INTERSTATES

INDUSTRIAL ANALYTICS ESSENTIALS

What you need to know about the digital transformation process.

WHAT TO EXPECT

WHAT IS
INDUSTRIAL ANALYTICS?

Industrial analytics is a fundamental aspect of digital transformation. It's about getting the right data into the hands of key decision-makers. Analytics empowers manufacturers to harness the opportunity of industrial data for improved efficiency and growth at their facilities, leveraging the information collected from various devices and sources throughout your plant to unlock valuable insights and drive operational improvements.

Digital transformation is essential for staying competitive, and understanding industrial analytics is just as crucial. This guide will take you through the stages of digital transformation and help you discover how advanced analytics can change how you work.

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THE SIX STAGES OF
DIGITIAL TRANSFORMATION

Digital transformation, integrating digital technologies in plant operations, is inevitable. Staying on top of this trend while trying to wade through analytics may feel overwhelming, but learning about your plant through industrial data will help you meet your goals and, ultimately, get you well on your way to your ideal future plant.

MODERNIZATION

Modernization is more than just upgrading and replacing your plant's equipment; it's laying the technology foundation to solve future problems. Deploying modern technologies allows you to have streamlined processes and better data collection, giving you a path toward more sophisticated analytics.

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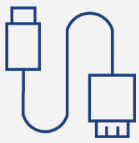
CONNECTIVITY

Connectivity is about linking various systems and data sources across your plant. This integration enables real-time information flow, improving efficiency and allowing visibility into operations that will power your decision-making. Pursuing connectivity means bridging data gaps, securing the flow of data between OT and IT, and paving the way for data-driven insights that were previously out of reach.

2

VISIBILITY

The visibility stage focuses on viewing and understanding what is happening within your plant. Modern machine execution systems (MES), dashboards, and alerts give insights into your operations and show you precisely what needs to change or stay the same. These industrial data tools let you monitor processes, optimize performance and product quality, and ensure efficient daily operations.

3

TRANSPARENCY

Why do certain events or problems occur within your plant? Industrial data can provide transparency into your operations and uncover issues through root cause analysis, utility monitoring, quality analytics, and more. It's more than just seeing the data. Transparency also means accessibility; industrial data shared across your organization means more people can contribute to progress and problem-solving. By revealing the underlying factors contributing to disruptions, quality concerns, or higher costs, you can deeply understand these issues and ensure smoother future operations.

4

PREDICTABILITY

Predictability is an advanced step in the digital transformation journey. It's about transitioning from data collection to foreseeing future outcomes through modeling, simulations, regression analysis, and more. Employing predictive analytics bolstered by machine learning allows you to anticipate and prepare for maintenance needs, quality deviations, and other critical events.

5

PRESCRIPTIVE

The prescriptive stage employs advanced analytics models, including machine learning and AI-driven optimization. These models seamlessly integrate into your operational workflow, offering real-time, actionable recommendations that guide decision-making to optimize process and performance. This enables your manufacturing line to adapt dynamically to changing conditions, maximizing efficiency and minimizing waste.

6

EXPLORING THE IMPACT OF
DIGITAL ANALYTICS

As you progress through the stages of digital transformation, the impact of industrial analytics becomes evident throughout your operations. A few of the primary benefits are listed below.

Maximize Your Workforce

Workforce challenges are impacting industries worldwide. Teams are asked to do more with less, while experienced workers leave the workforce, taking years of industry knowledge with them. To manage these issues, organizations are turning to industrial automation and analytic technologies to create the "plant of the future," which can boost efficiency, facilitate knowledge transfer, and enable teams to focus on value-driven tasks.
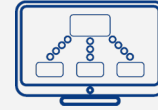
Organizations need to find ways to centralize their data to alleviate the resource strain and loss of knowledge. Bringing your plant's data into one system reduces the time it takes to gather the information and find the answers you need. One specific solution to this is a remote monitoring center. Industrial plants can have a hub with advanced analytic capabilities that provide real-time oversight and support. This center continuously tracks the performance across the plant and makes it easy to troubleshoot with experts. This makes it easier to ensure optimal plant health.

Eliminate Islands of Automation

Disconnected data points make it hard to see the big picture of your operations. Integrating systems and industrial data creates a connected flow of information that streamlines operations, enhances productivity, and provides a comprehensive view of your processes.

