.

Pankaj Sharma, Executive Vice

President of the Secure Power Division at Schneider Electric, stated, "The inauguration of the Battery Lab is not just a step forward for our company but a leap forward for the entire industry. By focusing on collaborative research and pushing the boundaries of what's possible, we're paving the way for a brighter, more sustainable future."

Merry
Christmas
And Happy New Year



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

TOP ERP TRENDS OF 2024

Find out how (Enterprise Resource Planning) ERP systems are going to evolve in 2024 and how your organisation should prepare for the upcoming changes to get the most out of ERP systems.

As businesses navigate the complexities of the digital age, ERP solutions are not just adapting; they are leading the charge in transforming how organisations operate, compete, and succeed. The latest trends in ERP are not merely incremental changes; they are pivotal shifts that redefine the boundaries of business efficiency, data management, and strategic decision-making.

From the integration of advanced artificial intelligence to the rise of industry-specific solutions, these trends are reshaping the ERP sector, offering opportunities for businesses to utilise the power of technology for streamlined operations and competitive advantage.

Imagine a future where inventory replenishes itself, production lines adjust automatically, and compliance reports take mere seconds to generate. This isn't just science fiction; it's the reality we're hurtling towards in 2024. These advancements will not only enhance efficiency and productivity but also empower businesses to take smarter decisions, respond faster to market shifts, and ultimately grow in this competitive industry.

1. THE FUTURE IS CLOUD

Over the past few years, we have seen the implementation of cloud-based ERP solutions rise massively, and this trend is still going strong in 2024, moving from 64.7 billion dollars to 130 billion dollars.¹

Right now, businesses are struggling to keep themselves profitable due to the quick pace at which new trends are coming in. This makes businesses perform under the pressure of constant transformation. Organisations now need to work on finding new business models and lines of revenue to make themselves profitable.

On the other hand, the remote working culture, which leads to a distributed workforce, is also causing businesses to quickly adapt ERP solutions. Both employees and contractors are now demanding the freedom to work from anywhere. This has resulted in companies looking for ERP solutions that can provide the required data, software, and other essential things to work while keeping all of it secure from attackers.

Software-as-a-service (SaaS) ERP vendors are working with organisations to deliver on these



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In the coming years, Robotic Process Automation (RPA) is going to be rapidly employed in areas where employees must perform repeated tasks.

expectations, resulting in the future of cloud ERP solutions being brighter than ever.

2. REAL-TIME DATA SHARING

There is no doubt that technological advancements are bringing a new revolution to the world of ERP solutions. Both automation and digitalisation are playing a crucial role in streamlining the business process and, at the same time, reducing manual errors.

In the coming years, Robotic Process Automation (RPA) is going to be rapidly employed in areas where employees must perform repeated tasks. This will result in the freeing up of employees and will allow them to focus on more strategic activities.

With the addition of data visualisation tools in ERP, businesses can interpret complex data sets with ease and use them to make accurate decisions that are valuable for the business.

Moreover, with real-time data integration, analytics, and even system integration, development is going to be the cornerstone of ERP advancements. With this, organisations are going to gain actionable insights, monitor the performance of their workforce, and quickly respond dynamically to any new trend that is bringing change to the industry.

With real-time data sharing, ERP solutions will facilitate proactive planning and enhanced resource allocation while providing operational efficiency.

3. INCREASE IN POPULARITY OF INDUSTRY-SPECIFIC SOLUTIONS

The ability to customise the ERP solution and make it more inclined towards a specific industry is one of the reasons why more and more companies are considering using ERP.

ERP solutions that come with industry-specific features can bring more efficiency and capabilities to the business, leading to better profit margins and higher work rates for team members.

These programmes target both the existing requirements of a business and keeping the doors open to accommodate new changes that might occur in the industry overnight.

Apart from this, in the coming years, we are likely to see more companies move towards implementing industry-specific ERP solutions rather than going

with customised systems. This is because customising an ERP solution, which is something lots of vendors are doing right now, leads to a lot of issues, takes more time, and is expensive as well.

4. IMPLEMENTING THE INTERNET OF THINGS (IOT) IN ERP

With new technology being developed, ERP vendors are going to race against one another to integrate it into their ERP solutions. This will allow them to stay on top of the market and meet the user requirements of early adopters. Thus, in the future, ERP solutions will be equipped with several IoT features. This will lead organisations to automate, link, and sync multiple tasks in one place to manage them from a single ERP module.

5. MOBILE ERP

2023 has also seen some ERP vendors provide mobile support to their clients via mobile apps, as they have become a common norm in our lives. In the future, we are expecting ERP solutions to provide on-the-go access to critical business data, allowing team members or developers to access both the back and front end remotely from their smartphones.

Likewise, mobile ERP is going to encourage team members to collaborate more often to discuss the projects on which they are working together, leading to the dissolution of different time zones and geographical issues.

Mobile apps for ERP solutions will have a more user-friendly interface, allowing even non-technical people to make the most of them with ease. Some tasks that we expect users of mobile ERP solutions to complete are creating expense reporting, calling logging, monitoring team members, tracking time, seeing the status of critical workflows, and sending approvals right from their phones.

With real-time data and insights being provided to users, it becomes much easier for organisations to get the work done by remote team members. This will help in increasing productivity, faster development cycles, and more accurate capturing of the data.

This will eventually cut costs, as vendors will not have to work around the ERP solution to retrofit it in order to make it work for the whole business. Apart from this, a specific level-2 ERP solution is much easier to implement and allows subsidiaries to have more flexibility in terms of changing business conditions.

6. TWO-TIER ERP SOLUTIONS

A lot of times, we see companies deploying a single ERP solution for both headquarters and regional offices in multiple cities. However, with this practice, companies must pay a large sum to the vendor, and the

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implementation is another challenge that needs to be handled by the organisation because regional offices have their own requirements, and with a single ERP solution, they are unable to function at their full potential.

This has resulted in ERP vendors coming up with a two-tier ERP solution where organisations can leverage their investment in the existing ERP solution at level 1. At the same time, their subdivisions can operate a level-2 ERP solution, which is provided by the same vendor.

In this form of multi-level ERP solution, large companies will be able to use their core ERP solutions for handling financial tasks and other mission-critical processes. In contrast, the smaller business units of the company will be able to use ERP solutions that cater to their specific needs.

7. MORE SUSTAINABLE OPERATIONS

With the government urging industries to make their operations more sustainable, it is time for ERP solutions to join the bandwagon and integrate sustainability into their work. More than 80 per cent of executives from all around the globe agree that they need to make better efforts to protect the environment.²

Some companies are claiming to achieve carbon neutrality by a specific year or even a specific date. However, even right now, many are uncertain as to how to achieve this while conducting their operations without any issues.

With environment, social, and governance (ESG) software, organisations can quickly find out how much damage they are causing from their operations, but even ESG requires a helping hand from ERP to get this done. Let us show you how.

For example, if a customer is looking to buy a new motorcycle, they have the freedom to customise it as much as possible. From changing the leather of the seat to making sure that the colour of the fuel tank matches with that of their car or the type of tyre they want for a smoother ride experience, once a customer is done customising his bike, the ERP solution can provide him with the carbon footprint of the bike based on the customisation along with its manufacturing cost.

Now imagine this: if the same page that shows the carbon footprint has a button that says, "Click To Make Your Bike More Environment Friendly." With just one click, the system will automatically recommend the changes that customers can inculcate while including all the environmental guidelines. With ERP, this data can be given to the customer in real-time, making a great impact on their decision and bringing a much positive change to the brand values in their minds.

8. COLLABORATIVE ERP

Most companies want their software programmes

to be easily accessible to all team members. For example, if someone from the sales team is working on a purchase order and requires a colleague's input on that purchase, they do not have to switch from the ERP solution on which they are currently working and open some other programme to take the input from their team member.

The ERP solution must become a one-stop solution for business needs. This will save time and allow employees from different teams to interact quickly with one another. We have seen the partnership between SAP and Microsoft to provide shareable links to live ERP data that can work directly on the Microsoft Team channel.

In the near future, these two companies are looking to work more closely to form a better collaboration of their programmes so that one day you can send real-time data from the SAP ERP solution in the Microsoft Teams channel, and everyone who is a member of it can see the changes taking place in the data live from their chat box.

9. AI-POWERED ERP

As businesses seek more tailored solutions for their unique challenges, the demand for industry-specific ERP systems is on the rise. For instance, a healthcare ERP system may focus on patient data management and regulatory compliance, while a manufacturing ERP might prioritise inventory management and production scheduling. This inclination towards customisation ensures that businesses are not just implementing a one-size-fits-all solution but are investing in systems that align closely with their operational requirements, industry standards, and long-term strategic goals. As a result, industry-specific ERPs are becoming a vital tool for companies looking to gain a competitive edge in their respective markets.

CONCLUSION

The transition phase in the ERP industry is taking place right now. With companies realising the speed and agility they require to stay relevant in the competitive market, they are soon going to move from their current software to a cloud-based ERP solution.

The COVID-19 pandemic is making every business work remotely. It is expected to be seen that in the coming years, the latest changes in ERP solutions will be inclined towards making them more accessible for remote working.

If you haven't switched the ERP solution yet, then now is the time for you to be part of the change with Embee India, the best SAP ERP solution provider. 

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1. Business Wire
2. Forbes



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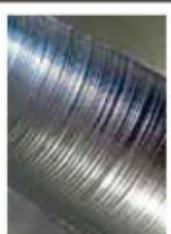
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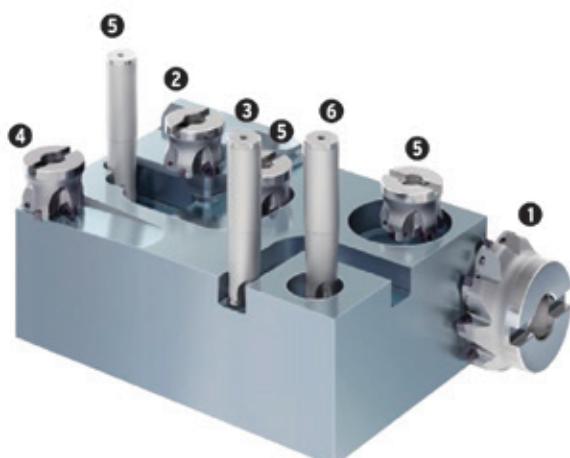


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YOUR GLOBAL CRAFTSMAN STUDIO

“EVERY INDUSTRY STANDS TO BENEFIT FROM CAE”

From the automotive to the electrical, every industry can grow with a Computer-Aided Engineering, believes **Radha Krishnan, President and Founder, Detroit Engineered Products (DEP)** as he gives an insight into how CAE evolved, what it is at present and how it will grow in the future.

Mr. Krishnan, could you share your journey in the engineering industry and the foundation of Detroit Engineered Products?

I am so proud that DEP has completed 25 years. Over these years, I have seen the company evolve from a



Radha Krishnan, President and Founder,
Detroit Engineered Products (DEP)



Engineers today use CAE to model and analyse designs and predict how they their prototype will perform under various conditions which reduces the need for costly physical prototypes.

Michigan-based CAE services and software provider. Witnessing it growing its base into five countries, seven offices, and numerous global partnerships across various product and service domains still feels unbelievable.

You know, our journey has been marked by many stepping stones, including the release of each new version of our flagship CAE platform, DEP MeshWorks. We also celebrated the establishment of our product development wing, where we've collaborated with clients to create diverse custom products—from drones, people movers, and e-scooters to agricultural equipment and laser cutters.

Another notable achievement for us was the introduction of the IC sensor, a technology enhancing the efficiency and reducing emissions in internal combustion engines. As we continue to broaden our service offerings, the journey becomes even more captivating and dynamic.

Could you provide an overview of what a CAE platform is, and how is it benefiting our industries today?

CAE is basically a Computer-Aided Engineering (CAE) platform, this sophisticated software employs computational methods to simulate and analyse engineering designs. Hence, it enables a virtual testing

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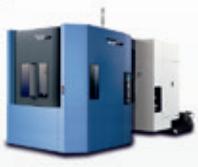
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Machining Center



FOUR-STAR HRP

High Rapid Precision
Machining Center



MOMENTUM

Heavy-duty
Precision CNC Vertical
Turning Center



HONG JI

Gun Drilling
Machine

“

As a president, my priority is to continue investing on research in simulation like digital twins, machine learning, as they will ensure the continual enhancement of DEP MeshWorks for optimal efficiency.

ground for products before their physical prototypes are produced. Doing so will streamline the product development lifecycle.

