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The 17th edition explores the imperative need for specialised training and development in an industry increasingly defined by technological complexity and innovation.

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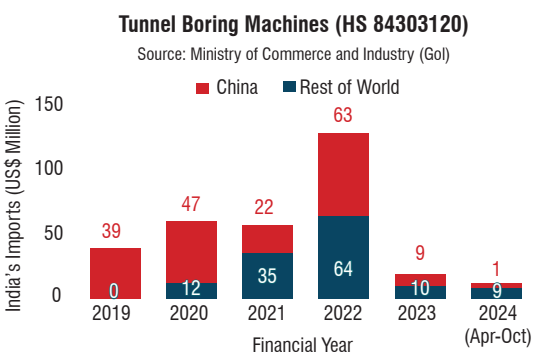
TACTICAL TECH ADVANCES

The equipment, Aquaeye being deployed at Srisailam Left Bank Canal construction site in Telangana is for tracing humans caught in slushy or muddy waters. It is an advanced Sonar underwater scanner that uses the latest sonar technology as well as artificial intelligence to identify human bodies underwater and in waters with poor visibility. Mainly used for search and rescue operations it assists first responders in water rescues.

Tunnels are boring into India's cities setting metro rail and for pipelines and roads and highways across the country. Imports of Tunnel Boring Machines, which were not manufactured in India, have surged in 2022 (see graph). According to **Manoj Garg, Managing Director, Herrenknecht**, a German company and a leading global player in the design and manufacturing of TBMs, all the metro TBMs supplied by the company in the last two years were manufactured at their facility in Chennai. It is also slated to supply two mega TBMs for the Versova-Dahisar Link project.



According to the latest figures from the Indian Construction Equipment Manufacturers Association (ICEMA), the industry recorded 98,970 units sold during the April-December 2024 period, reflecting a 5 per cent increase from the 94,685 units sold in the same period of 2023.

Exports have also reached new heights, with the industry achieving a three-year high of 9,733 units, compared to 9,181 units in 2023. The third quarter of FY25 marked an especially strong performance, with domestic sales reaching 35,835 units—an increase from 33,135 units in Q3FY24. Exports during this period also saw an uptick, reaching 3,547 units, up from 3,452 units in Q3FY24.

The government's sustained focus on infrastructure development following the elections has played a pivotal role, with continued investments driving demand within the sector. Additionally, the end of the monsoon season, pre-buying activities ahead of the upcoming CEV V emission standards set to be implemented in January 2025,

and the introduction of new equipment variants have acted as catalysts for growth.

A particularly noteworthy development in the sector saw ACE and JCB India secure contracts with the Ministry of Defence for the procurement of 1,868 rough terrain forklift trucks for the Indian Armed Forces. This procurement deal not only enhances the capabilities of the Indian military but also holds significant potential for creating both direct and indirect employment, especially within the MSME sector through the manufacture of components.

Looking to the future, ICRA projects investments of Rs 250-300 billion from auto component suppliers in the next fiscal year. The automotive component industry, which saw a robust 14 per cent growth in FY24, is expected to experience more moderate but steady growth of 7 to 9 per cent in FY25, with a projected 8 to 10 per cent growth in FY26, despite potential challenges from speculated tariffs by the US.

In the realm of construction equipment innovation, Volvo CE is making significant strides with the introduction of its hydraulic hybrid technology. New models such as the EC260 Hybrid, EC300 Hybrid, EC370 Hybrid, EC400 Hybrid, and EC500 Hybrid excavators are poised to set the standard for the next generation of Volvo's excavator designs. These machines exemplify the manufacturer's commitment to delivering sustainable, fuel-efficient solutions that cater to both environmental and economic needs.

On the engine front, CNH has begun production of its new 2.8-litre TREM V-compliant engine at its Greater Noida facility. This engine, designed to meet the upcoming CEV V emission standards, is initially being used in construction equipment, with plans to extend its application to agricultural machinery once the standards take effect.

As the construction industry advances, the need for skilled professionals capable of operating and maintaining the latest machinery has never been more critical. The industry is undergoing a significant transformation, propelled by rapid technological advancements and changing job requirements. This transformation calls for an increasing focus on equipping the workforce with the necessary skills to meet these challenges head-on.

In this 17th Anniversary Edition of EQUIPMENT INDIA, we shine a spotlight on the vital theme of skill development in the construction equipment sector. This edition delves into the pressing need for specialised training and development in an industry that is increasingly defined by technological complexity and continuous innovation.

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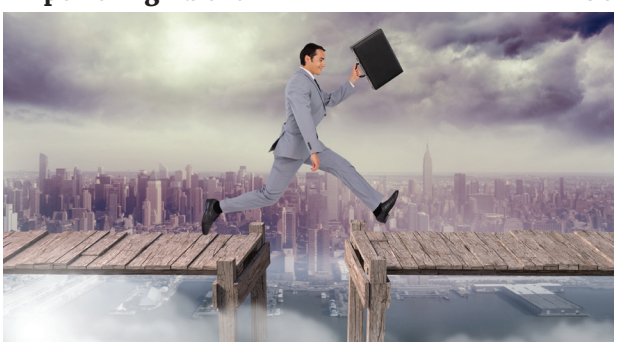
INSIDE

Cover Story: Skilling



India's major infrastructure projects highlight the urgent need for a skilled workforce.

By focusing on skilling and fostering a collaborative approach between industry, government, and educational institutions, India can ensure that it not only meets the needs of its growing infrastructure but also becomes a leader in the global construction equipment market.

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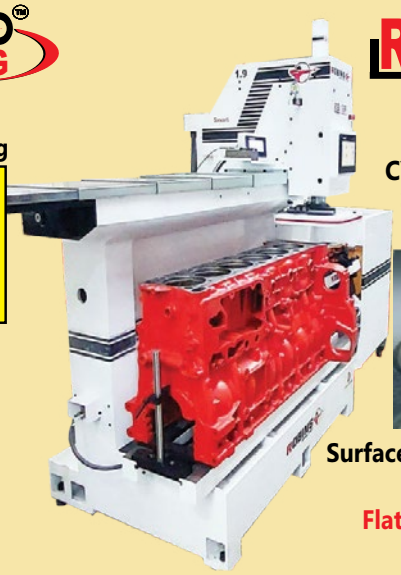

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ACE secures ₹4.20 bn contract from Ministry of Defence

In a significant boost to India's defence infrastructure and indigenous manufacturing capabilities, Action Construction Equipment (ACE) has secured the largest order in its history, reinforcing its commitment to the Government of India's 'Make in India' and 'Aatma Nirbhar Bharat' initiatives. The Ministry of Defence (MoD) has signed contracts, in the presence of Defence Secretary R K Singh, for the procurement of 1,868 Rough Terrain Fork Lift Trucks (RTFLT), with ACE securing a dominant 60 per cent share of the order. ACE will deliver 1,121 RTFLTs along with attachments and accompanying accessories at a total value of ₹4.20 billion.

The RTFLT is a mission-critical asset, designed to enhance combat

readiness and logistical efficiency across the Indian Army, Indian Air Force, and Indian Navy. By reducing manual handling of vast quantities of essential supplies, the RTFLT significantly improves the operational effectiveness of the Defence forces. ACE was awarded this breakthrough contract after successfully demonstrating the superior capability of its equipment through rigorous performance testing. This milestone order underscores the company's technological expertise and robust R&D capabilities, reinforcing its position as a key contributor to India's self-reliance in defence manufacturing.

"This is a momentous achievement for ACE, marking our single largest order to date and a testament to our unwavering commitment to innovation and excellence. We take immense pride in playing a crucial role in strengthening our nation's defence logistics with indigenously designed and manufactured solutions", said, **Sorab Agarwal, Executive Director, ACE**.

CE industry sees robust growth in domestic and export sales: ICEMA

The construction equipment industry has experienced its highest sales volumes in three years, driven by increased government spending on infrastructure projects. Domestic and export sales have surged significantly in the April-December 2024 period, according to the latest data from the Indian Construction Equipment Manufacturers' Association (ICEMA).

During the first nine months of the current fiscal year, the industry sold 98,970 units, a 5 per cent increase from the 94,685 units sold during the same period in 2023, and a 34 per cent rise from 73,795 units in 2022. Exports also reached a three-year high, with 9,733 units shipped, surpassing 9,181 units in 2023 and 5,700 units in 2022.

The third quarter of FY25 saw the strongest performance in both domestic and export sales. Domestic sales reached 35,835 units, an increase from 33,135 units in Q3FY24 and 25,565 units in Q3FY23. Export figures also showed growth, with 3,547 units exported, up from 3,452 units in Q3FY24 and 2,252 units in Q3FY23. Q3FY25 outperformed previous quarters, with Q2FY25 recording 27,382 units in domestic sales and 3,304 units in exports.

Escorts Kubota launches Farmtrac PROMAXX Series tractors

Escorts Kubota has launched the new FARMTRAC PROMAXX tractor series focusing on the mid Hp range between 39-47 HP range. The PROMAXX series is designed to serve a wide range of agricultural and commercial needs, including haulage. The series has seven models, including 2WD and 4WD variants of PROMAXX 39, PROMAXX 42, PROMAXX45, and PROMAXX 47. The FARMTRAC brand has a rich history and loyal customer base in India. The PROMAXX series builds on this legacy with technological advancements, with modernisation and innovation integrated into the tractor's aggregates.

VECV inaugurates facility for Eicher Pro X range

VE Commercial Vehicles (VECV) inaugurated a manufacturing facility and delivered the first batch of Eicher Pro X trucks to leading Indian logistics providers who gathered at Bhopal. This follows the successful launch of the Eicher Pro X small truck at Bharat Mobility Global Expo 2025.

The all-new facility, located within VECV's Industry 4.0 complaint Bhopal factory, was inaugurated by Martin Lundstedt, President and CEO, Volvo Group and Siddhartha Lal, Chairman, Eicher Motors and Board Member, VECV. Vehicles rolling off the all-women final assembly line at this brand-new facility were delivered to leading players in the rapidly transforming Indian logistics industry.

Martin Lundstedt, President & CEO, Volvo Group, said, "Each time I visit India, I am truly amazed by the rapid pace of development, including the transformation towards sustainable and modern logistics and public transport. It an honour to inaugurate this state-of-the-art facility and deliver the first batch of Eicher Pro X trucks to customers who are redefining logistics in India."

Siddhartha Lal, Chairman, Eicher Motors and Board Member VECV, said "The electric first launch of the Eicher Pro X is testament to Eicher Trucks and Buses legacy of consistently delivering relevant modernisation to the Indian CV industry."

LiuGong India lays foundation stone for new plant in Pithampur

In a significant milestone for India's manufacturing sector, LiuGong India has laid the foundation stone for its new plant in Pithampur. Spanning a vast 20-acre site, this plant represents a substantial investment of $2.8 million and marks a new chapter in LiuGong's commitment to India's growth and development.

The new plant, strategically located in the industrial hub of Pithampur, is poised to revolutionize the construction equipment industry in India. With an initial production capacity of 6,500 units, the plant will focus primarily on the local production of excavators, catering to the rising demand for construction machinery in the country.

The foundation stone laying ceremony was attended by key industry leaders, government officials, and LiuGong's senior management. Speaking at the event, Wu Song, Managing Director, expressed enthusiasm about the project. "This new facility underscores our long-term commitment to the

Indian market. We are excited to enhance our advanced manufacturing capabilities to Pithampur, fostering innovation and creating job opportunities," Wu Song stated.

The Pithampur plant is not just a testament to LiuGong's investment in India's infrastructure but also a step towards self-reliance. By focusing on local production, LiuGong aims to reduce import dependencies and strengthen India's position as a manufacturing powerhouse. The plant's cutting-edge technology and efficient processes will ensure the production of high-quality excavators that meet global standards.

ELGi unveils ground-breaking "STABILISOR" technology

Elgi Equipments announced the introduction of its pioneering compressed air stabilisation technology. Designed to revolutionise the way compressors operate in plants with dynamic air demand, the STABILISOR system aims to address the longstanding challenges of unstable compressor performance, inefficiency, and excessive wear caused by frequent load/unload cycles.

In industrial settings, the gap between compressor capacity and plant air demand is inherently dynamic. This variability leads to frequent cut-in and cut-out operations, which destabilize the compressor and impair critical flow and kinematic components. Traditional solutions, such as increasing reservoir volume, altering cut-in/cut-out pressures, or adding variable frequency drives (VFDs), often fall short, introducing new inefficiencies or higher

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CNH launches TREM V engine for construction

CNH announced the commencement of production at its new engine plant in Greater Noida, marking a significant milestone in the company's dedication to innovation and localisation. The facility manufactures the advanced 2.8l Trem V engine (namely F28), designed to power the company's product line up with exceptional performance and efficiency. This cutting-edge global engine has been localised in India to deliver a robust and reliable solution for the Indian market.

Narinder Mittal, President and MD, CNH India, said, "The launch of the 2.8l TREM V engine from the state-of-the-art Noida engine plant, underscores our dedication to delivering solutions engineered and manufactured in India."

The new 2.8l engine is licensed to CNH by FPT Industrial, the powertrain division of Iveco Group, reflecting the strong synergy between the two entities in driving innovation and sustainability in powertrain technologies. Designed for under-hood applications, its compact design improves engine balance, reduces vibration, and minimises friction for improved fuel efficiency. Located within CNH's 60-acre Greater Noida facility, the advanced engine plant spans 7,000 sq m and is designed for scalable production, with an annual capacity up to 20,000 units. Currently the 2.8l F28 TremV compliant engine is manufactured for CE.

Cummins reports strong fourth quarter

The Board of Directors of Cummins India approved the unaudited financial results for the quarter and period ended December 31, 2024.

Total Sales for the quarter at ₹30.41 billion higher by 22 per cent compared to the same quarter last year and higher by 24 per cent compared to the previous quarter.

Domestic sales at Rs 25.77 billion higher by 18 per cent compared to the same quarter last year and higher by 28 per cent compared to the previous quarter. Exports Sales at ₹4.64 billion higher by 43 per cent compared to the same quarter last year and higher by 5 per cent compared to the previous quarter.

Profit before tax at ₹6.70 billion is higher by 11 per cent compared to the same quarter last year and higher by 13 per cent compared to the previous quarter. Profit after tax at ₹5.14 billion is higher by 13 per cent compared to the same quarter last year and higher by 14 per cent compared to the previous quarter.

Shveta Arya, Managing Director, Cummins India, said: While inflation is easing in most countries, there is still uncertainty in different regions globally, leading to overall subdued outlook. US policy is expected to have a significant impact on the global economy in the years ahead. Amidst the uncertainties in various global economies, Indian economy is recovering well after slower growth in Q2 FY25. GST collections continue to remain strong, indicating robust underlying trade activities, while other key economic indicators like IIP, PMI are pointing to a reasonable economic outlook for the year.

JCB hits major milestone with 1 mn backhoes

JCB celebrated a major machine milestone with the production of its one millionth Backhoe Loader. The first JCB Backhoe rolled off the production line in Rocester, Staffordshire in 1953. Called the Mark One, it brought the new wonder of hydraulic power to construction equipment for the first time.

In the first full year of production in 1954 just 35 of the machines were built and it took more than 20 years for the first 50,000 to be made. It took 59 years for the first half million JCB Backhoes to be manufactured – but less than 13 years for the next half million to be produced, culminating in today's celebrations.

JCB now manufactures backhoe loaders in the UK, India, Brazil and it remains one of the most versatile and productive machines in the world. Despite the maturity of the versatile backhoe loader, it is still one of the biggest selling construction machinery and it remains the world's fourth most popular machine.

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CASE launches Project Milaap for devotee safety at Kumbh Mela

CASE Construction Equipment, a brand of CNH, launches Project Milaap, a groundbreaking CSR initiative aimed at ensuring the safety of millions of devotees attending the Kumbh Mela 2025 in Prayagraj. The initiative was officially flagged off in the presence of CSR committee Emre Karazli, VP-Construction Segment, CNH APAC, **Shalabh Chaturvedi**, Managing Director, CASE India & SAARC, **Satendra Tiwari,** Executive Director – Operations, **Puneet Vidyarthi**, Head of Brand Marketing, APAC along with representatives from the company.

With an expected footfall of over 120/400 million pilgrims, the project introduces an innovative 'You Will Never Get Lost' concept to help reunite lost individuals with their families. The initiative will feature the distribution of QR code-enabled hand bands to pilgrims at designated registration centres across the mela grounds and key transport hubs. These bands will contain essential information to facilitate the quick identification for reunification of lost individuals, significantly reducing the distress caused by separation.

Kavita Sah, CSR Head, CNH, stated, "Project Milaap is a demonstration to our continuous commitment to social responsibility and community well-being. Through this project, we aim to ensure a safe experience for millions of pilgrims attending the Kumbh Mela 2025. Our goal is to provide families with the reassurance that their loved ones are protected, enabling them to focus on their spiritual journey."

Kumbh Mela has witnessed several tragic incidents in the past, including stampedes and cases of missing individuals, particularly elderly citizens and children. Project Milaap seeks to address these challenges through a robust offline

and online registration system, allowing devotees to pre-register from their homes through a dedicated mobile app and website.

CASE India has partnered with local authorities and NGOs to ensure smooth execution of the initiative, enhancing devotee safety and family peace of mind. Registration counters will be set up at key locations like railway stations, Bus Stands, and mela entry points, along with options to register via a mobile app or microsite. A network of lost and found centres with trained volunteers will assist separated individuals, supported by awareness campaigns.

AJAX's 3DCP machine & smartbots at Bharat CE Expo

AJAX Engineering, India's leading concreting equipment manufacturer, unveiled SmartBots powered by Concrete AI, an upgraded version of its AI-driven platform launched earlier in July 2024. Building on the capabilities of the earlier version, ConcreteAI introduces Smart Audio and Video Bots to address the industry's growing demand for intuitive and role-specific guidance. The addition of the bots takes user interaction to the next level by offering highly contextual, real-time assistance tailored to the unique challenges of the construction industry.

For professionals operating within the construction industry, the Smart Audio Bot enables instant voice-driven access to troubleshooting guides, maintenance protocols, and compliance requirements, cutting downtime on project sites. The Smart Video Bot introduces dynamic, role-specific visual guidance, with avatars designed to walk users through intricate processes such as equipment calibration, workflow optimisation, or advanced technical training.

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Zoomlion delivers 10,000+ units worth $782 mn

Zoomlion Heavy Industry Science & Technology, a global leader in construction machinery, has marked a strong start to 2025 with its first major delivery event held at Zoomlion Smart Industrial City's headquarters research building on February 7, dispatching over 10,000 units worth $782.04 mn.

Zoomlion's Hoisting Machinery Business Unit delivered over 850 cranes, with a total value of $246.96 million, including the world's largest 4,000-tonne all-terrain crane, a groundbreaking innovation and the only model worldwide legally operable on public roads. It will soon head to Shaanxi Province to complete a wind power installation project.

The Concrete Machinery Business Unit shipped over 1,200 units worth $137 million, featuring the five-bridge, 73-m lightweight concrete pump, the world's longest boom in the lightweight series, along with the "Lingguan" series mixer trucks and various pump trucks ranging from 38 to 50 m. These units will be deployed in key projects across China and exported to markets such as Australia, Nigeria, Mexico, Brazil, and Peru. More than 1,300 units of earthmoving and mining machinery valued at $123.48 million, including 38-tonne excavators and the world's first 100-tonne wide-body mining dump truck, the ZT160HEV, have been shipped to major mining and construction sites across markets.

Custom Equipment rebrands to AXCS Equipment

Custom Equipment LLC, the manufacturer of Hy-Brid Lifts, announces a rebranding to AXCS Equipment. The company, which has been in business since 1981, focuses on providing innovative solutions and outstanding service to support customers' aerial work needs. Though the name is changing, the company remains committed to those values under the new AXCS name. Its product line dramatically increased when it merged with ASKO Holding, a Turkish-based entity with holdings in construction, agriculture, energy and technology, in early 2024. This new merger offered resources to expand the product line beyond scissor lifts to include telehandlers, articulated booms and vertical masts. AXCS' dynamic range of aerial lift equipment and telehandlers is built to combine maximum operator safety with durability.

SANY makes debut on 2025 world's top 500 brands list

SANY Group, a leading construction machinery manufacturer, has made history by securing the 468th position on the prestigious 2025 World's Top 500 Brands list, as revealed by the GYBrand Global Brand Research Institute. This marks SANY's first-ever appearance on the esteemed list, distinguishing it as the only engineering machinery company to be included. This achievement underscores SANY's position as a frontrunner in the global business landscape.

