



Maximizing Flour Supply Chain Data Assets Mixes Up Better Value to America's Most Iconic Bakery and Food Service Companies

Neudesic uses Microsoft Azure Data Services to help Ardent Mills optimize flour inventory levels, improve customer engagement, and stay on top of fast changing consumer trends



The Challenge

- New company formed from three industry leaders – each had different methods for storing and analyzing data
- 40 individual flour mills with siloed data made company-wide aggregation and analysis nearly impossible
- Existing analytics tools were found to be slow and ineffective in helping data users quickly identify and act on key performance indicators
- Reporting gaps did not surface insights necessary to make key business decisions
- Previous SAP implementation at company launch delayed the extensive overhaul of data assets



The Solution

- Partner with Neudesic, a nationally recognized technology consulting and solutions firm known for its award-winning expertise in deploying Microsoft technologies
- Leverage Neudesic's Azure Data and AI Platform Accelerator to hyper-automate the secure deployment of a Data Lake and enterprise data warehouse in Microsoft Azure
- Integrate data sources and provide governed access to all corners of the enterprise
- Enhance insights delivery leveraging Microsoft Power BI – a familiar and previously procured solution in the organization



The Benefits

- Data accessibility, report generation and assessment has been simplified, facilitating real-time decision making and organizational agility
- Mill performance can now be assessed from different perspectives and narrowed down to a customer or product level
- Trends can be identified around everything from grain and production to safety and specific customer requirements
- Robust reports and dashboards have been so useful, it is promoting strategic thinking, employee engagement and job satisfaction

“ Before our deployment of a modern data and analytics platform on Azure, we'd spend months compiling reports and it took a data scientist to make sense of it all – in a timeline that could be well past the greatest usefulness of the data. Today, just about anyone can run a wide variety of reports in minutes and then quickly evaluate the insights collected. The platform is simple and intuitive, and it has really opened our eyes to the possibilities data brings to the table. ”

– Scott Roush, Director of Technical Milling, Ardent Mills

The Client

As North America's leading flour supplier, Ardent Mills is continually looking for ways to enrich its recipe for success and streamline its operations. From milling breakthroughs and nutritional advantages to community engagement and sustainable business practices, this grain innovator has more than 40 community flour mills and blending facilities throughout the U.S., Canada and Puerto Rico.

Established as an independent joint venture of three parent companies well known in the food industry—ConAgra, Cargill and CHS—Ardent Mills supports many of the most trusted and iconic bakery and food service brands across North America. The company's comprehensive research, custom development and unrivaled quality assurance practices combine to deliver innovative and nutritious grain-based solutions formulated to suit each customer's unique requirements.

The Challenge

Flour milling is no easy task. Especially when your aim is to bring more to the table than 'just flour.' As the premier flour and ingredient company with the industry's broadest range of traditional and organic flours, whole grains, customized blends and specialty products, Ardent Mills is dedicated to partnering with its customers to grow their brands. Whether it is the main ingredient or a smidgen of the overall recipe, flour is the staple that bakers and chefs rely on as the foundation to setting their own creations apart. No matter the goal – a yummy hot dog bun, a scrumptious artisan baguette or a delicious pizza crust – Ardent Mills supplies the right flour for the job.

The company was created in 2014 through a joint endeavor that tapped a century and a half of rich community milling history. At that time, Ardent Mills took to task the very necessary integration of its various business units unraveling two large SAP implementations and building into one operational system. This effort, to become one streamlined operation revealed that, although years worth of valuable data had been collected by the individual mills, it was far too siloed across Ardent Mills' 40 locations to be of extensive use companywide. With a range of databases and a variety of formats, the team found it difficult to quickly aggregate information for a high level view of its mills, their operations and the broader company. Antiquated 'green bar reports,' for example took two months to generate greatly reducing the usefulness of this data in running an efficient operation.

"In the beginning, we were running our analysis off Access databases which generated canned reports that could be saved in Excel," said Melissa Wegner, Continuous Improvement Manager and project team lead, Ardent Mills. "It certainly wasn't ideal in terms of timeliness, convenience, even consistency – and it didn't provide the robustness to really do the data justice. It became clear priority there was an urgent need to increase our access to the real-time data we knew could fuel smarter operations."

After completing the company's system integration, the team turned to its next major challenge – garnering big picture insight with a far more efficient approach over the legacy methods they'd been using to get by.

The costs of not modernizing their data and analytics environment continued to mount. The desires of the business to improve working capital through accurate matching of inventory to demand, quickly identify and rectify non-functioning equipment, and drive customer centricity and safety programs, were limited.

Staff needed a self-service solution that would put up-to-the-minute and historical data front and center, and also facilitate comprehensive analysis on the spot for agile decision making. Such an undertaking would enable the company to truly focus on forging exceptional customer experiences via the Ardent Mills ELEMEDS principle – "every load," "every mill," "every day," "safely."