Engineers today use CAE to model and analyse designs and predict how their prototype will perform under various conditions which reduces the need for costly physical prototypes. Using CAE in automotive, aerospace, electronics, and manufacturing, enhances efficiency, minimises development time, and ensures product reliability. In my opinion, with CAE in the picture, engineers can make informed decisions which will give birth to innovation and competitiveness in the engineering landscape.

What is it which distinguishes your CAE platform from other CAE platforms?

MeshWorks is our own CAE platform, through which users can employ morphing technology to create conceptual CAE models and make direct modifications within the model. Our users then get the freedom to make improvements to parameters later if their desired performance satisfaction is not achieved.

This approach allows for swift adjustments and enhances efficiency in achieving solutions. We have integrated workflows as well that enable the user to do repetitive CAE workflows really quickly.

There is often a skill gap seen in this industry, and it is seen that those who have the skills are often difficult to retain. What methods do you employ to provide skill training and employee retention?

See my approach with respect to employees goes beyond addressing skill gaps and retaining employees. As a company we target to create an environment where employees feel valued and motivated to stay and grow within the organisation.

With respect to this, we have put various strategies in place. Firstly, we prioritise collaborating with educational institutions, and offer internships and apprenticeships to students. Even in the industry, DEP participates in job fairs, networking events, and invests in training programs.

We also encourage our employees to obtain relevant certifications even facilitate cross-training to ensure versatility. At DEP, we ensure to provide a regular performance feedback, which acknowledges

the achievements and also identifies areas of improvement.

Further, we do maintain a competitive compensation, coupled with benefits, which helps us attract and retain top talent. Alongside flexible work arrangements and prioritise a positive workplace culture.

Understanding what the industry demands, we adjust and tailor our training programmes to ensure that our employees are up-to-date and remain at the forefront of the field.

So, which other industry do you think could benefit from the CAE platform that we're planning to step into?

See, DEP has a rich history in the automotive segment, especially since we're based in Michigan. We have been long involved with major automakers in the US, Europe, and India.

While CAE tools are heavily used by automakers, aerospace companies, and biomedical folks it's interesting to note that other industries are also embracing CAE and putting its tools to good use.

We are not just limited to automotive; we are also working with companies in Energy, Electronics, Oil and Gas, Consumer Products, Heavy Equipment, and more. From where I see it, every industry stands to benefit from CAE, and I am happy to see people expanding the boundaries of what CAE can achieve.

As we witness the growing utilization of CAE, what is your vision as the president? Where do you see DEP over the next decade?

As a president, my priority is to continue investing on research in simulation like digital twins, machine learning, as they will ensure the continual enhancement of DEP MeshWorks for optimal efficiency.

We are also gearing up for significant investments in our global product development wing. Looking ahead, our immediate milestone involves establishing our presence with a dedicated office in Europe within the next year or so.

Again, aside from these immediate goals, in the long term my vision is to enable sustainable innovation and fasten the product development process, making it an inclusive endeavour for all to achieve. 

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By Suman Nelluri, Executive Director, Greaves Technology Limited

DIVERSIFYING GLOBAL SUPPLY CHAINS IS THE NEED OF THE HOUR

Touching topics of technology, government, pros and cons, the article calls attention to the need of a globally diversified supply chain for resilience.

Supply chains have become indispensable for global commerce in the rapidly evolving global economy. However, the pandemic has exposed the vulnerabilities and risks of concentrated supply chains. Production, transportation, and distribution disruptions have cascading effects on the global economy. Globally, diversifying supply chains has become an urgent imperative to enhance resilience and minimise disruptions caused by unforeseen shocks, such as natural disasters, geopolitical conflicts, and pandemics.

The primary goal of diversification is to create stronger safety nets, flexibility, and adaptability within supply chains, enabling them to withstand external shocks with minimal disruption. Achieving this involves various approaches, such as expanding the number of suppliers, implementing redundant logistical solutions encompassing multiple modes of transportation, and considering near- or re-shoring options to bring operations closer to home.

A survey by Ernst & Young reveals that many industrial companies have taken significant steps to diversify their supplier base, establish operations in new countries, and conduct near- or re-shore operations. Despite the associated costs, businesses prioritise resilience in their supply chains. Challenges arise from the previous focus on efficiency, cost reduction, and globalisation in concentrated supply chains. COVID-19 and other crises have exposed concerns and vulnerabilities related to transportation, shifts in consumer demand, and inventory management procedures. This necessitates a shift towards diversified suppliers, increased supply chain visibility and resilience, adaptability to shifting market conditions, and embracing digital transformation.

While diversifying supply chains enhances resilience, it also introduces complexity and potential challenges, such as increased environmental, social,



and governance risks. Despite these challenges, building robust, agile, and resilient supply chains is worthwhile. However, achieving this will require a rare level of visibility in the freight and logistics cycle during supply chain reconfiguration. To foster diversification efforts, companies should actively seek multiple domestic and international suppliers to form strong partnerships that promote resilience and healthy competition.

Evaluating regions based on policy stability, infrastructure, labour costs, and market proximity is essential to mitigating concentration risks and expanding operations to new areas.

Digital technologies such as blockchain, artificial intelligence, and automation can enhance supply chain visibility, traceability, and efficiency. Collaboration with industry partners, governments, and research institutions is crucial to sharing knowledge and resources, identifying emerging threats, developing innovative solutions, and bolstering societal resilience.

Governments can play a significant role by enacting favourable legislation, offering incentives, promoting innovation, investing in infrastructure, including transportation, logistics, and digital connectivity, developing skills, and facilitating companies' expansion of their supplier base. Initiatives like the PM's Gati Shakti project, focusing on multi-modal connectivity, can expedite the movement of goods and services, reduce travel time, and improve last-mile infrastructure connectivity. India can leverage its commitment to sustainability and ethical practices to ensure a conducive business environment and attract businesses looking to diversify their supply chains while meeting environmental and social responsibility goals. India can capitalise on its expertise in IT services and technology solutions by integrating digital tools for supply chain management, data analytics, and automation, investing in research and development to foster innovation in manufacturing processes and technologies, and

fostering collaboration between the government, private sector, and academia to address supply chain challenges. By implementing sound strategies, India can position itself as a resilient and attractive destination for global supply chain investments while ensuring its supply chain's stability and adaptability in the face of unforeseen disruptions.

Diversification of supply chains has never been more critical to ensuring resilience. Concentrated

supply chains have various risks, and disruptions can have significant consequences. On the contrary, diversification offers stability through increased resilience, risk reduction, and enhanced adaptability. Companies prioritising diversification as a strategic imperative can effectively navigate uncertainty, overcome challenges, and ensure long-term stability for their businesses and the global economy. 

THERMAX SOLUTIONS TO BRIDGE THE GAP BETWEEN ENERGY AVAILABILITY AND SUSTAINABILITY

Thermax, a leading energy and environment solutions provider, is developing green and decarbonisation solutions that bridge the gap between energy availability and sustainability. The company demonstrated its technologies and solutions at its inaugural edition of Thermax Fest in Pune, between December 12-15, 2023.

At the event, Thermax Group made key announcements outlining its vision and the future of the company in alignment with global energy transition goals. The company, through one of its subsidiaries, has secured orders worth more than Rs 500 crore from a leading energy conglomerate for setting up five bio-CNG plants across India. These plants will be set up in the states of Rajasthan, Madhya Pradesh, Maharashtra and Uttar Pradesh. With the capacity to produce 110 tonnes per day (TPD) of bio-CNG.

These plants will utilise local feedstock exceeding 1,000 TPD, which includes rice straw, Napier grass, cane trash and soya trash. The bio-CNG generated from these plants will be employed for commercial and captive use by the customer.

Another initiative aligned towards clean energy is the installation of 1 GW of hybrid renewable energy solutions by FY 2027. These will be intra-state and inter-state projects, helping industries with a variety of offerings, including round-the-clock clean electricity requirements. Amongst the 290 MWp (commissioned and under construction) is their wind and solar bundled captive power project comprising 100 MW wind and 90 MWp solar, located in Thoothukudi, Tamil Nadu, which is being evacuated at 110 kV in a phased manner.



The captive users are leading organisations from tyre, auto comp, petrochemical and textile industries. The company currently manages an operational portfolio of 140 MWp, with an additional 145 MWp under construction, over 300 MW in development, and 400 MW in the pipeline.

Furthermore, Thermax aims to develop gasification plants with carbon capture capabilities to process coal ranging from 100 to 500 TPD. Based on fluidised bed

coal gasification technology, Thermax has implemented a pilot gasifier project at its factory in Pune in partnership with IIT Delhi, with support from the Department of Science and Technology. This indigenously developed technology converts high-ash Indian coal into value-added fuels. It is particularly beneficial for hard-to-abate industries like the steel sector and aligns with the Prime Minister's vision of gasifying 100 million tonnes of coal by 2030.

Thermax has also recently launched electrical energy solutions such as the electric boiler and hybrid heat pump for meeting heating and cooling requirements. Electrical solutions reduce reliance on fossil fuels, optimise energy and achieve zero emissions when powered by green electricity.

MD and CEO Ashish Bhandari, said, "For 50 years, Thermax has played a vital role in India's energy landscape. We are continuously driving sustainability through innovation, cross-functional expertise and partnerships. To address the country's unique energy challenges, we have pioneered technologies for converting waste to energy and are investing in newer areas such as hybrid renewables, biofuels, green hydrogen, and more."

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Ajmer Road, Jaipur
Ready to move
- 3 BHK Flat | ₹1.14 Cr | 1200 sqft
New Town, Kolkata
Ready to move
- 3 BHK Flat | ₹2 Cr | 1800 sqft
Kharghar, Navi Mumbai
Ready to move
- 2 BHK Floor | ₹60 Lac | 1200 sqft
Kompally, Hyderabad
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SEVERAL AUTOMOTIVE COMPANIES ARE SOURCING COMPONENTS, PRODUCTS, AND TECHNOLOGIES FROM OUR STARTUPS

After hosting two successful editions, iCreate (International Centre for Entrepreneurship and Technology), India's leading tech-innovation-based startup incubator recently concluded the third edition of India's largest EV innovation challenge - EVangelise '23. **Avinash Punekar**, CEO of iCreate discusses the most-anticipated EV challenge and how this platform assists startups and innovators in showcasing their innovations in a candid conversation with **Nisha Shukla**.

Tell us about EVangelise '23 challenge? What sets this innovation challenge apart from others?

EVangelise'23 is not just about identifying groundbreaking innovations in EV technology across India. It's also aimed at connecting the startups and innovators with industry partners, providing incubation support, and facilitating access to capital.

The core objective of EVangelise '23 is to support India's vision for electric mobility, by harnessing the power of innovation to accelerate EV adoption in the country, and help India become a global EV hub. EVangelise also aims to identify and solve challenges at the EV sub-component level, thereby accelerating the transition towards developing energy-efficient and sustainable mobility nationwide. It's also aligned with the 'Make in India' initiative, which focuses on 100 per cent local EV production.

We had invited innovations from across various stages of development under three key EV technology themes - Traction, Energy, and Telematics, Intelligence & Connectivity (TIC). This year, the challenge aimed at elevating its impact by expanding the scope to encompass various classes of vehicles including cars, heavy vehicles, earthmovers involved in mining



**Avinash Punekar, CEO of iCreate (left) illuminates lamp at the grand finale of Evangeli...
23.**

operations, and zero-emission trucks.

The startups and innovators were adjudicated across two categories, i.e. idea stage and scale-up stage. In the first category, startups at the ideation stage (TRL 4 and below) had the opportunity to present their concepts and potentially form strategic partnerships with industrial partners. Meanwhile, in the second category, startups at the scale-up stage (TRL 5 and above) were given the opportunity to connect with venture capital firms to secure the necessary funding for their growth and expansion.

AND THE WINNER IS...



iCreate (International Centre for Entrepreneurship and Technology), India's leading tech-innovation-based start-up incubator, announced the winners of the third edition of EVangelise '23. Winners in the below TRL 5 categories received total cash prizes of Rs15 lakhs, and those in the TRL 5 and above category received cash prizes of Rs 25 lakhs.

In the TRL 5 and above category, the first-place holder, Vijigi Energy Private Limited, a Gujarat-based startup developed an Integrated Electrical and Controls Platform for ZEV, Vehicle Control Module, Thermal Management Module, Energy Storage Control Module, Body Control Module, and a Central Gateway.

Auklr Technologies Private Limited, a Bangalore-based startup, won second place for

their solution specialising in Android-based EV instrument clusters and transforming analog dashboards into feature-rich centres for enhanced safety. Real-time data includes speed, battery levels, navigation, and crash detection, optimising driver awareness. The third place was taken by Blaer Motors, a Chennai-based startup, for developing a smart 500W Motor Controller Unit and a 500W Brushed DC Motor Controller Unit for E-bikes and mopeds.