The 2025 list features brands from 207 cities across 33 countries, with 76 Chinese brands (including those from Hong Kong and Taiwan) representing 15.2 per cent of the total. SANY's inclusion highlights China's growing competitiveness in the global economy and its ability to nurture world-class brands.

IN BRIEF

Liebherr USA brings in new managing director

Hirohito Imakoji, formerly the managing director of finance and administration at Liebherr-Electronics and Drives, has been appointed managing director for the company's U.S. operations.

He has joined Liebherr USA's executive management team and will work with Liebherr USA's Managing Director and Divisional Director of Earthmoving and Material Handling Technology Kai Friedrich.

John Deere reports 38% drop in revenue

John Deere's construction business had a tough start to its fiscal year, bringing in just under $2 billion in net sales versus the $3.2 billion it saw in first-quarter 2024. This represents a 38 per cent year-over-year decline in revenue, which Deere attributed to lower shipment volumes due to planned underproduction of retail demand. Operating profit for the company's construction business also fell 89 per cent.

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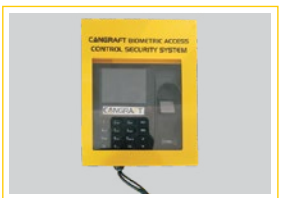

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Empowering Talent

India's major infrastructure projects highlight the urgent need for a skilled workforce.

India stands at the cusp of a transformative era in construction and infrastructure development. The nation is undertaking ambitious mega-projects that are reshaping the landscape, from Atal Setu to the intricate Mumbai Trans-Harbour Link. These projects are more than just engineering marvels; they symbolise India's potential and ambition on the global stage. However, at the heart of these grand endeavours lies a critical factor that often goes unnoticed – the skilled workforce that drives them.

The construction industry in India is vast and diverse, encompassing a wide range of activities, from traditional masonry to high-tech construction equipment operations. While the industry is a significant contributor to the country's GDP, it faces several challenges, particularly in terms of workforce development. A large portion of the workforce is part of the unorganised sector, lacking formal training and certification. This not only impacts the quality of work but also hinders the industry's ability to keep pace with technological advancements.

Growing demand for skilled labour

The construction and engineering sectors in India are experiencing a significant boom, driven by government initiatives like the Pradhan Mantri Awas Yojana and private investments aimed at modernising the country's infrastructure. This boom has led to an exponential increase in the demand for skilled labour. The industry is not just building bridges, roads, and skyscrapers; it is laying the foundation for the nation's future economic growth.

"India's ambitious growth trajectory is embarking on major mega projects that were once deemed impossible," says **SP Rajan, Vice President and Head - Competency Center RBF SBG at L&T**. "These endeavours are not just engineering feats; they are proof of our potential—our potential of a skilled workforce."

SP Rajan
Vice President and Head - Competency Center RBF SBG at L&T

Vijay Kumar, CEO, Infrastructure Equipment Skill Council (IESC), is acutely aware of the scale of this demand. According to Kumar, approximately 1,00,000 pieces of construction equipment are sold annually in India. Each piece of machinery requires trained operators and technicians to function efficiently, yet the industry faces a significant shortage of skilled workers. "Even if we account for two

Vijay Kumar
CEO, Infrastructure Equipment Skill Council (IESC)

operators per piece of equipment, we need 2,00,000 operators every year. The challenge is even greater when you consider the technicians needed for maintenance," says Kumar.

However, much of the current workforce learns their trade informally, often as helpers on job sites. While this method has its merits, it falls short in providing comprehensive training, especially in critical areas such as safety, environmental awareness, and basic troubleshooting. The absence of formal training and certification leaves significant gaps, leading to inefficiencies, higher operational costs, and, most worryingly, compromised safety on construction sites.

"Our journey to becoming a global construction powerhouse is undoubtedly linked to the skill of our workforce," Rajan asserts. "But this workforce is still part of an unorganised sector that forms the backbone of our industry."

Building the future

The need for a skilled workforce has led to a concerted effort by various stakeholders to address the skill gap through targeted training programmes. IESC has been at the forefront of this movement, offering structured training programmes designed to produce well-rounded professionals. These programmes go beyond basic machine operation to include soft skills like computer literacy, financial literacy, and effective communication.

"Our aim is to create a workforce that is not just competent but also adaptable to the rapidly changing technological landscape," says Vijay Kumar. "By incorporating soft skills into our training, we ensure that our operators are not only proficient in their tasks but also capable of growing into more complex roles within the industry."

IESC's training programmes are meticulously designed to cover a broad spectrum of skills. For instance, operators are trained to conduct pre-operational safety checks, perform basic troubleshooting, and understand the environmental impact of their work. This comprehensive approach ensures that workers are better equipped to meet the demands of modern construction projects, where timelines are tight, and the margin for error is slim.

Commitment to skilling

Recognising the critical need for skilled labour, corporate India is playing a vital role in this skilling revolution. Leading companies like Schwing Stetter India and Terex India have made skill development a cornerstone of their corporate strategies. These companies understand that a well-trained workforce is not just a necessity for operational efficiency but also a key competitive advantage.

S Baskar Babu
Sr. Vice-President – Training and Corporate Communications, Schwing Stetter India

S Baskar Babu, Sr. Vice-President – Training and Corporate Communications, Schwing Stetter India, explains that the company has established a world-class training institute at its factory in Tamil Nadu. "Skill development is embedded in our corporate strategy," Babu says. "We don't just stop at selling equipment; we ensure that our customers, vendors, and employees are thoroughly trained to operate and maintain these machines."

Schwing Stetter's training programmes are comprehensive, incorporating both theoretical and practical components. The company uses advanced simulators to provide hands-on training in a controlled environment. "Our training institute is equipped with state-of-the-art welding simulators and practical labs. We train not only our employees but also the operators and technicians of our clients," says Baskar Babu.

This commitment to skilling extends to external partners as well. Schwing Stetter collaborates with state government skill development corporations in Tamil Nadu, Assam, and Uttarakhand, among others, to train unemployed youth in construction equipment operation. The company's efforts have led to the training and certification of thousands of operators, many of whom have gone on to secure employment with leading construction firms across India.

Amol Sinha
Director, Product and Training, Terex India

Amol Sinha, Director, Product and Training, Terex India, echoes this sentiment. Terex has developed a robust training programme that covers a wide range of skills, from basic machinery operation to advanced topics like electric mobility and power electronics. "Training is not an afterthought at Terex; it is part of our DNA," says Sinha. "We understand that the rapidly evolving technology in construction equipment requires continuous learning. Our training programmes are designed to keep our workforce at the cutting edge of technology."

Terex's approach to training is holistic, encompassing all levels of the organisation. "We provide tailored training programmes for different roles within the company, ensuring that everyone, from engineers to assembly line workers, is proficient in the latest technologies," says Sinha. This commitment to continuous learning ensures that Terex remains competitive in a fast-changing industry.

"Our corporate partners like Schwing Stetter and Terex are not

just contributing to the economy but are also playing a pivotal role in building a skilled India," Rajan notes. "Their commitment to skilling ensures that our workforce is well-prepared to tackle future challenges."

Role of technology in skilling

As the construction industry becomes increasingly technology-driven, the role of technology in skilling has become more prominent. Advanced technologies like augmented reality (AR), virtual reality (VR), and connected machines are revolutionising the way operators are trained, making them more efficient and better prepared to handle the complexities of modern construction projects.

Vijay Kumar highlights the importance of integrating these technologies into training programmes. "The machinery we use today is vastly different from what it was even a decade ago. Telematics, IoT, and predictive maintenance systems are now standard features in many types of equipment. Our training programmes need to evolve alongside these technologies to ensure that operators can fully utilise the capabilities of modern machinery," he says.

IESC is already incorporating AR and VR into its training modules. These tools provide operators with realistic, hands-on experience in a controlled environment, reducing the risks associated with training on live equipment. "AR and VR allow us to simulate real-world conditions, providing operators with the experience they need without the associated risks. This is particularly valuable in a sector where practical experience is crucial," Vijay Kumar adds.

Baskar Babu agrees, noting that these technologies are becoming integral to training programmes at his company. "We have embraced AR and VR as part of our training strategy. These tools not only enhance the learning experience but also ensure that our operators are better prepared to handle real-world scenarios," he says.

Advanced technologies like augmented reality (AR), virtual reality (VR), and connected machines are revolutionising the way operators are trained.


Andrei Geikalo
Founder and CEO, MyCrane

Andrei Geikalo, Founder and CEO, MyCrane, emphasises the importance of complementing digital tools with traditional hands-on training. "Digitalisation cannot replace real training; it can only complement it. At MyCrane, we ensure that our suppliers have access to comprehensive training materials and industry guidelines. This combination of digital resources and hands-on experience ensures that crane operators on our platform meet the highest standards of proficiency and safety," Geikalo states.

"The infusion of technology has further accelerated the learning curve, empowering workers to acquire new skills rapidly," Rajan observes. "This translates to cost-effective project execution and adherence to stringent timelines, essential for our growth as a global construction powerhouse."

Overcoming challenges in workforce development

Despite these advancements, significant challenges remain in the skilling landscape. Mobilising candidates for training programmes is one of the most pressing issues. The construction industry has long been seen as less desirable compared to white-collar professions, a perception that deters potential candidates. Moreover, the geographical spread of India's infrastructure projects often requires workers to relocate, a prospect that many find unappealing.

"One of the biggest challenges we face is convincing young people to pursue careers in construction," says Baskar Babu. "Many prefer jobs that are close to home or in urban areas. However, the reality is that most large infrastructure projects are in more remote locations, which makes it difficult to attract and retain talent."

To address this issue, Schwing Stetter has developed a collaborative approach, partnering with local businesses and government agencies to provide on-the-job training. "By working with local players, we can offer practical, hands-on training that not only reduces costs but also makes it easier to mobilise candidates," Baskar Babu explains.

The cost of training, particularly for advanced equipment, is another significant barrier. Training a single operator involves substantial expenses, including machine downtime,

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fuel consumption, and wear and tear on equipment. "Training is expensive, especially when it involves high-tech equipment. But it's an investment that pays off in the long run," says Sinha. To mitigate these costs, Terex has adopted a blended learning approach, combining theoretical instruction with practical experience and digital tools like AR and VR.

Ratan Lal Kashyap
President – SCM, Dineshchandra Agrawal Infracon

Ratan Lal Kashyap, President – SCM, Dineshchandra Agrawal Infracon, emphasises the importance of retaining skilled workers. "As the infrastructure sector continues to expand, opportunities for workers to move between companies increase. Retention of skilled workers is a major challenge," he notes. To combat this, companies are implementing robust systems for career planning and employee engagement. "We need to ensure that our employees see a clear path for advancement within the company. This is key to retaining talent," says Kashyap.

"Addressing these challenges requires innovation and collaboration," says Rajan. "By investing in training and development, we can not only enhance employability but also drive significant productivity across the industry."

The future of skilling in India

HS Mohan
ex-CEO, IESC

Looking to the future, the construction industry in India will increasingly rely on a skilled workforce capable of operating within a highly technological environment. There is a growing consensus among industry leaders that formal certification and licensing of operators, similar to what exists in the automotive industry, are essential for maintaining high standards of safety and efficiency.

By investing in skill development, embracing technological advancements, and fostering collaboration between industry and educational institutions, India can create a workforce that is well-equipped to handle the challenges of modern construction.

HS Mohan, ex-CEO, IESC, advocates for the introduction of a licensing system for CE operators. "Just as you need a license to drive a car, you should need a license to operate heavy machinery. This would ensure that only qualified individuals are allowed to handle equipment, significantly improving safety on construction sites," says Mohan.

The idea of licensing is not just about improving safety; it's also about professionalising the workforce. "Licensing would give operators a recognised qualification, which could open up more opportunities for them both in India and abroad," he adds. This approach aligns with the broader goal of creating a globally competitive workforce, capable of meeting the demand for skilled labour in international markets.

The international potential of India's skilled workforce is vast. As countries around the world continue to invest in infrastructure, the demand for skilled workers is on the rise. With the right training and certification, Indian workers could compete for jobs in these markets, providing them with new opportunities and contributing to the country's economic growth.

Mohan also emphasises the need for a more integrated approach to skilling, one that aligns with global standards. "There's a huge opportunity for our skilled workers to find employment abroad. If we can align our training programmes with global standards, we can open up a wealth of opportunities for our workforce," he says. This would not only benefit individual workers but also enhance India's reputation as a hub for skilled labour.

Road ahead

India's infrastructure boom presents a unique opportunity to build a workforce that is not only ready for the future but also capable of leading it. By investing in skill development, embracing technological advancements, and fostering collaboration between industry and educational institutions, India can create a workforce that is well-equipped to handle the challenges of modern construction. The path forward requires a concerted effort from all stakeholders, but the rewards—both for the industry and the nation—are well worth the investment.

As the country continues to scale new heights in infrastructure, the importance of a skilled workforce cannot be overstated. It is the backbone of India's growth, driving the nation towards a prosperous and sustainable future. The vision of a "Skilled India" is not just about meeting the immediate needs of the construction industry; it's about laying the foundation for a stronger, more resilient economy that can compete on the global stage. The journey is challenging, but with the right strategies in place, India is well on its way to becoming a global leader in infrastructure development, powered by a workforce that is as skilled as it is ambitious.

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Skilling for the Future

By focusing on skilling and fostering a collaborative approach between industry, government, and educational institutions, India can ensure that it not only meets the needs of its growing infrastructure but also becomes a leader in the global construction equipment market.

The Indian construction equipment (CE) industry stands at the crossroads of transformation, driven by the dual forces of automation and technology. As the sector seeks to become globally competitive and address the growing demands of infrastructure development, one critical aspect stands out—skilling. A robust and future-ready workforce is essential to harness the potential of cutting-edge technologies such as automation, drones, IoT, and telematics. For India's construction equipment industry to truly take flight on the global stage, it is imperative to not only adopt these innovations but also invest in building a workforce equipped with the skills necessary to operate, manage, and innovate within this rapidly evolving landscape.

Technological Evolution

One of the most significant drivers of change in the construction equipment sector is automation. With the advent of smarter, more

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efficient machinery, automation is revolutionising the way construction projects are managed and executed. From dumpers with tracking systems to advanced equipment embedded with sensors, automation is enabling real-time monitoring, enhanced productivity, and improved safety.

Rajiv Chaturvedi
Vice President, Hyundai Construction Equipment India

Rajiv Chaturvedi, Vice President, Hyundai Construction Equipment India, points out the growing need for this technology. However, he acknowledges a significant challenge: the cost. "India is a very price-sensitive country. For technology to truly make an impact, it needs to be affordable and accessible to the masses," he says. "The goal is to integrate these innovative technologies, much like mobile phones became accessible to everyone in the country."

Chaturvedi also highlights the role of safety in this evolution. Technologies such as drones and IoT have become instrumental in monitoring construction sites, ensuring that operations are running smoothly and safely. "Drones are used to scan project sites, gather data on equipment safety, and even pinpoint areas where caution is needed," he explains. This integration of smart technologies is crucial for driving efficiency and mitigating risks, particularly on remote and large-scale construction projects.

Overcoming Barriers to Technology Adoption

While the push for more advanced technology is strong, its adoption is often hindered by limited awareness and financial constraints. **Jaideep Shekhar, Managing Director, Terex India**, notes that despite the availability of telematics—which can track machine performance, operating hours, and maintenance needs—the adoption rate remains low. "The challenge is not just the technology but also the mindset of the industry," he says. "Customers often expect these technologies to be provided for free, which is unrealistic. Manufacturers need to find ways to make these technologies affordable while emphasising their long-term value."

Jaideep Shekhar
Managing Director, Terex India

Shekar points out that while India is making strides in adopting technologies such as recycling, a much greater push is required from the government in the form of legislation to incentivise and promote these changes. "The government can play a major role in encouraging the use of sustainable materials and recycling technologies in construction," he says. Globally, many countries have passed laws that drive the recycling of construction and municipal waste, creating a model India can emulate.

Need for Standardisation and Legislative Support

Muthu Sekkar
COO, Hailstone Innovation

For India to fully embrace the technological evolution of the construction equipment industry, standardization and regulatory support are essential. **Muthu Sekkar, COO, Hailstone Innovation**, advocates for the creation of uniform standards across the country. "We need 'one standard, one quality'. Currently, the inconsistency in standards for materials like sand across states causes inefficiency," he says. He also calls for legislation to encourage the use of overburden materials—excess material that could be repurposed to replace river sand in construction. "Instead of relying on river sand, we have abundant overburden material that could meet the demand for sand for years to come," Sekkar explains.

In addition to standardisation, Sekkar also calls for export incentives, which could help India position itself as a manufacturing hub for high-quality construction equipment. "If every district had a unique product, similar to the 'one district, one product' model, it would not only boost the local economy but also enhance the construction equipment sector."

Building a Competitive Edge

Upkar Singh
Chairman and Managing Director, New Swan Group

The success of India's construction equipment industry hinges on the development of a strong component manufacturing ecosystem. **Upkar Singh, Chairman and Managing Director, New Swan Group**, highlights the need for manufacturing that caters both to the domestic market and for export. "India is a low-cost manufacturing base, which gives it a unique advantage. We can develop machines that are globally competitive and cater to the needs of various markets," Singh states.

In addition to focusing on speed and cost-effectiveness, Singh emphasises the importance of safety and sustainability. "Safety standards in the construction industry need urgent attention. From controlling dust emissions to ensuring worker safety on site, these are key factors that need to be integrated into machinery design and construction practices," he explains.

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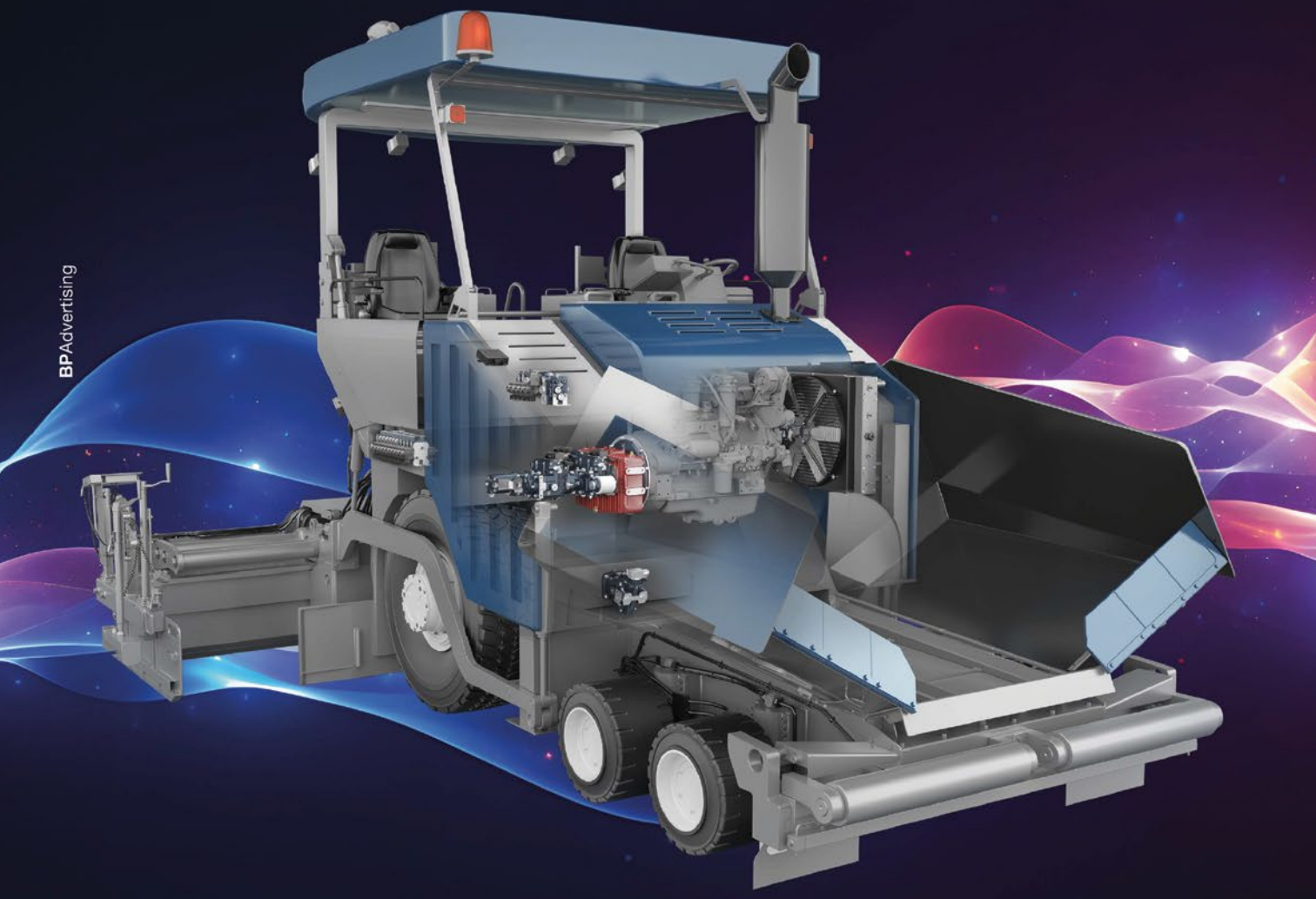

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One of the most significant drivers of change in the construction equipment sector is automation.