“ While the implementation has simplified and streamlined processes, it has also generated previously undreamt of analysis. It’s this analysis I’m most excited about because it gives us a clear picture of where we’ve been, how we’re performing today and the insight to improve operations for greater success in the future. ”

**– Melissa Wegner,
Continuous Improvement Manager,
Ardent Mills**



The Solution

The solution, referred to as INSIGHT, integrates multiple siloed data sources across all 40 mills nationwide. The new integrated data platform now connects Ardent Mills’ supply chain from farm, to factory, to customer, providing a near real-time view for operational managers.

The solution design considered existing Azure infrastructure and optimized the expansion of new services that composed the latest data platform. The Ardent Mills’ team generally knew what they wanted to build, but lacked deep understanding of Azure Data Services, the ability to make them enterprise-grade, and the skill-sets to deploy and manage them. After much due diligence, they ultimately selected Neudesic for their extensive Data and AI capabilities and differentiated advantage provided by their accelerators and IP. These added benefits helped speed up the overall deployment, and increase impact and time to value for the business.

Neudesic’s Azure Data and AI Platform Accelerator, at the core of this deployment, quickly delivered pre-configured Azure Data Lake Storage, a meta-data driven deployment framework, pipeline automation, and more. This new architecture helped extend the value of the organization’s existing platform and provide ready access to data users across their growing business. The agility of the platform allows for the organization to continue to grow their analytics capabilities by laying the foundation for advanced analytics-like machine learning, and AI.

The new analytics throughput was matched with speed and sophistication of Microsoft Power BI, which simplified the consumption of data and expedited the potential to make relevant and timely actions. Data as a strategic enterprise asset could now be fully visualized, transforming millions of data points into a well-read data story.

Ardent Mills now has one solution that centralizes data for independent decision making and empowers staff to conduct self-service analytics across the organization. The consolidated platform design also helped to retire costs associated with legacy systems, decreased the overall complexity, and used high-strength security frameworks to ensure data was secure and protected.

The Benefits

Having one robust platform, with data accessible across the organization, has certainly provided the means for Ardent Mills to meet its goal for quick data delivery to facilitate better decision making. Compilation of standard reports is far easier and less time consuming, but perhaps more importantly, these capabilities have sparked greater curiosity amongst the team around what more the data can reveal. It is this inquisitiveness that has advanced an even more strategic approach to data and its application in smarter business operations. Today Ardent Mills managers throughout the company are actively leveraging previously untapped or underutilized metrics to spin new reports for analysis and operational refinement.

For example, “with well over 2000 combinations of customers and criteria such as protein, ash and moisture level, as well as other functional characteristics, it had been difficult to verify grain performance” said Evan Kolstoe, LDP Food Safety and Quality, Ardent Mills. “Today, with our Neudesic-built solution, the team can quickly sort through data to determine how a mill is performing and then zero in on customers or product level. They can quickly shuffle through all of the data to pinpoint trends or dig deeper to examine unique combinations of customers and their recipe requirements.”

The new platform has enabled individual team members to quickly and easily compile year-over-year comparisons of different products. Prior to the Neudesic implementation, this type of activity would have required asking four or five of the right people to pull those numbers and taken two months to verify and finesse – whereas today such a report might take 15 minutes to generate.

“Previous to our new data platform design, we’d spend months compiling reports and it took a data scientist to make sense of it all, in a timeline that could be well past the greatest usefulness of the data,” said Scott Roush, Director of Technical Milling, Ardent Mills. “Today, just about anyone can run a wide variety

of reports in minutes and then quickly evaluate the insights collected. The platform is simple and intuitive, and it has really opened our eyes to the possibilities data brings to the table.”

And the simplicity extends to designing the actual reports. “With our new platform, I can build a report without really understanding the data space behind it,” said Christy Ball, Continuous Improvement Manager at Ardent Mills. “Power BI doesn’t require a huge learning curve, but when I do need assistance, I know the team at Neudesic has the expertise and support to get me there.”

From a production perspective, data analysis is closely tied to ongoing enhancements. Things like manufacturing and equipment downtimes are inherent to running a facility so triggers are key. “With Power BI, we can plot triggers so our production supervisors can determine whether a downtime matched a trigger level,” added Joseph Dunn, Assistant Plant Manager, Ardent Mills. “Previously, we would have dumped the data into a spreadsheet, sorted it and scanned line by line, run by run to see if there was a 30-minute stop. Not helpful. “But now we have the ability to pull that data in and just use what we need. That’s helpful.”

The ready availability of data has driven some deep creative thinking around what can be gleaned from Ardent Mills’ information stores. “While the implementation has simplified and streamlined processes, it has also generated previously undreamt of analysis,” Wegner explained. “It’s this analysis I’m most excited about because it gives us a clear picture of where we’ve been, how we’re performing today and the insight to improve service and operations for greater success in the future.”



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