At EVangelise '23 Finale, iCreate also revealed the winners of the inaugural RISC-V challenge, honouring outstanding applications tailored for EVs from 41 impressive entries. This contest highlighted participants' dedication to harnessing RISC-V architecture for innovative EV solutions.

What kind of response / participation have you seen from the start-ups and innovators?

We received an overwhelming response from students, individual innovators, researchers, and start-ups in the areas of battery safety and EV infrastructure. With over 2,700 entries from every corner of India, EVangelise'23 received about 138 per cent more applications than the previous year's contest. This is a testament to the growing EV technology community and the role of iCreate EVangelise in accelerating innovation.

What are the key criteria or qualifications you look for in startups applying for this challenge?

Startups are assessed based on their innovation, ability, sustainability, and the scope of their idea. These are the initial broad parameters that our esteemed jury and shortlisting committee closely examine when reviewing these applications. Beyond these primary criteria, the shortlisted applicants undergo further evaluation

based on technical aspects, market relevance, and implementation strategies.

Can you explain the application and selection process in detail?

The one-of-its-kind EV innovation challenge has been ongoing for the last six months. We follow a very stringent and comprehensive process of inviting and selecting applications.

In the month of June, we announced the launch of the third edition of EVangelise, which encompassed program launch, hosting roadshows, online campaigns and engaging with innovators, start-ups, incubators, universities, and colleges. Subsequently, we started inviting applications, wherein the applicants had to present their pitches and submit their applications online.

Later, these applications were evaluated by our internal team for sanity check. The second and the

most crucial stage involved internal evaluation of the proposed ideas. These applications were further circulated amongst multiple teams for scrutiny, to ensure that there's no perception gap and the evaluation was thorough. We also engaged in online and phone interactions with shortlisted applicants. So, this is how we shortlisted our top 40 innovators, who further progressed for our five-day intensive boot camp held at iCreate campus. Here, they had the opportunity to interact with our experts.

Our mentors and industry connections helped these innovators in refining their ideas and products. Furthermore, they were granted access to our state-of-the-art laboratories, project rooms, and workshops to fine-tune their products. The innovators received guidance on refining their pitches and developing actual business plans. Finally, they presented their work to the jury panel for the ultimate evaluation.

Have any of the automotive companies evinced interest in collaborating with any of your EV startups?

Yes, a lot of automotive companies have expressed interest either to us or to our startups directly. Some startups have received outright buyout offers. In fact, several automotive companies are actively sourcing components, products, and technologies from these startups.

Leading auto companies such Eyaam Auto, Metta EV Group (a company of Ruby Bus Pvt Ltd) and Triton Electric Vehicles, to name a few, have shown keen interest in many innovations developed by our startups and these collaborations are in different stages at this point of time. Additionally, we are in active discussions with other auto companies such as Joy-e-Bike, Tata Stryder Cycles Ltd, and Mahindra Logistics Ltd.

As far as this edition is concerned, there are other numerous collaborations and talks ongoing between automotive companies and our innovators. We are very close to clinching a deal with a leading automotive company, which we cannot disclose now.

What support do you offer to startups after they complete the incubation program?

We are setting up an iCreate angel fund which is a bridge-funding sort of mechanism. It is a category one fund for startups graduating from the existing schemes and support mechanism, but not fully ready for the market funding support. Apart from this, if needed, we also connect them with industry and potential partners and investors.

So, even if a startup has graduated, we extend to them all the requisite support for their growth and scalability. We share a parent and child like bond with

our innovators. Though they grow up, mature, and go out; they continue to remain an inseparable part of us.

Kindly shed details on SoC42 initiative and your contribution towards it?

Our SoC42 initiative has emerged from the chip crisis that occurred during Covid, which also led to disruption in the chip supply chain.

Taking this crisis into account, iCreate has created an indigenous platform that can be availed by Indian automotive companies, and others, for anything related to embedded devices, computing, and processing.

SoC42 is a Made in India 'System on Chip' developed by iCreate on the open standard RISC-V architecture. So, it underwent commissioned development and then manufacturing was carried out at a third-party location in the US. However, in the future, it probably would happen in India. This open standard platform will be available for anyone to develop their applications based on this platform.

This marks the beginning of the semiconductor revolution in India. Just a few months or a couple of years ago, we hardly had any presence. However, with the recent emphasis given by Prime Minister Modi, today a company like Micron is setting up a semiconductor facility in Sanand near Ahmedabad.

However, this is not sufficient and there's more to be done. Processes such as manufacturing and packaging of chips need to happen along with the development of applications and application boards. This is where we are contributing to this collective effort.

We have heard that you have collaborated with key tech innovation hubs such as CSIR and Łukasiewicz Research Network (LRN) to help startups with research and development. Kindly shed light about it?

CSIR and Poland-based, Łukasiewicz Research Network (LRN), both these institutions possess immense capabilities. Firstly, they own valuable intellectual property (IP), and secondly, they boast extensive research capacities and the necessary infrastructure. However, many MSMEs or startups lack these resources, be it hardware such as laboratories or research facilities, or software in terms of skilled manpower. These resources are often costly and challenging to acquire.

Collaboration facilitates these startups, MSMEs, or industries to access the research, manpower, and infrastructure through a mutually beneficial model. This access allows them to leverage the expertise of these institutions and researchers, enabling the development of solutions to their challenges. Ultimately, this collaboration empowers them to obtain the technology they require. 

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 **WALTER**

By Ramesh Kumar. G, Vice President, Portables, Elgi Equipments Limited

EXPLORING AIR COMPRESSOR OPTIONS FOR CONSTRUCTION: FINDING THE PERFECT MATCH

The article highlights the benefits of electric and diesel-powered screw air compressors, whilst emphasising on their versatility and suitability for challenging construction tasks.

The construction industry is a behemoth in the global economy, with approximately \$10 trillion spent on construction-related goods and services each year. In recent years, there has been substantial expansion in the portable air compressor industry, particularly driven by increased usage in the construction sector. According to Inkwood Research, between 2023 and 2032, the global portable air compressor market is projected to experience robust growth at a compound annual growth rate (CAGR) of 4.37 per cent. This growth is closely linked to the expanding global construction industry, which is anticipated to create a heightened need for portable air compressors, presenting an attractive opportunity for businesses to concentrate their efforts. In India, this industry is projected to be buoyant due to heightened capital investments and ambitious urban infrastructure development initiatives.

Electric and diesel-powered screw air compressors have become indispensable tools in the construction industry, providing a reliable source of compressed air for a wide range of applications. Electric screw air compressors are the preferred option for construction sites that have a reliable power source. They offer various



Ramesh Kumar, G, Vice President,
Portables, Elgi Equipments Limited

benefits, such as energy efficiency, reduced operational expenses, and a diminished environmental footprint. Additionally, electric compressors produce less noise, making them ideal for noise-sensitive construction sites. Their compact and portable design enables easy transportation and manoeuvrability at construction sites. Simultaneously, their ability to power various pneumatic and hydraulic equipment makes them essential for construction tasks that require compressed air.

At construction locations where a consistent electrical power source might be lacking, or mobility is essential, diesel-driven screw air compressors come into play. These compressors are typically mounted on trailers or skids, facilitating effortless transportation between construction sites. Designed to endure harsh, dusty settings and rigorous construction tasks, diesel air compressors perform exceptionally well in challenging construction environments. They provide enhanced versatility by functioning in remote or off-grid areas having no electrical power supply. Diesel compressors often provide higher airflow and pressure capabilities, making them suitable for challenging construction tasks requiring substantial compressed air output.

The construction industry relies heavily on electric



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and diesel-powered screw air compressors for various applications.

Here are some notable examples:

Sandblasting and surface preparation: Electric and diesel compressors power sandblasting equipment for surface preparation, delivering high-pressure air that removes abrasive materials like sand or grit onto surfaces, effectively removing unwanted coatings, rust, or corrosion.

Concrete and shotcrete spraying: Compressed air is of utmost importance in concrete and shotcrete spraying applications. Electric and diesel-powered screw air compressors offer the necessary air pressure to propel concrete or shotcrete mixtures through spray nozzles onto surfaces. This makes them ideal for constructing walls, tunnels, and swimming pools.

Powering pneumatic tools: Both electric and diesel compressors provide compressed air to operate various pneumatic tools, including jackhammers, nail guns, impact wrenches, drills, sanders, and grinders. These compressors guarantee the required air pressure and capacity, greatly boosting efficiency at construction sites.

Overburden removal in coal mines: Diesel-powered screw air compressors are utilised in excavator-mounted rigs for the extraction of overburden in coal mines.

These compressors provide the necessary air pressure to facilitate the excavation process.

Aggregate production in blue metal quarries: Portable air compressors are widely used for drilling and blasting operations in blue metal quarries. Hydraulic and pneumatic crawler drills rely on these compressors to produce aggregates for the construction industry.

Block extraction in granite and marble mining: The granite and marble industry employ portable compressors to energise pneumatic and hydraulic drills. These compressors aid in extracting blocks from mines, employing the hole-matching method to ensure accurate and effective extraction.

Pipeline cleaning for fuel transportation: Portable air compressors have a notable role in pigging applications, facilitating the cleaning of pipelines for transporting various fuels through the same channel. These compressors provide the required air pressure for efficient and thorough pipeline cleaning.

The widespread use of electric and diesel-driven screw air compressors within the construction sector highlights their adaptability and significance in improving effectiveness and output across a range of construction activities. Choosing the right compressor that aligns with application needs, site conditions, power availability, and mobility requirements is of paramount importance. Seeking guidance from manufacturers can aid in identifying the most fitting compressor for a construction project.

Manufacturers emphasise innovation and new product development to stay ahead in the portable air compressor sector and maintain a competitive edge. They consistently introduce innovative technologies to enhance fuel efficiency and productivity, minimise emissions and noise, tailor solutions to specific application requirements, streamline operational and maintenance expenses, improve serviceability, and prioritise safety. These pivotal factors significantly influence customers' purchase decision. 





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HOW CAN A CUTTING TOOL IMPROVE MACHINING SUSTAINABILITY?

A look at how ISCAR's cutting-edge tools are elevating machining sustainability.

The term 'sustainability' has increasingly gained popularity in recent years. It frequently appears in headlines, featured in various forms of news media, scientific research, and practical seminars. Is the word sustainability merely a trending term or is it the question of the hour?

The emphasis on sustainability stems from a global, growing awareness intended to address critical environmental issues and climate change, largely caused by human activity. This focus on sustainability reflects our deep commitment to securing a better future for the planet and generations to come.

Consequently, sustainability has gained prominence in various fields, ranging from everyday life and business to transportation, urban planning, and manufacturing. Manufacturing should unquestionably prioritise sustainable. Today, there is widespread recognition and agreement regarding the importance of this statement. Manufacturing processes use natural resources, consume energy, create waste, and pollute the environment. We can mitigate the negative environmental impact only by adopting sustainable production technologies.

Machining remains a primary method for producing parts of machines and mechanisms. Therefore, the question of how to make machining sustainable is relevant, more than ever. A cutting tool directly contacts the machined workpiece and shapes it to its required form, removing the rest of the unnecessary material in the form of metal chips. Can a cutting tool be a key factor for improving sustainability? The answer to



Fig. 1 – A LOGIQ-3-CHAM drill with an exchangeable carbide head has 3 flutes.

this question is undoubtedly a resounding, yes!

Despite its smaller size compared to other elements of a technological system, the machine or work holding fixture called the cutting tool can play a pivotal role in achieving sustainable manufacturing practices. The cutting action involved in material removal during machining is an energy-intensive process. However, the cutting tool is designed to be energy-efficient and, therefore, can significantly reduce energy

consumption.

The impact of key tool characteristics cannot be underestimated. Advanced cutting geometries minimise cutting forces, while anti-vibration designs mitigate chatter, which causes force oscillation. Progressive coatings enhance lubricity, diminishing friction, and efficient cooling methods effectively reduce heat generation. Collectively, these tool elements substantially reduce the environmental impact of machining operations.

In many instances, a cutting tool can hinder productivity growth, limiting the full realisation and capabilities of modern machines. Therefore, tools that guarantee higher productivity play a crucial role in reducing cutting time, machine power consumption, and greenhouse gas (GHG) emissions. Reliable, long-lasting cutting tools that enhance tool life, reduce the frequency of tool replacements, or insert indexing, diminishing machine downtime associated with tool changes, ultimately improving overall manufacturing efficiency.