The adoption of sustainable practices, such as creating machines that enable faster construction while meeting environmental standards, is also paramount. Singh notes that tenders today increasingly prioritise sustainability, making it a non-negotiable factor for future equipment development.

Skilling the Workforce

While technology, regulation, and manufacturing capabilities are key, none of it will matter without the right talent. To keep pace with the global competition, especially from countries like China, Japan, and Korea, India must focus on developing a workforce skilled in the latest machinery and technologies.

Sandeep Kumar, National Product Head, Liugong India, stresses the importance of creating a robust ecosystem for skill development. "We need collaboration between industry, educational institutions, and the government to create a curriculum that aligns with industry needs. Skilled talent must be developed right from the school and college level," he advocates.

Sandeep Kumar
National Product Head, Liugong India

Moreover, Kumar highlights the importance of attracting and retaining skilled workers. "It's not enough to just train workers; we need to ensure they stay with the industry. At present, workers are lured by other industries offering better work-life balance, which leads to a high turnover rate," he explains. The focus, therefore, must not only be on imparting technical knowledge but also on ensuring a sustainable and attractive work environment that encourages long-term careers in the construction equipment sector.

Creating a Sustainable Future

The future of the construction equipment industry in India hinges on more than just technological advancements—it depends on an ecosystem that nurtures talent, supports innovation, and enforces policies that facilitate industry growth. The need for a skilled workforce is clear, but it must be accompanied by efforts to make India a hub for manufacturing and technology. As the industry strives to meet global standards, its success will depend on a collective effort to improve quality, affordability, and the sustainability of both the environment and talent.

By focusing on skilling and fostering a collaborative approach between industry, government, and educational institutions, India can ensure that it not only meets the needs of its growing infrastructure but also becomes a leader in the global construction equipment market. The road to success is long, but with the right investments in talent and technology, India is poised to be a key player in the future of global construction.

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Innovations in Training

L&T CMB has also prioritised training the workforce in the segment, with employees constituting 15 per cent of those trained.

L&T Construction & Mining Machinery (L&T CMB) has been pivotal in upskilling the Construction and Mining sector workforce and has successfully trained close to 1,00,000 individuals through structured training programmes over the last 10 years. This extensive effort underscores L&T CMB's commitment to skill development, ensuring that industry stakeholders have the expertise to navigate modern machinery and evolving technologies.

Our training initiatives are tailored to cater to diverse industry segments, reflecting their broad impact. Among the trained individuals, 38 per cent comprise operators and mechanics working with customers, who gain essential skills in machine handling, maintenance, and safety procedures. Furthermore, government-backed programmes such as the Infrastructure Equipment Skill Council (IESC) and Recognition of Prior Learning (RPL4) have enhanced industry-recognised skill development, with 20 per cent of trainees benefiting from these initiatives.

L&T CMB has also prioritised training the workforce in the segment, with employees constituting 15 per cent of those trained. Additionally, 14 per cent of trainees are dealer representatives whose enhanced skills allow them to offer superior customer support, and another 14 per cent are industry associates who acquire practical knowledge to tackle real-world operational challenges.

The Construction and mining machinery segment has traditionally been a male bastion. We have also started training women in machine operation and maintenance to bring inclusivity to the segment. Today, an all-women team confidently maintains colossal machines at a mine site for Tata Steel. This team can also assemble machines when they are delivered to the site.

The evolution of training

Training has been deeply embedded in L&T CMB's philosophy since the early 1950s, evolving into an industry-leading initiative. Initially, L&T executives were sent to international training centres affiliated with the machinery it introduced in India. These trained executives returned with valuable knowledge, which they shared with their colleagues, laying the foundation for an indigenous training school in Mumbai. This early commitment to skill development fostered a culture of service excellence, ensuring quality, speed, and efficiency in machine operation and maintenance.

As L&T CMB expanded, its training ecosystem grew in tandem. Establishing the Central Training Centre (CTC) in Kanchipuram, alongside Regional Training Centres (RTCs) at strategic locations, created a robust infrastructure for skill development. These centres provide comprehensive training for customers, dealers, employees, and operators, forming the backbone of L&T CMB's workforce development strategy.

Beyond traditional training, L&T CMB offers specialised skill-building

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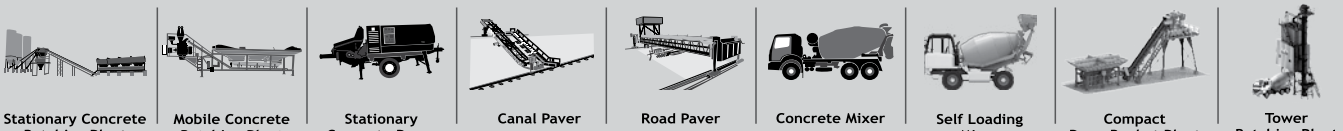

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programmes for apprentices, contract employees, and specific customer requirements. Customised training initiatives, such as dumper operator training for Ultratech Corporate and service training for the Directorate General Border Roads (DGBR) on L&T 9020 wheel loaders, highlight the company's commitment to addressing unique operational needs.

Innovations in training & development

The rapid technological advancements in construction machinery necessitate continuous learning, and L&T CMB has embraced modern training methodologies. Training has transformed from traditional blackboard teaching to cutting-edge digital learning tools, augmented reality (AR), and virtual reality (VR). Training has evolved from overhead projectors to smart interactive screens and immersive simulations, ensuring operators and mechanics can effectively understand, test, and troubleshoot machinery. In fact, our training centres make extensive use of stationary and portable simulators for training before trainees get hands-on experience in operating equipment.

A significant advantage of L&T CMB's training infrastructure is its integration with operational environments. All five training centres are located within service workshops, while the Central Training Centre is strategically positioned near the Komatsu manufacturing plant. This setup enables trainees to experience a complete learning cycle, from theoretical concepts to practical applications on real machines.

L&T CMB also recognises the importance of soft skills training for service engineers, fostering a mindset of continuous learning. The company ensures that learning remains an ongoing journey rather than a one-time achievement by equipping its workforce with technical knowledge and essential interpersonal skills.

Certification and upskilling

Certification is crucial to professional growth, offering validation of expertise and opening new career opportunities. The Skill India Mission has provided a structured framework for certification, empowering operators and mechanics who previously lacked formal recognition for their skills. As an active member of the IESC, L&T CMB has been instrumental in training and certifying over 20,000 operators and mechanics under the National Skills Qualification Framework (NSQF) since 2016.

Traditionally, machine operators learned their craft through an informal mentor-apprentice system, working under experienced operators. However, with technological advancements, a structured training approach has become essential. L&T CMB's training programmes, conducted at customer job sites or machine locations, focus on safety, energy-efficient operation, and best practices. These training sessions are followed by rigorous assessments conducted by third-party agencies nominated by IESC, ensuring that only competent professionals receive certification. To further support aspiring operators, L&T CMB sponsors the assessment fee for trainees, making certification accessible to all.

Additionally, L&T CMB runs a 22-day training programme for unemployed youth aspiring to become excavator operators. Upon completion, participants receive NSQF Level 3 certification, equipping them with the skills needed to secure immediate employment in the industry. By imparting knowledge on modern operating techniques and leveraging the full potential of advanced machinery, these programmes enhance individual career prospects and drive greater efficiency and productivity across the industry.

Shaping the future of skilled workforce

As construction equipment becomes increasingly sophisticated, training and certification will play a pivotal role in bridging the skill gap. Modern advancements such as 3D Machine Guidance (3D MG) rely on satellite-based GPS signals to achieve precise earthmoving operations. Without adequately trained operators, such innovations may not reach their full potential. Recognising this, L&T CMB continues to push the boundaries of skill development, ensuring that operators and mechanics are well-equipped to harness the power of modern technology.

The company's commitment to expanding its training ecosystem is evident in its ongoing investments in infra, digital learning tools, and hands-on training facilities. By aligning training initiatives with industry demands, L&T CMB is strengthening the construction workforce and shaping the future of machinery operations in India.

With 1,00,000 trained professionals and counting, L&T CMB's training milestone is more than just a numerical achievement—it is a testament to the company's enduring legacy of excellence in skill development and industry empowerment.

Our aim is to ensure that all equipment operators in the segment are trained. We have a long way to go, but we have made steady progress and will increase the pace over the years.

About the author:
The article is authored by **Arvind K Garg, Senior Vice President & Head, L&T Construction & Mining Machinery Business, L&T.**

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Building the Future

Tata Hitachi's operator training programmes are comprehensive, addressing key aspects of machine operation, maintenance, and safety.

In an industry as dynamic as construction equipment manufacturing, the importance of skilled operators cannot be overstated. We at Tata Hitachi are deeply committed to fostering skill development and increasing employability through its diverse training and skilling programmes. These initiatives span a wide range of individuals—from unemployed youth and non-certified operators to dealer staff and permanent employees.

Tata Hitachi's skill development programme adopts a two-pronged approach aimed at addressing the varied needs of its workforce:

Training for permanent employees and contractual staff: For its permanent and contractual employees, Tata Hitachi provides an extensive range of on-the-job and theoretical training across various competencies such as welding, fitting, machining, painting, and mechanical and electrical maintenance. This is facilitated through the company's Skill Training Centre located within its plant, featuring world-class facilities and certified Hitachi trainers. Furthermore, employees can benefit from the Tata Hitachi JIIM Programme (Japan India Institute for Manufacturing), an initiative in alignment with the Government of India's Skill India programme.

Training for local communities and aspiring operators: Tata Hitachi extends its training efforts to the wider community with operator training centres in Dharwad and Kharagpur. These centres specialise in training for the operation of construction equipment like hydraulic excavators, backhoe loaders, and wheel loaders. These centres are equipped with state-of-the-art simulators that replicate real-life machine operating conditions, offering an immersive and hands-on experience for trainees. Upon completing their training, participants receive certification in partnership with the Government of India, enhancing their employability across the nation.

Comprehensive skill development approach

Tata Hitachi's operator training programmes are comprehensive, addressing key aspects of machine operation, maintenance, and safety. The company's training modules are developed in line with the qualification pack of the Infrastructure Equipment Skill Council, ensuring they meet industry standards. The training is structured into several modules, including:

Training for aspiring operators: Targeted at unemployed youth, this programme focuses on equipping them with the skills needed to operate heavy machinery and pursue careers as certified operators.

Training for existing operators: This programme focuses on upgrading the skills of operators who are already employed but need to enhance their expertise or knowledge of new equipment.

Recognition of prior learning (RPL): This programme assesses and certifies the skills of existing operators based on their prior experience and knowledge.

At the heart of these programmes is safety. Operators are trained to ensure the safe operation of machines, reduce wear and tear, and optimise productivity. With a focus on minimising risks and maximising output, Tata Hitachi

ensures that operators are not just proficient but also responsible in their roles.

Future of operator training in the industry

The future of operator training at Tata Hitachi is focused on continuous evolution to meet industry demands. The company is working to expand its operator training network by partnering with its dealers, creating more centres to increase employment opportunities. After completing their training, participants are ideally deployed for on-the-job training at actual worksites, where they can apply their skills in real-world conditions.

Looking ahead, Tata Hitachi plans to incorporate advanced technologies like telematics and connected machines into its training programmes. By educating operators about the benefits of connected equipment and enhancing site efficiency through data-driven insights, the company aims to maximise machine productivity, making operators even more integral to the construction process.

Overcoming challenges in operator training

While Tata Hitachi's training programmes are robust, the company faces several challenges in providing effective operator training:

Diverse skill levels: Trainees come from varied backgrounds, with some possessing prior experience and others being completely new to the field. Adapting the training to suit the individual skill levels can be complex.

Technological advancements: As construction equipment continues to evolve, keeping training materials and curricula up-to-date with the latest technological trends is crucial.

Language and communication barriers: In India's multilingual landscape, communication can sometimes be a barrier to effective training, especially for those who speak different languages or dialects.

Tata Hitachi training centre.

Job retention & employability: After completing their training, some operators seek job opportunities elsewhere, leading to talent attrition and reducing the availability of skilled operators in the industry.

To address these challenges, Tata Hitachi employs several strategies:

Customised training modules: The company tailors its training content to accommodate the varying skill levels of trainees, ensuring that each participant receives the relevant knowledge and skills.

Continuous curriculum updates: To stay ahead of technological changes, Tata Hitachi regularly updates its training programmes, incorporating the latest equipment and best practices.

Investing in trainers: Tata Hitachi also focuses on the professional development of trainers, ensuring that they have the expertise and tools to deliver high-quality training.

Multilingual training support: Recognising India's linguistic diversity, the company offers training materials and sessions in multiple languages to bridge communication gaps and enhance learning.

Job placement and career growth: To prevent the loss of talent, Tata Hitachi offers job placement assistance and career growth opportunities within the company, incentivising trained operators to stay and contribute to the organisation's success.

Empowering the workforce for a stronger future

Through its well-rounded training initiatives, Tata Hitachi is not only building a skilled workforce but also contributing to the growth of India's construction sector. By addressing the evolving needs of operators, incorporating new technologies, and providing a supportive learning environment, Tata Hitachi is paving the way for the next generation of skilled construction equipment operators.

As the company continues to expand its training efforts, it remains dedicated to empowering individuals with the skills and opportunities they need to succeed—helping shape a brighter, more skilled future for the construction industry in India.

About the author:
The article is authored by **Sandeep Singh, Managing Director, Tata Hitachi Construction Machinery**

Empowering the Future of Construction

Ammann Academy plays a crucial role in empowering operators, technicians, and engineers with the expertise required to maximise the efficiency and longevity of cutting-edge equipment.

As the construction industry undergoes rapid transformation, the need for a highly skilled workforce has never been more critical. The integration of advanced technology in construction equipment has increased efficiency, productivity, and safety. However, these advancements also necessitate specialised training and upskilling for operators and technicians. Addressing this essential need, Ammann India established the Ammann Academy, a state-of-the-art technical training facility accredited by Infrastructure Equipment Skill Council (IESC) in Ditasan, Mehsana District, Gujarat. Since its inception in 2018, the academy has been dedicated to equipping industry professionals with comprehensive knowledge and hands-on expertise in operating and maintaining modern construction machinery.

A state-of-the-art learning hub

The Ammann Academy is an integral part of Ammann India's manufacturing facility and is designed to provide structured and practical training in the operation, maintenance, and safety of asphalt batching plants, concrete batching plants, asphalt pavers, soil compactors, and rollers. This specialised training centre plays a crucial role in empowering operators, technicians, and engineers with the expertise required to maximise the efficiency and longevity of Ammann's cutting-edge equipment.

The academy offers tailor-made training programmes that cater to the unique needs of individual clients. Whether a construction company is deploying a fleet of machines or a contractor is managing a single unit, Ammann Academy ensures that every participant receives relevant and practical learning experiences.

Hands-on training

One of the key differentiators of Ammann Academy is its emphasis on practical training. The facility boasts a fully equipped workshop where participants engage in real-world simulations, allowing them to work directly with Ammann equipment. This hands-on exposure is instrumental in boosting confidence and enabling operators to apply their learning effectively in field conditions.

The academy also conducts theory-based training that provides insights into equipment functionality, best practices, and troubleshooting techniques. The combination of practical and theoretical learning ensures a well-rounded skill set that aligns with the latest technological advancements in the industry.

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Comprehensive training programmes

The Ammann Academy offers a diverse range of training programmes covering various essential aspects:

- **Product-specific training:** In-depth sessions on operating, maintaining, and troubleshooting asphalt batching plants, concrete batching plants, asphalt pavers, soil compactors, and rollers.
- **Safety training:** Emphasising accident prevention, machine handling best practices, and compliance with industry safety standards.
- **Technology integration:** Training on automation, telematics, and digital monitoring systems that are integral to modern construction equipment.
- **Customised training:** Programmes designed to meet the operational needs of customers, ensuring that their workforce is well-prepared to maximise machine efficiency.

The Ammann Academy offers a diverse range of training programmes covering various essential aspects

Bridging the skill gap in the construction industry

With increasing automation and digitalisation in construction equipment, skilling initiatives like those offered by Ammann Academy are essential to bridge the industry's skill gap. The academy ensures that construction professionals are equipped with the necessary skills to adapt to emerging technologies, such as asphalt recycling systems, automated asphalt pavers, and smart concrete batching plants.

Recognising the importance of certification in professional growth, Ammann Academy offers NSDC accredited training programmes through IESC that validate the skills of participants. Certified operators and technicians are in higher demand, as companies prefer trained professionals who can optimise equipment utilisation while ensuring safety and regulatory compliance.

Beyond certification, the training also helps professionals advance in their careers by enhancing their technical proficiency and making them invaluable assets to their organisations.

Since its inception, the Ammann Academy has trained 600 hundred operators, technicians, and engineers, significantly contributing to the industry's skill development. This initiative aligns with the Union Budget 2024's emphasis on skill development, which aims to create employment and skilling opportunities for 4.1 crore youth over the next five years.

Future-ready workforce

As the construction industry continues to evolve, the demand for a skilled workforce will only grow. The Ammann Academy stands at the forefront of this transformation, ensuring that construction professionals are well-equipped to meet the challenges of the future. By offering world-class training, cutting-edge technology exposure, and real-world practical experience, the academy is playing a pivotal role in shaping a future-ready workforce for the CE industry.

Conclusion

In an industry where precision, efficiency, and safety are paramount, skilling and upskilling initiatives are not just an option but a necessity. The Ammann Academy exemplifies a proactive approach to addressing this need, providing comprehensive, hands-on, and customised training programmes that empower professionals and businesses alike. With a strong commitment to industry advancement, Ammann India continues to pioneer skill development in the construction equipment sector, ensuring that operators and engineers are prepared to navigate the future with confidence and competence.

About the author:
The article is authored by **Dheeraj Panda, Managing Director, Ammann India.**

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Elevating Workforce Skills Through Advanced Training

The construction industry is evolving rapidly, and operators today need to be proficient in much more than basic machine handling.

The construction industry is undergoing a technological revolution, where automation, digital monitoring, and intelligent control systems are no longer futuristic concepts but integral parts of modern equipment. As these innovations take centre stage, the industry is witnessing a surge in demand for highly skilled operators who can handle next-generation machinery with precision and efficiency. At Schwing Stetter India, we recognise that the success of construction projects depends not just on superior equipment but on the expertise of those operating it. That is why we are committed to bridging the skill gap through training programs that combine practical exposure, simulator-based learning, and cutting-edge industry knowledge.

Need for a skilled workforce

Traditionally, heavy equipment operation relied primarily on on-the-job learning. While this approach has produced experienced operators, it lacks the structured learning necessary to keep pace with modern advancements in construction machinery. Today's operators are expected to not only manoeuvre massive machines but also interpret telematics data, manage predictive maintenance, and work with AI-powered systems. The shift towards automation, remote operation, and digital diagnostics means that operators must have a strong understanding of both mechanical functionalities and digital controls.

At Schwing Stetter India, we firmly believe that structured training is the key to unlocking new career opportunities while also ensuring efficiency, safety, and sustainability in construction projects. Our training programs go beyond classroom instruction to offer real-world exposure through practical sessions and high-tech simulators, enabling trainees to develop confidence and competence before stepping onto a live job site.

Blending theory with practice

What sets Schwing's training apart is our focus on practical learning methodologies. While theoretical knowledge is essential, we understand that nothing compares to hands-on experience. Our programs are designed to provide comprehensive exposure to real-world job scenarios, ensuring that every graduate is prepared to handle challenges in the field.

Practical machine handling:

- Trainees work directly with Schwing's state-of-the-art construction machinery, learning how to operate, maintain, and troubleshoot them effectively.
- They gain familiarity with various components, hydraulic systems, and control mechanisms, enhancing their ability to work independently and efficiently.

Simulator-based training:

- To reduce risk and improve learning outcomes, we incorporate simulator-based training, which allows operators to practice real-life scenarios in a controlled

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and safe environment.
- These simulators replicate actual machine operations, helping trainees develop precision in manoeuvring, load balancing, and performing complex tasks under different working conditions.
- By using tech-driven simulation tools, operators can test their reflexes, learn from mistakes, and refine their skills without the risks associated with real-world training.

