

## PROBLEM

Given an industry challenged by low margins, beverage manufacturers respond by trying to maximize plant efficiency and production continuity. Due to limited transparency into production line processes and their assets, however, issues can emerge such as micro stoppages and slowdowns, and optimizing changeovers to support new beverages is difficult. Collectively, these challenges reduce production efficiency.

## SOLUTION

The SparkCognition™ Manufacturing Suite, is an AI-powered analytics solution that ingests all relevant data and leverages cognitive modeling to enhance efficiency, productivity, and resource utilization, while also minimizing resource waste, work stoppages, asset failure, and the plant-wide carbon footprint. Manufacturing Suite is a complete solution that delivers the essential capabilities without relying on additional, third-party offerings.

## OUTCOME

New levels of operational excellence, including substantially improved production efficiency (at levels ranging from complete processes to individual assets), identification and resolution of performance bottlenecks, accelerated anomaly detection and problem resolution, quantified analysis and reduction of resource waste, and a smaller overall carbon footprint.

### INTRODUCTION: IMPROVING PLANT EFFICIENCY VIA PRODUCTION-LINE TRANSPARENCY

For global beverage manufacturers challenged by low margins, high production volume is the logical strategy to ensure hitting overall profitability goals. This is why production efficiency is the key metric to consider in determining whether a given plant is hitting business targets.

However, efficiency is also often difficult to measure or improve because of limited visibility into the performance of the assets involved (including, but not limited to, batch tanks, holding tanks, conveyor belts, rinsers, fillers, labelers, case-packers, and palletizers).

Solving production problems thus means tracking and quantifying exactly what's happening in production lines. Unfortunately, aggregating and analyzing sensor data toward this end can be difficult for organizations that historically have resolved production problems not via sensor data and advanced analytics, but via a small number of experts in each plant who are primarily informed by tribal knowledge and personal experience.

Complicating matters still further is the fact that sensor coverage is itself sometimes limited. Nonexistent sensor data can't be analyzed, and what data does exist may be unusable to analytics solutions because it's of the wrong type or is of problematic quality, and hence can't be analyzed by machine learning models.

Organizations in this situation struggle to get the necessary insight into production problems because their analyses lack both the necessary level of detail and the necessary scope. This, in turn, leads to manual (and therefore slower and more costly) problem detection and analysis, slower problem resolution, and generally reduced production efficiency, which collectively make it harder to turn a profit in a low-margin industry (let alone stand out as a global innovator with a growing market share).

In cases where the organization is also chartered to reduce its carbon footprint by reducing resource waste, matters get more challenging. How can the organization create and carry out a strategy to waste fewer key resources if it can't track resource consumption in quantified detail, identify which assets and processes are generating the most waste, create and execute remediation strategies based on that insight, and predict and avoid future waste-generating problems via an accurate analysis of current and historical data?

### AI-POWERED COGNITIVE MODELS CUSTOMIZE THE SOLUTION FOR EACH PLANT

SparkCognition Manufacturing Suite addresses and resolves these issues across all the production lines of a beverage plant (or multiple plants) by providing new visibility into asset and process performance, anomaly detection and analysis, root-cause analysis of emerging problems, and future problem prediction.

Getting started with Manufacturing Suite is as simple as scheduling a meeting with our team, including a Solution Architect. Subsequently, we'll assess your complete context including your business goals and challenges, current infrastructure, types and sources of data, and other relevant factors.

Once this initial discovery phase is complete, and our underlying data architecture is in place and begins ingesting data (including historical data if available), that data will be cleaned and normalized. Manufacturing Suite employs proprietary AutoML technology to develop customized AI models that detect anomalies and predict future problems before they occur.

Once deployed, Manufacturing Suite doesn't merely describe what is happening in a plant at any given moment; it helps you understand what is likely to happen in the future based on current trends and detected anomalies and then, if that outcome falls below acceptable levels, provides key insights that organizations need to create a strategy that mitigates or precludes those future problems.

These insights are delivered via intuitive, customized dashboards that inform and guide your organization in enhancing efficiency,

productivity, and resource utilization, while also minimizing resource waste, work stoppages, asset failure, and the plant-wide carbon footprint.

All of these benefits become more substantial over time as our cognitive models continuously learn about the production environment by ingesting and analyzing new data.

## LEVERAGE AI TO TRACK AND PREDICT PRODUCTION ISSUES ACROSS A PLANT—OR MULTIPLE PLANTS

**SparkCognition Manufacturing Suite solution offers:**

- Initial consultation and assessment to establish what data is available, what data is needed, and how best to obtain it (such as through new sensor deployment)
- Our proprietary AI platform, including SparkCognition™ ML Studio, that accelerates data engineering tasks including data ingestion, cleaning, and normalization from a variety of data types and sources
- Anomaly detection with minimal false positives based on customized AI models that continually learn over time as more data is ingested
- Root-cause analysis that suggests the most probable drivers of detected anomalies in order to spur an accelerated response and minimal time to resolution
- Insights that optimize processes and asset performance, extend asset lifetime, and increase production quality and output by reducing nonproductive downtime and asset failures
- Situational awareness and operational visibility via customizable dashboards that deliver actionable insights to a wide array of personas
- Resource consumption monitoring at the asset, line, plant, and multi-plant level
- Progress towards sustainability goals via reduced carbon emissions and energy consumption
- Quantified sensor health and advanced alerting of sensors in need of maintenance or replacement

Finally, Manufacturing Suite solution is notable both for its versatility and its scalability; it becomes more powerful in proportion to the complexity of the plant in which it's deployed and the length of time it's been running. This is because each engagement is customized for that specific context (plant), and driven by cognitive models that are continually informed by the ingested data of that facility.

Over time, as these models learn more and more about operating conditions and related assets, they become increasingly effective at spotting anomalies and informing teams about potential future problems. No matter how much data is ingested, or how much the plant expands its operations or production capacity, the models will scale in parallel.

While no two organizations have identical contexts or infrastructures, it is often the case that with Manufacturing Suite, overall resource efficiency can be improved by 2-5%. This improvement, in turn, translates into a substantial return on investment each year.

At a Fortune 50 beverage company, Manufacturing Suite has been shown to boost operational efficiency by up to 5% per year, reduce operating costs by \$150K+ annually, and empower the organization to avoid approximately \$600K+ in additional maintenance costs.

Together, these outcomes help the organization offset the low margins associated with the beverage industry and contribute substantially to its competitive edge worldwide.

## ABOUT SPARKCOGNITION

SparkCognition's award-winning AI solutions allow organizations to predict future outcomes, optimize processes, and prevent cyber-attacks. We partner with the world's industry leaders to analyze, optimize, and learn from data, augment human intelligence, drive profitable growth, and achieve operational excellence. Our patented AI, machine learning, and natural language technologies lead the industry in innovation and accelerate digital transformation. Our solutions allow organizations to solve critical challenges—prevent unexpected downtime, maximize asset performance, optimize prices, and ensure worker safety while avoiding zero-day cyberattacks on essential IT and OT infrastructure. To learn more about how SparkCognition's AI solutions can unlock the power in your data, visit [www.sparkcognition.com](http://www.sparkcognition.com).