In addition, utilising cutting tools that provide a better surface



Fig. 2 – In boring, using anti-vibration bars improves performance and reduces power consumption.

CASE STUDY: HOW CAN A CUTTING TOOL IMPROVE MACHINING SUSTAINABILITY?

A brief review of select ISCAR products helps us to understand this profoundly. The design concept of tools with replaceable cutting parts significantly contributes to the sustainable utilisation of cutting material.

ISCAR's tool systems with exchangeable carbide heads, such as MULTI-MASTER and SUMOCHAM, provide a good example of this concept by allowing the rational use of cemented carbides. In addition to the traditional approach of saving cutting material, the mentioned systems offer further advantages related to sustainability.

Both the MULTI-MASTER and SUMOCHAM families feature high repeatability, allowing for the realisation of the NO-SETUP-TIME principle. This means that replacing a worn head does not require additional setup operations to adjust tool parameters, significantly reducing machine downtime.

LOGIQ-3-CHAM represents the next step in the development of drilling tools with exchangeable heads, based on the features of its predecessor, the SUMO-CHAM drilling line. One notable parameter that sets LOGIQ-3-CHAM apart from the other drilling systems is its three flutes (Fig. 1), as opposed to the traditional two. This change enables increased feed and speed of up to 50 per cent.

Alongside improved productivity, this new design also brings sustainability advantages by reducing energy consumption and GHG emissions. For example: drilling 16mm diameter holes with an 80mm depth in a part made from low alloy steel exemplifies these features well. With a tool life of 500 holes, when compared to a competitor's drill with a replaceable two-flute head, the use of ISCAR's LOGIQ-3-CHAM tool results in a 26 per cent decrease in cycle time and a 19 per cent decrease in energy consumption. Consequently, CO₂ emission is reduced by

19 per cent.

The anti-vibration design of cutting tools plays an essential role in reducing power consumption, extending tool life, and improving the surface finish of the generated surface. ISCAR has developed vibration-damping solutions that use various principles, including vibration damping through specially designed mechanisms, such as in boring bars (Fig. 2), as well as the development of specific chatter-resistant cutting geometries.

The geometry incorporates variable helix and unequal angular pitch in multi-flute solid carbide endmills and heads, along with a serrated cutting edge for effective chip splitting action in indexable inserts (Fig. 3). Additionally, these tools and inserts ensure better chip handling, which enhances the performance of machining operations. The smart design of the pocket reducer allows mounting smaller size inserts, providing the option of extending the use of existing tool bodies instead of purchasing new ones. This not only reduces the waste of raw materials but also helps decrease GHG emissions.

Additive manufacturing (AM) has introduced new sustainability features in tool design. Firstly, AM technologies enable the production of a tool body that closely resembles its final shape, minimising the need for finish machining and significantly reducing tool material consumption. Additionally, these technologies make it easier to create inner coolant channels in an optimal manner, improving the coolant flow through the tool body to the cutting zone.

The examples featured in this article illustrate how energy- and material-efficient, durable cutting tools can have a significant impact on technological sustainability. Such tools not only help reduce energy consumption and waste, but also contribute to cost savings and environmental stewardship.

finish can eliminate the need for finish machining operations, thereby decreasing the machining allowance or material stock to be removed. As a result, a dual effect is achieved, reducing both machining time and material waste.

Hence, the term 'sustainable cutting tool' is not merely a passing trend but a vital concept that is progressively embraced and integrated as a fundamental



Fig. 3 – Chip-splitting geometry of MILSSHRED indexable milling cutters provides high stable milling and better chip handling.

principle of sustainable manufacturing. Ultimately, the main parameter to analyse a tool is its performance. However, the component of tool sustainability has become a contemporary factor of paramount importance. Understanding the various aspects of how cutting tools impact sustainability largely shapes the requirements for modern tools and guides their development. 



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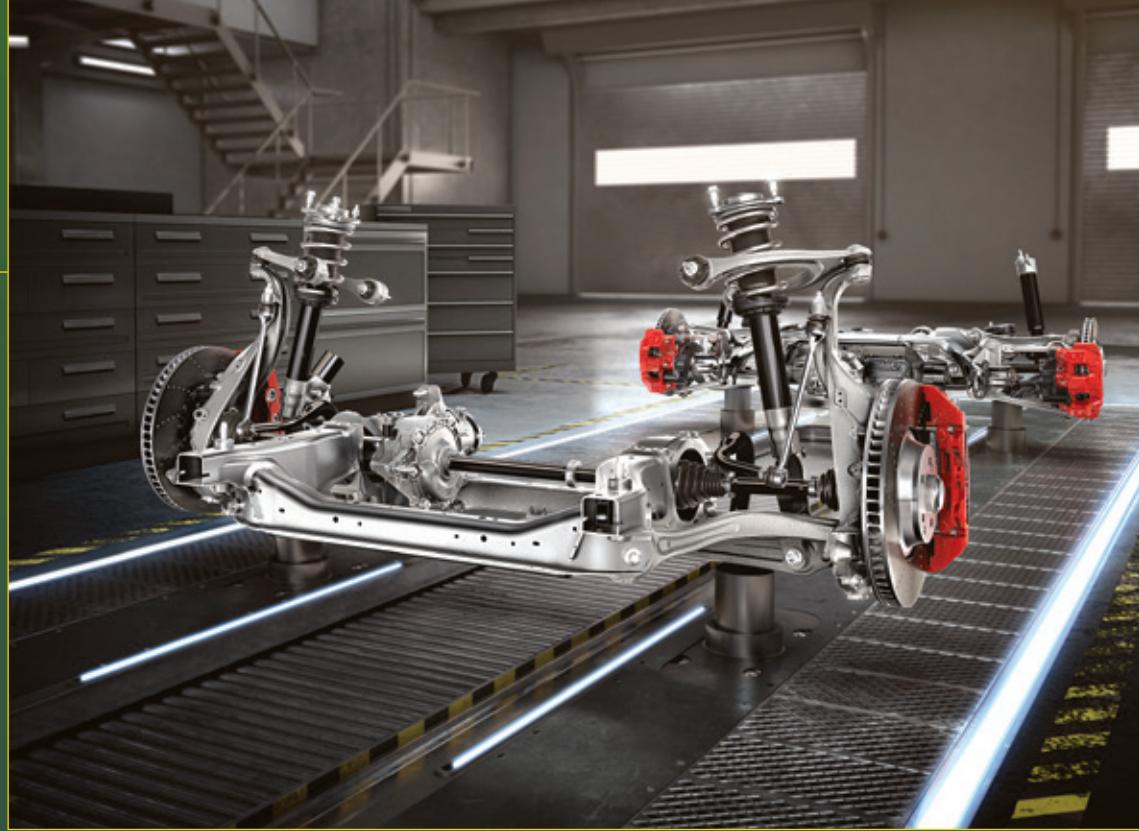


By Rahul Kamat

“WE WILL BE LAUNCHING
NEW EVs
IN THE NEXT
8-12 MONTHS”

Mercedes-Benz has a very aggressive roadmap for EVs in India. In an exclusive interaction with **Rahul Kamat, Vyankatesh Kulkarni, Mercedes-Benz's Executive Director and Head of Operations**, said that the company will be launching new EVs from their global portfolio suited to the Indian market. This involves launching electric versions of popular models tailored to Indian consumer preferences and market demands. Kulkarni further mentioned that Mercedes-Benz recognises the importance of a robust charging infrastructure and have established an extensive ultra-fast charging network of over 140 chargers.





Mercedes-Benz's manufacturing capabilities in India are quite remarkable and have shown substantial evolution over the years. Initially, the company started with assembling cars in India, but it has since progressed significantly. How has the company's manufacturing prowess evolved over the years?

Mercedes-Benz India's facility in Chakan is a global benchmark in quality as well as technological advancement and has remained the backbone of our growth in India. Spread over 100 acres, we have the largest installed production capacity for any luxury carmaker in India.

Currently, we can produce up to 20,000 units annually, which can be doubled to 40,000 units. Our flexible processes, high level of refinement and usage of advanced technology allow us to conform with the most stringent global standards. Our assembly lines are designed to accommodate multiple vehicle models, allowing us to seamlessly transition between internal combustion engines and electric cars. Today, iconic models like the S Class, our flagship luxury saloon EQS 580 and ultra-luxurious offerings like the Mercedes-Maybach are 'Made in India'.

In multiple cases, we have been the first market after mother plants to make cars starting from M-Class (first plant after USA) to Mercedes-Maybach, and of course the EQS 580. We are also the only country in the world to make Long Wheelbase E-Class in RHD. These milestones are a testament to our manufacturing prowess and commitment to 'Make in India.'

In what ways does Mercedes-Benz India ensure the highest quality standards in its manufacturing processes? Could you elaborate on the quality control measures implemented?

At Mercedes Benz India, we believe and practice the ethos that 'Quality is not a parameter but a character.' Our unique blend of manufacturing process excellence and people skills is the result of our collective understanding that 'Quality is driven by processes, powered by technologies but achieved by a personal touch --- we are making desirable luxury cars.'

Every technician in the plant feels a deep sense of ownership and emotional connection with the car produced in their line. We complement our best quality assurance process with a 'First Time Right' philosophy in production and in-depth quality assessment from a customer point of view.

Our business processes are established on the strong foundation of ISO 9001 and are delivering global standards to satisfy customer expectations. Our clear focus on product and service quality has constructed a strong bridge of trust among the customers.

Innovation is a cornerstone of Mercedes-Benz's manufacturing processes in India. It plays a pivotal role in driving efficiency, quality, and sustainability across their production lines. Could you share any recent examples of innovative manufacturing practices implemented by Mercedes-Benz India?

Innovation is pivotal to Mercedes-Benz India's manufacturing processes, driving improvements in performance, quality, durability, and the exclusivity for which customers value us the most. We are constantly looking to push boundaries and set manufacturing benchmarks.

In line with our global vision of AI-powered automotive manufacturing, Mercedes-Benz India has embraced the use of data analytics. Our in-house Techlab.MO Accelerator has developed a data-driven

ecosystem INSIGHTS which drives a highly efficient supply chain and satisfies customer needs with reduced waiting time for cars.

Technology Advancement in manufacturing equipment and processes helping us make our production lines highly flexible which can host various car models and drive trains of ICE and EV helping us with faster time to market.

At Mercedes-Benz India, innovation is cutting across manufacturing processes as well as empowering human skills. This futuristic workplace has the presence of collaborative robots (cobots) which operate in a highly automated manufacturing environment along with highly skilled people.

The evolving technologies such as Augmented Reality (AR) and Virtual Reality (VR) are leveraged at our training centres to seamlessly facilitate knowledge transfer globally. "These innovations underscore Mercedes-Benz's commitment to cutting-edge technology which is focused on sustainable improvement and guides a long-term development of manufacturing ecosystem."

How does Mercedes-Benz India maintain a balance between traditional craftsmanship and cutting-edge automation in its manufacturing facilities?

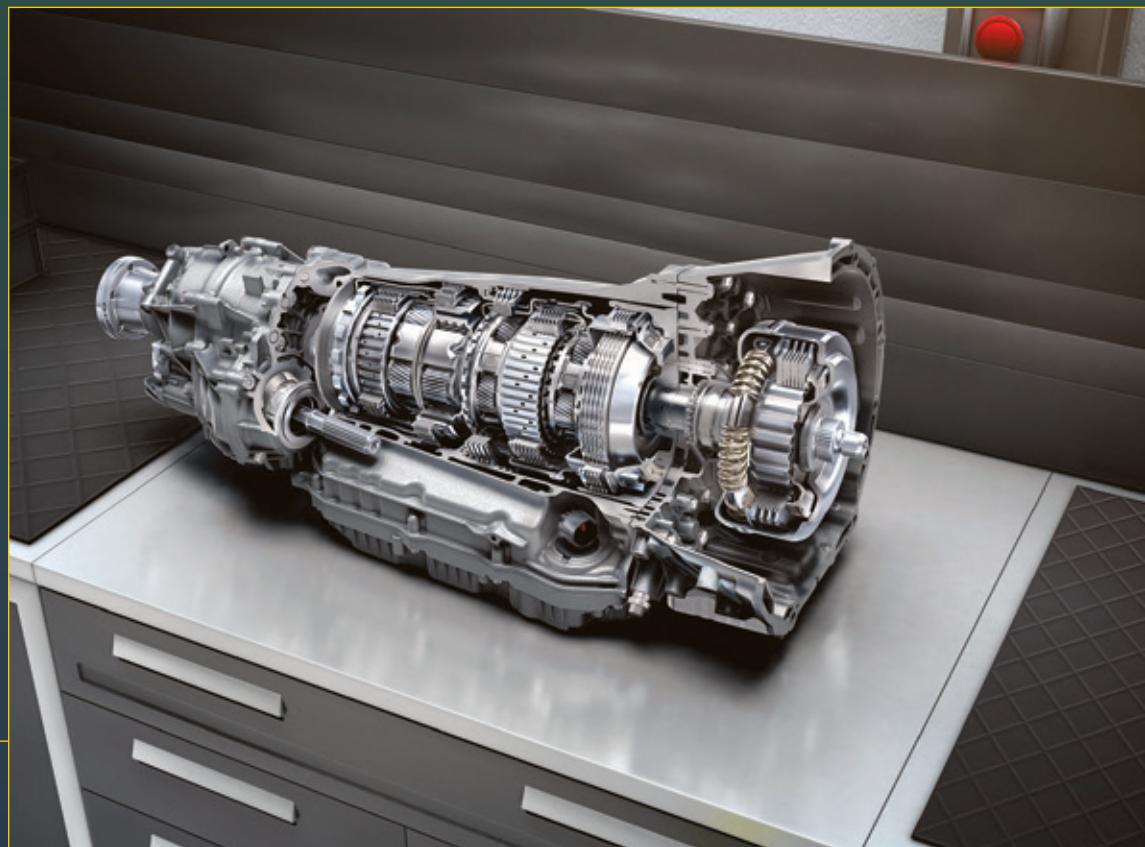
Mercedes-Benz is known for its commitment to quality, it involves a delicate balance of traditional craftsmanship and cutting-edge automation.