By integrating theory, practical learning, and high-tech simulators, our courses ensure that operators are not just job-ready but future-ready.

State-sponsored training

Recognising the need for accessible skill development, Schwing has partnered with state governments across Tamil Nadu, Telangana, Rajasthan, Uttarakhand, and Assam to make our training programmes completely free of cost for eligible candidates from these states. Through these Memorandums of Understanding (MoUs), we are not only developing a stronger workforce but also opening doors to career opportunities for those who may otherwise lack access to high-quality training.

Free training for candidates from partnered states:
- The courses under these MoUs are fully funded by the respective state governments, ensuring that candidates from these states can enrol at zero cost.
- This initiative makes highly specialised training accessible to economically disadvantaged but aspiring individuals who are looking to build a strong career in the construction sector.

Industry-recognised certification:
- Schwing's training programmes are accredited by NSDC (National Skill Development Corporation) and IESC (Infrastructure Equipment Skill Council), which gives candidates a certification upon course completion.
- These certifications provide a competitive edge in the job market, making our trainees highly sought after by employers in construction, infrastructure, and heavy equipment industries.

Employment opportunities:
- Our objective is not just to train individuals but to create employment opportunities. Many of our graduates go on to work in leading construction firms, while others become entrepreneurs, starting their own businesses in machine operations and maintenance.
- The credibility of our certifications ensures that they have immediate employability, both in India and internationally.

Through these initiatives, Schwing is ensuring that no one is left behind in the pursuit of a skilled future.

Future-ready training

The construction industry is evolving rapidly, and operators today need to be proficient in much more than basic machine handling. The introduction of automated control systems, IoT-based monitoring, and predictive maintenance technologies has changed the landscape of construction equipment operations. Schwing has tailored its training programs to meet these emerging needs, ensuring that trainees develop digital literacy along with mechanical expertise.

Automation and smart controls:
- Trainees learn how to operate and monitor automated machine functions, making them comfortable with advanced control systems that are increasingly common in modern construction equipment.

Telematics and data analysis:
- Understanding real-time data and telematics reports is crucial for today's operators. Our training covers machine diagnostics, error detection, and predictive maintenance using digital tools.

Safety and compliance:
- With stringent industry regulations, safety has become a key focus area. We educate trainees on site safety protocols, emergency response, and compliance standards, reducing the likelihood of workplace accidents and ensuring smooth operations.

By integrating these cutting-edge skill modules, Schwing is preparing operators not just for today's challenges, but for the future of the construction industry.

At Schwing Stetter India, we believe that a skilled workforce is the foundation of a strong and efficient construction industry. Our commitment to training and upskilling goes beyond just machine operations—we aim to empower individuals with the knowledge, confidence, and certification they need to succeed.

Through practical machine handling, high-tech simulator training, and partnerships with state governments, we are not just filling the skill gap—we are creating leaders in the construction industry. By offering free training under government MoUs, we are making sure that every individual, regardless of background, gets the opportunity to fast-track their career in the construction sector.

With certifications recognised by NSDC and IESC, our trainees graduate with confidence, industry credibility, and a competitive edge in the job market. As we continue to evolve and expand our training initiatives, we remain committed to shaping a workforce that is not just job-ready but future-ready. At Schwing, we don't just train operators—we engineer a skilled future.

About the author:
The article is authored by **VG Sakthikumar, Chairman** and **Managing Director, Schwing Stetter India.**

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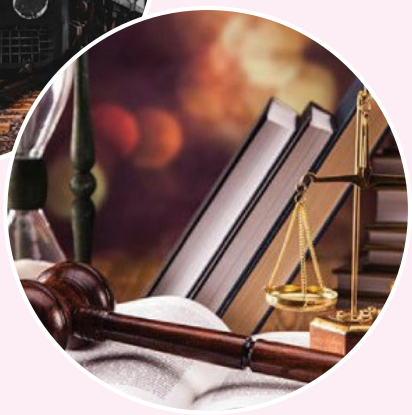

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Empowering India's Manufacturing Workforce

India, on the brink of becoming a global manufacturing powerhouse, faces a pressing shortage of adequately trained professionals to meet the demands of evolving technologies.

The manufacturing sector is undergoing a huge transformation, driven by advancements in automation, artificial intelligence (AI), and Industry 4.0. While these technologies enhance efficiency and innovation, they also expose a critical challenge—the widening skills gap.

India, on the brink of becoming a global manufacturing powerhouse, faces a pressing shortage of adequately trained professionals to meet the demands of evolving technologies. This gap threatens not only the industry's growth but also the country's economic progress and global competitiveness.

With the rapid pace of automation and digital transformation, manufacturers must adapt swiftly to stay ahead. As experienced workers retire and job roles evolve, the demand for a highly skilled workforce grows. Bridging this skills gap is essential to building a resilient, future-ready manufacturing ecosystem.

Challenge of skilling in manufacturing

Traditionally, manufacturing has relied on workers skilled in hands-on, technical tasks. But modern factories demand expertise in robotics, data analysis, machine learning, and design technology—skills that many current workers simply don't possess. The result? Manufacturers often find themselves unable to fill jobs that require a mix of traditional technical skills and new-age technological proficiency.

To close this skills gap, manufacturers need a strategy that revolves around training and upskilling workers, ensuring that they are active participants in shaping their company's future. By doing so, we can build a workforce that is not only resilient to change but ready to thrive in an increasingly automated world.

What's driving the skills gap?

- **Technological advancements:** The growing integration of automation, AI, and IoT means that manufacturers need a workforce proficient in these technologies. But many workers still lack the necessary skills.
- **Educational mismatch:** The gap between educational curricula and industry needs is widening. Traditional training often leaves workers with theoretical knowledge, but without the practical skills demanded by

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modern manufacturing. This mismatch is compounded by a 15 per cent skills gap, where workers' technical expertise doesn't align with the rapid adoption of new technologies like automation and digital tools.

- **Perception issues:** Manufacturing jobs are often viewed as physically demanding and low on career growth, which discourages younger generations from pursuing this field.
- **Regional disparities:** Training facilities are not evenly distributed across the country, leaving some regions underprepared to meet the demand for skilled workers.

A study by the National Skill Development Corporation (NSDC) highlights a significant mismatch between the demand and supply of skilled workers in India. The report estimates a demand of 103 million skilled workers, while the current supply is only 74 million, revealing a critical shortfall. This gap emphasises the urgent need for targeted skilling and training initiatives across various sectors with specific focus on manufacturing sector to bridge the workforce deficit.

Strategies to bridge the skills gap

Bridging this skills gap requires a joint effort from all stakeholders—governments, educational institutions, and the private sector. By prioritising skill development, embracing modern training methods, and shifting perceptions, we can create a workforce ready for the challenges ahead.

- **Revamping education for industry needs:** Educational institutions need to align their curricula with the needs of modern manufacturing. Courses in automation, AI, robotics, and data analytics should become the norm. Collaborations between schools and manufacturers can give students real-world experience through internships and apprenticeships, ensuring they graduate with the skills companies need.
- **Investing in reskilling and upskilling:** Manufacturers should invest in internal training programs to help employees acquire new skills. Collaborations with online platforms can also provide workers with digital literacy, robotics, data analysis, and industrial programming skills. These training initiatives must be accessible and affordable, empowering workers to grow along with their industries.
- **Leveraging technology in training:** Virtual reality (VR) and augmented reality (AR) can provide employees with realistic, hands-on experiences in a risk-free environment. AI-powered learning platforms could personalise the training process, adapting to each worker's pace and skill level, making it easier for them to master complex tasks.
- **Changing the narrative around manufacturing jobs:** The perception of manufacturing jobs as low-tech, labour-intensive work needs to change. Manufacturers should emphasise the high-tech, innovative nature of modern manufacturing, showcasing it as a rewarding career path. Outreach programs, school visits, and partnerships with STEM education initiatives can help spark interest among younger generations.
- **Promoting continuous learning:** As technology evolves, workers must continuously adapt. Companies should encourage a culture of lifelong learning by offering flexible training options, tuition reimbursement, and clear career advancement pathways.

Empowering women in India's manufacturing sector

Increasing gender diversity while addressing the skills gap is crucial for the growth of India's manufacturing sector. Recent data from a leading business services provider indicates that women now comprise 20 per cent of the manufacturing workforce, with an impressive 80 per cent representation in electronics. Additionally, reports from a multinational HR consulting firm highlight a threefold increase in the demand for female apprentices across key sectors such as automotive, electric vehicles (EV), and electronics, signalling a transformation in hiring practices. Cities like Bengaluru, Chennai, Hyderabad, Pune, and Mumbai are emerging as major hubs for hiring women in manufacturing.

This positive shift in gender diversity is opening doors for women in roles traditionally dominated by men. By prioritising skill development and inclusion, India has the opportunity to unlock the full potential of its manufacturing sector—enhancing productivity, fostering innovation, and strengthening its global competitiveness.

As automation, sustainable practices, and smart factories take centre stage, India's manufacturing sector is poised to create millions of job opportunities while setting its role in global supply chains. With strategic investments in upskilling and workforce development, India can lead the way in advanced manufacturing, fuelling economic growth and positioning itself as a global manufacturing powerhouse for the future.

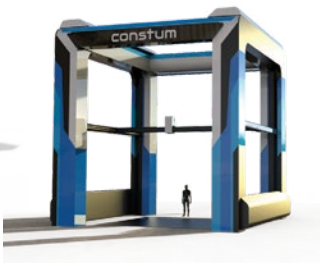
About the author:
The article is authored by **Subash Ramdoss, Head – ME and Machine Building Division (MBD), Elgi Equipments.**

CONSTRUCTION 3D PRINTER

CONSTUM, is an advanced construction technology, a 3d printer that extrudes mortar and converts pre-fed complex designs into standardized concrete structures layer upon layer, to construct affordable housing shelters on site, exterior or interior wall, or any custom architecture, like modern cottages, bunkers or rehabilitation shelters.

Design of 3D Printed Houses

CONSTUM - M1.0
BUILD SIZE - 1.5x 1.5 x 1.5 m



CONSTUM - L1.0 PRO
BUILD SIZE - 6 x 5 x 3 m

KEY FEATURES:

- Designed & Manufactured in INDIA
- Faster, cheaper & environment friendly
- Greater flexibility in construction design
- Reduced cost and time of construction
- Efficient use of mortar material
- Easy to assemble and operate
- Specialized construction material
- Made to order
- Build size as per construction requirement

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Email: contact@constum.com

Elevating Talent with Focused Skilling and Development

Propel Industries' core strategy is commitment to bridging the gap between innovation and practical application.

In today's rapidly evolving technological landscape, having a skilled workforce is not just beneficial, it is essential. At Propel Industries, we prioritise skill development to empower both our employees and clients, ensuring they are equipped for a future where efficiency, safety, and innovation go hand in hand. Our commitment is reflected in the integration of cutting-edge technology, comprehensive training programmes, and strategic partnerships that foster a culture of continuous learning and growth. We believe that an empowered workforce is the foundation of an efficient and sustainable industry.

Propel's integrated approach to training

The core of our strategy is a commitment to bridging the gap between innovation and practical application. As an Original Equipment Manufacturer (OEM) and a trusted industry partner, Propel Industries integrates cutting-edge R&D with comprehensive training support. This dual approach ensures:

Tailored training solutions: From operators on the production line to technical teams managing

sophisticated diagnostics, training is designed to meet the unique requirements of various user groups. By doing this, we guarantee that all stakeholders—internal and external—have access to the resources and information needed to be successful.

Technology meets training: By integrating automation and control systems, our R&D team is constantly updating our machinery. In addition to increasing machine performance, this streamlines operations and facilitates staff adoption and proficiency with emerging technology.

Operators are trained to handle semi-autonomous equipment like robotic welding, vrtical storage systems, and control systems

Skill requirements for emerging technology

To stay ahead in a competitive market, the workforce must master several key areas:

Automation: Operators are trained to handle semi-autonomous equipment like robotic welding, vertical storage systems, and control systems. This includes troubleshooting automated processes, ensuring that our machines not only perform optimally but also enhance operational safety and productivity.

Digital ecosystem: Proficiency in data analytics, sensor integration, and cloud-based monitoring is essential as real-time tracking and predictive maintenance become conventional practices. ProLive and ProConnect, Propel Industries' cutting-edge digital solutions designed to improve equipment communication and monitoring, meet these needs. These technologies enable experts to reduce downtime, increase operational efficiency, and enhance machine performance through predictive analytics and real-time insights.

Electric and hybrid equipment: As electric vehicles and hybrid trucks become more prevalent, specialised skills such as battery management, understanding charging systems, and operating energy-efficient equipment are essential. This focus ensures that our workforce can effectively support the shift toward energy solutions.

Advanced control systems: Mastery of technologies like GPS, LiDAR, and AI-based precision controls is fundamental. These skills enable operators to execute complex maneuvers with high accuracy and safety, thereby reducing risks and enhancing machine durability.

Certification and upskilling opportunities

Government-supported programmes: Programmes like PMKVY and NSDC offer industry-recognised certifications and structured training, guaranteeing that trainees receive top-notch instruction in line with national standards.

Manufacturer-led certification courses: We provide in-depth, practical instruction on our newest machinery and technology. These courses improve operational knowledge and safety by being specifically designed to meet the demands of our products.

International certifications: By partnering with internationally renowned certifications such as CITB and NCCER, we increase our workforce's employment options internationally while also enhancing their professional reputation.

Apprenticeship programmes: Our apprenticeship programmes, which are mentorship-driven, ensure that theoretical knowledge and real-world experience are successfully integrated, equipping workers to face challenges in the workplace.

Building a skilled, resilient workforce

The future of the construction and EV truck industry relies on adapting to technological advancements through effective skill development. A well-trained workforce not only boosts productivity and safety but also drives industry growth and sustainability. At Propel Industries, we are dedicated to leading this transformation by incorporating advanced technology into our equipment and equipping our workforce, customers, and stakeholders with the skills needed to meet evolving demands.

About the author:
Thea article is authored by **Senthil Kumar, Managing Director, Propel Industries.**

Building a Workforce for Evolving CE Industry

The Union Budget 2024 has placed a strong emphasis on skill development, allocating significant investments to create employment and skilling opportunities for 4.1 crore youth over the next five years.

The construction industry is undergoing a major transformation, driven by rapid technological advancements and the increasing complexity of modern infrastructure projects. With the introduction of automation, telematics, and advanced control systems, there is a growing need for a skilled workforce capable of operating and maintaining cutting-edge construction equipment. Recognising this, the Union Budget 2024 has placed a strong emphasis on skill development, allocating significant investments to create employment and skilling opportunities for 4.1 crore youth over the next five years. This initiative underscores the necessity of training and upskilling programmes tailored to the construction equipment sector.

Training innovations

The traditional methods of training construction professionals are no longer sufficient in an industry that demands a high level of technical proficiency. Companies and training institutions are now leveraging modern technologies and innovative learning methodologies to equip workers with the necessary skills.

Simulation-based training: One of the most effective training methods being adopted is simulation-based training. Virtual Reality (VR) and Augmented Reality (AR) allow trainees to gain hands-on experience in operating heavy machinery in a controlled, risk-free environment. These simulations provide real-time feedback, helping operators refine their techniques and improve safety measures before they step onto an actual construction site.

E-Learning platforms and mobile apps: Digital learning platforms have revolutionised skill development by making training materials accessible anytime and anywhere. Mobile applications and online courses provide theoretical and practical knowledge, allowing workers to upskill at their convenience. These platforms offer interactive modules, video tutorials, and quizzes to enhance learning retention.

On-the-job training and apprenticeships: Companies are increasingly collaborating with vocational training centres to provide apprenticeships and on-the-job training programmes. These initiatives combine classroom learning with hands-on experience, ensuring that workers

are well-prepared to handle real-world challenges. Public-private partnerships have been instrumental in implementing these training programmes on a large scale.

Skill requirements for emerging technologies

The construction equipment industry is rapidly integrating advanced technologies to improve efficiency, safety, and productivity. As a result, workers must develop new skill sets to keep up with these advancements.

Telematics and data analytics: Telematics systems are becoming increasingly common in construction equipment, providing real-time data on machine performance, fuel consumption, and maintenance needs. Operators and technicians must be proficient in interpreting telematics data to optimise equipment usage and reduce downtime.

Advanced control systems: Modern construction equipment is equipped with sophisticated control systems that require a high level of technical expertise. Operators must be trained in using GPS-guided systems, remote monitoring tools and intelligent hydraulic controls to maximise efficiency and precision in construction projects.

Automation and robotics: The rise of autonomous CE requires operators to have a understanding of robotics, sensors, and software programming. Workers must be trained to oversee and troubleshoot automated machinery, ensuring seamless operation on construction sites.

Certification and upskilling opportunities

To ensure that the workforce remains competitive in the evolving construction landscape, certification programmes and upskilling initiatives play a crucial role.

Industry-recognised certification programmes: Certifications validate the skills of construction professionals, making them more employable and enhancing workplace safety. Organisations such as the National Skill Development Corporation (NSDC) and Construction Skills Certification Scheme (CSCS) offer training programmes that align with industry standards. These certifications cover various aspects, including equipment operation, safety protocols, and maintenance practices.

Government-led skilling initiatives: The Indian government has launched several initiatives to promote skill development in the construction sector. Programmes such as the Skill India Mission and Pradhan Mantri Kaushal Vikas Yojana (PMKVY) provide subsidised training to workers, enabling them to acquire the necessary expertise in operating advanced construction equipment.

Corporate training programmes: Leading construction companies are investing in internal training academies to upskill their workforce. These programmes are tailored to the specific needs of the company and focus on equipping employees with the latest technological skills. Companies also collaborate with equipment manufacturers to provide specialised training on newly introduced machinery.

Conclusion

As the construction industry continues to evolve, the need for a highly skilled workforce has never been more critical. Training and development innovations, coupled with industry-specific certification programmes, play a pivotal role in preparing workers for the challenges of operating modern construction equipment. By embracing new technologies and investing in skill enhancement initiatives, the industry can ensure that its workforce remains competent, safe, and efficient.

With the government's push for skill development and the industry's commitment to training, the future of construction equipment operations looks promising. The emphasis on 'Skill Up' will not only empower professionals but also contribute to the overall growth and sustainability of the construction sector.

About the author:
The article is authored by **SP Rajan, Vice President and Head – Competency Center RBF SBG, Larsen & Toubro.**

BAUER's Dedication to On-Site Training

BAUER has long acknowledged this need and is committed to enhancing workforce skills through specialised training programmes, writes **Animesh Nandy, MD, Bauer Equipment India.**

In the rapidly evolving construction sector, staying current with technological advances and increasing efficiency demands is essential. As machinery and automated systems become essential to construction projects, the need for well-trained operators and technicians is more critical than ever. BAUER, a global leader in construction equipment and engineering solutions, has long acknowledged this need and is committed to enhancing workforce skills through specialised training programmes.

Tailored on-site training

BAUER's distinctive approach to skill development centres on on-site training. Recognising that each construction project brings its own set of challenges, BAUER works closely with customers to design training programmes specifically tailored to meet their operational requirements. Bringing expertise directly to the job site allows BAUER to offer machine operators, service technicians, and project managers hands-on experience in their actual work environment. This approach not only increases competence but also boosts overall

BAUER offers in-depth training on cutting-edge technologies, including advanced hydraulic systems, electronic diagnostics, and remote machine monitoring.

project efficiency and safety.

The company's customer-focused training programmes include operational training for specific machines, troubleshooting workshops, and best practices for maintaining equipment performance at its peak. These initiatives ensure that operators fully understand the capabilities of BAUER equipment, enabling them to enhance productivity while minimizing downtime. Through this tailored approach, BAUER effectively bridges the gap between advanced machinery and the people who operate it.

Preparing for future challenges

As the construction industry rapidly integrates automation, telematics, and sophisticated control systems, BAUER recognises that modern professionals must possess diverse skills beyond traditional mechanical expertise. To meet these demands, BAUER offers in-depth training on cutting-edge technologies, including advanced hydraulic systems, electronic diagnostics, and remote machine monitoring.

Participants in BAUER's training programmes gain firsthand experience with these emerging technologies, equipping them to operate and maintain the next generation of construction equipment. By combining classroom learning with practical, hands-on application, BAUER ensures that trainees are well-prepared to navigate the increasingly digitalised construction environment.

