OSIsoft®

NAVIGATING CHANGE

HOW A NEW GENERATION AND NEW TECHNOLOGIES ARE SHAKING UP MANUFACTURING

83% of Millennials said they would be more loyal to a company that helps them contribute to social and environmental issues.
LEARN MORE

Millennial shoppers **spend around $600b** in the U.S. each year and will soon make up 50% of the work force.
LEARN MORE

AROUND 3.6b IoT devices were used for daily tasks in 2019.
LEARN MORE

THE TIMES, THEY ARE A-CHANGIN'

New generation—new preferences and skills. New technology—new potential sources of headache and confusion. The world is changing more quickly than ever and these changes are bringing a bevy of new challenges along with them.

Shifting demographics within the consumer and labor markets are forcing companies to rethink how they interact with both employees and consumers. According to Alison DaSilva, executive vice president, CSR Research & Insights, at Cone Communications, "Millennials will soon make up 50 percent of the workforce and companies will have to radically evolve their value proposition to attract and retain this socially conscious group." Along with shifting preferences, this new generation of workers also brings with it a different set of skills and work practices from those of their more seasoned colleagues. Companies must find ways to respond to these changing preferences and skill sets.

At the same time, economic uncertainty and the fluctuating costs of raw materials—due largely to shifting trade scenarios—are forcing manufacturers to become smarter, faster, and more efficient. Manufacturers are also facing an increasingly competitive market, driven by the rise of smart manufacturing practices. New technologies related to IoT, digital twins, AI, and machine learning can leave some with their heads spinning, longing for the days when people diagnosed and fixed problems manually.

Meanwhile, business imperatives within manufacturing have remained more or less the same. Companies continue to look for new ways to:

- Increase production efficiency
- Maximize product quality
- Minimize costs
- Improve yield

The rapidly changing landscape we now find ourselves in is forcing the manufacturing industry to rethink its approach to achieving these age-old business imperatives. With the rise of 5G connectivity and advances in sensor technology, the manufacturing industry can find new opportunities to increase growth by adopting data-driven technologies that will increase efficiency, boost productivity, enhance product quality, and reduce costs.

IT'S NOT JUST WHAT YOU MAKE ANY MORE

The ground is shifting under manufacturers' feet. It used to be enough just to make a fantastic product. But more and more, the *how* of a product is becoming just as important as the *what*. Consumers are increasingly concerned about the amount of energy and types of materials used to make products.

On October 7th of 2019, Unilever, the multinational consumer goods company based in London and Rotterdam, announced plans to cut its use of virgin plastic in half by 2025. The announcement came just two weeks after the 16-year-old climate activist Greta Thunburg delivered a scathing rebuke of the "business as usual" attitude at the UN Climate Action Summit.

All industries are now facing big challenges when it comes to the environment. Reducing energy usage and emissions is becoming a priority. Fortunately, recent advances in data-driven technologies are

enabling companies to make significant gains in their efficiency, leading to more sustainable—and more profitable—production practices.

TOYOTA'S ENVIRONMENTAL CHALLENGE 2050

Toyota recently launched an initiative called the Toyota Environmental Challenge 2050, which defines six targets with an eye toward making the company more environmentally friendly. The third target includes a goal to eliminate Toyota's CO_2 impact by reducing energy usage in its manufacturing plants. The challenge kicked-off with a pilot project targeting eight European plants.

Each plant had a different monitoring system, with zero standardization and big differences in the plants' monitoring capabilities. Toyota used the PI System™ to connect electricity, gas, water, and compressed air usage meters to the head office in Brussels. The PI System provided much needed flexibility, allowing the team to build one framework and then adapt it plant by plant, depending on the plant's needs. The PI System also enabled automatic reporting, allowing plant engineers and managers to quickly see the impact of a plant's energy usage, and to compare energy consumption scenarios using different weather and production data. Increased monitoring capabilities and automatic reporting have enabled insights about how Toyota can dramatically increase its production efficiency.

LEARN MORE

The third target includes a goal to **ELIMINATE TOYOTA'S CO2 IMPACT** by reducing energy usage in its manufacturing plants.

TURNING PAIN INTO GAIN

How can the manufacturing industry navigate this new market reality? The answer lies in building a comprehensive data strategy that lays the groundwork for meeting current and future needs. With better data-driven insights, producers can turn pain into gain.

PAIN POINT
Increasing Demand for Sustainable Business Practices

Pressure on companies to create more sustainable business practices is continuing to mount. Sustainably made products promise to attract more millennial buyers, and will often fetch a higher price. At the same time, companies are facing ever-present market mandates to make more products, faster. How can companies reconcile the need to increase yield with the desire to reduce energy usage to make production lines more environmentally friendly?

REMEDY
Focus on Efficiency

Increasing production efficiency is a sure way to create a greener business. Collecting data about the production process allows you to track energy usage and expenditure, and can lead to insights about potential sources of inefficiency. Using data to find ways to decrease energy consumption doesn't just help the planet, but increased efficiency also leads to lower energy costs, which benefits a company's bottom line. Lower costs and a greener business? It's a win-win situation for data-driven companies.

