

L&T reimagines the future of Digital Manufacturing



Mr. S.N. Subrahmanyam, CEO & MD, L&T

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Mumbai, October, 5 : The world is witnessing sea changes with swifter, smarter and more efficient systems now becoming the mantras of an ever-evolving globe, and industries are no exception. Larsen & Toubro, a multifaceted engineering and construction behemoth in India catering to a host of industrial sectors is offering a glimpse into how this change is shaping up on the shopfloors and production lines in India.

"Our world is transforming with the widespread use of technology and is becoming faster, safer, and more accurate. Though businesses were in digital transition even before COVID-19 hit us, the pandemic has accelerated the shift. At L&T, we are leading the digital change", said Mr. S.N. Subrahmanyam, CEO & MD, L&T. **"Over 50 digital solutions are either in production or being deployed at hundreds of project sites. We will continue to leverage technology**

to achieve international recognition while maintaining our impeccable track record of executing large complex projects."

L&T Heavy Engineering (HE), the hi-tech manufacturing arm of L&T, has its largest shopfloor at the Hazira Manufacturing Complex in Gujarat at Hazira near Surat with 1 lakh sq m spread over multiple bays, cumulatively a little short of half-a-km wide and 250-metre long. **It is a beehive of activity: at any given point in time humming away with hundreds of engineers and workers engaged in designing, cutting, shaping and welding complex equipment.** The business was named the 'Most Digitally Enabled Manufacturing Plant in L&T amongst non-construction businesses.

HE has been automating its manufacturing processes by leveraging digital technologies and IIoT (Industrial Internet of Things). Production lines spread over a huge area demand that the right materials at the right time are available at all stations. One innovative way to guarantee that is an initiative called FIGGY, an integrated online mechanism that ensures the delivery of the right consumables to specified locations within the huge shopfloor. A worker, using Wi-Fi-enabled monitors, places online orders for consumables on centralized stores. With a bar-coding system, material tracking and delivery is ensured seamlessly. Apart from this, HE has also IoTised all their head welding stations with a single worker in a booth controlling multiple welding stations. These initiatives in welding and overlay operations have not only delivered huge productivity improvements but have also enhanced the safety of workers. Some other initiatives include IoTised dimension checking, remote inspections, etc.

Additionally, digitalization is being pursued aggressively in office environments including automation of design & procurement aspects, supply chain management and estimation systems. Other digital initiatives such as virtual 3D layout simulation and Digi-Eye – for real-time project progress monitoring have been undertaken with great results.

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As one walks into L&T Defence's shopfloor, **robots offer a glimpse into how future engineering would look like: lined up on either side in a shopfloor, robotic and digital manufacturing apparatuses are busy working, while only a handful of workers are stationed.**

LMB, which manufactures supercritical boilers and pulverisers for power plants, has not only deployed robotic welders on its Wi-Fi-enabled shopfloor but has also IoTised all its major manufacturing equipment. It has a large monitor that hosts a live integrated dashboard wherein one can see real-time data from the equipment, the corresponding timelines, and the equipment's health. Using a touchscreen terminal a workman can requisition for welding consumables from the stores, ensuring that the right consumable is deployed.

L&T Special Steels and Heavy Forgings (LTSSHF) shopfloor is all about extremely high-temperature furnaces, gigantic ingots, heavy-duty cranes and high-capacity hydraulic presses that are required to make critical forgings for sectors such as nuclear, defence, hydrocarbon and power. LTSSHF has mechanized all its manufacturing apparatuses. It is indeed a sight to behold when an 80 or 100 tonne ingot emerges from a 1250-degree Celsius furnace and, using a video game-like remote, a workman picks up the red-hot ingot on a giant crane for shaping at a hydraulic press.

L&T Valves has pioneered the digitalization drive in the valve industry, launching IoTready products and processes empowered by IIoT. From the first customer contact to aftermarket support and beyond, the digital solutions maximise operational efficiency and customer satisfaction.

Apart from this, the IoT-based Asset Insights solution, which continuously monitors more than 11000 nos. of site/construction equipment, machines, and devices, is enhanced with predictive analytics algorithms which provide alerts of any failures in advance. This helps in reducing the downtime of the equipment and achieving higher operational efficiencies.

The digital transformations have positively impacted all areas of the value chain at L&T, including core business areas such as tendering, engineering, procurement, construction, manufacturing, operations & maintenance, safety,

quality, customer experience and enabling functions such as human resources, finance, and administration. This has resulted in the larger deployment of various solutions. More than 75% of the company's workforce across all levels use these digital solutions.

The digitalisation and IoTisation initiatives on L&T's shop floors are representative of the silent revolution the conglomerate is ushering in in India's manufacturing spectrum. **As regards the future of engineering, what L&T is doing today, others will surely aspire to do tomorrow.**