Ensuring quality and continuous development

Certification is a critical part of validating skills and ensuring industry compliance. BAUER's training programmes meet international certification standards, offering participants credentials that are recognised worldwide. The BAUER Training Center (BTC) operates under a certified quality management system (DIN EN ISO 9001:2008), reinforcing its commitment to high-quality training and workforce development.

In addition to initial certification, BAUER emphasises the importance of ongoing skill development. Recognising that both technologies and industry best practices evolve, BAUER offers continuous learning opportunities for experienced professionals. Advanced courses in areas like machine diagnostics, fuel efficiency, and sustainable construction practices ensure that seasoned operators stay up to date with the latest industry trends, maintaining their competitive edge.

Fostering a future-ready workforce

BAUER's approach to training extends beyond traditional learning, fostering a culture of continuous improvement, adaptability, and operational excellence. By investing in on-site training, customer-specific programmes, and future-focused technical education, BAUER equips construction professionals with the knowledge and skills needed to thrive in an ever-changing industry. As technology continues to reshape construction operations, BAUER remains a trusted partner in workforce development, ensuring that its customers and their teams are always prepared for future challenges.

About the author:
The article is authored by **Animesh Nandy, Managing Director, Bauer Equipment India.**

"Industry requires 2,00,000 operators each year."

Established in 2014, Infrastructure Equipment Skill Council (IESC) is the apex body for spearheading the skilling of workforce in the construction equipment sector in India. IESC's **CEO, Vijay Kumar**, speaks on the evolving skill requirements within the industry.

How does IESC stay attuned to evolving skill requirements?

IESC maintains close collaborations with OEMs, component manufacturers, and end-users to stay informed about emerging skill needs and industry trends. Industry studies, such as Vision 2030, offer a macro view of technology trends and skill requirements, which are translated into actionable skills roadmaps. Regular workshops and focus group discussions with industry stakeholders help identify specific skill areas needing attention.

How does IESC support skill development in the CE industry?

IESC plays a pivotal role in promoting skill development within India's construction equipment sector. As the leading body for skilling, IESC bridges the gap between the Government (both Central and State) and the industry, focusing on skilling-related matters. The Council collaborates with the National Skill Development Corporation (NSDC) and the National Council for Vocational Education and Training (NCVET), ensuring that its job roles align with the National Skill Qualification Framework (NSQF). IESC's key initiatives include:

- **Skill mapping:** Identifying sector-specific skill gaps, developing National Occupational Standards (NOS), creating skill development plans, and drafting Qualification Packs for various job roles.
- **Affiliation and accreditation:** Setting up a clear process for the affiliation of training partners and the accreditation of training centres.
- **Trainer development:** Organising Training of Trainers (ToT) programmes to cultivate a network of trainers across the country.
- **Assessment & certification:** IESC assesses and certifies candidates through its nominated assessment agencies upon successful completion of training programmes.
- **Qualification Upgradation:** The Council constantly tracks technological advancements, introduces new job roles, and aligns with global best practices to upgrade qualifications.

What job roles and equipment categories are included in IESC's training programmes?

IESC currently offers 28 NSQF-aligned job roles, covering a wide range of construction equipment categories. These roles primarily focus on operators for equipment such as backhoe loaders, excavators, cranes, and compactors, among others. These roles represent nearly 90 per cent of the construction equipment sold in India by volume. Additionally, there are technician roles specializing in areas like engines, hydraulics, electrical/electronics, and instrumentation. IESC also offers supervisory roles in maintenance and plant and machinery, which are valuable for professionals such as workshop managers and field service managers.

With around 1,00,000 construction equipment sold annually, the industry requires 2,00,000 operators and 7,000 trained technicians each year. IESC's qualifications ensure these professionals are adequately skilled to maximise productivity, safety, and

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efficiency in the field.

Can you outline the curriculum for IESC's training programmes?

IESC's training programmes are structured through qualification packs, which outline the course curriculum for each job role. These qualifications are built on the National Occupational Standards (NOS), setting performance benchmarks for each function in the workplace. For example, an Equipment Operator's training will cover not just machine operation, but also pre-checks, basic troubleshooting, safety, and environmental considerations. This comprehensive approach helps operators gain a holistic understanding of their roles.

Recently, employability skills, such as communication, financial literacy, and computer skills, have been added to the curriculum, further enhancing the training's value. The programmes are developed with input from industry experts, ensuring they meet the specific needs of various equipment categories, including earthmoving, road building, concrete, material handling, and mineral processing.

Training includes a blend of classroom learning (about 30 per cent of the course duration), hands-on practical experience, and on-the-job training. Many training centres now also incorporate simulators to enhance the learning process.

Does IESC partner with educational institutions or industry bodies to deliver training?

IESC collaborates extensively with Original Equipment Manufacturers (OEMs), private training partners, and academic institutions to deliver its training programmes. Partnerships with OEMs allow IESC to conduct training at OEM-owned training centres or field locations. Additionally, IESC works with various academic institutions to foster industry awareness, educating students on equipment types, usage, operational economics, maintenance practices, and spare parts management. The council is also exploring partnerships with higher education institutions to develop courses focused on the construction equipment sector.

IESC collaborates extensively with OEMs, private training partners, and academic institutions to deliver its training programmes.

How are assessments conducted for IESC's training programmes?

IESC's assessment process is rooted in the National Occupational Standards (NOS), with each Performance Criteria (PC) assigned specific weightages based on its importance. Knowledge assessments are conducted through written tests, viva voce, or both, while practical skills are assessed through hands-on tasks. Trainees are also evaluated on their behaviour and attitude during practical exercises. All assessments follow IESC's guidelines, and question papers are derived from a comprehensive question bank developed specifically for the construction equipment sector.

What steps does IESC take to connect trained individuals?

Despite an estimated 15 lakh equipment operators and mechanics working across India, only a small fraction has formal training and certification. IESC addresses this gap through the Recognition of Prior Learning (RPL) programme, aimed at upskilling workers already in the industry. The Council also focuses on providing fresh training to youth, especially from Tier II and III cities, helping them secure employment or entrepreneurial opportunities. Public and private sector partnerships play a crucial role in facilitating training programmes, and IESC also leverages CSR funds from OEMs and other sources to help fund training for new recruits.

What are IESC's future plans to enhance skill development?

IESC is focused on expanding its operations and increasing its impact in the industry by:

- Strengthening collaborations with OEMs and government bodies to drive skill development initiatives.
- Expanding its network of training partners to meet the growing demand for skilled operators and technicians across India.
- Increasing the scope of its membership base, incorporating new qualifications at NSQF levels 5, and forming partnerships with educational institutions and ITIs.

Another critical area of focus for IESC is the introduction of programmes focused on future skills, driven by technological advancements in the construction equipment industry. This includes upskilling initiatives around new technologies and methods that will optimise productivity, safety, and efficiency in the sector.

Skilled Workforce Powers CE Industry

As the industry shifts to automation, telematics, and advanced control systems, the need for a skilled workforce to operate and maintain these innovative technologies is of paramount importance.

Triumphing spectacularly in boosting the fundamentals of the economy to crane forward on its course of achieving the $5 trillion goal despite global headwinds and geopolitical aggression, India has aced in everything from a space odyssey with the successful landing on the moon to infrastructure grandeur, and from strengthening manufacturing muscles to emerging as a global data center hub. India proudly stands tall as a country of young people, with a large population under the age of 25 to 30. To harness the demographic dividend while aiming at its incredible journey toward Viksit Bharat, it is a profound need to skill both current and future manpower with the necessary skills to make them the go-to workforce for technology-driven innovations and Industry 4.0, against the backdrop of the next two decades belonging to India. Strikingly enough, empowering the young population of the country with skills in the right perspective will emphasise social inclusion and economic resilience.

Recently, the Indian government approved the continuation and restructuring of the Central Sector Scheme 'Skill India Programme (SIP)' till 2026 with an overlay outlay of Rs 88 billion from the period 2022-23 to 2025-26. This approval underscores the government's commitment to building a skilled, future-ready workforce by integrating demand-driven, technology-enabled, and industry-aligned training across the country.

At the center stage of India's economic growth, the construction equipment industry—contributing 9 per cent to the GDP and being the second-largest employer with more than 71 million workers—facilitates infrastructure boom, large-scale employment, and high living standards through building state-of-the-art facilities with sustainability. Despite being considered a cornerstone of India's economy, construction equipment undergoes a shortage of skilled workforce—81 per cent of the workforce is unskilled in this sector, as per a report published by Knight Frank in 2023—leading to cost escalations and projects hanging fire. With every fourth worker in the global manpower being Indian and India fast emerging as a significant manufacturing hub on the world arena with the resonance of Make-in-India, the construction industry must be oriented with skilled operators and technically trained people with a problem-solving spirit. The global construction industry has, over the past decade, adopted digital technologies with the industry 4.0 concept, which has led to the development of Construction 4.0, a transformation with the potential to revolutionise

this sector.

As the industry shifts to automation, telematics, and advanced control systems, the need for a skilled workforce to operate and maintain these innovative technologies is of paramount importance. In this changing environment, specialised training and development have become essential for ensuring safety, efficiency, and innovation on construction sites. The urgent need for skill development in the construction equipment sector—which is estimated to observe a CAGR of 11.91 per cent during the forecast period FY2025-FY2032, soaring from $7.38 billion in FY2024 to $18.16 billion in FY2032—highlights the latest advancements in training programs, the evolving skill requirements, and the importance of certification and upskilling initiatives in preparing the workforce for the future.

Bridging the skill gap

The construction equipment industry is no longer just about physical labour, rather it has become a technology-driven domain where precision and adaptability of technical know-how are of supreme importance. As per the International Labour Organisation, about 7 to 8 million youth enter India's workforce every year. To bridge the growing skill gap, training programmes have evolved significantly, incorporating innovative methods and resources to enhance learning outcomes. One of the most notable advancements is the integration of simulation-based training.

These programmes use virtual reality (VR) and augmented reality (AR) to create immersive environments where operators can practice handling complex machinery without the risks associated with real-world training. For instance, VR simulators allow trainees to operate heavy equipment like excavators and cranes in a controlled, virtual setting, enabling them to master skills before stepping onto an actual construction site. Moreover, collaborative training initiatives between equipment manufacturers, educational institutions, and industry bodies have gained traction. These partnerships aim to design curriculum-aligned training programs that address the specific needs of the industry, ensuring that graduates are job-ready from day one.

Adapting to future

As the construction equipment sector embraces emerging technologies, the skill sets required by the workforce are evolving at an unprecedented pace. Automation, for instance, is revolutionising the industry, with autonomous vehicles and robotic systems becoming increasingly common on construction sites. Operating such machinery requires a deep understanding of control systems, programming, and data analysis, skills that were previously not associated with construction work. Telematics, another game-changing technology, is transforming how equipment is monitored and maintained. Telematics systems collect and transmit real-time data on machine performance, fuel consumption, and maintenance needs. To leverage this technology, workers must be proficient in data interpretation and analytics, enabling them to make informed decisions that enhance efficiency and reduce downtime.

Furthermore, advanced control systems are becoming standard in modern construction equipment. These systems, which include GPS-guided machinery and intelligent hydraulic controls, demand operators who are not only technically adept but also capable of adapting to continuous software updates and new functionalities. The rise of sustainability-driven technologies, such as electric and hybrid construction equipment, further underscores the need for specialized training. Workers must be equipped with the knowledge to handle the unique maintenance requirements and operational nuances of these eco-friendly machines.

Building future-ready workforce

In an industry where safety and precision are non-negotiable, certification programmes play a key role in ensuring that workers meet the highest standards of competence. Recognised certifications, such as those offered by the National Center for Construction Education and Research (NCCER) and Operating Engineers Certification Programme

for the members of International Union of Operating Engineers (IUOE), validate proficiency in operating and maintaining construction equipment. Such programs often include both theoretical and practical components, ensuring a well-rounded skill set.

Upskilling initiatives are equally critical in preparing the workforce for future demands. ACE addresses this through training centres like the one in Faridabad, providing hands-on instruction in machine operation and maintenance.

Partnering with Vishwakarma Skill University, ACE offers certification programmes covering safety, operation, and maintenance. On-the-job training ensures operators

ACE promotes continuous learning with refresher courses and advanced training module

gain practical skills under expert supervision. To stay industry-ready, ACE promotes continuous learning with refresher courses and advanced training modules.

Central Government-led initiatives are also playing a significant role in promoting skilling in the construction equipment sector. Programs like National Skill Development Mission and Pradhan Mantri Kaushal Vikas Yojana (PMKVY) in India aim to provide industry-relevant training to millions of workers, equipping them with the skills needed to thrive in a technology-driven environment.

Skilling: Foundation of progress

The rapid economic growth of India is powered by its energetic young workforce which will shape the future. The Union Budget (FY 2024-25 and FY 2025-26) presents revolutionary opportunities to advance India by prioritising two fundamental aspects of future growth: skill development and entrepreneurship. This structural transformation relies on the construction equipment sector, where traditional practices meet innovative development. As the industry instinctively embraces advanced technologies, it is in dire need of a skilled workforce and retained people who could efficiently operate modern machinery and systems to ensure sustainable production.

The construction equipment industry can develop an innovation-driven workforce through proper training coupled with upskilling programs and certifications. The advancement of the industry depends on skilling because skilled workers will successfully face future challenges with both competence and confidence. India has a unique opportunity to harness its demographic dividend, ensuring that its young population is equipped with the expertise needed to thrive in a technology-driven world. This dual focus will not only strengthen the construction sector but also lay the groundwork for sustainable economic growth, positioning India as a global leader in innovation and infrastructure development.

About the author:
The article is authored by **Dr. Virender Saroha, President – HR & Legal, Action Construction Equipment**

Innovations, Training, and Future of Upskilling

Skilled operators and technicians ensure that machinery is used optimally, reducing downtime and improving project timelines.

India's construction industry has experienced significant expansion over the past few decades, fueled by rapid urbanisation, large-scale infrastructure developments, and government initiatives like the Smart Cities Mission, expansion of metro in tier 2 and tier 3 cities, the Bharatmala project, the high-speed rail project, and renewable energy projects. As construction activities grow, the demand for a skilled workforce, especially in the construction equipment sector, continues to rise.

With advancements in automation, artificial intelligence (AI), telematics, and electric machinery transforming the industry, the need for specialised training and continuous skill enhancement has become more crucial than ever.

Importance of skilling in CE industry

The construction equipment sector plays a crucial role in infrastructure development, with a significant impact on productivity, efficiency, and safety. Skilled operators and technicians ensure that machinery is used optimally, reducing downtime and improving project timelines.

Despite the sector's growth, a persistent skills gap exists. A large portion of the workforce lacks formal training, leading to inefficiencies, increased maintenance costs, and higher accident rates. To bridge this gap, structured training programs, industry-led certification initiatives, and continuous learning opportunities are essential.

Today, specialised training is no longer optional—it's essential. Industry leaders are investing in programmes that prepare young professionals to operate heavy machinery efficiently and safely, boosting overall productivity. These efforts also create job opportunities for youth, empowering them to build sustainable careers in construction.

Moreover, the collaborative approach between training institutions and industry stakeholders enables aspiring professionals to gain both theoretical knowledge and hands-on experience. Practical learning in the operation of cranes, excavators, ensures workers contribute effectively to projects, fulfilling specific business needs.

Specialised training and development

OEM-led training programmes: Original Equipment Manufacturers (OEMs) such as JCB, Caterpillar, Schwing Stetter and Volvo have recognised the importance of a skilled workforce and have established operator training centers across India. These programmes focus on hands-on training, safety protocols, and advanced machinery operations.

Government Initiatives for Skill Development: The Government of India, through schemes like the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the Skill India Mission, has been instrumental in promoting vocational training. The Infrastructure Equipment Skill Council (IESC), established under the National Skill Development Corporation (NSDC), provides specialised training modules for construction equipment operators and technicians.

The Union Budget 2025-26 has introduced plans to establish five National Centers of Excellence for Skilling and a Centre of Excellence in AI over the next five years. According to the government, these centers will be developed with global expertise and partnerships to equip the youth with essential skills for the manufacturing sector.

Launched in 2015, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), the government's flagship skill development program, has trained over 1.57 crore individuals, with more than 1.21 crore receiving certification under the scheme. Having evolved through four phases, PMKVY 4.0 now emphasises Industry 4.0 skills, including AI, machine learning, and robotics, to align with emerging industry demands.

Digital and simulation-based training: The use of Virtual Reality (VR) and Augmented Reality (AR) is transforming training methodologies. These technologies provide immersive, risk-free environments for trainees to practice machinery operations, troubleshooting, and safety protocols before handling real equipment. Simulation-based training helps in reducing learning curves and improving retention rates.

E-Learning and Remote Training: With digital transformation accelerating across industries, e-learning platforms are becoming a popular mode for skilling. Webinars, online certification courses, and interactive modules enable professionals to learn at their own pace, ensuring continuous development without hampering work schedules.

Skill requirements for emerging technologies

The construction equipment industry is rapidly adopting new technologies, creating the need for a workforce proficient in modern tools and methodologies. Some key areas where specialised skills are required include:

Telematics and IoT integration: Modern construction equipment is equipped with telematics and Internet of Things (IoT) capabilities for real-time monitoring of machine health, fuel efficiency, and predictive maintenance. Operators and technicians must be trained in data interpretation and digital diagnostics to leverage these advancements effectively.

- **Data interpretation and analytics:** Operators and managers must analyse performance data and optimise machine usage.
- **Software proficiency:** Workers should be comfortable using fleet management platforms to monitor machine health.
- **Preventive maintenance planning:** Understanding sensor alerts to take proactive maintenance measures.
- **Cybersecurity awareness:** As machines become connected to networks, protecting data from cyber threats is essential.

Automation and remote operations: Autonomous and remotely operated construction machinery is gaining traction, particularly in large-scale infrastructure projects. Skilled professionals must be trained to operate, manage, and troubleshoot these advanced machines.

Required Skills:

- **Understanding of AI and machine learning:** Workers need to interpret data from automated systems and make real-time adjustments.
- **Equipment programming and calibration:** Operators must learn to program machines and fine-tune their operations based on site conditions.
- **Remote monitoring and supervision:** Familiarity with control interfaces that allow off-site monitoring and adjustments.
- **Basic troubleshooting:** Technicians should be able to diagnose and resolve errors in automated systems.

Electric and hybrid construction equipment: With sustainability becoming a key focus, electric and hybrid construction equipment is expected to replace traditional diesel-powered machinery. Workers need training in battery technology, energy management, and electric motor maintenance.

AI and robotics in construction: AI-powered systems and robotics are improving efficiency in excavation, material handling, and site surveillance. Professionals with expertise in AI applications, robotics maintenance, and programming will have a competitive edge in the industry.

Required Skills:

- **Battery management & charging infrastructure:** Workers must understand battery handling,

charging cycles, and energy optimisation.
- **High-voltage safety training:** Since electric machines operate on high-voltage systems, safety training is critical.
- **Diagnostics and software updates:** Knowledge of firmware updates and remote troubleshooting techniques.

Safety and risk management: With increasing mechanisation, the emphasis on safety has also grown. Training in advanced safety protocols, emergency response, and hazard identification is crucial to minimise accidents and ensure compliance with global safety standards.

Human-machine collaboration & soft skills: While technology is advancing, human oversight remains crucial in ensuring safety, efficiency, and decision-making. Soft skills are becoming just as important as technical expertise.

Required Skills:
- **Adaptability & Continuous Learning:** Ability to embrace new technologies and upgrade skills regularly.
- **Collaboration with AI & Co-Bots:** Understanding how to work alongside robotic systems without disruption.
- **Problem-Solving & Critical Thinking:** Analysing unexpected equipment failures and implementing quick solutions.

Certification and upskilling for the future

Industry-recognised certifications: Certification programmes play a vital role in validating skills and ensuring industry-standard proficiency. Globally recognised certifications, such as those provided by the National Institute for Construction Skills (NICS) and the Infrastructure Equipment Skill Council (IESC), help workers enhance their credibility and job prospects.

Certification programmes play a vital role in validating skills and ensuring industry-standard proficiency.

Cross-skilling and multi-skilling: To improve employability, workers must be trained in multiple skill sets. For example, an equipment operator trained in machine diagnostics, basic repair, and maintenance will be more valuable to employers. Cross-skilling enables workforce adaptability, reducing downtime in case of workforce shortages.

Continuous Professional Development (CPD): With technological advancements reshaping the industry, professionals must engage in lifelong learning. CPD programs through industry associations, OEMs, and online learning platforms ensure that workers stay updated with the latest developments.

Industry-academia collaborations: Collaboration between industry leaders and academic institutions can bridge the skill gap by designing curriculum aligned with industry requirements. Polytechnic institutes and technical universities should incorporate emerging technology modules into their courses.

