

In the

PRESSURE COOKER:

How Operational Data is Changing
the Food & Beverage Industry





INTRODUCTION

Food and beverage manufacturers have it tough, and the pressure cooker is only getting hotter. Consumers want a sustainable food supply, government regulations are constantly changing and many brands are producing product with aging equipment and other older assets. On top of everything, manufacturers must guarantee utmost quality to maintain consumer confidence and uphold brand integrity, all while making a healthy margin.

So how does the food and beverage industry juggle such a complicated and demanding ecosystem? The answer lies in data. The global nature of the food and beverage industry's supply-chain and production process demands that organizations establish a single source of truth for the enterprise-wide production and process data.

As data permeates through every area of organizations and digital transformation moves from theory to reality, food and beverage companies must gain real-time operational insights to optimize processes, ensure quality and gain complete visibility from farm all the way to fork. Only then is it possible to monitor and understand performance on all points of the supply chain and maintain operational excellence.

THE CHALLENGE OF DATA

Despite a widespread awareness of data's potential to drive operational excellence, significant hurdles regularly inhibit a decision maker's ability to capture, analyze and leverage the millions of possible data points within an organization's ecosystem.

DATA COLLECTION IS NOT AUTOMATED.

A single piece of machinery offers troves of potential data points, but it may operate with an automation and process control system that does not automatically gather all critical data or communicate with other production process components.

DATA OFTEN EXISTS IN SILOES.

A disconnected data interface compartmentalizes the data at the asset location. Collecting the data from remote sites or extracting from centralized centers delays the timely use of valuable information while adding cost.

DATA CAN REQUIRE MANUAL COLLECTION AND CALCULATION.

Data managed from disconnected and sequestered sources requires time-consuming and error-prone manual entry and calculation. Connecting data from isolated sources demands customized IT solutions adding additional complexity and costs.

DATA CAN LACK NECESSARY CONTEXT.

Disparate and disconnected process control systems create data archives lacking contextual information. Without situational and operational data context, data remains sequestered, and analysis and learning opportunities fail to meet the potentials of a connected ecosystem.

THE VOLUME OF DATA IS INCREASING.

As connectivity permeates the operational environment and lowers the barriers to improved data acquisition, antiquated data management systems often fall short when attempting to capture and effectively process the increased data volume.

AN INFRASTRUCTURE APPROACH

A holistic data infrastructure removes the barriers of finding, capturing, converting and organizing operational data, enabling operators and engineers to model enterprise-wide operational intelligence while reducing complexity and cost. With a data infrastructure, assets can be readily analyzed and compared, and analytics can be used for better long-range capital planning and utilization. A unified view enabled by a data infrastructure also makes it possible to shift from scheduled or run-to-failure maintenance to condition-based or predictive maintenance. All of this paves the way for improved operational efficiency and greater uptime across a facility or enterprise.

As the organization directly benefits from developing models to support and predict asset health, process efficiency, resource management and product quality, regulatory reporting and compliance are also simplified through the end-to-end visibility.

INSTEAD OF...

Disparate Data

Each system “speaking” in different languages, vendor specific formats

Distributed Assets

Mobile and fixed equipment across the organization

Siloed Decision-Making

Manual reporting using out of date information from small subsets of the organization

Scheduled Maintenance

A reactive strategy where capital is tied up in spare parts inventory and critical repairs are performed upon failure

Site-specific KPIs

Disparate goals across sites that result in poor overall visibility

Inflexible Systems Requiring Customizations

Solutions that require constant coding to maintain customizations as the needs of the business change

WHAT COULD BE...

United Data

Data is normalized into a single-pane view so systems can be compared

Unified Assets

One complete, enterprise view from every part of the facility

Democratization of Data

Collaborative reporting and decision-making based on real-time information from every asset

Condition-based or Predictive Maintenance

Predict and fix failures before they occur while only buying the right parts at the right time