Factory 56 is Mercedes-Benz's state-of-the-art production facility located in Sindelfingen, Germany. It is a prime example of the brand's commitment to innovation, sustainability, and advanced manufacturing techniques. It is a showcase of digital innovation and integrates cutting-edge technologies such as IoT, AI, and robotics. This enables a highly flexible production process, allowing for quick adaptation to produce different models on the same assembly line.

On one hand, Mercedes-Benz is a pioneer in cutting-edge automation and on the other hand it incorporates a personal touch in craftsmanship through extensive training of its employees. Skilled artisans meticulously hand-stitch the leather and add exquisite details for Maybach Seats which offers handcrafted, bespoke seats, ensuring a level of luxury and comfort that surpasses regular production line standards. Such seats are often customisable to the buyer's preferences, allowing for a unique and personalised touch.

To take the experience to the next level, we have also added a personal touch to the most complex part i.e., AMG engines. Some models have their engines assembled by a single technician considered an "engine builder," who often adds a plaque or a signature to the engine they assembled. This not only adds a personal touch but also signifies a level of pride and responsibility, showcasing that a skilled individual was directly involved in crafting that specific engine.

These personal touches not only elevate the quality



but also create a sense of exclusivity and craftsmanship which resonates with Mercedes-Benz's commitment to luxury, customisation, and attention to detail.

As the leader in luxury EV penetration in India, what strategies has Mercedes-Benz adopted to drive the adoption of electric vehicles in the luxury segment?

At Mercedes-Benz, we plan on going all-electric by 2030 and India is playing a significant role in the development of electric architecture. To drive the adoption of EVs in the luxury segment we are focusing on multiple fronts like introducing new EV products in the Indian market, creating an end-to-end ecosystem to support the market development for luxury EVs and upskilling initiatives for our talent pool, among others. Today, our portfolio has the top-of-the-line AMG EQS 53, the 'Made in India' EQS 580, the power EQE 500 4MATIC SUV and the seven-seater EQB 350.

We are proud that we are the first luxury car manufacturer to pioneer the manufacturing of 'Luxury EVs in India'.

While our product lineup reflects our commitment to electrification, we recognise the importance of a robust charging infrastructure and have established an extensive ultra-fast charging network of over 140 chargers.

Recently, we collaborated with Evnovator, onboarding the charging infrastructure of our Franchise Partners across India, on their FICH application. This ensures seamless access to our pan-India fast charging solutions for our customers as well as all EV users. To skill future workforce, we introduced an industry-focused unique EV module in our highly popular Advanced Diploma in Automotive Mechatronics (ADAM) course to make the talent pool industry-ready and create a robust e-mobility ecosystem. Based on our EV strategy, we anticipate that within the following three years, 25 per cent of our total car sales will be from EVs.

Could you shed light on the challenges and opportunities Mercedes-Benz has encountered while establishing a strong presence in the luxury EV market in India?

We wouldn't consider this as a challenge, but customer awareness is an area that we all as an industry have to collectively work on. In October, we conducted a Sustainability Fest where we met customers across multiple cities to create awareness and dispel their myths about the practical implications of EVs. We also ran multiple programmes pan India for awareness creation and rolled out strategic offerings to ease the

transition to e-mobility.

To lead the change, our management and company carpool now hosts a 100 per cent EV fleet since September, and it is with great pride that I can say that this is a very satisfying and successful change.

How does Mercedes-Benz plan to expand its electric vehicle lineup in India, and what role does innovation play in enhancing the appeal of electric luxury vehicles to Indian consumers?

Mercedes-Benz has a very aggressive roadmap for the EVs in India. We will be launching new EVs in the next 8-12 months from our global portfolio suited to the Indian market. This involves launching electric versions of popular models tailored to Indian consumer preferences and market demands.

Customising electric vehicles to suit Indian conditions and preferences is crucial. This might involve selections in range, performance, design, and even features specific to Indian road conditions and driving habits.

Innovation plays a significant role in enhancing the appeal of electric luxury vehicles. Mercedes-Benz India has incorporated advanced tech features, such as hyper screen, Head-Up Display, connected infotainment systems, AI-driven assistance, and energy-efficient components, tailored for the Indian market.

Tailored brand positioning and service support is also essential to capture the attention of Indian consumers. Emphasizing the performance, luxury, and environmental benefits of electric luxury vehicles through creative campaigns is part of our strategy.

Expanding the electric vehicle lineup in India requires a multi-faceted approach that considers not only the vehicles themselves but also the infrastructure, consumer perception, and localised strategies. Innovation in these areas is crucial to making electric luxury vehicles more appealing and accessible to Indian consumers.

Can you share some insights into the charging infrastructure initiatives that Mercedes-Benz is involved in to support the growth of electric mobility in India?

Charging infrastructure plays a key role in the adoption of EVs. While private players and the central government are installing chargers to reduce range anxiety among Indian consumers, Mercedes-Benz India has invested Rs 20 crore to create an ultra-fast charging network across the country comprising 60 kW and 180 kW DC chargers. For easy customer access, we recently onboarded our chargers on the exclusive EV Charging Mobile Application, FICH. As a part of our

commitment towards sustainable mobility, we have opened our Franchise's DC Charging Network to all EV users in India.

Could you elaborate on the initiatives Mercedes-Benz has undertaken to promote sustainable practices in its operations, supply chain, and product offerings in India?

Mercedes-Benz is committed to reducing emissions throughout the whole vehicle lifecycle across the entire portfolio, developing an entirely carbon-neutral passenger car fleet by 2039. In India, we aim to reduce, reuse and recycle, leading to a reduction in CO₂ footprints through the design of our processes and initiatives. As of 2022, the Mercedes-Benz India plant runs on 100 per cent 'Green Energy.' That said, over 1/3rd of our Franchise Partner Outlets will run completely on 'Green Energy' by the end of 2023.

What's more? By 2025, we aim to have 100 per cent Franchise Partners operating on 'Green Energy.' We run consistent programs to sensitize employees to become environment-conscious and responsible by going completely paperless by 2023 and reducing our water consumption and waste by 20 per cent. Our plant in Chakan is a pioneer in setting up the Biodiversity Index among MB World and it hosts over 300 species of flora and over 75 fauna in our factory premises.

Aligned with our sustainable goal, our cars are built with sustainability in mind. All our vehicles are a minimum of 85 per cent recyclable. For example, the components in the EQS, are manufactured resource-

efficiently using recycled and renewable raw materials.

What steps is Mercedes-Benz taking to create a circular economy within the automotive sector, considering factors like recycling, waste reduction, and responsible resource management?

With our 'Ambition 2039' roadmap, Mercedes-Benz has set the target of making our fleet of new vehicles net carbon-neutral, over the vehicles' entire life cycle by 2039. Our vehicle production locations achieved net carbon neutrality in 2022, and the company aims to massively increase the share of renewables it uses and generates, with a target of more than 70 per cent by 2030.

We have also set the goal of achieving net carbon neutrality along the entire value chain in our fleet of new vehicles in 2039. That said, to conserve valuable resources, globally, Mercedes-Benz's major goal is the circular economy, especially battery recycling. At our battery recycling factory in Kuppenheim, Germany, the hydrometallurgy process with a recovery rate of more than 96 per cent enables a truly circular economy of battery materials.

At Mercedes-Benz, we aim to use the old batteries of today as a 'mine' for the batteries of tomorrow. In the future, we will use them to extract the raw materials we need for new battery systems with the help of recycling. We have taken various initiatives as well, such as solar power energy, zero liquid discharge, 100 per cent carbon neutrality, hazardous waste recovery, optimisation of water usage, enhancement in biodiversity etc. to name a few. 



OTHER THAN DIGITAL SKILLS, COMPANIES SEEK WORKERS ADEPT IN HUMAN-MACHINE INTERACTION AND BASIC IT PROFICIENCY

With the manufacturing industry in India showcasing a positive hiring sentiment, **Nitin Dave**, CEO of Quess Staffing, delves into the key developments contributing to the surge in workforce demand in the sector. He dissects the high-demand skill sets and talents, the impact of technology on this rising demand, the scope of diversity and inclusion and provides insights into the future hiring outlook for the upcoming quarters in an interview with **Rahul Kamat**.

How has the Indian manufacturing sector transformed over the past year, and what key developments have contributed to this surge in hiring intentions?

Indian manufacturing sector is a key economic driver that accounts for 17 per cent of India's GDP. To strengthen India's position as a major centre of manufacturing, we aim to export goods worth \$1 trillion by 2030. As per the various government initiatives, by 2025, manufacturing is expected to contribute 25 per cent to the economy.

As per the data from Quess Corp., the manufacturing sector has showcased 93 per cent quarter-on-quarter growth from FYQ2 2022 to FYQ2 2023. India has significant global market potential, thanks to elements like the expansion of electricity, stable employment, a young and educated population, and abundant raw materials. It is well-positioned to benefit from the value chain thanks to its raw material assets, industrial know-how, and entrepreneurial spirit. Prospects are further improved by options like contract manufacturing. Thanks to the Ministry of Micro, Small & Medium Industries, India has a thriving startup ecosystem that supports the growth of new micro and small businesses.

India's manufacturing ecosystem has seen several key developments in the recent year that have contributed to a surge in hiring intentions. The industry has showcased an increasing demand for senior professionals with 12+ years of experience, who continue to dominate. Manufacturing has been more export-oriented,

which increases the requirement for organised staffing. Government schemes such as PLI, Make in India, Skill development and apprenticeship promotion and the EV boom has created job opportunities and contributed towards the expansion of manufacturing sector in India.



Nitin Dave, CEO of Quess Staffing



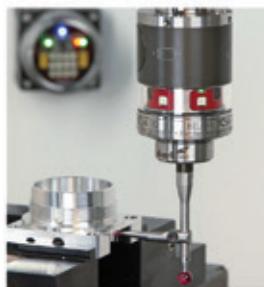
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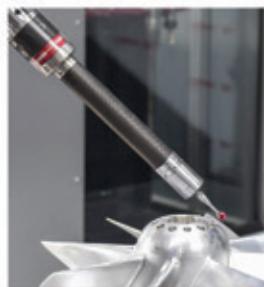
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What skill sets and talents are in high demand given the manufacturing landscape's rapid evolution?

The emergence of Industry 4.0, integrating digital technologies, automation, and data analytics in the production processes, has led to a rapid evolution in the manufacturing landscape. Adapting to the evolving requirements and opportunities in the industry requires workers to possess both fundamental human skills and digital skills. Critical thinking, creativity, and people management are some of the fundamental human skills that are in high demand. The technical skills that are well-regarded in the field include CNC (Computer Numerical Control), welding, brazing, tool designing, and mechatronics. Technical, human, and digital skills together allow workers to come up with novel ideas, solve complex problems, and work well with others. According to a World Economic Forum study, these are among the top 10 skills for the upcoming ten years.