It's not uncommon for manufacturers to face challenges when collecting and utilizing data across different plants. Two primary reasons for this are isolated control skids and multiple data sources. Integrating skid data gives you a more accurate view of your process. This helps identify any delays or issues in your workflow and enables you to conduct batch or process analysis. Additionally, having multiple data sources that contain "the truth" can create confusion and inconsistency. By unifying all your data into a central source of truth, you can ensure standardization and have more confidence in the accuracy of your data.

Reduce Downtime

Aging equipment and maintenance issues can lead to unplanned downtime. Through predictive analytics and IIoT sensors, you can monitor machinery conditions, anticipate failures, and extend equipment life – all of which enhance overall efficiency and help you avoid costs from unplanned outages.

IIoT solutions can provide essential data on the health of your critical assets. Predictive maintenance, for example, predicts when a machine is likely to fail. Similarly, line balancing uses models to indicate over- and underutilized equipment. Both are used to reduce your unplanned downtime. These solutions allow you to be proactive with your maintenance strategy, guaranteeing the right parts are on-site before issues occur and giving you time to service the necessary equipment during a planned shutdown.

Increase Cybersecurity

Leveraging analytics for continuous monitoring ensures data integrity and minimizes the risk of cyber threats. It can also help you understand your cybersecurity posture, adding visibility to protect your operations.

Cybersecurity is an obvious must-have in today's manufacturing environment. Active monitoring of control system security allows manufacturers to respond in real time with critical patches as cyber threats occur. Dashboarding cybersecurity compliance at your plant means issues can be traced to the device level, letting you pinpoint out-of-compliance devices immediately. This type of visibility and transparency can save entire plants from going offline during a cybersecurity event, empowering your OT and IT professionals to act quickly on securing your critical systems.

START YOUR ANALYTICS JOURNEY

You now have valuable insights into the transformative power of industrial analytics. But where do you go from here? With extensive experience in manufacturing analytics and industrial plant environments, Interstates is ready to help you navigate your digital transformation journey. Our data scientists and analytics experts can help you find and integrate the right solutions based on your needs, whether "out of the box" or a customized solution built for your plant. Interstates focuses on three areas in analytics: data collection and storage, reporting and dashboarding, and advanced analytics. Our solutions and experts can meet you where you're at in your digital transformation journey:

Data Collection & Storage

Before using data, you must begin with a quality data foundation. Centralizing your data storage will help you understand what information you have, making it easier to conduct analysis and create plans. Interstates will evaluate the best platform for your data and then collect, aggregate, and securely store it for you.

Use Cases ⇛ Asset Framework and Event Framing | Cloud Architecture | Edge Data Collection | Event Logs | IIoT Integration
Image and Video Data Storage | Raw Material Data | Time Series Data Collection

Reporting & Dashboarding

Once the data is centralized, it's time to pull out data for insights. Real-time reporting and dashboarding will help you uncover valuable information hidden in your data. Accessing and viewing plant floor data and running performance comparisons will help you make smarter decisions.

Use cases ⇛ Asset Performance Management | Batch Process or Golden Batch Dashboards | Clean-In-Place Reporting
Cybersecurity Dashboarding | Hazard Monitoring | Network Monitoring | Line Balancing Reporting
Loadout and Packing Efficiency Reporting | OEE Dashboards | PID Monitoring | Plant Operational Dashboards
Quality Control Dashboards | Regulatory Compliance and Tracking Reporting | Track and Trace Reporting
Uptime and Downtime Dashboard | Utility Monitoring

Advanced Analytics

After ensuring your data infrastructure is built and maintained, it's time to enhance your capabilities with more sophisticated systems. Using advanced analytics powered by machine learning and AI, we can effectively monitor the most impactful process variables, ultimately enhancing production. With cutting-edge technologies and customized solutions for your plant's unique needs, you can maximize your returns and optimize plant operations.

Use cases ⇛ Anomaly Detection | Model Predictive Control | Image and Video Analysis | Predictive Maintenance
Predictive Quality

Get in Touch
with us at **consulting.services@interstates.com** and learn how we can help you achieve your digital transformation goals.

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