Overarching Business Goals

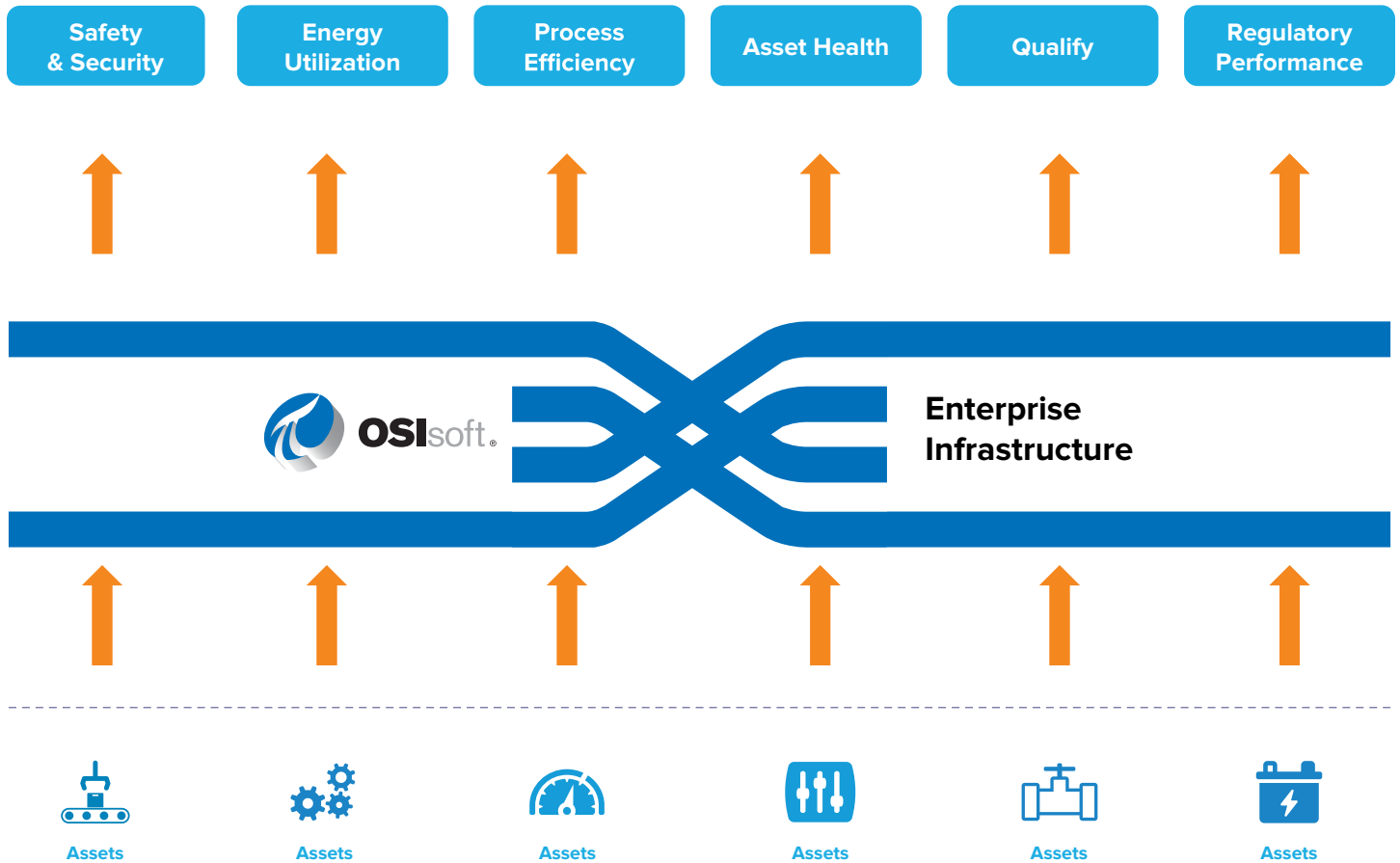
Share data, collaborative analysis and standardized KPIs drive the entire business forward

One Flexible Infrastructure

A centralized infrastructure that consolidates applications and scales as the business grows

REAL-TIME INSIGHTS USING THE PI SYSTEM

For over 38 years, the OSIsoft PI System has simplified the way companies achieve operational excellence. As the infrastructure that unifies disparate data sources, the PI System provides real-time visibility across systems, assets and locations. With the PI System, food and beverage manufacturers finally have a single source of truth that empowers them to optimize every step in the operational journey.



DESCHUTES BREWERY combined the finesse of craft brewing with the data of the PI System to optimize the brewing process and ensure the highest quality of beer for its customers.

With real-time PI System insights, Deschutes:

- Experienced a **60 percent** time savings of in its fermentation cooling times
- Put off over **\$8 million** in unnecessary capital improvements
- Saved up to **72 hours** of production time, per fermenter, during its craft brewing process

OPERATIONAL EXCELLENCE AT THE HERSHEY COMPANY

For [The Hershey Company](#), product quality is the highest priority. As a large scale manufacturer of snacks, every step in the production process must operate smoothly to ensure a positive outcome. But, with an extended supply chain of partners, it was difficult to gain the real-time visibility needed to ensure utmost quality. However, quality wasn't its only goal.

It was also critical for Hershey to reduce costs, ensure best practices, accelerate improvement initiatives and improve product quality while reducing the cost of compliance. To meet these needs, Hershey implemented its Accessible Information for Manufacturing (AIM) enterprise manufacturing intelligence (EMI) solution to support its manufacturing management and reporting functions. The solution leverages the OSIsoft PI System, SAP MII

(Manufacturing Integration and Intelligence), and SAP ERP platforms.

This comprehensive solution gave machine operators real-time insights to make informed decisions about their areas of the business, all with minimal training. In addition, executives had complete visibility into plant data, and capabilities, such as real-time analytics and dashboards enabled Hershey to use the PI System to meet critical business drivers.

