



KRANTI NATION

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How smart factories are turning green

Smart manufacturing is no longer just about higher production at lower costs using technology. When emerging technology solutions such as the internet of things and artificial intelligence (AI) began to take hold of the manufacturing process across sectors, the main benefits were seen as reduction of time, predictive maintenance, remote repairs and better visibility of the supply chain.

In the new wave of manufacturing processes, goals of efficiency are now being complemented by sustainable production objectives. In this new set of targets, emerging technologies continue to play a critical, enabling role.

A clutch of global companies is demonstrating the future of sustainable and smart manufacturing.

The World Economic Forum's (WEF) set up the Global Lighthouse Network as a community of world-leading manufacturing facilities and value chains which are using Fourth Industrial Revolution (4IR) technologies to improve efficiency along with environmental stewardship.

"By deploying advanced technologies such as robotics and AI in the production chain, more than half of all factories are making an impact on environmental sustainability through their 4IR transformations," says a WEF report. Quoting an example, WEF says that a consumer healthcare company combined



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advanced controls with green technology to deploy a sensor-fed automated system to cut energy consumption. This resulted in 25 per cent less energy consumed and an 18

per cent reduction in CO2.

The Lighthouse Network includes more than 90 factories across the world in a diverse set of sectors. Factories that produce pharmaceuticals, consumer products and various advanced technological products are showing the way ahead for manufacturing.

WEF says that these factory sites are "demonstrating how 4IR technologies can increase profit, with a positive impact on the environment."

In March 2022, two such factories in India were included in the Lighthouse Network sites. The Hindustan Unilever Limited (HUL) factory in Dapada near Mumbai and Schneider Electric's Smart Factory in Hyderabad have adopted technologies that improve productivity and green practices.

"The Hyderabad smart factory has leveraged Schneider Electric's Fourth Industrial Revolution (4IR) based EcoStruxure Solutions. Enabled by AI deep learning, IIOT infrastructure, and both predictive and prescriptive analytics have improved manufacturing defects rates, non-quality cost and customer lead times, improvements in efficiency and free-up of energy for people," a statement by the company says. Hyderabad is the fifth Schneider Electric factory to be included in the list. Other such factories are in France, China, the US, and Indonesia.

The HUL factory emphasises the impact on environment as much as production efficiency. The Dapada factory produces about 3 million units per day of brands like Surf Excel, Vim, Rin and Wheel. "Thanks to machine learning and advanced analytics, water consumption and energy use were reduced at the Dapada factory by 31 per cent, while greenhouse gas emissions were lowered by 54 per cent. This was achieved by using simulations to test all variables, including the weather, and their effects on production," says HUL.

According to the company, advanced analytics were deployed to combine weather forecasts with historical energy consumption. These steps resulted in the creation of production strategies that helped reduce specific energy consumption by 4 per cent.

The inclusion of two sites from India is an important milestone for domestic industry. As corporate India scales up production for a growing economy, it must remain mindful of the environmental impact. The cost of investing in technologies that reduce the negative impact on the environment will benefit all stakeholders.

Companies like HUL and Schneider are leading the pack and hopefully will catalyse a larger momentum for sustainability in production. Industrial giants will have to work with their suppliers to ensure that even small and medium manufacturers are incentivised to use smart technologies for green objectives.