Apprenticeship and on-the-job training: Hands-on experience through structured apprenticeship programs is essential for real-world application of theoretical knowledge. Leading companies are increasingly offering paid apprenticeship opportunities to nurture future talent.

Conclusion

The CE industry in India is at a transformative stage, driven by infra expansion and technological innovation. However, the lack of skilled professionals remains a significant challenge. Addressing this issue through specialised training, upskilling programs, and certification initiatives is critical for the industry's sustained growth.

Government support, industry collaboration, and innovative training methodologies will play a crucial role in equipping the workforce with the necessary skills to adapt to emerging technologies. By investing in skill development today, India's construction equipment sector can build a more efficient, safe, and future-ready workforce.

For industry professionals, embracing continuous learning and upskilling will not only enhance career prospects but also contribute to the overall advancement of the construction sector. The future of construction equipment in India depends on a skilled and competent workforce—one that is ready to navigate the challenges and opportunities of tomorrow.

About the author:
The article is authored by **Ratan Lal Kashyap, President – Supply Chain Management, DRAIPL**

Driving Growth in the CE Rental Industry

CERA collaborates with IESC, Skill India, and manufacturing companies to create a certified workforce.

The construction industry is on the verge of a transformation driven by advanced machinery, digitalisation, and sustainable building practices. As the founder of CERA, I have long advocated for robust skilling initiatives that not only prepare the workforce for current demands but also future-proof their careers against rapid technological changes. With the recent upsurge in construction equipment sales, skilling is no longer optional, it is a necessity. The latest initiatives under NSDC, such as Future Skill Centres, International Academies, and Project AMBER, highlight the need to blend innovation with skill development.

Role of IESC

The Infrastructure Equipment Skill Council (IESC) plays a crucial role in bridging the skill gap in the construction equipment sector through standardised training and certification programmes. In collaboration with NSDC and major manufacturers (OEMs), IESC develops competency-based training modules focusing on emerging technologies like automation, telematics, and AI driven

equipment. Recent initiatives include:

- Expanding training centres to accommodate increasing demand
- Partnering with the National Academy of Construction for advanced skill training
- Certifying over 35,000 workers under the Recognition of Prior Learning (RPL) programme

Despite these advancements, there remains a severe shortage of skilled operators, technicians, and mechanics. Due to inadequate training, equipment is often poorly maintained, causing losses to rental companies and delaying project completion.

Training innovations for advanced CE

Modern construction sites increasingly rely on high-tech machinery, including autonomous construction equipment, 3D concrete printers, AI-driven surveying tools, efficient fuel management systems, and IoT integrated safety equipment. Traditional training methods no longer suffice, necessitating innovation in training approaches:

- **Simulated virtual learning environments:** Virtual Reality (VR) and Augmented Reality (AR) modules provide a risk-free training space where operators can practice handling complex machinery before working on real job sites.
- **Leveraging existing infrastructure:** Government and private initiatives should establish learning institutes that can handle high training volumes. Existing infrastructure like ITIs, polytechnics, and basic training centres should be utilised efficiently.
- **Apprenticeship programmes:** The Pradhan Mantri National Apprenticeship Promotion Scheme (PM-NAPS) integrates hands on learning with next-generation construction equipment.

Government and private initiatives should establish learning institutes that can handle high training volumes. Existing infrastructure like ITIs, polytechnics, and basic training centres should be utilised efficiently.

However, apprenticeships should include the latest workshops and technologies.

- **AI-based skill assessment:** AI powered platforms should analyse workers' proficiency and recommend personalised training pathways. Proper skill assessment is needed before issuing certifications, which should be mandatory at all major construction sites.
- **Mandatory licensing and certification:** Workers, operators, and technicians must hold authentic certifications. Government intervention is necessary to implement proper licensing across the construction sector.

Skills required for emerging technologies

The fourth industrial revolution in construction demands a technologically adept workforce. According to the India Skills Report 2025, employability has risen to 54.81 per cent due to increasing demand for AI, cloud computing, and sustainability-focused skills. Key skill areas include:

- **Building Information Modelling (BIM):** A crucial tool for managing construction projects efficiently.
- **Robotics and automation:** Training operators for robotic bricklayers, drone-based inspections, and automated earthmoving machinery.
- **Green building technologies:** Proficiency in sustainable construction materials, energy-efficient systems, and waste management.
- **Cybersecurity in construction:** Protecting critical infrastructure data from cyber threats.

Certification and upskilling opportunities

To meet the evolving demands of the industry, structured upskilling and certification programmes are essential. The restructured Skill India Programme introduces multiple avenues for professional development:

- **Pradhan Mantri Kaushal Vikas Yojana 4.0 (PMKVY 4.0):** Focuses on short-term training and industry-relevant certification, particularly in AI-integrated construction management.
- **International collaborations through NSDC:** The launch of 10 International Academies ensures globally recognised certifications, improving job prospects abroad.
- **Project AMBER:** Aims to train 30,000 youth for pandemic-resilient job roles, focusing on adaptability and industry resilience.
- **Jan Shikshan Sansthan (JSS) scheme:** Brings high-tech construction training to rural and semi urban areas, promoting grassroot level skill development.

Role of CE rental industry

India is poised to become one of the top countries for infrastructure development and construction, with the equipment rental industry projected to grow, much like in Japan, China, and the United States. To leverage these opportunities, rental companies must build strong relationships with key stakeholders, including the government, infrastructure corporates,

manufacturers, and financiers.

However, the construction equipment rental industry faces a significant challenge: a shortage of skilled manpower. This lack of trained operators, technical staff, and drivers results in frequent equipment damage and financial losses for rental companies. Consequently, many hirers hesitate to adopt new technologies or purchase advanced machinery, hindering industry growth.

India is poised to become one of the top countries for infrastructure development and construction, with the equipment rental industry projected to grow.

Addressing the skilling gap in equipment rental

To overcome these challenges, rental companies must embrace new training methodologies and technology-driven approaches:

- **Adoption of advanced technologies:** AI, GPS, and drones improve project efficiency, supervision, and coordination. Their implementation can enhance productivity and profitability. Drone infrastructure may take some more time in adaptability due to high maintenance and costing.
- **CERA's role in training and certification:** The Construction Equipment Rental Association (CERA) is actively working to train operators and modernise rental fleets. CERA collaborates with IESC, Skill India, and manufacturing companies to create a certified workforce.
- **Safety training for equipment operators:** Most accidents in India occur when untrained junior operators or helpers operate heavy machinery. To address this, CERA has expanded its training module to include junior operators and helpers.
- **Encouraging rental companies to train their workforce:** Rental firms should take responsibility for upskilling their manpower and become centres for skill development, ensuring safer and more efficient operations.

Making skilling a continuous process

Given the rapid technological advancements in construction, skilling must be seen as a continuous process rather than a one-time effort. The adoption of micro-credentialing, where professionals earn stackable certifications in niche areas, can help them stay relevant. Additionally, government and private-sector collaborations must continue investing in lifelong learning initiatives, ensuring a future ready workforce. There is ample work force and employment in rural areas which can make a big impact in this big gap of skilling.

Conclusion

The convergence of emerging technologies, innovative training methodologies, and structured upskilling pathways is crucial for shaping the workforce of tomorrow. As automation, sustainability, and digitalisation redefine construction, professionals must embrace continuous learning. With strong support from NSDC, PMKVY 4.0, and industry-academia alliances, India is poised not just to build structures but also to create careers and capabilities that stand the test of time. The future of the construction industry depends on those who adapt, learn, and lead with the right skilling approach, the possibilities are limitless.

About the author: The article is authored by **Satin Sachdeva, Founder & Secretary General, Construction Equipment Rental Association (CERA), and Managing Director, Equipment Planet.**

"Skill development programmes will boost adoption and confidence."

Rajesh Nath, Managing Director of VDMA India, speaks about additive manufacturing and AI, and how they will impact India's ambitions to boost manufacturing.

I understand German manufacturing houses are in close dialogue to work in India towards the next big things that will influence the entire manufacturing value chain – additive manufacturing and AI. Given that it is going to result in major disruptions, how do you think it is going to affect India's ambitions to boost manufacturing as a percentage in GDP terms?

The integration of additive manufacturing and AI offers India a transformative opportunity to boost its manufacturing GDP share while modernising the sector. Additive manufacturing enhances precision, reduces wastage, and supports high-value industries like aerospace and healthcare, while AI optimises processes like predictive maintenance, supply chain management, and quality control.

Together, they improve competitiveness and align with sustainability goals, driving efficiency and greener practices. Strategic collaborations with German manufacturers can further amplify this impact by promoting technology transfer and upskilling the workforce. SMEs (Small and Medium Enterprises), which form the backbone of India's manufacturing sector, can adopt these technologies to scale operations and access global markets. With increased efficiency, higher-value output, and a focus on sustainability, India's manufacturing contribution to GDP can rise substantially, creating a ripple effect across employment and allied industries.

What steps are required to be taken to make this technology adoption easier in the coastal shipping and inland waterways space as initial capex will be far higher as compared to existing technologies?

The government's $3.5 billion push and infrastructure status for shipping present a great opportunity to modernise coastal shipping and inland waterways. To ease technology adoption despite high initial capex, subsidies, tax incentives, and low-interest loans are essential to support operators. Public-private partnerships can help share costs and risks, while pilot projects will demonstrate the benefits of advanced technologies like AI-driven logistics and autonomous systems. This move will enhance connectivity between coastal and inland waterways, rail, and road, fostering multimodal integration. Technologies like AI, predictive maintenance, and automation could significantly improve operational efficiencies across these transport modes, reducing logistics costs and decongesting existing infrastructure.

Additionally, skill development programmes and a robust regulatory framework will streamline adoption and build confidence in innovative solutions. For instance, specialised training in AI-driven logistics, predictive maintenance systems, and automated port operations can prepare workers for tech-enabled processes. Programmes on operating and maintaining smart vessels, integrating data analytics for supply chain efficiency, and multimodal transport coordination will be crucial. Additionally, certifications in green shipping technologies and sustainability practices can align with global standards, ensuring India's workforce is future-ready and competitive.

Skilling for Emerging Technologies

Telematics and IoT integration allow fleet owners to monitor real-time data from pavers, single drum compactors, and mobile cranes, enabling predictive maintenance and minimising downtime.

The Indian construction equipment (CE) industry is at a pivotal juncture, driven by rapid urbanisation, infrastructure development, and government initiatives like PM Gati Shakti and the National Infrastructure Pipeline. As demand grows, so does the need for skilled professionals who can adapt to the industry's evolving technological landscape.

Need for skilling

From backhoe loaders and excavators to batching plants and concrete pumps, every piece of machinery is becoming smarter and more efficient due to technological advancements. Automation, telematics, advanced control systems, and electrification are no longer optional but essential components reshaping how equipment operates in India.

This transformation necessitates a workforce equipped with new-age skills to operate, maintain, and troubleshoot advanced construction equipment. Companies, educational institutions, and training providers must collaborate to develop a future-ready workforce.

Historically, the Indian CE sector relied heavily on mechanical systems. Operators manually controlled backhoe loaders, graders, and wheeled loaders, while maintenance teams dealt with straightforward mechanical repairs. However, the transition to electro-hydraulic and digital control systems has revolutionized the industry. Modern excavators now feature joystick-controlled precision, and AI-driven graders can autonomously level surfaces with unparalleled accuracy.

Automation has taken center stage, with self-operating compactors and robotics-assisted operations becoming a reality. Telematics and IoT integration allow fleet owners to monitor real-time data from pavers, single drum compactors, and mobile cranes, enabling predictive maintenance and minimising downtime.

These advancements are not just enhancing efficiency but also driving the demand for new skills among operators, technicians, and engineers in India.

Key emerging technologies

- **Automation and autonomous machines:** Several manufacturers are exploring automation. Komatsu is developing autonomous hauling systems, and Caterpillar offers technologies related to machine automation. JCB incorporates automated features in some of its machines. While fully autonomous machines are not yet widely deployed in India, manufacturers like Volvo CE and XCMG are demonstrating such technologies, and their adoption is expected to increase.
- **Telematics and IoT Integration:** JCB's Livelink is a prominent example of telematics for backhoe loaders and other equipment. Tata Hitachi's ConSite is another

example. Telematics is becoming a standard feature offered by a growing number of CE manufacturers, including Volvo CE, Caterpillar (Product Link), and others. Ammann integrates technology into its equipment, including advanced paving control systems.

- **Advanced control systems:** Hyundai's advanced joystick controls offer increased precision and responsiveness. CASE Construction's advanced systems incorporate sensor feedback for optimised performance.
- **Electrification and alternative fuels:** Schwing Stetter explores electric batching plants. Liebherr is researching hydrogen technology. Putzmeister is looking at hybrid and electric solutions for concrete pumps, including battery-powered and plug-in models. Companies like Volvo CE are actively working on electric construction equipment globally, which will likely come to India eventually.

The key areas of expertise required for different roles are as follows:

- **Operators:** Training in telematics, automation, and remote monitoring systems.
- **Technicians and service engineers:** Skills in predictive maintenance, IoT-based diagnostics, and software-driven troubleshooting.
- **Sales and product specialists:** Understanding of AI-driven analytics, digital twin technology enhancement tools.
- **Fleet managers:** Knowledge of fleet optimization through GPS-based tracking, fuel efficiency management, and digital workflow automation.
- **R&D and design teams:** Competence in AI, ML, IoT, and sustainable construction technology.

Training & development

- **Role of OEMs and industry associations:** OEMs like JCB India, Caterpillar India, Volvo CE India, Tata Hitachi, Komatsu India, Sany India, Doosan India, and ACE, among others, collaborate with industry bodies like ICEMA and CESCI to design standardised training programmes. JCB's operator training centres are a prime example.
- **Simulation-based training:** Komatsu and Tata Hitachi are among the companies' utilising simulators for operator training. Other companies are also adopting this technology.
- **Collaboration with educational institutions:** Structured training programs in partnership with technical institutes like ITIs and polytechnics are crucial. These partnerships should extend to specialised institutions like NICMAR, which offers advanced programs in construction management and related technologies. Furthermore, collaborations with manufacturers like Ajax Engineering, who have their own training facilities and expertise in specific equipment types, are essential.
- **On-the-job training v/s certification programmes:** A balanced approach is necessary. CESCI's certification programmes are relevant here. Operators of advanced concrete batching plants, including those with sophisticated control systems, should undergo certified training.

Challenges in skilling

Despite the need for upskilling, several challenges hinder the process:

- **Lack of standardised training modules:** There is no uniform skilling framework across different organisations. How to address this: Industry associations and academia should work together to create standardised certification programmes.
- **Limited availability of training infrastructure:** Many vocational training centres lack modern equipment. How to address this: Public-private partnerships can help set up training centres.
- **Reluctance to adopt new technologies:** Workers accustomed to conventional methods may resist change. How to address this: Awareness programmes and incentives should be introduced to encourage adoption.
- **High training costs:** Upskilling programmes require significant investment. How to address this: Government subsidies and employer-sponsored training programmes can mitigate cost barriers.

Way forward

To build a robust skilling ecosystem, collaboration is key. Industry leaders, educational institutions, and policymakers must work together to:

- Integrate technology-driven courses into vocational training programmes.
- Establish industry-academia partnerships for exposure.
- Provide learning opportunities through digital platforms.
- Incentivise companies to invest in workforce skilling initiatives.

As India aspires to become a global manufacturing and infrastructure powerhouse, a skilled workforce will be a crucial driver of success. By investing in skilling initiatives and fostering industry-academic partnerships, India can build a workforce that is future-ready, globally competitive, and equipped to lead the CE industry's transformation.

About the author:
Sanjay Pendharkar is an accomplished professional with over 35 years of dedicated experience in the construction and material handling equipment industry.

“The skill level of the workers directly affects the output quality.”

Skillveri is the world’s leading MR/XR skill training platform for welding simulators, painting simulators and other manufacturing skills. **Sabarinath C Nair, CEO, Skillveri**, speaks on the skill training platform that helped bridge the skill gap in sectors like construction and manufacturing.

Could you begin by telling us how Skillveri’s journey started and what inspired you to create this unique platform?

India has a huge youth population, but major infrastructure projects like the Delhi Metro and Delhi Airport were built with outsourced labourers from China and Peru. It gave us the realisation that despite there being a lot of demand for skilled labour in our industries, our youth is unable to benefit from those opportunities since there is a significant gap in both the required skill levels and awareness.

Skillveri was started with a mission to bridge this gap by providing accurate, measurable, and cost-effective training for industrial skills using state of the art technology.

Your platform has been highly impactful in industries like automotive and manufacturing. How did you identify the specific skills that needed to be addressed?

We initially began our journey when industries approached us for a reliable and effective way to train their workforce on the shopfloor. We began with welding which is the most critical skill needed across most manufacturing industries. We then realised that whatever was welded needed to be painted, and a few years down the road our spray-painting simulator was launched. We have also added other skills to our platform like HVAC/RAC repair and solar panel installation, based on the feedback from industries and based on which skills are taught by institutions like ITIs or polytechnics which provide the main source of fresh workforce for these industries.

How do you ensure that the training is both effective and accessible, especially for blue-collar workers with varying levels of experience?

The learning process with the Skillveri simulators is designed to be extremely user friendly and intuitive. It has a game-like approach instead of feeling complicated and does not need any specific educational or experience level as a prerequisite. Hence the users are more eager and interested to learn.

The learning methodology on the simulator follows a systematic step by step approach, where the learner is introduced to one parameter at a time and allows them to master that before they ‘unlock’ and move on to more complex aspects. This ensures they are not intimidated by too many things at once, and each can practice at their own pace.

The simulator also gives them live guidance on the screen during practice, and an easily understandable scoring system that points out their strengths and areas for improvement, which enables a more focused learning.

How has Skillveri’s immersive platform helped bridge the skill gap in sectors like construction and manufacturing, where precision and safety are critical?

In such sectors, the skill level of the workers directly affects the output quality. An imperfectly executed job can easily result in rejections of an entire batch or result in stoppage of conveyors etc which can run up losses in crores in a matter of hours. Skillveri simulators exactly replicate the workpieces and scenarios to give the learner a real world like feeling but eliminating any

Skillveri works on ways to leverage the potential of AI to help industries plan the processes for new product lines.

of the risks and hazards of the real-world training. Hence learners can practice with confidence in an incident free environment till they gain the perfect level of skills.

The scoring algorithm is able to accurately predict someone's real world performance, and an industry can utilise the analytics to allocate work to people according to their dexterity levels.

Skillveri is known for customising its platform to offer training in 18 Indian languages and seven European languages. How important is localisation in vocational training, and what impact has this feature had on user engagement and adoption across diverse markets?

While the simulator does offer the flexibility of choosing from multiple languages, what really sets it apart is the interface, which has very minimal language dependency. It is important to deliver vocational training in a very easy to understand way, and we have made sure the elements like on-screen guidance, the performance analysis graphs, are all very visually easy to understand. This has made the simulator universally appealing – whether the learner is in a tier 2 or tier 3 town in India or a school or college in US or factory in Europe, they are able to quickly adapt and use it effectively with minimal external guidance. This is also a key factor which has enabled us to scale quickly and expand to global markets and find wide acceptance there.

The gap in skilled labour is an ongoing challenge, particularly in developing economies. What role does Skillveri play in improving the status of these essential careers?

The amount of young people opting for skilled trades in developing economies is largely due to lack of awareness on the career paths they can offer, as well widespread misconceptions about the work environments etc. Skillveri has always firmly believed that a formal, modern training can go a long way in addressing some of these misconceptions. When people see the skills or vocational sector getting access to the same quality of modern, technology-enabled learning that theoretical education gets, it will change their perception. We want to make skill training safe, accessible, and enable people to move from odd jobs in informal workplaces to stable career paths in the formal manufacturing sector. This will unlock opportunities and transform their livelihoods in the long term.

With the rise of automation and AI, what future innovations do you foresee for Skillveri's platform in helping workers stay ahead in the ever-evolving world of manufacturing and construction?

AI, when integrated with technology like VR/XR, has the potential to enhance training outcomes on multiple aspects. It can be used to analyse individual learning patterns, and optimise the training to suit their pace, strengths and weakness.

At Skillveri, we are also working on ways to leverage the potential of AI to help industries plan the processes for new product lines, which will be critical to them. We plan to map the skillsets and performance patterns of the current workforce of an existing organisation, and provide industries with valuable data on the kinds of errors that are likely to occur, which areas in the new process would need more training, etc. This will result in a lot of time and cost savings in training and optimise efficiency.