PAIN POINT
New Workers, Different Skills

The manufacturing industry has been suffering from a kind of "brain drain" recently. The shifting of production to lower-cost countries and, in certain cases, back to the US again, has made it difficult for some companies to preserve knowledge of subject matter and best practices. Often this knowledge exists only in the minds of workers who may leave the company or transfer departments. In addition, Millennial workers bring with them different knowledge and skill sets, contributing to this feeling of lost subject matter expertise.

REMEDY
Digitize Industry Knowledge

Investment in digital technology can help companies capture and preserve some of that subject matter expertise. Whether your team consists of 20 people working in one building, or 2,000 people spread across 5 countries, digital models can be used to create standardized protocols that can be shared across an entire company. Such models can also be used to train new employees and increase employee productivity by providing them with real-time data about operations. Learn more about how to optimize human capital, processes and performance with Operational Data.

WHAT IS THE OSISOFT PI SYSTEM?

A highly-scalable data infrastructure, the PI System gives manufacturing companies real-time visibility and insights into operational processes, enabling them to make informed decisions that drive bottom line results.

KNOWLEDGE SHARING = INCREASED PRODUCTIVITY AT GARANT

In 2013, Garant was struggling with disconnected systems and employees who were regularly changing departments. Several 50 inch PI-based workstation displays were installed around the plant as part of an initiative to establish a centralized data system to monitor the production process. The goal was to optimize the performance of both machines and operators.

Now, everyone can see in real-time how well their station is performing against objectives such as productivity and efficiency. The workstations capture and display information on inventory, production line status, and use of employee time. The PI System has also enabled preventative maintenance. Information is easily shared across the organization, and Garant has real-time visibility into performance, driving healthy competition between shift operators. Productivity increased by 12 percent and efficiency by 6 percent in less than two years as a result of the initiative.

PAIN POINT
Disparate and Legacy Systems

Technology is developing at break-neck speed and the number of tools available is continuing to grow. Some manufacturers are struggling to connect to legacy systems and are looking for ways to bring multiple sources of data under one roof. Plant operators sometimes have to go to many different sources to find out what's going on with their machines. Different data sources can also provide different or conflicting information, creating further frustration.

REMEDY
Connect and Collect

Using a tool that allows you to connect to a wide variety of different monitoring systems can reduce the number of data-related headaches and streamline the data-gathering process. Once systems and equipment are connected, data can be brought under one roof to create a single source of truth. A single source of truth ensures that data is consistent and that everyone gets the same information at the same time.

ABBOTT NUTRITION IMPROVES PROCESS CONTROL

Abbott Nutrition's goal was to improve real-time process monitoring and control, increase overall equipment effectiveness (OEE), increase yield, and reduce product variability. Engineers worked closely with Abbott's quality assurance department to identify critical process parameters and critical quality attributes. The facility was already collecting data about weight, temperature of the filling machine jaws, oxygen levels, bulk density, moisture, and leak detection. But the data was being collected with different tools.

To make this information actionable, Abbott needed a way to collate, present, and contextualize data for machine operators. Engineers created PI Vision dashboards to monitor the status of filling machines in real-time at each stage of the filling process. The PI Vision screens also display recipe information to ensure the correct recipe has been sent to the machine. Insights gained from PI System data have reduced product variability, minimized the need for destructive product testing, and reduced the demand for raw material and packaging material by decreasing leak events and shortening cycle times.

LEARN MORE

PAIN POINT

Correlating Upstream Process Parameters With Downstream Results

Quality and consistency are always a concern for manufacturers. But it can sometimes be difficult to know what upstream events are impacting your downstream results. Inconsistency in the quality of incoming materials or variations within the process can have huge impacts on the end product. It's important for manufacturers to understand and control their upstream process parameters so they can minimize or remove sources of unwanted variability.

REMEDY

Multivariable Quality Control

Data can help manufacturers monitor and control every stage of a process, from the incoming materials to the finished product. For example, data allows production managers to track and do correlational analysis on multiple variables simultaneously. These analyses can then help pinpoint the biggest sources of product variation. With these insights, production managers can then take steps to increase the quality and consistency of their products.

ABOUT OSISOFT

OSIsoft is dedicated to helping people transform their world through data. Our software turns vast data streams from sensors and other devices into rich, real-time insights. You'll find the PI System in oil refineries, mining sites, wind farms, national labs, pharmaceutical manufacturing facilities, distilleries, data centers and even stadiums helping people save energy, increase productivity or develop new services. Worldwide, the PI System handles more than two billion sensor-based data streams. Founded in 1980, OSIsoft has over 1,400 employees and is headquartered in San Leandro, California.

To learn more, please visit www.osisoft.com.

Corporate Headquarters:
1600 Alvarado Street
San Leandro, CA 94577, USA
Contact:
+1 510.297.5800

OSIsoft®