AVEVA

Smooth sailing: AVEVA™ PI System™ streamlines operations and increases capacity at Adani Ports

Adani Ports - www.adaniports.com
Industry - Transportation

Goal

- Increase port capacity and profit margins

Challenges

- Rapidly adding new ports, equipment and data

- Collecting data from different kinds of equipment from different manufacturers

Results

- Increased revenue and profit

- Increased capacity

- Reduced maintenance costs

Solution

- AVEVA PI System

Ports sit at the heart of the modern global supply chain, processing the critical natural resources, raw materials and finished products that connect international economies. Adani Ports is the largest private port operator in India, handling the majority of the country's international trade. Economic growth is driving an expected increase in demand for port services.

Adani Ports is planning ahead for this growth by investing in both new port construction and port automation to ensure that all facilities achieve peak performance levels. AVEVA PI System is the backbone of these initiatives, providing the data collection, analysis and reporting tools to help Adani Ports achieve ongoing performance improvements and wider profit margins at ports old and new.

Clearing a path to success

Adani Ports processes about 200 metric tons of cargo each year and recently constructed five new ports around the world to accommodate increasing demand. To move goods between ship and shore, each port uses a wide range of equipment, from the tugs that guide ships to berths to cranes, conveyor systems, loading machinery, transport railway lines, and pipelines, as well as liquid and dry bulk-storage facilities.

Before implementing AVEVA PI System, the company spent significant resources on performing scheduled maintenance of its assets to mitigate equipment breakdown or other performance issues that could slow down the critical movement of goods and erode both port capacity and company profits. However, with different systems for recording their use and performance data, Adani Ports couldn't integrate data about an individual asset's utilization or performance rates. Achieving this level of system-wide visibility is critical to operating the ports at peak performance levels. "Our profit margin depends on our ability to efficiently handle cargo, store it and disperse it to the customer," said Project Director Pradeep Gupta.

Creating a roadmap for long-term success

With the rapid growth in traffic at its existing ports and more ports coming online in the next decade, Adani Ports needed a system that could provide better visibility into the end-to-end life cycle of goods shipped through the port, from intake to unloading to storage to distribution. Furthermore, it needed a scalable solution that could accommodate the large and rapidly growing volume of data needed to paint that picture.

Adani Ports now uses AVEVA PI System to track real-time usage and performance data across all assets at its Mundra and Dahej ports. This tracking includes everything from the utilization rates of different equipment to the specific RPM of tugs to the real-time fuel use of tugboats.

AVEVA PI System collects data output from the dozens of different manufacturers' devices at Adani Ports and brings them into a single database, allowing managers to view relevant data from different assets side-by-side.

The company utilizes data gathered by AVEVA PI System to analyze equipment performance, utilization rates, operating costs, and revenue to set performance benchmarks. KPIs include both operating parameters for specific assets – e.g., how much product must be unloaded by a specific crane when it is in service – and for the port as an end-to-end system.

"PI System integrates all our equipment data at the enterprise level. That helps us increase productivity and preserve the profitability of our ports."
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Pradeep Gupta,
Project Director at Adani Ports

Expanding what's possible

Adani Ports' port automation has yielded significant benefits for the company. With increased visibility into real-time operations, the company has been able to reduce maintenance costs, improve the productivity of individual assets, and increase its effective capacity. These gains have helped drive an improvement in the ports' overall profit margin.

Monitoring individual asset performance allowed the company to move from scheduled maintenance toward preventative maintenance. The operations team uses AVEVA PI System's analytics and visualization tools to assess the health of each asset and monitor maintenance parameters, such as hydraulic pressure, fuel use, and engine performance. AVEVA PI System's data is then integrated with Adani Ports' ERP system to generate needs-based maintenance agendas, which cut costs by reducing unnecessary repairs and significantly reduce on-the-job equipment failures.
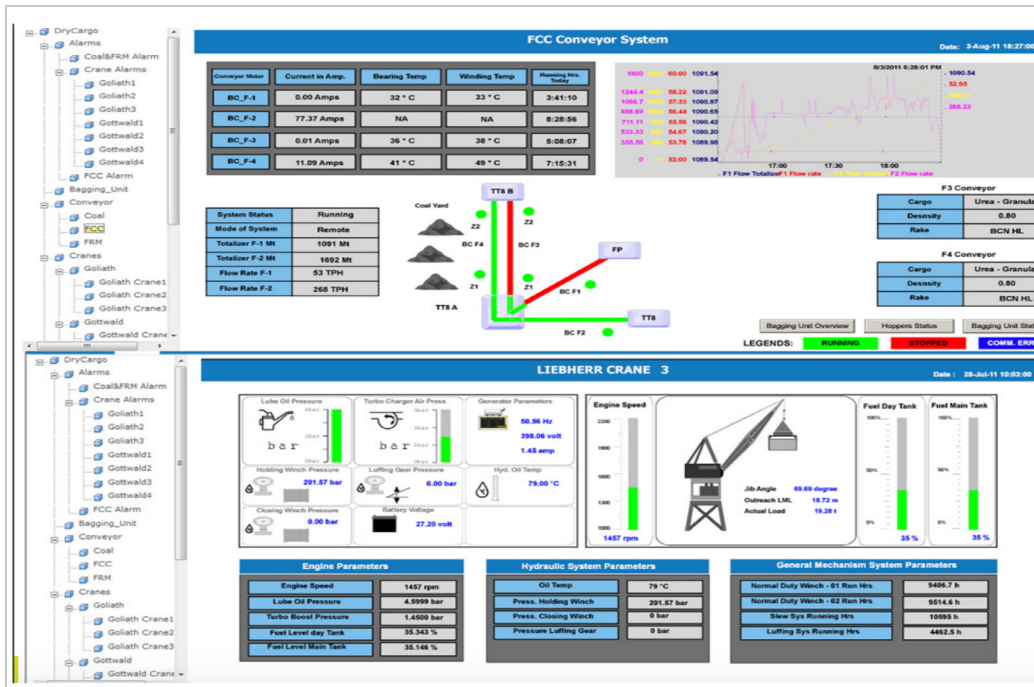
Adani Ports uses AVEVA PI System to monitor operations across its port network and ensure that the entire transportation chain operates at maximum efficiency

By using AVEVA PI System to understand operational costs and productivity, Adani Ports now knows how much cargo needs to be handled by each crane and other pieces of equipment. The port's equipment team is empowered to make smarter decisions about when to deploy or remove equipment, which in turn helps maximize profits. "PI System is a tool that provides us with better trending and handles complex calculations," said Project Manager Vijendra Pancholi.

Paired with specific shipping volume goals, this kind of automation has improved the efficiency of moving products through the port and effectively increased overall capacity. "If we are behind schedule for meeting our daily benchmark, the manager can deploy more cranes or equipment to unload the ship in a faster way," Gupta said. "That is the key parameter of productivity ."

For more information about AVEVA PI System, please **click here.**

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