Overall, the [PI System deployment](#) has reduced breakdown and maintenance by 33 percent, speed and throughput losses are down 30 percent, and quality losses down 22 percent.

How did The Hershey Company reap the benefits of the PI System? Click [here](#) to learn more.



BREWING SUSTAINABLE BEER: HEINEKEN

Heineken is the world's second largest brewer. With a plan to reduce water usage and increase energy efficiency, the team set 10-year goals to reduce water consumption by 25 percent and Co2 emissions by 40 percent. However, they were reaching their technological limit in the [Heineken España facility in Seville](#), and to meet those goals, they needed a new solution. To help them analyze brewery data and meet their sustainability goals, they installed the PI System. Using Asset Framework to structure the PI System data, Heineken immediately began to see results that would allow them to reach their goals.

Now Heineken:

- Spends **10 percent** of time collecting data compared to **80 percent**
- Has access to **real-time equipment data** showing flow, power and pressure
- Has **empowered each individual user** with data insights—not just data specialists
- Can **analyze historical data** to identify root cause of asset issues



REAL-TIME ENERGY SAVINGS AT THE KELLOGG COMPANY

For [The Kellogg Company](#), energy management is critical to operational efficiency--and the bottom line. As part of its Operational Asset Effectiveness Group, which set 10-year energy targets for the brand, Kellogg's [deployed](#) the PI System. By installing PI Server tags and Totalizers across its assets, the team gained access to streams of real-time data that provided visibility into asset performance and efficiency.

This data not only allowed the team to understand what was going on across across production, it allowed them to recognize anomalies and make proactive changes.

For example, using PI System data, Kellogg's realized that the HVAC units were using a lot of steam energy to heat hot water, only to cool it down. They retrofitted the controls around the units, installed building pressure monitors, and tied this all into process air intake in order to balance the building pressure. That, along with some other changes, enabled Kellogg to save \$350,000 per year on just six HVAC units alone.

Overall, since 2005, Kellogg has saved an enormous amount in energy costs. The team has set 2020 energy targets that can be achieved with the help of data.



Since 2005 our plant is saving **\$3.3** million annually
and we've claimed **\$1.8** million dollars in rebates –
and those rebate unlocks don't come without data.”

–John Gothberg,
Engineering & Facilities
Manager at The Kellogg
Company



PLANT OPERATION OPTIMIZATION AT TYSON FOODS

[Tyson Foods](#) processes 68,000,000 pounds of meat per week. From chicken nuggets to corn dogs, every item that comes out of Tyson's processing facility must be of the highest-quality and at optimal weight. Quality issues could cause recalls and damage both the brand name and Tyson's pocketbook, while overages or shortages in packaging mean those items must be cut open and reintroduced back into the production line, which increases waste.

To monitor the performance of its processing plant, [Tyson implemented the PI System](#). The team tagged 11

of the clipping machines that package over 105 million pounds of roll sausage every year. Before, quality assurance representatives would manually check the line every 15 minutes. However, after installing the PI System, the team had real-time data showing its line performance. With these insights, the team reset the target weight on the clipping machines, which reduced product waste and improved yield by 0.1 percent after just six months. Over the course of the year, that yield totaled 100 million pounds of sausage.

FUTURE OF FOOD: THE DATA-DRIVEN ENTERPRISE

As the pressure continues to grow for food and beverage companies to deliver quality products at a competitive price, data will become more important than ever. To be successful, companies must have a single, reliable infrastructure that unifies data silos and offers a single source of truth for operational insights. Those insights must be available at the right time to make informed decisions about operational health and efficiency.

The PI System infrastructure unifies these disparate data sources, information silos and non-standard naming data conventions caused by a complex systems landscape. The result is one reliable, comprehensible source of data that gets insights into the hands of users so they can address challenges across the organization.

With PI System insights, food and beverage companies can use data to make confident decisions about asset health, performance, quality and more--all while benefiting the bottom line.

THAT IS TRUE DIGITAL TRANSFORMATION.

ABOUT OSISOFT

With the belief that people with data can transform their world through operational intelligence, OSIsoft created the PI System as an open data infrastructure to capture and store sensor-based time series data. Today, the PI System is embedded in critical infrastructure around the globe. Our customer base includes 65 percent of the Global 500 process companies, Fortune 100 and Fortune 500 companies in food and beverage, pharmaceuticals, transportation, power generation, oil and gas, utilities, metals and mining, critical facilities and many other industries. OSIsoft remains faithful to its original mission – to push the edges of innovation and create an open data infrastructure that brings data from disparate operational sources to people in all corners of our customers' enterprises, wherever, whenever and however it is needed. OSIsoft is a privately held company headquartered in San Leandro, California, U.S.A., with offices around the world.

To see any of the 1100+ customer success stories, product descriptions or global initiatives, please visit www.osisoft.com.



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