Roadmap for Encouraging Investment in Indian Infra

The government has directed infrastructure-related ministries to develop a three-year pipeline of projects suitable for PPP implementation.

The Union Budget 2025-26, unveiled by the finance minister, embodies a clear and ambitious vision, recognising the pivotal role of investment in the economy as a key driver for national advancement. In alignment with this vision, the government has escalated the capital expenditure allocation for the infrastructure sector to an impressive Rs 11.21 trillion, marking a significant increase from previous years.

Reflecting on the past, the Economic Survey of the preceding year underscored the government's dominant investment in infrastructure, which substantially exceeds private sector contributions, with the latter accounting for less than one-third of the government's investment. This disparity is primarily due to investors' preference for conventional borrowing to meet substantial funding requirements. The latest Economic Survey has identified an imbalance in the bond market, where high-credit-rated bonds (AAA and AA) constitute over 85 per cent of total issuances, leaving lower-rated entities reliant on conventional lending sources. However, the feasibility of obtaining finance under standard lending conditions is challenging, and high-interest rates further complicate financing efforts. The proposal to enable the National Bank for Financing Infrastructure and Development (NaBFID) to establish a Partial Credit Enhancement Facility (PCEF) for corporate bonds is expected to bolster infrastructure project financing. The successful implementation of such a PCEF would require support from the Reserve Bank of India.

The previous National Monetisation Pipeline aimed to monetise Rs 6 trillion of core assets by March 2025. Building on this, the current budget introduces an ambitious Asset Monetisation Plan (AMP), targeting the monetisation of Rs 10 trillion. With the expansion of public infrastructure in recent years, the government could consider monetising key highways, mining, power, and metro assets to generate capital for new projects over a five-year timeline under the new AMP.

This strategic initiative is anticipated to provide the necessary funding to support viability gap funding and foster a conducive environment for private sector participation and investment, thereby catalysing further development and modernisation of India's infrastructure.

To bridge the significant gap and promote Public-Private Partnerships (PPPs), the government has directed infrastructure-related ministries to develop a three-year pipeline of projects suitable for PPP implementation. States are also encouraged to prepare PPP proposals and seek support from the India Infrastructure Project Development Fund. The establishment of an Urban Challenge Fund of Rs 1 trillion, which will finance up to 25 per cent of the cost of bankable projects (including PPP projects), is expected to attract Rs 4 trillion of investments for the transformation of cities into dynamic growth hubs, enhancing infrastructure and urban living conditions. The initiative to overhaul existing Bilateral Investment Treaties will help create an investor-friendly environment and enhance private sector participation.

In an effort to attract foreign capital, the government has extended the investment timelines for sovereign wealth funds and pension funds in infrastructure projects by an additional five years for future tax exemptions.

The budget continues to build on the theme of inclusive economic development and improved connectivity with the UDAN - Regional Connectivity Scheme, which aims to revolutionise air travel by adding 120 new destinations and targeting four crore passengers over the next decade. The Purvodaya vision is further advanced, with plans for new and expanded airports in Bihar to enhance connectivity in the eastern region.

On the maritime front, the budget recognises the need for a robust supply chain system and dedicated transportation vessels. It introduces a revamped Shipbuilding Financial Assistance Policy and a Shipbreaking Credit Note Policy to support ship recyclers. The establishment of the Maritime Development Fund with Rs 250 billion is a strategic move to encourage private sector participation and expand India's maritime ecosystem. To further establish the International Financial Services Centre (IFSC) as a premier global destination for ship leasing activities, the Government of India has introduced a series of tax incentives specifically designed for ship leasing units operating within the IFSC. These incentives include a complete tax exemption on the sale of shares and dividends for ship leasing units, a benefit that was previously exclusive to aircraft leasing units situated in the IFSC. In addition, the government has extended the sunset clause for the commencement of operations in the IFSC to March 31, 2030, ensuring that entities in the maritime sector can avail themselves of various tax concessions for an extended period. This strategic move is aimed at bolstering India's position in the international maritime industry, fostering domestic engagement in coastal shipping, and supporting the nation's self-reliant initiative, Atmanirbhar Bharat.

Moreover, the recent expansion of the tonnage tax regime to encompass Inland Vessels as qualifying ships is a testament to the government's commitment to revitalising the coastal shipping sector. This expansion is anticipated to provide a significant boost to the industry, aligning with the broader vision of enhancing India's maritime infrastructure and services.

Furthermore, the launch of a National Framework for Global Capability Centres, coupled with efforts to promote tourism with support from states and the private sector, is expected to boost the nation's GDP and drive job creation, with a focus on equipping the youth with necessary skills. The budget proposals collectively embody the 'India First' ethos, aiming to attract private sector investment, accelerate growth, and create a skilled workforce, thereby steering the nation towards a prosperous and self-reliant future.

It is evident from various policy announcements and tax incentives that the central government's commitment to infrastructure development is poised to continue unabated beyond the sunset of the National Infrastructure Pipeline in March 2025. In fact, the next five years are expected to see an even more vigorous role in this sector. Stakeholders must actively engage with these opportunities, leverage the supportive policy environment, and contribute to building a resilient, sustainable, and inclusive infrastructure that will propel India towards achieving its vision of Viksit Bharat@2047.

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Raising the Bar!

In 2018-19, the First Construction Council's analysis of TMT bars revealed significant quality issues, urging urgent action to improve safety standards in India's rapidly growing infrastructure sector.

In a game-changing move for the construction industry, the First Construction Council (FCC) made waves in 2018-19 with its critical analysis of thermo-mechanically treated (TMT) bars—a cornerstone of reinforced concrete construction. Through a rigorous sample test of 26 TMT bar brands, the results revealed a startling reality: 18 out of 26 brands failed to meet quality parameters, as crucial elements like phosphorous and sulphur exceeded acceptable limits.

The tests were conducted at a time when India's infrastructure sector was surging, with an estimated Rs 5.97 trillion earmarked for construction investments. Despite the massive commitment to infrastructure, the quality of raw materials used in the sector was questioned. The FCC's 2018-19 report made it clear that subpar TMT bars, often marketed by prominent players, could compromise safety standards—a shocking revelation for the country's booming construction industry.

Leading newspapers, including *The Times of India, The Economic Times, The Indian Express*, and *The Hindu Business Line*, reported extensively on the findings from the FCC, highlighting the significance of the issue and the widespread ramifications on India's infra sector.

Pratap Padode, President, First Construction Council, said, "The findings highlighted how renowned brands, despite heavy advertising, failed on basic quality checks. This undermines the very integrity of construction projects." He further emphasised that TMT bars form the backbone of any concrete structure, and their substandard quality can have catastrophic effects.

Following these findings, the FCC

FCC tested 36 TMT bars, reaffirming its commitment to ensuring that safety standards are not compromised.

called for immediate action. The primary focus was to challenge companies, especially secondary manufacturers, to raise their quality benchmarks and to ensure that all products met the required safety standards. FCC also urged the National Highways Authority of India (NHAI) to take necessary steps to ensure that infrastructure projects adhered to stringent quality parameters. In response, NHAI wrote to its members, requesting them to enforce rigorous checks on construction materials and ensure that only certified, high-quality TMT bars were used in projects.

The ripple effect of this report was swift and far-reaching. It sparked discussions across the industry, drawing attention to the critical need for stricter quality control measures and more research into construction materials. The report also prompted an urgent call for an overhaul in procurement practices, where cost-cutting measures were often prioritised over safety. Moreover, the FCC emphasised that many secondary manufacturers needed to step up and enhance their quality control measures if the integrity of India's infrastructure projects was to be preserved.

Taking significant steps to address the growing concerns in the steel sector, the government took a major initiative by forming the Steel Research and Technology Mission of India (SRTMI).

Taking significant steps to address the growing concerns in the steel sector, the government took a major initiative by forming the Steel Research and Technology Mission of India (SRTMI). This apex body was established to facilitate joint collaborative research projects in the iron and steel sector of the country, with a primary focus on improving the quality and technological advancements of steel products, including TMT bars.

Fast forward to 2025, and the FCC has once again taken the lead in testing and raising quality standards. In its latest report, the FCC tested 36 TMT bars, reaffirming its commitment to ensuring that safety standards are not compromised. This follow-up study serves as a barometer for the progress made since 2018-19 and underscores the growing focus on quality in the TMT sector.

36 TMT Bars Put to the Test

The First Construction Council unveils the strength, safety, and standards!

Category: 8.0 mm

Brands: Polaad 550D, Sunvik FE 550

Companies: Bhagyalaxmi Rolling Mill, Sunvik Steels

Observation of physical tests: In the 8.0 mm category, several samples were tested across different brands. The carbon content ranged between 0.21 and 0.21 against a maximum allowable limit of 0.25. For sulphur, the minimum reading was 0.014, and the maximum reached 0.026 compared to the standard requirement of 0.040. The phosphorous levels observed varied between 0.024 and 0.049.

Observation of physical tests: During the physical tests, the TS/YS ratio spanned from 0.038 to 0.075. The elongation percentage was recorded between NaN and NaN. All samples successfully passed the bend and rebend tests.

Observation of physical tests: The test results for mass per meter run, transverse ribs and mean rib area were consistent with the requirements and highlighted the overall compliance of brands within this diameter category.

Category: 10.0 mm

Brands: Polaad 550D, Super Shakti TMT

Companies: Bhagyalaxmi Rolling Mill, Super Smelters

Observation of physical tests: In the 10.0 mm category, several samples were tested across different brands. The carbon content ranged between 0.18 and 0.20 against a maximum allowable limit of 0.25. For sulphur, the minimum reading was 0.016, and the maximum reached 0.018 compared to the standard requirement of 0.040. The phosphorous levels observed varied between 0.034 and 0.038.

Observation of physical tests: During the physical tests, the TS/YS ratio spanned from 0.052 to 0.054. The elongation percentage was not available for analysis. All samples successfully passed the bend and rebend tests.

Observation of physical tests: The transverse ribs and other related measurements complied with the specified requirements, demonstrating good performance across this category.

Category: 12.0 mm

Brands: Polaad 550D, ET TMT, Gallantt 500D CRS TMX, Elegant Steel QST Bars 550D, Sunvik FE 550

Companies: Bhagyalaxmi Rolling Mill, Electrotherm, Gallantt Ispat, Shakambhari Group, Sunvik Steels

Observation of physical tests: In the 12.0 mm category, numerous

samples were analysed. The carbon content was observed between 0.20 and 0.24, adhering to the maximum allowable limit of 0.25. Sulphur levels ranged from 0.018 to 0.024, within the acceptable threshold of 0.040. Phosphorus levels varied between 0.032 and 0.046.

Observation of physical tests: The TS/YS ratio ranged from 0.050 to 0.070, reflecting structural stability. The elongation percentage varied between 0.33 and 0.37, ensuring flexibility. All samples passed the bend and rebend tests without issues.

Observation of physical tests: Measurements of mass per meter run, mean rib area and transverse ribs showed consistent results and adhered to the set standards for performance and safety.

Category: 16.0 mm

Brands: Polaad 550D, Gallantt 500D CRS TMX, Moira 550, National CRS TMT 550D, National TMT 550D, FE 500 D, Super Shakti TMT 550D

Companies: Bhagyalaxmi Rolling Mill, Gallantt Ispat, Jaideep Ispat, Shreeyam Power, Shyam Steel Industries, Super Smelters

Observation of physical tests: Samples tested in the 16.0 mm category showed carbon content ranging between 0.13 and 0.20, within the permissible limit of 0.25. Sulphur readings spanned from 0.015 to 0.034, and phosphorus levels varied between 0.016 and 0.048, with only minor deviations from the standards.

Observation of physical tests: The TS/YS ratio ranged between 0.046 and 0.073, while the elongation percentage varied between 0.27 and 0.35. These results indicate good tensile properties and durability, with all samples passing the required bending tests.

Observation of physical tests: The mass per meter readings and rib characteristics met the necessary criteria, showcasing compliance with

industry benchmarks.

Category: 20.0 mm

Brands: Polaad 550D, ET TMT, Gallantt 500D CRS TMX, Elegant Steel QST Bars 550D, National CRS TMT 550D, Sunvik FE 550

Companies: Bhagyalaxmi Rolling Mill, Electrotherm, Gallantt Ispat, Shakambhari Group, Shreeyam Power, SRMB Srijan

Observation of physical tests: Carbon content varied between 0.14 and 0.23, meeting the requirement of less than 0.25. Sulphur ranged from 0.020 to 0.032, and phosphorus from 0.021 to 0.063. Minor exceedances in phosphorus were observed in a few samples.

Observation of physical tests: The TS/YS ratio was between 0.047 and 0.095, while elongation ranged from 0.30 to 0.34. All samples performed well in the physical bend and rebend tests.

Observation of physical tests: The test results for mass per meter run and rib structure indicated that the brands maintained the required performance metrics.

Category: 25.0 mm

Brands: Polaad 550D, Gallantt 500D CRS TMX, Elegant Steel QST Bars 550D, National CRS TMT 550D

Companies: Bhagyalaxmi Rolling Mill, Gallantt Ispat, Shakambhari Group, SRMB Srijan, Sunvik Steels

Observation of physical tests: Carbon content ranged between 0.13 and 0.22, within the acceptable limit. Sulphur readings were between 0.017 and 0.032, while phosphorus ranged from 0.025 to 0.056, with some samples nearing the limit of 0.040.

Observation of physical tests: The TS/YS ratio spanned from 0.049 to 0.088, and elongation was between 0.30 and 0.34. All samples passed the standard physical tests.

Observation of physical tests: Compliance with mass per meter run and rib characteristics was observed, ensuring structural stability.

Category: 32.0 mm

Brands: Polaad 550D, ET TMT, Elegant Steel QST Bars 550D, FE 500 D, Sunvik FE 550

Companies: Bhagyalaxmi Rolling Mill, Electrotherm, Shakambhari Group, Shyam Steel Industries

Observation of physical tests: Carbon readings ranged between 0.16 and 0.20, well within limits. Sulphur ranged from 0.013 to 0.031, and phosphorus from 0.026 to 0.052. No significant outliers were detected.

Observation of physical tests: TS/YS ratios varied from 0.039 to 0.083, while elongation ranged between 0.28 and 0.33. The samples passed all required tests for bending and rebending.

Observation of physical tests: Other structural parameters like mass per meter run and rib dimensions met the benchmarks, ensuring quality and adherence to safety standards.

Advancing the Future of CE through Skilling

Initiatives like AJAX School of Concrete are paving the way for a more resilient, competent, and technology-driven workforce.

India's construction equipment (CE) industry is in the midst of a remarkable growth phase, driven by robust infrastructure development and rapid technological advancements. The Indian Construction Equipment Manufacturers Association (ICEMA) has articulated an ambitious "Vision Plan 2030", aiming to position India as the world's second largest and fastest-growing CE market by 2030. This strategic roadmap aspires to elevate the Indian CE industry's market size to $25 billion by 2030, reflecting a significant growth trajectory in alignment with the country's goal towards becoming Viksit Bharat by 2047.

The focus now needs to be on how best to translate this phase of rapid growth into sustainable, long-term progress with a robust talent pipeline. The need for a skilled workforce in tandem with the CE industry's evolution over the last decade—fuelled by digital innovation, automation, and emerging technologies like telematics, 3D concrete printing, and AI-driven solutions—has become more pronounced.

Existing gaps and challenges

While the government has launched initiatives such as the Skill India Programme and ITI upgradation programmes, there continues to exist a significant gap in terms of curriculum modernisation, due to lack of alignment between educational curricula and industry needs. In fact, recent reports suggest that while 70 per cent of academic institutions believe their graduates are well-equipped for the corporate world from day one, only 16 per cent of companies agree. This dissonance is particularly felt in the CE industry where specialised practical skills take precedence. When combined with the fast-paced adoption of automation, IoT, AI, and digital innovations, the workforce falls just short of the necessary training required to handle sophisticated AI-driven or semi-autonomous machinery.

The apparent dichotomy where the industry's slow adoption of training programmes for rapidly evolving technology driven products underscores the urgent need for agile,

future-focused skilling initiatives. Ongoing government-led programs like STRIVE (Skill Strengthening for Industrial Value Enhancement) and SANKALP (Skill Acquisition and Knowledge Awareness for Livelihood Promotion) specifically intended to address this issue, face challenges of low enrolment and insufficient industry involvement in curriculum design. Therefore, the government has placed growing emphasis in the Union Budget 2025-26 on encouraging public private partnerships (PPPs) between educational institutions and the CE industry so as to ensure that training programs are attuned to real-world applications.

Bridging the skills gap

India's CE industry is undergoing a significant transformation, with the momentum of growth highlighting the urgent need to bridge the widening skills gap. This calls for a multi-pronged approach that emphasizes industry-academia collaboration, government support, technological integration, and robust certification and upskilling frameworks.

Strengthening industry-academia collaboration

The government's push for public-private partnerships (PPPs), highlighted in the Union Budget 2025-26, underscores the importance of aligning training programs with real-world applications. Institutions like the AJAX School of Concrete exemplify how industry-driven educational platforms can foster hands-on learning experiences tailored to the specific needs of the CE sector. By focusing on both theoretical knowledge and practical exposure, such initiatives are pivotal in cultivating a workforce that is adept at operating advanced machinery and responding to on-ground challenges. This synergy between industry and academia ensures that emerging professionals are not just employable but industry-ready from day one.

Policy reforms and government support

Recognising the integral role of a skilled workforce in achieving the "Viksit Bharat 2047" vision, the government has significantly ramped up budgetary allocations for skill development. With ₹6,100.10 crore allocated to the Ministry of Skill Development and Entrepreneurship and ₹3,000 crore dedicated to modernising ITIs, there is a clear focus on enhancing the employability of youth across the country. The expansion of flagship programs like the PM Kaushal Vikas Yojana (PMKVY) is aimed at developing niche skill sets essential for operating next-generation construction machinery. Complementing these initiatives are efforts to improve wage structures and offer subsidies for training, which are critical for attracting young talent to the sector.

Leveraging technology for future-ready skilling

As the CE industry embraces technological innovations—ranging from telematics and 3D concrete printing to AI and IoT—the demand for a digitally literate workforce has never been greater. The establishment of National Centres of Excellence for Skilling, with a focus on emerging technologies, aims to address this evolving requirement. Central to this technological shift is the integration of AI-powered solutions like SmartBots, driven by platforms such as Concrete AI. These intelligent systems are redefining the skilling landscape by offering immersive, real-time simulations that enable operators to gain hands-on experience with sophisticated machinery. By mirroring actual site conditions, SmartBots provide an invaluable tool for workers to hone their skills in a controlled, risk-free environment, thereby accelerating the learning curve.

Fostering a culture of continuous learning and certification

While initial training is essential, continuous upskilling is equally critical to keep pace with rapid technological advancements. Globally recognized certification programs are gaining prominence, offering professionals opportunities to validate their expertise in operating advanced CE machinery. Online learning platforms and professional development courses further support lifelong learning, ensuring that workers remain adaptable to industry shifts. The government's emphasis on certification through programs like SANKALP and STRIVE, even amid structural realignments, reinforces the importance of formalized skill validation.

Looking ahead

As India's CE industry marches toward its Vision Plan 2030, the road to becoming the world's second-largest CE market is not just about technological advancements or infrastructural expansion—it hinges on the development of a skilled, future-ready workforce. Through enhanced industry-academia collaborations, targeted government interventions, and the strategic adoption of cutting-edge technologies, the sector is steadily bridging the existing skills gap. Initiatives like the AJAX School of Concrete and innovations powered by Concrete AI are paving the way for a more resilient, competent, and technology-driven workforce, essential for sustaining the industry's growth trajectory in the years to come.

About the author:
The article is authored by **Shubhabrata Saha, MD and CEO, AJAX Engineering**

WIRTGEN TO UNVEIL 45 INNOVATIONS AT BAUMA 2025

The Wirtgen Group and John Deere will showcase advanced construction equipment, technology solutions, and application processes at bauma 2025 in Munich. Spanning 13,000 sq m, the booth will feature 100 machines, eight production systems, and, for the first time, nine live shows. The company has also been nominated for the bauma Innovation Award in two categories.

Innovation for efficiency and sustainability

With the construction industry facing skilled labour shortages and higher quality demands, Wirtgen is introducing smart, safe, and sustainable solutions across road construction, earthmoving, and materials processing. A key focus is end-to-end digitalisation, from planning to execution, ensuring greater efficiency and accountability.

Highlights from the technology zone

The Technology Zone will debut four world premières, including the John Deere Operations Center™ for construction—a digital jobsite management platform. Also on display are the Wirtgen Group Performance Tracker (WPT paving, compacting, recycling, and crushing) alongside WPT Milling. These tools provide real-time data for optimised machine utilisation and productivity.

