

LESS GUESSWORK, MORE RESULTS

FROZEN FOOD COMPANY
OPTIMIZES GLOBAL OPERATIONS

TERADATA



Food and beverage companies can no longer afford to make major decisions based on mere hunches. With global competition eroding market share and consumers demanding more choices for a broader range of dietary needs, every organization must rely on timely, precise data to drive efficiency and inform decision making without sacrificing quality.

For one leader in the North American frozen food industry with more than \$6 billion in annual revenue, major decisions were often based on hunches rather than metrics. Now the company has the tools and technologies it needs to measure performance consistently and accurately across 50 global production facilities—and guesswork has nothing to do with it.

CHALLENGE: BETTER OPERATIONAL PERFORMANCE GLOBALLY

In 2009, leaders at the company noticed that a plant in South America appeared to be underutilized. Guessing that the problem might not be limited to a single plant, they appointed a taskforce to review operational performance at all its plants worldwide.

The initial findings were discouraging: The taskforce rated overall equipment effectiveness (OEE) at 60 percent globally, compared to an average industry benchmark of 85 percent. Yet even that estimate was rough at best. The company's disparate array of data management applications, coupled with its lack of a standard calculation for OEE, made precise numbers nearly impossible.

OEE CALCULATION

The overall equipment effectiveness calculation is frequently used as a metric in total productive maintenance (TPM) and lean manufacturing programs. The measure offers a way to gauge the effectiveness of TPM and other initiatives by providing a framework for evaluating production efficiency:

$$OEE = Availability \times Performance \times Quality$$

Every manufacturing plant is different and has unique characteristics that affect its OEE. Studies show the average OEE rate in manufacturing plants is around 60 percent. World-class OEE is considered to be 85 percent or higher.

After careful consideration of the taskforce's findings, the company decided on two courses of action. First, it would institutionalize a standard definition and calculation of OEE (see sidebar). Second, it would unify the management of data across the global enterprise by selecting a single system for greater visibility into key performance metrics. This unified approach would enable the company to measure OEE more quickly and precisely than ever.

SOLUTION: UNIFIED DATA ARCHITECTURE FOR UNPRECEDENTED VISIBILITY

The frozen food company set about creating an enterprise-wide business intelligence solution that consolidates the main areas of the business while providing a global view across regions. With this solution in place, the company could eliminate its hodgepodge of regional data marts so that all relevant information could be loaded at the same time.

After reviewing the options available on the market, the company chose Teradata for its field-tested services methodology, comprehensive data platform, and proven ability to integrate new and legacy systems into a single solution. Using a single global instance of Teradata® Active Enterprise Data Warehouse, a key component in the Teradata Unified Data Architecture™, the company developed and deployed a new system for optimizing OEE across the enterprise. The solution is now linked to every production line in the world and serves as a core component in all supply chain initiatives.

Business users worked closely with Teradata consultants to develop end-user dashboards showing downtime statistics, a global heat map, and root-cause analysis, all the way down to the SKU (stock-keeping unit) level. A fourth dashboard is projected on the wall of every production facility worldwide, with key performance data refreshed every 20 minutes.

Critical to the implementation's success was the development of in-depth business questions that clearly define requirements at every stage of the production process (see sidebar, page 3). These questions help determine the precise analytic dimensions of all decision-support outputs—no matter the product, region, or time frame. That information is displayed in grids and graphs that business users can easily access and understand.

The company has augmented its solution with persistent ad hoc reporting distributed automatically to subscribers, along with unstructured data (or "notes") that can be

BUSINESS QUESTIONS FOR DEFINING ANALYTIC REQUIREMENTS

The frozen food company developed a set of business questions to achieve the greatest possible analytic granularity. These questions fall into three categories:

- ~ **Live OEE scores:** This provides near-term snapshots of trends for particular production lines. Sample business questions include the following:
 - What is the OEE score in the last hour?
 - What is the hourly trend for the OEE score for today?
 - Over the same time periods, what are the scores for availability, performance, and quality?
- ~ **Summary scores:** This provides period-based snapshots of OEE scores aggregated to local, regional, or global levels over a three-year period. Sample business questions include the following:
 - What is the OEE score for a particular plant so far this year?
 - What is the OEE score for a particular region this month compared to last month?
 - What are the primary losses for a particular type of product in a particular region so far this year?
 - What capacity do plants currently have at the regional and global levels?
- ~ **Drivers of OEE scores:** This provides details on downtime, performance, and quality-related events, facilitating granular visibility for root-cause analysis. Sample business questions include the following:
 - How many days of planned downtime occurred this month in a particular plant?
 - Which equipment is causing the most problems and why?
 - What are the main reasons for a product being held?
 - What were the last ten downtime events for a particular production line?
 - What are the top ten worst offending products in terms of downtime in a particular plant?

attached to transactional objects. These notes enable business users to analyze downtime events that can be filtered to show the cause and resolution of each incident. For example, users can display all downtimes associated with a particular type of equipment anywhere in the world, then filter to show only those associated with exhaust valves.

BENEFITS: GREATER VISIBILITY AND QUALITY

“With our newfound visibility and granularity, we’ve taken asset management to the next level,” says a director at the company. “Meanwhile, our end users are beginning to understand the value of this data, so we’re seeing improvements in the quality and accuracy of their data inputs.”

In addition to gaining greater visibility across the enterprise, the company has also managed to cut both capital expenses (CapEx) and operational expenses (OpEx). With the initial Teradata investment, IT teams realized immediate CapEx reductions from the elimination of nonstandard, nonintegrated database systems throughout the world. On the OpEx side, the company no longer needs to support and maintain such a large and disparate array of applications. By consolidating these resources with help from Teradata, the company relieved a longstanding IT burden and streamlined operational budgets at all 50 production facilities around the globe.

Perhaps most exciting of all, the company used its new data capabilities to surpass the 85 percent industry benchmark for OEE—a 25-point leap in operational performance—without relying on guesswork. “With our new asset management capabilities, combined with big gains in operational efficiency, we’re extremely pleased with the outcome of this implementation,” says the director. “In fact, I can say with total confidence that Teradata will play a major role in helping us plan for future growth.”

MORE INFORMATION

Teradata can help you begin your journey toward an enterprise data architecture, with a wide range of services to determine which solutions might be the best fit for your organization. To learn more, visit www.teradata.com/industry-expertise/consumer-goods/.