The modern manufacturing workforce increasingly requires these skills, in addition to digital competence. Companies are actively looking for workers who not only have digital skills but also excel at human-machine interaction and have a basic understanding of information technology. This combination of digital and human skills is seen as essential to work alongside automation effectively. To acquire these skill sets and talents, workers need to engage in reskilling and upskilling programs that can help them update their knowledge and abilities. Reskilling courses are a must for excellence and performance and upskilling courses ensure that employees are ready for the next level of growth, which also helps in motivating and retaining the existing workforce. These programs can be offered by employers, educational institutions, or online platforms. This will ultimately increase employability, productivity, and career advancement for workers, as well as improve competitiveness, innovation, and sustainability for employers.

How is the manufacturing sector addressing diversity and inclusion in its hiring practices?

We have noticed a significant, multifold increase in terms of incorporating Diversity and Inclusion (D&I) initiatives in the hiring practices. The manufacturing industry hardly has a bias while hiring employees. Employers are open to hiring people from diverse backgrounds for their exclusive lines and factories. Female employees are preferred to work at shop floors, thereby creating more job opportunities and breaking biases pertaining to gender.

A few industries such as electronics have started to prefer employing women owing to the nature of work that needs handling of minute components and requires soft-handed employees. Even larger OEMs

have shown progress in terms of incorporating female and physically challenged workforces. Despite the wide acceptance, there are some industries such as foundries which inadvertently prefer a particular gender, as the nature of work involves heavy lifting activities. A diverse workforce has shown greater productivity in manufacturing and industrial and has resulted in higher retention of workers.

How much has technology adoption contributed to the increase in hiring intentions?

The manufacturing sector in India has seen a significant impact because of technology adoption. According to a joint study by NASSCOM and Capgemini, over two-thirds of Indian manufacturers will embrace digital transformation by 2025, with the goal of raising India's manufacturing GDP to 25 per cent. Significant employment opportunities are generated by this change, which also promotes skill development. Technology has provided greater multiple choices for both employers and employees.

Technology's influence also extends to the creation of new jobs, which fuels demand for new positions and expertise related to digital transformation. By adapting to technological advancements, organisations are tracking industry trends and likewise bringing changes and development to the industry. This tech growth is predicted to create around 2.5 million jobs in a range of positions, from IT and maintenance to engineering and design.

How have changing market dynamics and economic conditions impacted hiring intentions in the manufacturing sector? Any factors, like changes in demand, supply chain adjustments, or policy changes, that have been particularly important?

Hiring intentions in the manufacturing sector have been significantly impacted by shifting market dynamics and economic conditions. Supply chain adjustments, policy changes, and changes in customer demand are just a few of the factors that have had a big impact on the employment situation in the sector. Due to dynamic markets, strategic hiring has increased with close evaluation of outsourced rolls and core rolls. Entry-level hiring has increased a lot with 'Apprenticeship Promotion.' Trained and proven apprentices are moving up the ladder to mid-level roles replacing lateral hiring.

Shifts in consumer demand have a direct impact on production needs, requiring manufacturers to adjust their workforce. For efficient staffing, accurate demand forecasting supported by advanced analytics is crucial. The management of workforce size and composition is aided by demand control policies that are in line with market dynamics. Networks that share information

make it easier to make well-informed hiring decisions, and shorter hiring lead times make it possible to react quickly to market changes.

Hiring strategies are regularly reviewed to ensure alignment with changing market dynamics. The manufacturing sector in India faces several difficulties, including China's competition and technological gaps as well as a lack of skilled workers and bureaucratic complexities. Manufacturers must proactively change their hiring goals to respond to these challenges and maintain their competitiveness in a changing market.

What changes in broader economic indicators do these hiring trends represent?

Manufacturing industry hiring patterns are evolving, which is indicative of a wider change in economic indicators. Companies are getting increasingly selective in the candidates that they choose for open positions, placing more emphasis on a candidate's overall ability to produce results besides their technological proficiency. This change denotes an important shift in hiring practices and protocols. Companies are now placing a higher priority on the quality of hires than just quantity. This transformation is being fueled by an increase in outsourcing, where companies are looking for both cost and quality advantages.

Even though economic cycles cause fluctuations, each slump offers insightful lessons that influence future hiring trends. These lessons help to maximise employee potential and hire people with the best skill sets. More entry level hiring will reduce unemployment, poverty, and bring in a better economic balance. HR

managers are reviewing their hiring procedures in the post-recession era and integrating scientific guidelines to ensure more efficient recruitment. Assessing candidates using a variety of criteria and comparing skill sets globally, such as the PAC test, aids recruiters in making educated choices. This strategy aligns hiring practices with multi-geographic operations and services by considering skill sets that are available both locally and internationally.

What is the outlook for hiring intentions within the manufacturing sector for the upcoming quarters?

With the courtesy of Semiconductor, Electronics, EV, Solar, and Green Energy, the coming quarters will see an upward trend of 20 per cent in hiring intentions. Hiring trends in manufacturing had shown a 20 per cent increase from the previous year. Chemical industries have shown an increasing hiring trend of 12 per cent.

Our new government policies support the manufacturing of end-to-end components in India, which could see an increase of 80 per cent in hiring trends in the Electronics industry. Further, government initiatives, such as PLI schemes for laptops, are expected to generate a huge demand for hiring. Green energy is going to set a new trend by hiring over 20 per cent of employees in this coming year.

Overall, the manufacturing industry in India is showcasing a positive hiring sentiment. Chemical, Pharma, Industrial Machining, Electrical & Electronics, Automotive, Textile & Apparel industries are moving towards domestic manufacturing which will further result in a 78 per cent increase in hiring. 

ASHOK LEYLAND CONTRIBUTES RS 3 CRORE TO MITIGATE IMPACT OF MICHAUNG CYCLONE

Ashok Leyland, the Indian flagship of the Hinduja Group and the country's leading commercial vehicle manufacturer, has donated Rs 3 crore to Tamil Nadu Chief Minister Relief Fund for relief work and humanitarian aid for the flood-affected areas in the aftermath of Michaung cyclone.

The contribution aims to assist the state government in its relentless efforts to address the impact of the Michaung cyclone on the people of Tamil Nadu.

Shenu Agarwal, Managing Director and CEO, Ashok Leyland, said, "We are deeply saddened by the havoc caused by the cyclonic storm and the incessant rains that has affected the life of many people in Chennai and adjoining districts. While the cyclone has left a trail of destruction, it is very heartening to see the quick response demonstrated by the Government of Tamil Nadu in managing the difficult situa-



tion and in ensuring that necessary relief measures are undertaken."

The cheque was handed over to Thiru M.K. Stalin, Hon'ble Chief Minister, Government of Tamil Nadu, by Shenu Agarwal, MD & CEO, Ashok Leyland.

A KEY CHALLENGE WITH DIGITAL MANUFACTURING LIES IN THE INITIAL HIGH INVESTMENT

Viven Chityala, Strategy Lead - IoT & Industry 4.0 at Tata Elxsi, outlines the numerous benefits that digital manufacturing offers in optimising various aspects of manufacturing operations. He also guides manufacturers through key challenges and emphasises the necessity for meticulous planning when investing in these cutting-edge technologies.

What is digital manufacturing and what use cases deliver maximum benefits?

Digital manufacturing, also known as Industry 4.0 or smart manufacturing, refers to the use of digital technologies and data-driven processes to optimise and streamline various aspects of manufacturing operations. It represents a transformative shift from traditional manufacturing methods to more automated, connected, and data-centric approaches, while also tapping into new technologies like AI, VR, and AR.

The current landscape is being transformed by rapid advancements and increasing complexity in manufacturing technologies. Digital manufacturing has enhanced business outcomes, with improvements of up to 88 per cent in productivity, 74 per cent in profitability, and 48 per cent in quality. The use cases of digital manufacturing that can deliver maximum benefits vary depending on the industry, which includes predictive maintenance, robotics, automation, and smart factory optimisation using tools such as digital twins to optimise production.

What sort of investments are needed to integrate IoT in digital manufacturing?

Digital manufacturing is the next step in industrial IT and software. With IoT, digital manufacturing can yield significant benefits, but it also requires careful planning for the investments to be successful.

Just like every industry, the specific investments required will depend on the scope and scale of the digital manufacturing initiative. Largely, OEMs would require an updated inclusive strategy to introduce connectivi-



Viven Chityala, Strategy Lead - IoT & Industry 4.0 at Tata Elxsi

ty to legacy machines, robust cloud and connectivity infrastructure, robotics, secure data storage management, analytics tools with AI/ML, and device management and maintenance. Upskilling of employees, maintenance of equipment, scalability, and future expansions are also factors that would require an investment, especially in the long run.

Additionally, investing in advanced sensors, edge computing technology, and regulatory compliance will go a long way.

Another area which is overlooked is the right partnership with system integrators for run management, which is critical for a flawless Industry 4.0 implementation.

What is the impact of digital twins for design for manufacturing (DFM) and how is it transforming manufacturing operations?

A digital twin is a virtual representation of a physical object or system, and in the context of manufacturing, it refers to a virtual model that mirrors a physical product, process, or facility. Digital twins have a lot of potential, and its use has a profound impact on Design for Manufacturing (DFM) and can transform manufacturing operations.

The way we run digital twins is going to be run on simulation, which is easier said than done. Digital twins have a significant impact on the DFM process in various ways. For instance, designers can use it to optimise the geometry of a product and even customise it, ensuring that it can be produced efficiently and cost-effectively. It can also help in virtual prototyping, reducing the need for physical prototypes, continuous improvement, better design collaboration and thus



reducing the overall cost. It also enhances efficiency and improves the overall product quality.

What are the roadblocks while implementing digital manufacturing and how to overcome them?

Every implementation is a transformative process, which comes with its set of challenges and rewards. As far as digital manufacturing is concerned, one of the most prominent challenges is the high investment initially. Companies can consider phased investment and run a cost-benefit analysis to secure investment. With the rise in security challenges, implementing digital manufacturing raises safety and privacy concerns. Interoperability and scalability are also among the challenges that one faces with digital manufacturing. Like any other implementation, transformation to digital manufacturing will also have issues with management change which can be mitigated with a well laid roadmap and right stakeholder involvement at every stage.

How predictive frameworks can facilitate sustainable manufacturing?

Sustainability is the keyword right now and predictive frameworks can play a crucial role in facilitating sustainable manufacturing by enabling more informed decision-making. There will be great visibility of performance metrics, production and operational KPIs and live status of the overall manufacturing facility with such frameworks. In the long run, predictive frameworks can ensure sustainability by helping reduce waste, optimising resource usage, and minimising the impact on the environment. For instance, it can help with predictive maintenance by analysing equipment failures to schedule maintenance activities for a more energy-efficient downtime.

Optimising production processes by forecasting demand and production requirements accurately can be achieved, allowing manufacturers to adjust production timelines without resources going to waste. Predictive frameworks can also help in lifecycle assessment, right

from raw material extraction to disposal, helping in assessing the environmental impact of a product. Resource recovery, waste management, and overall cost reduction are some of the ways predictive frameworks can facilitate sustainable manufacturing.

How immersive technologies can help in upskilling employees?

Immersive technologies, such as virtual reality (VR) and augmented reality (AR), are powerful tools for upskilling employees in various industries. These technologies create immersive, interactive, and realistic learning experiences that can enhance training, improve retention, and accelerate skills development. The “learning by doing” method is significant as employees are no longer passive participants with immersive technologies.

For one, VR simulations allow employees to practice and learn in a virtual environment replicating realistic, real-world scenarios. This is not restricted to operations training but also to soft skills, maintenance, and safety.

Moreover, such tools offer a safer learning environment as there's minimal risk, given one can control the environment. A PWC report claims that 42 per cent of companies are using immersive technologies to provide their employees with better onboarding and training experiences.

Since the emphasis is on application or “learning by doing,” employees are no longer passive participants in online training sessions. Referring to Edgar Dale's Cone of Learning (also called the Cone of Experience), people remember 90 per cent of what they do versus only 10 per cent of what they read or 30 per cent of what they see.

What is the future of digital manufacturing?

The future of digital manufacturing is characterised by rapid advancements in technology and transformative changes in how products are designed, produced, and distributed. The next stage in digital manufacturing is to emphasise its significance in the business landscape.

However, it's essential to acknowledge that this evolution is technology-driven. There are several technologies like 5G, Blockchain, AI, Machine Learning, Industrial Metaverse, Computer Vision, Drones, etc which will play a vital role. For example, 5G is poised to offer low latency, particularly beneficial for controlling autonomous AGVs. This development is anticipated within the next five years. 

WE ARE AIMING FOR MARKET SHARE GROWTH AND WIDER DISTRIBUTION IN THE COMING YEARS

Walter Tools India Pvt. Ltd., a sales company of Walter AG, the well-established and globally recognised tooling brand in the metal cutting industry recently marked two-decades in the industry. **Brajesh Kumar**, Managing Director of **Walter Tools India** and **Dmitry Andreev**, Vice President Global Sales, Walter AG reflect on their two-decade journey in India and outline their strategic growth plan for the Indian market in an interview with **Nisha Shukla**.

