INFOSYS CONNECTED OPERATIONS ON CLOUD

Harmonized Cloud-based Landscape for Manufacturers to Bring Stability, Reliability, and Visibility into their Operations
Cloud is Empowering Manufacturing Enterprises to Reimagine a Connected Future

Manufacturers have traditionally leveraged the cloud as the stepping stone to enhanced agility, scalability, and cost effectiveness. Now, it is time to scale this transformation further, by optimizing the operations through modern solutions that harness the potential of cloud to unlock stability, reliability, and visibility. It is also about energizing the core and innovating at scale, thereby driving business resilience.
Within the manufacturing ecosystem, connectivity is not a new concept. Amidst an increasing convergence of the digital and physical realms through Industry 4.0 adoption, however, connected operations have become one of the most crucial differentiators. The COVID-19 pandemic has accelerated the need for digital production operations across the supply chain even further.

To transform traditional shop floors into a future-ready smart factory, manufacturers require the inherent materials, machines, and processes to collate and analyze real-time data and support data-driven decision-making. More and more manufacturing enterprises are leveraging connected operations solutions to:

- Navigate remote operations and monitoring at ease
- Facilitate connected processes with higher degrees of automation
- Optimize asset and resource utilization
- Predict the possible impact on operations proactively
- Help respond to changes in real-time
Industry Challenges

On their journeys towards building Factories of the Future, organizations face several barriers that could lead not only to high operating expenses but also disruptions in operations. The most significant challenges include:

<table>
<thead>
<tr>
<th>Disconnected Systems</th>
<th>Uncertainty in Demand</th>
<th>High Cost of Quality</th>
<th>High Operating Expenses</th>
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</thead>
<tbody>
<tr>
<td>- Siloed data leads to limited visibility into operations and lack of process harmonization</td>
<td>- Demand fluctuations due to the pandemic and evolving market dynamics result in uncertainties</td>
<td>- Poor traceability and compliance</td>
<td>- Manufacturing operations and support personnel spend too much time to locate, extract and combine data from disparate systems</td>
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<td>- Failure to meet delivery schedules</td>
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<td>- Customer returns</td>
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Infosys Connected Operations on Cloud

Infosys Connected Operations on Cloud facilitates seamless integration of Engineering Technology (ET), Operational Technology (OT), and Informational Technology (IT). These applications enable process harmonization at a factory and/or across an enterprise, thereby facilitating scalable, real-time, data-driven transparent operations with predictive and self-healing processes.
Infosys Connected Operations on Cloud is a suite of cloud-agnostic modular applications that act as the connective tissue between machines, processes, systems, and people – to achieve operational excellence.
Infosys Connected Operations on Cloud is a set of pre-configured and ready-to-deploy micro applications that are provided ‘as-a-service’. The solution tenets are built on the principles of Infosys Live Enterprise Framework, which introduces strategic thinking for sentience in the enterprise. In addition, we have also taken into account the heterogeneity of technology stack, across organizations.

Enhancing Operations to Build Efficiencies and Make Businesses Profitable

- **Smart factory capabilities at scale** with process harmonization
- **Real-time data acquisition from machines with normalized data model** across standard OEMs
- **Hybrid edge/cloud architecture** delivering application and operations SLAs
- **AI/ML-powered automation for predictability in operations**
- **Industry reference frameworks**
- **Retrofitting and enabling data** from legacy infrastructure
- **Operational intelligence, operations management, schedule and planning management on cloud**
- **Secure practices** across layers, including OT and automation
- **Bidirectional closed-loop operations** through autonomous systems

Real-time data acquisition from machines with normalized data model across standard OEMs
The Infosys Advantage

- **Faster Time to Market**
  - Reduce NPI by 15%

- **Optimal Resource Utilization**
  - Increase OEE and improve asset utilization by 10-15%

- **Better Quality Assurance**
  - Reduce scrap by 5-10%

- **Agile and Flexible Operations**
  - Achieve 20% higher on-time delivery and reduce inventory carrying cost by 10%

- **Growth and Co-innovation**
  - Innovate to reduce operator time by 10%

Connected Operations on Cloud Canvas App Store

- Realtime Plant Operations
- Quality Control
- Energy Analytics
- Monitor Machine Health
- Machine Predictive Maintenance
- Digital Twin
- Smart Fault Tree
- Predict Defects
- Process Optimization
- Production Scheduling
- Energy Consumption Forecast

All applications to be ready by March 2022

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Application Currently Developed

Currently WIP
## App Functions

### Process Monitoring
- **Machine Integration**
  - Machine status
  - morning information
- **Energy Consumption Data**
  - Machine energy consumption data
- **Asset Discovery**
  - Template based asset identification & data setup
- **Quality Monitoring**
  - Real time insight into quality defects

### Productivity
- **KPI Monitoring**
  - KPI monitoring with drill down dashboard
- **Operator Effectiveness**
  - Work introduction and guided ops | Remove assist | Worker safety

### Prediction
- **Condition Monitoring**
  - Real time insight into machine condition & process parameters
- **Predictive Maintenance**
  - Machine/asset drill down on reasons with root cause & resolution
- **Quality Analytics**
  - Persona specific representation of defects

### Optimization
- **Dynamic Scheduling**
  - Dynamic production planning & optimization
- **Energy Forecast**
  - Dynamic production planning & optimization
- **Digital Twin**
  - Machine/asset drill down for simulation and remote monitoring
- **Process Optimization**
  - Closed loop process control

### Process Correction
- **Process Optimization**
  - Dynamic production planning & optimization
- **Energy Forecast**
  - Dynamic production planning & optimization
- **Digital Twin**
  - Machine/asset drill down for simulation and remote monitoring

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