

A leading Pharmaceutical Manufacturer seeks "operator delight" (productivity, uptime, regulatory compliance) by applying a next-gen Industry 4.0 Integrated Utilities Management solution

Microland's client is the world's leading integrated topical pharmaceutical organization, boasting the world's largest single-site, FDA-approved dermatology products manufacturing facility. Annually the facility produces more than 9,000 tons and 300 million units of ointments, gels, creams, solutions, and lotions.

To stay competitive, drive productivity, and accelerate growth, the client embarked on an aggressive modernization of their production facility by adopting Smart Industry 4.0 principles and standards. This digital transformation agenda focused on the Smart Manufacturing tenets of using analytics-powered operational intelligence, connected assets, and augmented reality to drive significant productivity increases while improving compliance, agility, and safety.

Achieving compliance with incredibly strict FDA regulatory requirements and Pharma manufacturing standards presents unique challenges for pharmaceutical production facilities. The climatic parameters maintained in such facilities play a critical role in ensuring ultimate product quality and viability - meaning the monitoring of plant utility systems is a more demanding undertaking than in other sectors.

The client considered securing real-time intelligence about plant utilities performance and equipment condition to be job #1 in the transformation initiative. Microland was chosen as the partner to drive the desired transformation because of its unique ability to effectively integrate the worlds of OT, IT and data sciences to reimagine utility management and drive business value. The client presented quite a challenge with a complex equipment footprint of 160+ elements including energy systems, water systems, HVAC (Heating, Ventilation and Air Conditioning) including chillers, compressors, diesel generators, and boilers from various OEMs including Voltas, York, Thermax, Atlas Copco, and Schneider among others.

While conventional systems like EMS exist as a monitoring and consumption reporting tool, Microland envisioned a modern architecture of interoperability delivering ecosystem wide data exchange and real time insights such as energy hotspots, consumption benchmarks and operations forecasting to operators to support decision making.

When Microland embarked on the architecture design it became clear most of the equipment had soft locks or propriety controls making standard data collection challenging. This meant Microland had to lead a change management program bringing together plant teams and various OEM vendors including Siemens, Schneider and York systems to develop the blueprint of interconnected systems. The consultative change exercise led to the development of a cost-effective solution involving refurbishments and retrofitting of existing equipment.

This refurbish/retrofit approach led by Microland resulted in significant savings for the customer who otherwise would have had to replace the legacy equipment with new equipment. In the spirit of refurbishment over replacement, Microland helped the client identify the right set of protocol converters throughout the utility ecosystem — for example, replacing analog controls in a traditional boiler system with Smart Sensors. Once Microland had refurbished all systems, it implemented the smart manufacturing solution via its proprietary Integrated Smart Factory framework involving PTC Kepware and ThingWorx.

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info@microland.com
www.microland.com

By connecting all the 160+ plant utility assets across 7 asset classes and more than 1,800 parameters (or tags), Microland delivered interoperability across multiple communications protocols (MODBUS TCP, Serial Devices, PROFINET) from end points like PLCs, sensors and SCADA.

In parallel, Microland undertook a business process re-engineering engagement to identify the time-consuming and error-prone manual interventions on the shop floor. Having executed the study, Microland proposed automated workflows framework, eliminating manual data collation across all the equipment, including collation of 30 + energy meter readings every four hours and the hourly collection of data from chillers.

With this operational nerve center now live, the plant teams have a single point of truth about the operations and health of the utilities. An integrated dashboard provides operators a real-time view of the KPIs of all utility assets. Any disruptions or deviations in utility performance can be tracked within seconds using pre-configured descriptive analytics and alerts. In addition, all management reviews and business decision analysis are conducted via the platform. At a more advanced level, the system provides insight to manage equipment uptime and down time, preventing wear and tear as well as early failure. With such operational metrics at their fingertips, workers feel empowered and more confident making real-time operational decisions and ensuring compliance with the regulatory requirements.

Some of the key outcomes delivered include:

- Improving workforce productivity by 10-12% by eliminating the manual activities like recording of utility readings and providing digital workflows with paperless transactions
- Reduction in breakdowns by 10-15% through alerts and insights on asset operations leading to proactive actions
- Savings up to $100,000 through refurbishment solutions for connecting ‘non-smart’/non-compatible assets through hardware consulting, instead of upgrading or replacing the assets.
- Integrating siloed, heterogeneous, and purpose-built utilities driving an integrated view across the utility systems
- Reimagining real-time utility management to improve the lives of employees and ensuring “Operator Delight”
- Delivering asset performance insights and enabling faster data-driven Root Cause Analysis (RCA)

With this success as an inspiration and with Microland as its partner, the client continues to evolve their vision of Industry 4.0. Microland is now closely working with the client to expand the Smart Solution to the 25+ manufacturing and packing lines in the next phase of implementation and change management.

About Microland

Microland’s delivery of digital is all about making technology do more and intrude less. As we help enterprises move to nextGen technologies, we make sure this embrace of brilliance is predictable, reliable and stable.
Incorporated in 1989 and headquartered in Bengaluru, India, Microland comprises more than 4,500+ digital specialists across offices and delivery centers in Asia, Australia, Europe, Middle East and North America.

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