

Merging the best of digital and physical worlds

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Implementing innovative solutions is one of the key initiatives in the journey to blend the virtual and physical space. Hero MotoCorp aimed to transform conventional manufacturing approach into a digitally enabled manufacturing which is first of a kind for any 2W manufacturer in India.

The company has always looked for avenues to enhance productivity, improve quality and reduce costs. To drive this initiative, the “Digital Twin” project was initiated in April 2016 to create a digital replica of the upcoming Vadodara (Halol) manufacturing facility to enable a digital visualization of the manufacturing facility, so that any necessary changes and enhancements could be made digitally before investing in physical facilities.

Virtual to Real

“Digital Twin” will be subsequently used as a reference for the commissioning of all new manufacturing facilities and validation of new models from manufacturability aspects so that manufacturing issues are identified ahead of pre-production and mass production also corresponding corrective actions are taken well in time with an aim of reducing time to market.

The objective is to visualize the product, process, and resources in a virtual context so as to significantly enhance productivity, reduce costs and improve productivity and eliminate disruptions. Through this project, Hero MotoCorp wanted to validate layout planned for the manufacturing facility, prior to physical commissioning of the manufacturing facility to minimize/avoid associated costly reworks.

The fully functional virtual model helped validate the process planning done for existing and new models on the assembly line, to reduce time and cost, and to have process standardization with a single repository of all planning data.

This was also aimed at validating the logistics planning for minimizing the operations cost by inventory optimization, analyzing the impact of process and production plan changes on logistics movements, optimum utilization of material handling equipment and manpower. “Digital Twin” was developed and implemented as a 3D E-Learning modules for operator skills up-gradation and for making the shop floor paperless. The virtual environment

allowed for the planning of machine shops for productivity analysis and improvements i.e. resource optimization, capacity planning, throughput analysis and other improvements.

The Digital Twin project has helped the organization to take a significant leap in technology usage on the shop floor and the benefits have been immense and also made the company ready for next set of technology infusions.