Pioneering a zero-emission construction site

Wirtgen is spearheading the "production system for a construction site with zero local emissions", nominated for the Climate Protection category of the Bauma Innovation Award. The system features a battery-powered cold milling machine, paver, and roller, ensuring zero operating emissions and seamless integration across all machines and telematics solutions.

Another award-nominated innovation, "Smart Automation in Roadbuilding", enables automated asphalt removal and paving, ensuring high-quality results with reduced material use and labour dependency.

Cutting-edge machine premieres

Under the theme "Smarter. Safer. More Sustainable", Wirtgen will unveil its most powerful large milling machine, the W 250 XF, along with new wheeled cold recyclers and soil stabilisers. Vögele expands its Dash 5 generation, Hamm introduces automated compaction rollers, Kleemann presents its first PRO line screening plant, and Benninghoven unveils the MULTI JET burner for 100 per cent green hydrogen use. John Deere completes the lineup with track loaders, motor graders, wheel loaders, and dozers.

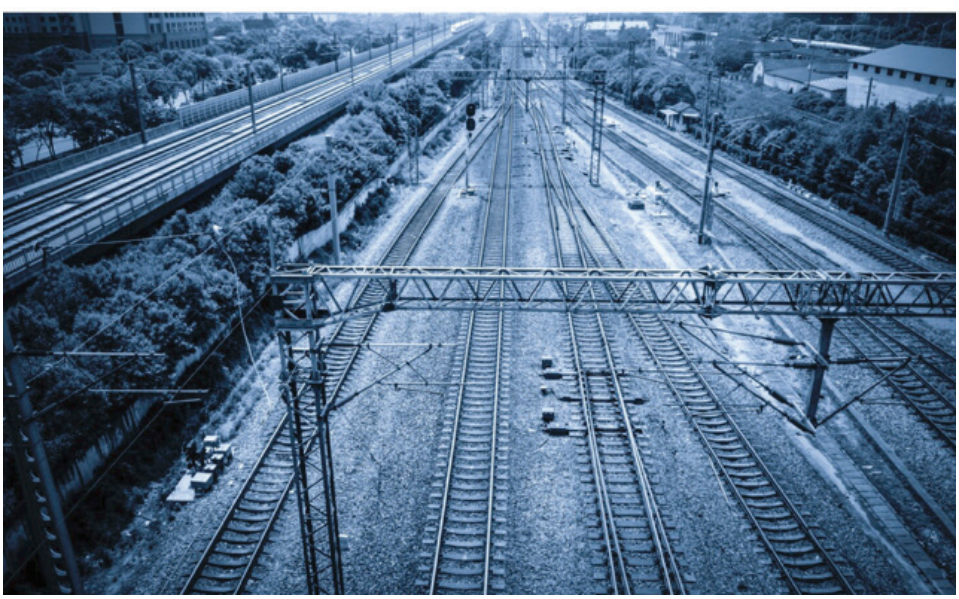
Live shows for an engaging experience

For the first time, live demonstrations will showcase smart machines, digitalisation, and automation in action. Experts will provide insights into Wirtgen and John Deere's cutting-edge industry solutions, reinforcing their commitment to a smarter, safer, and more sustainable future.

(Communication by the management of the company)

SEACITY: CONSTRUCTION CLAIMS & ARBITRATION SOLUTIONS FOR CONTRACTORS & PROJECT OWNERS

In the complex world of construction, where cost overruns, delays, and disputes threaten project viability, SeaCity Project Services stands as a trusted ally for contractors and infrastructure companies. Specialising in contract management, construction claims, arbitration, EOT (extension of time), dispute resolution, deviations and change of scope (COS), SeaCity ensures that projects not only stay on track but also recover rightful claims and compensation through arbitration.



Founded by J Zaidi, a distinguished civil engineer with over four decades of industry experience, SeaCity was born out of a pressing need—to protect contractors from financial losses, legal entanglements and contractual pitfalls that often derail projects. He recognised a critical gap in the industry—efficient contract management and claims/ dispute resolution. To address this, he established this Techno-legal consultancy that is dedicated to ensuring that projects navigate these project complexities.

At the core of SeaCity's success is a highly skilled team of engineers, contract specialists, and legal professionals who build strategic solutions tailored to each project's unique challenges. With partnerships extending to senior lawyers and industry experts, SeaCity has played a pivotal role in securing Claims through Arbitration for infrastructure projects worth over Rs 500 billion, across the country.

What sets them apart is their proactive approach—instead of waiting for disputes to escalate, they fortify running projects via expert contract management services.

Beyond Zaidi's technical expertise, he is a powerhouse of resilience and innovation. His ability to foresee challenges, negotiate strategically, and uphold fairness in the industry has positioned him as a trusted ally for contractors and project owners. Those who have worked with him describe him as a bull in the construction industry—unyielding, driven and always ahead of the curve.

As SeaCity continues to expand its influence, J Zaidi remains committed to his core mission: helping construction projects succeed against all odds. His journey is not just about business—it's about redefining industry standards, ensuring accountability, and fostering a construction ecosystem that is efficient, just, and future-ready.

To know more, please visit www.theseacity.com

Communication from the management of the company

Power Curbers' Four-Track Concrete Slipform Paver

Power Curbers introduced the new 5704-D Max at World of Concrete 2025, a four-track version of its well-known concrete slipform paver. Designed for increased stability, this machine is ideal for pouring large highway barrier walls and other heavy-duty tasks.

"The 5704-D Max is the next generation of the top-selling slipform paver, offering compact size, simple design, easy operation, and high productivity," the company states. It handles a range of applications including curb, gutter, sidewalk, barrier, paving, tunnels, and more.

Originally released in 2019, the three-track 5700-D Max replaced the 5700-C. Responding to demand, Power Curbers now offers the four-track 5704-D, capable of pouring up to an 8-foot concrete barrier wall and variable wall. It features a dual-swinging conveyor mount, making it easy to switch between left or right-side pouring. Multiple conveyor options are available, including a 12-foot auger and 20- and 28-foot belts, with the 28-foot belt folding for transport.

The 5704-D is equipped to handle Jersey barriers, variable barriers, and vertical structures for tunnels and high-speed rail projects. Its low center of gravity and optimal size-to-weight ratio enhance its suitability for tasks like barrier and parapet construction.

Other features include a hydraulic barrier mold lift, allowing the mold to be raised over steel cages to move the paver out of traffic. The operator enjoys clear visibility around the paver during operation. The paver supports 3D machine control systems from Topcon, Leica, or Trimble for stringless paving, while the Power Curbers SlipSmart Control System provides precise control for grade, steering, and slope adjustments.

Powered by a 130-horsepower Cummins Tier 4 Final turbocharged diesel engine, the 5704-D combines high performance with reliability.

New Holland's Next-Gen PowerStar Tractors

New Holland's updated PowerStar series utility tractors introduce four models with advanced transmission options, upgraded loaders, and enhanced engine technology, arriving at dealerships in the fourth quarter.

The new lineup includes the 90, 100, 110, and 120 PowerStar models, all powered by a 3.7-liter four-cylinder FPT Industrial engine with a 3.4-gallon DEF tank.

A standout feature of this generation is the introduction of Compact HI-eSCR 2 emissions-reduction technology, which increases torque, boosts engine efficiency, and provides up to 5 extra horsepower. Additionally, a new U-shaped exhaust has been added, and all models meet European Stage V and U.S. Tier 4 Final emission standards. The PowerClutch button allows operators to shift gears without using the clutch pedal.

Lena Patton, North American product marketing manager at New Holland, explains, "We know our customers are looking for ways to reduce fuel costs. While these engines still use common rail fuel injection like previous models, we've improved performance and optimized fuel consumption with a longer stroke and more displacement."

For the three largest models, a 12x12 transmission with a column-mounted electronic power shuttle is available. All four models can be upgraded to a 24x24 Dual Command transmission, which adds a Hi-Lo speed in all gears. Both transmissions now feature a Dynamic Start-Stop mode, reducing operator fatigue by allowing them to stop with the brake pedal and resume driving by releasing it.

New PowerStar tractors also come with factory-installed LU Series front loaders, offering improved lift capacity, height, and faster cycle times. Loader options include the non-self-leveling 650LU, mechanical-self-leveling 655LU, and a skid-steer-style quick-attach faceplate that can be equipped with a third-function diverter valve for attachments.

Manitou Expands Telehandler Lineup

Manitou has introduced two new models to its telehandler range—the MTA 1242 Max and MTA 1242 Max E74—both designed with increased lifting capacity and an upgraded cab. These models bring improved performance for construction tasks requiring heavy lifting and better efficiency. The MTA 1242 Max is powered by a 127-horsepower Deutz diesel engine, while the E74 version comes equipped with a more efficient 74-horsepower Deutz diesel engine, reducing emissions-related maintenance without sacrificing power.

These new models feature heavy-duty outriggers that significantly increase the lifting capacity between 2,500 and 4,000 pounds at mid-range working heights, making them highly versatile for a variety of tasks. The telehandlers, weighing 28,300 pounds, are capable of lifting a maximum load of 12,000 pounds.

Their maximum outreach extends to 28 feet 6 inches, and they can achieve a maximum lifting height of 42 feet 6 inches. These models can travel at speeds of up to 22 mph and offer a ground clearance of 1 foot 7 inches, making them suitable for navigating various job sites.

Manitou Product Manager Steve Kiskunas highlights that the MTA 1242 Max falls within one of the most popular size classes for construction telehandlers. "What we've done is add further flexibility in lifting capacity and engine power to meet the needs of various operators.

Ditch Witch Industry's First Electric Trencher

At the recent ARA Show, Ditch Witch unveiled the c3E, the industry's first electric trencher, designed to provide instant torque and power to the ground with the benefits of an advanced electric motor. This compact, walk-behind trencher offers an eco-friendly and efficient solution for trenching projects, capable of trenching up to 3 feet deep and 6 inches wide in a single pass. Powered by a rechargeable battery, the c3E can trench up to 1,000 feet of clay on a single charge, making it an ideal tool for irrigation and utility installation projects.

Ditch Witch Product Manager Brant Kukuk emphasised that the battery life is more than sufficient for the types of projects typically handled by homeowners, landscapers, or contractors. "If you're installing a sprinkler system in a front yard, that's probably a 500-foot job, so you'd be capable of doing two sprinkler systems. That'll cover most of a day's work," he explains. "You're typically not trenching all day, as there's a lot of short drop work that happens with these machines."

The c3E features a fixed battery that requires charging directly on the

machine. It can be recharged in approximately 8 hours using a standard 120-volt outlet or 6 hours with a 240-volt outlet. The increased power of the electric motor allows the c3E to trench faster than a gas-powered equivalent. It also introduces an adaptive cruise control feature that automatically adjusts the trenching speed to optimise performance and efficiency.

COMPACTORS

1 | Tinsukia Municipal Board
Details: Tenders are invited for supply of two 14 cu m capacity of refuse compactor vehicle.
Submission date: 11 March 2025
Location: Tinsukia, Assam
Contact: Executive officer, Tinsukia, Assam. tmbtsk@rediffmail.com

2 | Brihanmumbai Municipal Corporation (BMC)
Details: Tenders are invited for supply, installation and commissioning of mobile compactor storage system facility in store room under AE (Maint) WWES I Section at Mumbai, Maharashtra
Submission date: 10 March 2025
Location: Mumbai, Maharashtra
Contact: Assistant Engineer (Maint.) Water Work Eastern Suburb, Water Works Yard, L.B.S. Marg, Ghatkopar (West), Mumbai-400086, Maharashtra

3 | Indian Army
Details: Tenders are invited for supply of four bay mechanical compactor, air conditner repair, cooler repair, and three bay mecanical types compactor.
Submission date: 07 March 2025
Location: Fatehgarh, Uttar Pradesh
Contact: Fatehgarh, Uttar Pradesh. ndwivedi.944l@gov.in

CONVEYORS

4 | Security Paper Mill
Details: Tenders are invited for procurement of consumable conveyor belt at Madhya Pradesh.
Submission date: 12 March 2025
Location: Multiple, Madhya Pradesh
Contact: SPM Colony, Narmadapuram-461005, Madhya Pradesh. Mob: 07574255259

5 | Dr B R Ambedkar National Institute of Technology
Details: Tenders are invited for purchase of fibre opening machine with conveyor belt at Jalandhar, Punjab.
Submission date: 10 March 2025
Location: Jalandhar, Punjab
Contact: Director, Jalandhar, Punjab

6 | South Central Railway
Details: Tenders are invited for supply of waste conveyor belts, part no. 1220 mm wide x 630/4x5+1.5m24 (11-12 mm thick) tensile strength 630 kn, 4 ply grade m24 is: 1891 (part i), top rubber thickness 5 mm, bottom thickness 1.5 mm.acceptable make: plasser, forech, quantum, hilton, belt at Telangana.
Submission date: 08 April 2025
Location: Secunderabad, Telangana: Principal Chief
Contact Material Manager, Nilayam, Secunderabad-500071, Telangana

CRANES

7 | Indian Army
Details: Tenders are invited for supply of semi electric hydraulic floor crane 3 t capacity.
Submission date: 10 March 2025
Location: Sonitpur, Assam
Contact: Department Of Military Affairs, Sonitpur, Assam. buycon5319.ia.hp@gembuyer.in

8 | Western Railway
Details: Tenders are invited for supply, installation and commissioning of electric overhead traveling crane (2 t capacity).
Submission date: 17 March 2025
Location: Mumbai, Maharashtra
Contact: Principal Chief Material Manager, Churchgate, Mumbai, Maharashtra

9 | Indian Railways
Details: Tenders are invited for supply of EOT crane 65 t.
Submission date: 10 March 2025
Location: Patiala, Punjab
Contact: Principal Chief Material Manager, Patiala Locomotive Works, Patiala-147003, Punjab. T: 0175-2396000,2396001, F: 0175-2306413, www.plw.indianrailways.gov.in

10 | North Western Railway
Details: Tenders are invited for supply and commissioning of diesel hydraulic road mobile crane capacity of 15 t.
Submission date: 10 March 2025
Location: Ajmer, Rajasthan
Contact: Senior Material Manager/BGC, Ajmer, Rajasthan

11 | Southern Railway
Details: Tenders are invited for supply of Goliath crane 5 t capacity with CAMC.
Submission date: 10 March 2025
Location: Perambur, Tamil Nadu
Contact: Dy. Chief Material Manager/CW, Perambur, Tamil Nadu

12 | Northern Railway
Details: Tenders are invited for supply of road mobile crane capacity 10 t.
Submission date: 14 March 2025
Location: Multiple, Uttar Pradesh
Contact: Principal Chief Material Manager, Baroda House, New Delhi-110001, Delhi

DUMPERS

13 | Urban Development Department Uttar Pradesh
Details: Tenders are invited for supply of two hopper tipper dumper for garbage.
Submission date: 08 March 2025
Location: Farukkhabad, Uttar Pradesh
Contact: Ankit Dubey, Nagar Panchayat Samdhan, Farukkhabad road, Uttar Pradesh

EARTH MOVERS

14 | Ministry of Defence
Details: Tenders are invited for hiring of earth moving equipment, material handling equipment and cranes (per hour basis) - earthmoving equipment; shrub harvester; 5 to 10 years , hiring of earthmoving equipment, material handling equipment and cranes (per hour basis) - crane
Submission date: 08 March 2025
Location: Delhi
Tender value (Rs): 27,000,000
Contact: Kapil Goyal-Chief Executive Officer, Delhi Cantonment Board, Delhi

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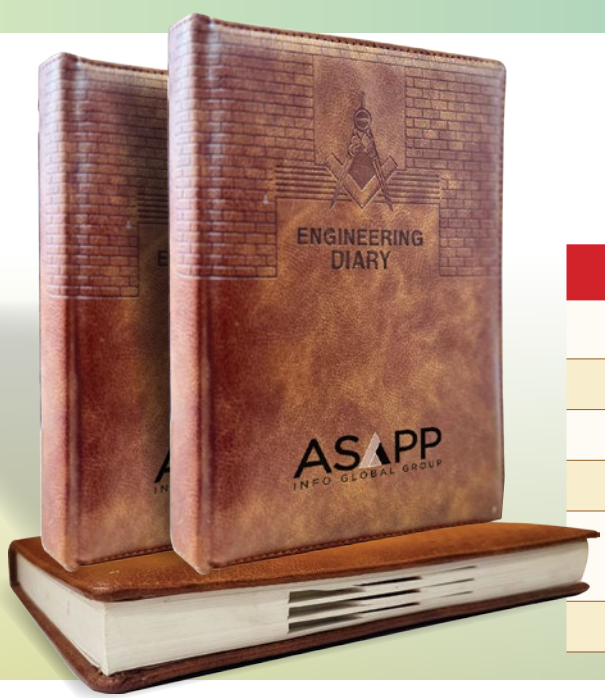

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Indian Cement Review	5400	810	4590	Titan Duffle Bag MRP ₹2150 + Century Laptop Backpack MRP ₹2,450
Industrial Products Finder	5400	810	4590	Titan Duffle Bag MRP ₹2150 + Century Laptop Backpack MRP ₹2,450
The Indian Textile Journal	5400	810	4590	Titan Duffle Bag MRP ₹2150 + Century Laptop Backpack MRP ₹2,450
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Equipment India	9000	2700	6300	Titan Duffle Trolley MRP ₹3980 + Titan Duffle Bag MRP ₹2150
Indian Cement Review	9000	2700	6300	Titan Duffle Trolley MRP ₹3980 + Titan Duffle Bag MRP ₹2150
Industrial Products Finder	9000	2700	6300	Titan Duffle Trolley MRP ₹3980 + Titan Duffle Bag MRP ₹2150
The Indian Textile Journal	9000	2700	6300	Titan Duffle Trolley MRP ₹3980 + Titan Duffle Bag MRP ₹2150
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VG Sakthikumar

Grateful to be part of the Excellence & Innovation Awards 2025 at our annual meet. Celebrating the incredible achievements, teamwork, and growth of 2024. This night is about recognizing the passion and dedication that drive us forward. Wishing the entire team continued success and even greater milestones in 2025!

ICEMA

Construction Equipment Sales on the Rise: A Strong Growth Trajectory in FY25. The third quarter sales for the Indian Construction Equipment industry, at 39,382 units, increased by a massive 28% quarter-on-quarter, from 30,686 units sold in Q2 FY25. On a year-on-year basis too, the Q3 FY25 sales for the CE industry jumped 8% as compared to Q3 FY24 figures, despite the slowdown in the first half of the current fiscal due to general elections in the country.

LiuGong India

LiuGong India welcomes Aditya Infraequip LLP as our dealer partner for Saurashtra offering LiuGong India's full product portfolio. We look forward for creating new success stories in the region.

Case Construction Equipment North America

Welcome to the CASE dealer family, Stone Equipment Co., Inc.! We're joining forces as CASE Power & Equipment of Alabama – offering the full lineup of CASE equipment, attachments, service, parts and financing solutions - serving customers in central and northern Alabama. "Stone Equipment has built a 15-year legacy of reliability, hard work and excellent customer service in the heavy equipment industry. We're proud to welcome Doug Stone and his team to the CASE family," said Terry Dolan, head of CASE Construction Equipment North America. "We're looking forward to working together to offer smooth, swift, smart machines from CASE so more crews and contractors in northern and central Alabama can succeed on the job."

Tata Hitachi Construction Machinery

Introducing Tata Hitachi's New Diesel Exhaust Fluid – DEF. Applicable for all CEV-4/ BS-4 and CEV-5 machines. The ISO certified, highly purified DEF reduces NOx emission, improves fuel economy, and lowers maintenance cost. Now available at your nearest Tata Hitachi dealer outlets.

JCB India Ltd

JCB proudly unveils the JCB NXT 225 and JCB NXT 221LC Fuelmaster in Nepal—bringing a revolution in fuel efficiency, power, and productivity to the excavator category. This momentous occasion was led by Mr. Deepak Shetty, MD & CEO of JCB India, alongside Mr. Vishnu Agarwal of MAW, Nepal, marking a significant milestone in the country's construction and infrastructure sector.

Rajesh Nath

India has the largest number of STEM graduates in the world. Always a pleasure to interact with the young minds in the country who will shape the future of our nation.
It was a proud privilege for me to be invited for the inauguration of the 2nd Batch of International Certificate Course on Smart Manufacturing at RV College Of Engineering in association with FachhochschuleDortmund. The phrase: "Learning together, growing together" is so apt as this course enables students from FH Dortmund to come to Bangalore and students from RVCE to go to Dortmund.


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