Recently Walter India completed 20 years journey! Could you please provide insights and reflections on this remarkable milestone?

Brajesh Kumar: Our remarkable 20-year journey in the metal cutting and tooling industry is a testament to our unwavering dedication, resilience, and vision. Walter India's journey over the last two decades has been an exciting one! As a Sales Company of Walter AG, the well-established and globally recognised tooling brand in the metal cutting industry, with a legacy of 100 years

very well cements our strong position in India over the last two decades. I would want to take this opportunity to thank our valued customers for their trust, the dedication of our extensive Channel Partner Network, the exceptional performance of our Sales and Support Team, and the unwavering support we've received from our senior management.

Our brand promise "Engineering Kompetenz" has been our driving force. We've earned industry recognition and certifications, solidifying our reputation as a trusted



Dmitry Andreev, Vice President Global Sales, Walter AG and Brajesh Kumar, Managing Director of Walter Tools India

partner for precision metal cutting and tooling needs. We offer solutions across diverse sectors, spanning automotive, general engineering, energy, railways, and emerging fields like aerospace, electronics, and medical segments. This means that Walter Engineering Kompetenz maintains a presence in all major business hubs, ensuring proximity to our customers.

We boast a robust team of Sales Engineers and Application Engineers strategically positioned across India's key manufacturing hubs. They receive unwavering support from our Engineering and Support team at our Pune Headquarters, both on-site and off-site. Our Channel Partners have extensive reach across the country, ensuring we can effectively address the machining requirements of our customers. We've continually adapted to industry trends, partnering with customers to offer innovative tooling solutions for dynamic machining needs.

Looking back on these two decades, we take immense pride in our accomplishments. Yet, we remain forward-looking. The next 20 years hold even more exciting opportunities and challenges. We are eager to continue our journey, pushing the boundaries of innovation, and exceeding expectations of our customers. Our commitment to offering tooling solutions remains unwavering, and we are excited to contribute to the future of the metal cutting and tooling industry.

How does Walter plan to leverage the current positive sentiment in India? Are you looking at expanding the products you manufacture locally?

Dmitry Andreev: The current positive sentiment calls for manufacturers to devise processes and technologies that not only address the market's requirements of performance and price but also encompass technological innovations that provide a competitive edge to meet the end user's demand.

India is a growing economy with a large home market for the manufacturing sector. It has a huge demographic advantage of young, educated, and ambitious workforce which is a key ingredient for growth in the manufacturing sector. Our positioning in India is in line with our global market approach. And Walter aims to partner with Indian manufacturers in this growth; we will continue undertaking initiatives that will help Indian industries in achieving the highest standards of manufacturing efficiencies.

While most of the standard offerings are imported from Walter's main manufacturing facilities in Germany and other locations, recent acquisitions such as Frezite Metal Tooling (FMT), a Portuguese company with four decades of expertise in PCD tools, augment our capabilities.

India is a growing economy with a strong

manufacturing sector and a vivid home market demand for premium cutting tools. Walter has ambitious plans for growth in India and we are keenly observing the Indian market demands based on which we will explore the option for expansion in our localised product content soon.

Walter has more than 45,000 standard tools, what is your take on the special tools?

Dmitry Andreev: Walter is setting benchmarks with highly innovative products and services. Our standard product range along with launch of innovative products each year, is a testament for our "Engineering Kompetenz."

Walter Xpress, for example, is an incredibly fast ordering and delivery service for high-quality special tools. With this automated software, quotations for all enquiries are calculated and provided with 3D Models of special tools within 24 hours. Further, quick manufacturing and delivery are clear advantages of the special tool service -Walter Xpress.

Our engineers have a strong know-how in developing special tool solutions – even the most complex ones - for our customers' needs. Currently we supply customised tools within 2-6 weeks depending on the complexity of tools.

Talking about special tools, I am glad to share, Walter is strengthening its sales offer for PCD special tools (polycrystalline diamond), by joining forces with the Portuguese subsidiary FMT (Frezite Metal Tooling).

This would provide customers with access to a wider range of PCD special tools for machining lightweight materials, such as aluminium - one of the most important materials in the automotive and aerospace industries.

Kindly elaborate on your company's growth strategy for the Indian market.

Brajesh Kumar: Walter India has ambitious growth plans aimed at gaining market share and expanding its distribution base in the coming years. We rely on a solid growth strategy, which enables us to provide our customers a competitive advantage through innovative technologies, premium product quality and expert engineering services.

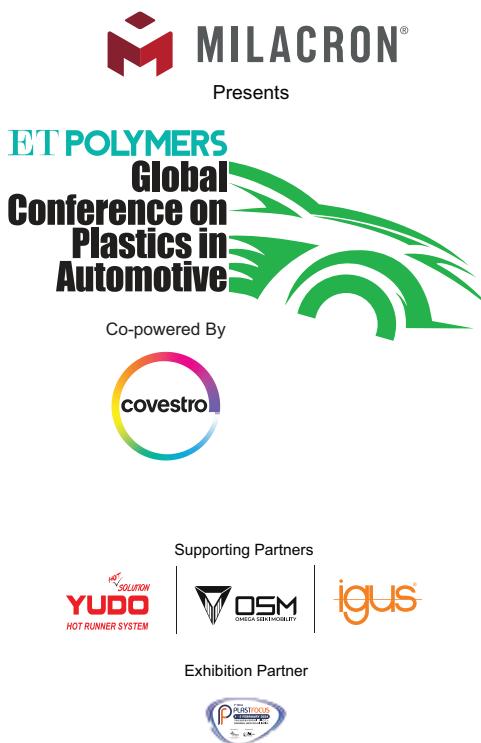
Walter India's results show an upward trend as the Indian economy and the market conditions are revived and look favourable from business point of view. We expect a good growth in the coming months as well.

With a well-defined strategy, a 'Customer Focus' approach, wide range of innovative products and machining solutions driven by a competent team, we are all set to make a mark and register a remarkable business growth. 

By Dipika Lalwani

GLOBAL CONFERENCE ON PLASTICS IN AUTOMOTIVE CONCLUDES IN PUNE

The day-long conference witnessed 20+ speakers, 200+ delegates, and over six panel discussions, glimpses below.



With over 70 per cent of the plastics used in modern vehicles coming from four main polymers: polypropylene, polyurethane, polyamides, and PVC, the role of plastics and composites in the design and manufacturing of automotive vehicles has never been more essential. With this backdrop in mind, ET Polymers magazine held the 7th edition of the Global Conference on Plastics in Automotive in Pune on November 23. The conference centred its focus on four key words which are changing the way this industry functions - Reduce. Reuse. Recycle. Repurpose.

The day-long conference, presented by Milacron

India and co-powered by Covestro India, witnessed 20+ speakers, 200+ delegates, and over six panel discussions. The conference also saw the two Hall of Fame felicitations awarded to Spark Minda and Tractors and Farm Equipment Ltd. (TAFE).

Commencing with a warm welcome address by Bill Shukla, Managing Director, Milacron India, the conference began with a discussion on 'The Role of Sustainable Materials in Environmental Conservation'. Sitting on the panel were Mohammed Rahail Parvaiz, Head CoC (Material and Product Development), Varroc Engineering Private Limited; Sanjay Khare, Vice President, Safety & Sustainability Strategy, Skoda Auto Volkswagen India Private Limited; Amol Gaikwad, Head Supplier Quality & Supply Chain, Tata Motors Commercial Vehicles, and Jaiprakash Ramani, Chief Marketing Officer, Automotive BU, Supreme Group. The panel was moderated by Divakar Gokhale, Head of Mobility, Indian Sub-continent, Covestro India. While Parvaiz and Gaikwad shared their company's strategies of using natural fibres and constructing scrappage facilities, Sanjay Khare shared his confidence in a promising future, saying, "Our Gen Z will bring about change."

This was followed by Bill Shukla, Managing Director, Milacron India, presenting a detailed case study on 'Innovations in Plastic Processing: Milacron's Leadership in Automotive Solutions', as he walked the audience through a detailed insight into the solutions provided by the company.

The afternoon also witnessed a conversation on 'Innovations in Lightweighting Technologies and Their Impact on Vehicle Performance,' which shed light on how lightweighting is not just about sleek designs, but oh-so-critical in making them eco-friendly and efficient. Discussing the topic were RT Gugale, Senior General Manager, Purchase, TATA AutoComp Systems Ltd.; BP SHIV, Vice President, TAFE Engineering Plastics Division; Vilas Baviskar, Assistant General Manager, Corporate Purchase, Fiat India Automobiles Private Limited (Tata-Fiat Jv), and it was spearheaded by Nisha Shukla, Assistant Editor, B2B Division,



Bill Shukla, Managing Director, Milacron India, presents a case study on 'Innovations in Plastic Processing: Milacron's Leadership in Automotive Solutions'



Christopher Stillings, Head CMF Global, Covestro, shares insights on 'Circular Design: Materialising the Circular Economy Together'

Worldwide Media Pvt. Ltd.

Vilas rightly highlighted the core issue when it comes to lightweighting, saying, "Lightweighting technologies are expensive, and in our mass-volume vehicles, we still use traditional materials. This needs to change." The sentiment was also shared by Shiv, who reckoned that implementing carbon fibres has been possible in Europe but is often found to be costly in India. Gugale pointed out that companies are using low-density fillers to reduce weight and keep the density around 0.9.

Dr. Christopher Stillings, Head CMF Global, Covestro, then took the stage and shared a case study on 'Circular Design: Materialising the Circular Economy Together.' From colour and material to its finishing, he indulged the audience in an interesting session on the workings of this leading company.

Soon after this, the conference saw Amit Pendse, Director, PMMAI, take the stage to deliver an insightful presentation that aimed to 'Explore the Limitless Possibilities of Plastics at the Plastfocus 2024 Exhibition.' Organised in the month of February, at Yashobhoomi, New Delhi, Plastfocus is an occasion where "We show the world what is available and what can be done," said Pendse.

Then came the segment of the Festival of Manufacturing (FOM) Roadshow, which captured the attention of the attendees. Hosted by Rishi Sutrave, Business Head, B2B Division, and Rahul Kamat, Editor, B2B Division, Worldwide Media Pvt. Ltd., the roadshow gave the audience an insight into the celebrations of the first year and laid down the aim for this event. Set to take place on March 7, 2024, at Dr Ambedkar International Centre in Delhi, the festival's second edition revolves around the theme of 'Celebrating 10 Years of Make in India.'

The next panel delved into 'Designing Sustainable and Aesthetically Pleasing Vehicles', an area of discussion that impresses many but is mastered by a few. Panellist Dr. Sandeep Waykole, India Business Director and Global Programme Director, Faurecia Clairion Electronics India Pvt. Ltd., urged us to focus on long-term value and said, "It is not always that sustainable products are costly. You have to see end-to-end results, and many times in the long term, they prove cost-effective." and Dr. Christopher Stillings, Head CMF Global, Covestro, took a straightforward approach, saying, "If you want to create a positive impact and achieve carbon neutrality, then designers need to think ahead." The panel was led by Jaiprakash



Panel Discussion on 'Breakthrough Technologies Revolutionising Plastic Recycling'



Panel Discussion on 'Designing Sustainable and Aesthetically Pleasing Vehicles'



Panel Discussion on 'Plastics for Electric Vehicle Batteries'

Ramani, Chief Marketing Officer, Supreme Group, Automotive BU.

The conference further dived into the realm of 'Driving Automotive Innovation through Research and Development'. The session was moderated by Rahul Kamat, Editor, B2B Division, Worldwide Media, and comprised of Christopher Marsh, Head of Surface Solutions, ContiTech, Continental India; Kaushalya Gaonkar, General Manager, Sales and Marketing (Mobility Group in India), Eaton Industrial Systems Pvt Ltd.; and Uday Narang, Chairman, Anglian Omega Group, and Omega Seiki Mobility.

What Gaonkar said could possibly be the core issue of this sector, he highlighted, "There is a knowledge of automotive missing in the electrical and a knowledge of electrical that is missing in the automotive sector." Marsh then added his insight with respect to India and said, "As Modi coined, 'Made in India', India today has reached a phase where a lot of core components are even 'Developed in India', or even 'Engineered in India'." The discussion concluded on a futuristic note as Narang gave a glimpse of the future, saying, "I think engines are going to be there, but as I see it, engines will be much smaller in the coming 5–10 years."

