

Tamil Nadu boosts start-ups, MSMEs with cutting-edge tech from MNCs

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Wearing large AR glasses, covering half her face, Janani Ravichandran, an AR (augmented reality) engineer, is gesticulating mid-air, twisting buttons, pressing knobs virtually, before she lays hands on a two-wheeler engine. She gets to work pulling out some parts effortlessly, tweaking bolts and nuts, guided by the hololens (an AR headset) she's put on. It's all part of a simulated maintenance drill.

Sukhpreet Singh, Head, Tamil Nadu Smart and Advanced Manufacturing Centre, or the TANSAM Siemens Centre of Excellence, at the Tidel Park, one of the earliest software parks in Chennai, points out that Janani is demonstrating remote guided maintenance.

Singh says that many industries can now use AR for equipment maintenance and repair. "A technician, through the hololens, which has a camera, aims it at a machine. The electrical wiring of the system displays relevant notes and videos with voice-over pops-up alongside the screen, which the user can see, and attend to a machine. Somebody even sitting in Japan can see what Janani is seeing through the camera's hololens and guide her," he explains.

NURTURING INNOVATION

Over 2021-22, in a unique initiative, the TN government, through the Tamil Nadu Industrial Development Corporation (TIDCO), established three Centres of Excellence at Tidel Park, each tying up with different MNC majors, to provide cutting-edge tech and learning for the State's MSMEs and start-ups which want to leverage the TN's defence industrial corridor that is sprouting up.

The TN Centre of Excellence for Advanced Manufacturing, has been set up with Dassault Systemes (TANAM) at an investment of ₹211.97 crore; TANSAM, in a tie-up with Siemens (investment ₹252 crore); and TN Advanced Manufacturing Centre of Excellence, TAMCoE, in a tie-up with GE Aviation (₹141.26 crore). The CoEs were inaugurated by



EMERGING TECH. AR engineer Janani Ravichandran performing a simulated maintenance drill guided by the hololens she's wearing at TANSAM Siemens Centre of Excellence, at the Tidel Park, Chennai. BUJOY GHOSH

Tamil Nadu Chief Minister MK Stalin last year.

"The idea is to bring in deep tech to TN for the MSME sector and start-ups; the software that partners bring are too expensive for them to buy and that's why the government thought to set up these centres of excellence so that the MSMEs would have access to advanced manufacturing techniques and software. These are unique centres; the idea is for start-ups to try out their models and prototypes here at a fraction of the cost and see what works for them," explains Jayashree Muralidharan, Managing Director, TIDCO.

With the TN government in the process of establishing a defence corridor spread over five nodes of Chennai, Coimbatore, Hosur, Salem and Tiruchi, TIDCO was given a mandate to conduct a study and identify the sectors where skills have to be honed, especially in the areas of aerospace and EVs to health and digital printing for metal parts.

"This will help a spectrum of industries for designing any component easier. Incubation of ideas

can be done in these centres and because of the design software and the digital printing, prototyping will also be cheaper and faster; these technologies can cut across the entire industry," says Muralidharan.

MAKING TECH ACCESSIBLE

Apart from the software solutions from Siemens, this CoE has 3D printers, cobots (collaborative robots), inspection equipment, VR/AR scanners to enable training on software along with real-life applications. A young AR engineer is examining the anatomy of a human body wearing VR glasses; the AR programme allows him to hover over different body parts, separate rib cages and examine organs, scrutinise layers of muscles over bones. With the click of a mouse, you get complete information about the part; a useful tool for would-be doctors.

Elaborating on the Siemens association with TIDCO, Mathew Thomas, MD and Country Manager for India, Siemens Digital Industries Software, says, as part of the TN government's initiative of establishing a defence corridor, it

was looking for technology partners who could provide support to these organisations, as well as MSMEs, and start-ups in their digital journey and also build skills to support them long term. "This centre would support sectors like aerospace, electric vehicle (EV), marine, green energy, biotech, industrial automation, robotics," he says.

B Krishnamoorthy, Special Secretary and Project Director, TIDCO, who oversees these initiatives, says this will help a spectrum of industries. "Our objective is to develop emerging technologies. They can have a transformative impact in each industry, from textiles to chemicals, and can meet the requirements of different industrial clusters," he says.

BRIDGING GAPS

The GE centre is a specialised 3D additive printing centre — which is a large closed unit in a completely fireproof and insulated air-conditioned hall. S Saravana Kumar, Senior Programme Manager, GE Aerospace and TAMCoE programme head, says the centre is equipped for mass production of any parts through additive manufacturing, which essentially creates parts layer by layer. "This is a state-of-art 3D printing facility for metal printing; starting from design to printing and post-processing to inspection, we are self-dependent. Most critical processes are in-house. If someone comes to us with a part made by traditional manufacturing, we can analyse it, convert from traditional to additive manufacturing, and produce it here," he explains.

Saravana Kumar refers to one of the components that GE Aerospace space makes — which consists of 700 parts. "We have done this as one single part through additive printing, eliminating all bolts and nuts, and this will have a higher level of tolerance," he says. This technology is also very useful in the auto and health industries, apart from defence. "We have a lot of auto companies in and around Chennai; if they need a complex design we can work with them or their MSME suppliers to convert it into a useful product," he explains.