# The Data Opportunity in Manufacturing

Manufacturing is buzzing with terms like Industrial Internet, Internet of Things, Industrie 4.0, and Made in China 2025, which all allude to a promise of modernity.

Despite the excitement surrounding data and connectivity, projections for growth in manufacturing are weak. According to PricewaterhouseCoopers' *2017 Industrial Manufacturing Trends,* the International Monetary Fund's expectation is that output will only increase a mere 3.4 percent in 2017. Success for manufacturers will be defined by their ability to overcome industry slowdown by setting up systems for this blended digital-physical ecosystem. Specifically, organizations can lead the way by strategically leveraging data technologies to increase operational efficiency, consistently producing higher quality product, and proactively utilizing predictive data for a seamless customer experience.

In the manufacturing industry, the real opportunity lies in its ability to connect all devices, assets and workforce together, driving down process inefficiencies and information siloes. This global view of business operations paired with efficacious analysis empower organizations to pinpoint areas of inefficiency and foresee a problem which may have otherwise not been identified ahead of time. In an industry in which both production costs and demand for higher quality products are rising, these key insights have the ability to transform an organization from lagging to thriving.

The following case studies discuss how some of Pentaho's manufacturing customers have implemented solutions to harness the volumes, variety, and flow of data to keep their organizations advancing and their customers satisfied.

## Operational Efficiency

The burden of managing the immense amount of historical data and real-time data can overwhelm the most technologically sophisticated manufacturer. How does the organization untangle the severe data knot

when there are likely several siloed legacy systems in place with vast amounts of real-time data coming in? Identifying valuable data along with methods of storing, blending, and extracting insights is what sets organizations apart for this industrial wave.

As a global leader in product and high-performance manufacturing automation with more than 1,600 employees, STIWA is the maker of automation machinery and software for manufacturing companies. The company distinguishes itself from its competition through the sophisticated analytics it applies to keep equipment running at peak performance. Customers see STIWA as not just an equipment provider, but also as a strategic consultant in process efficiency.

STIWA's machines bristle with sensors that constantly monitor and report on a wide variety of operating conditions. The data from all of these sensors quickly adds up. For example, one customer runs more than 200 machines that produce 6 million parts annually. Each part generates 6.6 megabytes of data for a total of nearly 40 terabytes of machine-generated data. According to

Mark Hering, a STIWA product management software expert, "Each machine produces hundreds of measurements per hour. The data is so complex that no one can understand it without visualization." Initially, those visualizations were limited and reports were burdensome to produce as the analytics software STIWA had been using for 15 years was showing its age.

After implementing Pentaho, however, STIWA leveraged the infrastructure in place to respond to changing market demands in real-time and to identify new revenue streams. While maintaining the company's high level of quality, STIWA also empowered their customers to increase production line productivity by 15%, shorten the ramp-up phase for new machines by 30%, and decrease IT integration costs by 35%.

## Higher Quality Output

With rising competition in manufacturing, consumers are now demanding a higher quality product without a hike in price. How does a manufacturer increase product quality while dropping production cost, when labor costs are steadily rising? This puzzle is one that plagues many manufacturing businesses, including one of our customers who is one of the largest traders in the sugar market.

As it stands, the sugar market is highly competitive. In order to meet global demands, our customer needed the ability to quickly adjust the taste based on raw materials and weather conditions, like humidity levels, which can determine quality of the sugar. Over the years, robots were implemented to manage sugar quality, but there was no automated mechanism to track quality and control metrics. Therefore, teams of people managed the data orchestration process and were rarely able to provide timely input for the rapidly changing market conditions.

Pentaho's customer utilized PDI to automate the data process with machine learning orchestration, which reduced time to delivery. Most importantly, with real-time data and effective data processing and analytics, the customer gained a uniform quality of sugar regardless of geography. With immediate feedback, trustworthy reports, and automation, the mighty trio was accomplished: higher quality product, lower production cost, and simplified workloads.

## Regulatory Compliance

Hyosung is the world's leading manufacturer of tire cords, which is one of the critical components that make up a car tire. As a global leader in delivering key materials for guaranteeing car safety, it is essential that Hyosung's tire cords fulfill their specifications and accomplished this efficiently. In order to do this, Hyosung needed to blend data coming in from various data sources spread throughout a number of manufacturing plant systems. However, Hyosung did not have the infrastructure in place to use this data to predict tire and tire cord defects before they occurred.

By leveraging Pentaho for Big Data and IoT analytics, Hyosung is able to better track and manage the quality of the tire cords, as well as use predictive analysis, to determine potential defects on the manufacturing floor. The company's data-driven approach to improving quality care and the customer experience  is helping Hyosung to transform their facilities into a Smart Factory.

### LEARN MORE

If the manufacturing sector embraces the inevitable move toward connected devices and systems, the future is bright — organizations will be able to drive down costs while increasing productivity and product quality. Starting with a simple use case, customers can create a data-driven culture that can have dramatic improvements to organizational processes. Over 1,500 customers, including the top manufacturing organizations, rely on Pentaho to drive their strategic business decisions. Learn more at www.pentaho.com.

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