Talking about Breakthrough Technologies Revolutionising Plastic Recycling, Manish Agarwal, Managing Director, Vrindavan Plastics Industries, revealed that he himself has witnessed a shift in the attitude of people towards recycling, and it has changed from an option to reduce cost to one where people



Panel Discussion on 'Innovations in Lightweighting Technologies and Their Impact on Vehicle Performance'

recognise its value and look at it happily. Sandeep Patel, CEO, NEPRA, brought to light that people today are aware of and expect certified recycled material and predicted that there will be a discrepancy between supply and demand. Sameer Joshi, Vice Chairman, Governing Council Indian Plastics Institute, and Rohit Sawhney, Vice President Sales, Milacron India, also contributed to the discussion, urging people to rethink and eliminate the plastics we do not need and innovate those that we actually do. The sentiment was echoed by session moderator, Satyabrata Das, Senior General Manager, IAC International Automotive India Pvt. Ltd.

The event concluded with a topic that is gaining momentum in the automotive industry. Divakar Gokhale, Head of Mobility, Indian Sub-continent, Covestro India, and Mukul Singhal, VP R&D and Engineering, TATA AutoComp Systems Ltd., came together and sparked conversation on this panel of 'Plastics for Electric Vehicle Batteries'. Gokhale strongly attributed that India is focusing on safety requirements for EV batteries, and unless these compliances are met, companies have to rethink and redesign. Stating a plan of action, Singhal outlined that the focus should be on virgin materials in the short term, and then a transition to recycled materials would be feasible.

The conference made it certain that people are changing their ways of thinking, and the plastics segment of the automotive industry is undergoing a drastic change. What ultimately happens will be discovered when the conference reconvenes for its 8th edition. 



Panel Discussion on 'Driving Automotive Innovation through Research and Development'



Panel Discussion on 'The Role of Sustainable Materials in Environmental Conservation'

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igus INTRODUCES A CURVED RAIL MADE FROM RECYCLED PLASTIC

• igus GmbH, a global leader in motion plastics, announces an addition to its product line-up with the launch of the Drylin Eco entry-level series.

This series features low-cost carriages for curved rails, injection-moulded from regranulated high-performance plastic, offering a sustainable and cost-effective solution for adjustment and positioning tasks.

Designed for simplicity and efficiency, the Drylin econ series addresses the need for economical solutions in a variety of applications, such as adjusting displays in retail environments or fine-tuning grippers in vending machines. Unlike traditional steel or aluminium alternatives, the new polymer carriages cost less than 20 per cent of their milled counterparts, resulting in substantial cost savings for design engineers.

Key Highlights of the drylin Eco Entry-Level Series:

1. **Sustainable Production:** The carriages are injection-moulded from regranulated high-performance plastic, contributing to a circular economy by utilising production waste, including sprue and defective parts.
2. **Cost Reduction:** The use of high-performance plastic in injection moulding enables a significant cost reduction, with the 0630-size linear carriage now priced at €21, compared to €112 for milled alternatives.
3. **Maintenance-Free Operation:** The integration of microscopic solid lubricants into the high-performance plastic eliminates the need for additional lubrication, resulting in maintenance-free and



economical operation.

4. **Adaptive Movement on Curved Rails:** The polymer carriages are engineered to lean elegantly into curves on moving spherical balls, allowing smooth, quiet, and rattle-free movement even around bends.
5. **Lightweight Construction:** Incorporating plastic and aluminium, the Drylin Econ Series is suitable for

lightweight constructions, offering versatility in various applications.

Michael Hornung, Product Manager for Drylin Linear and Drive Technology, igus, stated, "In response to the current challenges faced by industries, we have introduced the Drylin econ series to provide a highly cost-effective solution for simple adjustment and positioning tasks, including cornering."

LVD INTRODUCES HIGH-SPEED PANEL BENDERS

VD Company NV has added panel benders to its portfolio of flexible solutions for sheet metal processing. The new product line offers a range of panel-bending equipment, including high-speed panel-bending systems. LVD will launch the new line at Blechexpo with the unveiling of the PB 21/12 automatic panel bending machine.

Panel bending technology can process large and complex geometries quickly and efficiently with high productivity in medium- to high volumes. For certain applications, panel bending is faster and more efficient than traditional die bending.

LVD panel benders are cost-effective machines that can be customised to expand capacity and performance.



Their servo-driven design requires minimal service and is nearly maintenance-free. A universal set of folding blades permits the processing of a wide

range of profiles and bends. LVD panel benders boast an output capacity two to three times that of comparable systems.

Panel bending technology is ideal for producing large electrical cabinets, panels and cabinet components, shelving, clean rooms, steel furniture, architectural building panels, photo-voltaic components, trailer side panels, lighting, and industrial equipment panels featuring complex geometries with radius bends, short side lengths, and narrow profiles.

LVD will initially offer three models of panel benders: PB 21/12, PB 25/12, and PB 32/12, to handle panel sizes up to 3200 mm x 1250 mm.

WIDMA LAUNCHES A VERTICAL TURNING LATHE

WIDMA® Machining Solutions Group of Kennametal India Limited has launched the VT850, a 2-axis, standard 'plug-and-play' vertical turning lathe designed for machining a wide range of large components that require heavy metal removal.

"This launch will not only enhance our standard product portfolio but also impact turnaround time for customers and ensure consistent performance," said Rajashekhar Venkat, Director, APAC, Machining Solutions Group.

VT850 is ideal for machining components of massive size and complex geometries, such as pumps and valves, automobile components, motor bodies, bearings, and graphite blocks.

In addition, the VT850 is designed with industry 4.0 compatibility, which includes features such as remote diagnostics and access to data for quick troubleshooting, minimising downtime.



ONLY 10 PER CENT OF INDIAN MANUFACTURING ORGANISATIONS USE AI FOR WORKFORCE SCHEDULING: REPORT

Amidst the dynamic contours of the Indian manufacturing sector, a notable majority of organisations are taking proactive strides to embrace flexibility, ushering in a new era of improved working conditions for their frontline workforce. A new study by UKG, a leading provider of HR, payroll, and workforce management solutions for all people explores topics ranging from the prioritisation of employee wellness to the transformative impact of digitalization on revenue and productivity.

The study surveyed 314 HR leaders in India-based manufacturing organisations to gauge the impact of labor supply, labor laws, and compliance on operations. The survey covered diverse industries, with manufacturing at 43 per cent, and food processing and pharmaceutical/life sciences each at 28 per cent.

Impact of labour laws and compliance on manufacturing organisations operating in India

In the year 2019-20, amid the peak of the pandemic, the Indian Parliament enacted four new labor codes. These codes consolidated a network of 29 central labor laws and encompassed the Code on Wages, 2019; the Industrial Relations Code, 2020; the Occupational Safety, Health and Working Conditions Code, 2020; and the Code on Social Security, 2020. Despite this, certain states are still in the process of formulating and publishing rules to implement these codes, given that labor is a subject falling under the jurisdictions of both the central government and individual states.

Moreover, 96 per cent of organisations find their state's current labor laws and regulations effective in fostering a favorable working environment for the manufacturing industry. Regarding year-over-year changes in compliance costs in the past 12 months, 75 per cent of organisations noted shifts, with 50 per cent reporting a moderate increase and 25 per cent indicating a significant increase.

To what extent are organisations prioritising the frontline employee experience?

52 per cent of Indian manufacturing organisations have adopted flexible scheduling practices, empowering employees with the autonomy to set shift availability, swap shifts, or extend working hours. Other key offerings include 51 per cent prioritising employee well-being through wellness programs, 49 per cent extending financial wellness benefits such as earned-wage access and same-day pay, 39 per cent utilising an employee communications mobile app, 34 per cent offering hybrid or remote-work options, and 34 per cent emphasising predictable work schedules. Additionally, 27 per cent provide paid time off, and 44 per cent offer training and development opportunities.

Sumeet Doshi, Country Manager at UKG India, said "52 per cent of manufacturing organisations have embraced flexible scheduling practices, underscoring our commitment to empowering frontline workers. This not only provides them with autonomy over their work hours but also signifies a pivotal step towards a more agile and employee-focused industry."

Human Potential and Technological Innovation in Manufacturing

69 per cent of Indian manufacturing employees feel that their organisation is not doing enough to take advantage of mobile technology to support the frontline employee experience.

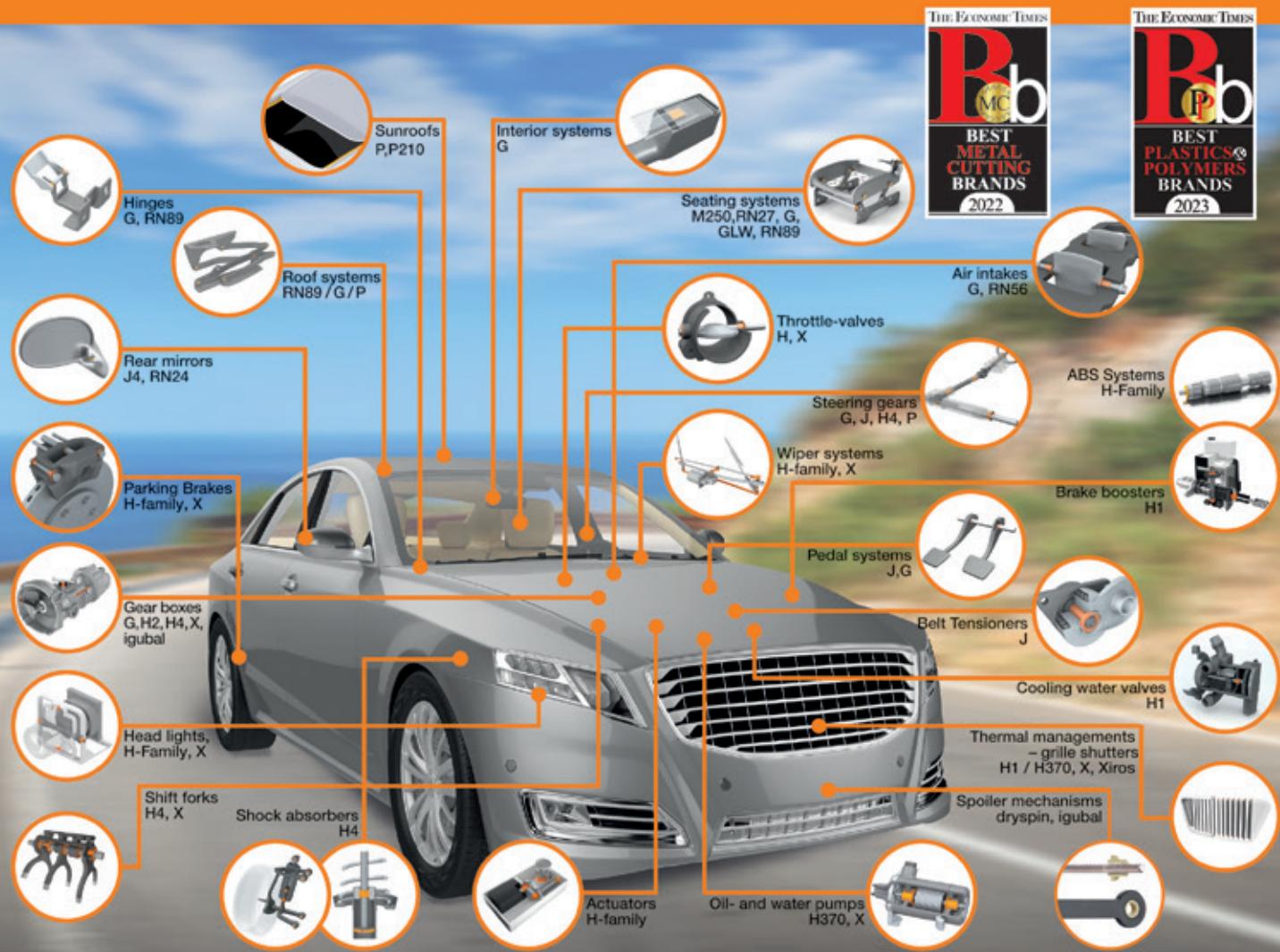
Presently, 10 per cent of Indian manufacturing organisations leverage the power of Artificial Intelligence (AI) for optimising workforce scheduling. In contrast, 38 per cent of these organisations rely on digital tools to enhance their scheduling processes.

Crucial priorities over the next 12 months

Over the upcoming year, 47 per cent manufacturers are placing a high priority on employee well-being and safety, while 41 per cent are emphasising cybersecurity, and 40 per cent are directing their attention towards digital transformation. Additional priorities are recruitment, retention, Diversity, Equity, Inclusion, and Belonging initiatives and sustainability efforts among others.

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