

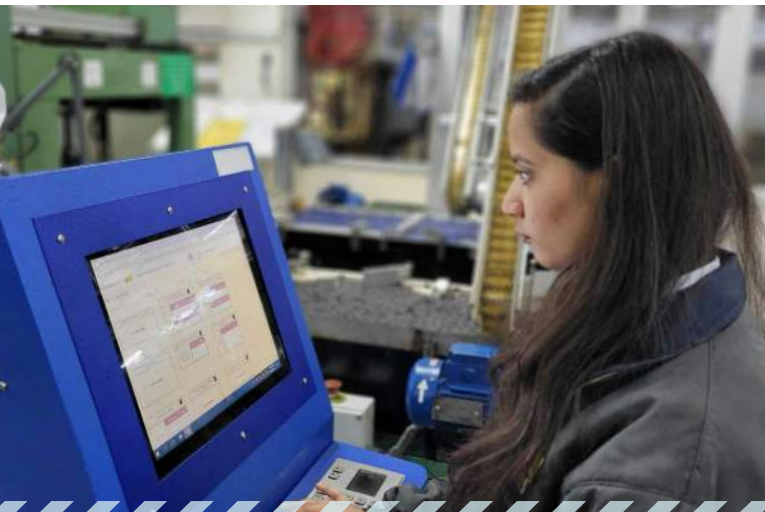
Leading Bearing Manufacturer NEI Digitally Transforms Factory Operations with IoT



National Engineering Industries (NEI), India's leading bearing producer and manufacturer of NBC brand of bearings, creates over 250 million bearings annually to serve automotive, industrial, railway, and aerospace customers worldwide. As an organization that prioritizes innovation, NEI has embarked on a digital transformation journey to reduce high capital expenses and stay ahead of surging demand, all while facing steep competition.

Unifying Factory Insights

NEI's 77-year-old factories house high-precision engineering machinery that varies in make and model – and data extraction from this diverse set of equipment proved to be challenging (as experienced in many brownfield operations). Further, a lack of uniformity, combined with limited operational visibility and a strong baseline with traditional lean practices, made it difficult to boost productivity and reduce costs. The manufacturer knew it needed a paradigm shift to improve its operations. By embracing Industry 4.0, NEI was able to increase real-time production visibility to capture minor stoppages before they occurred, ultimately boosting productivity and quality across factories.



The future of manufacturing is digital with Industry 4.0 laying the foundation for next decade of growth"

-Sanjay Binaykya, Head of Manufacturing, NEI (NBC Bearings)

Unlocking Data-Driven Manufacturing

NEI was looking for an OEM-agnostic platform that could converge data from various discrete machines to create a live dashboard. Since the manufacturer's factories were older and operated using legacy equipment, the solution was twofold:

- NEI started its initiative with [Kepware](#), PTC's industrial connectivity solution. Kepware enabled NEI to access data seamlessly and securely from its brownfield assets and send it to their IT and OT systems, including ThingWorx. Kepware rapidly created a single source for industrial data which could then be leveraged upstream to improve visibility and operational insights.
- Once NEI's devices were connected, the manufacturer used [ThingWorx](#) as an "MES-lite" platform to visualize and analyze the data in real time. By incorporating custom ThingWorx solutions, NEI horizontally integrated its manufacturing processes and was able to create a live smart dashboard that highlights bottlenecks and time loss. Reports of all plant locations became available in real time, providing actionable insights to improve performance.

Creating Seamless Integrations with PTC

NEI needed a platform that could collect and analyze data from various machines across different vendors and provide a real-time dashboard for live monitoring and decision-making. Having a long-standing relationship with PTC, NEI was already familiar with Windchill and Creo, and it knew ThingWorx as an industrial IoT platform that could help realize its vision of creating a unified and integrated interface. The promise of a digital thread across engineering and manufacturing was when "PTC became the logical way forward" for NEI. This synergy, enabled by ThingWorx, helps streamline the manufacturing process and enables the organization to keep a competitive advantage in an evolving industry.



PTC solutions have helped us steer competitively in a fast-changing global market"

-Ashish Ranjan, Chief Digital Officer, NEI (NBC Bearings)

Leveraging Live Data

NEI first implemented ThingWorx in early 2022, starting at full scale on one plant, then expanded to the next in 2023. Kepware is currently helping access data from over 500 machines and shares it with ThingWorx across those two

plants. This year, NEI will expand to over 1,000 machines once the technologies are implemented across all five of their factories.

NEI has found true value in the manufacturing data ThingWorx provides. By using the real-time dashboards to collect information, manufacturing teams can focus on – and ultimately minimize – losses to boost OEE. The organization plans to move to a manufacturing control center, where leaders can gain insights to close the gap between top-performing sites and lagging ones.

With a strong foundation in lean manufacturing practices, NEI was already operating with a strong baseline OEE. The use of live data allows NEI to dive deeper into lost production hours by identifying bottlenecks and hidden inefficiencies in their manufacturing process. By leveraging ThingWorx, the company has achieved significant improvements in OEE and quality, which has helped them stay competitive. This proactive approach has further bolstered NEI's OEE, and the team has shown greater engagement and motivation because the organization is better equipped to face the changing manufacturing landscape.

Much of NEI's success with ThingWorx is due to its prevalence. From operator to plant head, everyone uses the technology as an aspect of their daily interface. Daily shopfloor meetings are conducted using the live dashboard, and response times for unplanned breakdowns have dwindled due to heightened visibility and communication. At all levels of the production process, ThingWorx has made an impact – and it is quickly equipping employees to confidently handle the ever-changing manufacturing industry.