Johnson Controls and LeanDNA Build a Digital Thread to Connect 14 Sites and 800+ Global Suppliers

Johnson Controls (JCI) is a world leader in creating safe, healthy, and sustainable spaces with the world's largest portfolio of building technology, software, and services. Johnson Controls delivers the blueprint of the future for healthcare, schools, data centers, airports, stadiums, manufacturing, and beyond through OpenBlue, its comprehensive digital offering. JCI's employees work across 150 countries to help their customers meet their sustainability goals.

The Problem

Departments across JCI use 60 to 70 different enterprise resource planning (ERP) systems, and there is no unified "single view". This caused data to become siloed and challenging to find. JCI needed a solution that could provide a comprehensive view of their information across sites, systems, and suppliers, and could be leveraged to improve operational execution.

Mandeep Sahota, JCI's Vice President of Operations, explains the problem with an analogy.

"If I'm a baker and I need to bake five cakes a week for the next five weeks, do I have enough ingredients to make them or not? It seems like a simple fundamental question to ask, but as you begin to make different cakes at different quantities and times, it becomes more complex and challenging to manage."

JCI needed to strengthen its "digital thread," a term defined by Deloitte as "a single seamless strand of data and computing power that stretches from the initial design concept to the finished part, constituting the information that enables the design, modeling, production, use, and monitoring of an individual manufactured part." **The digital thread is essentially a supply chain network that allows companies to leverage information for faster production cycles, higher-quality products, and innovation efforts.**

With manufacturing sites and systems spread across the globe, trying to make sense of out-of-date static spreadsheets became an increasingly
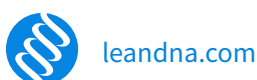
OVERVIEW

Industry
Industrial

Sites
14

ERP Across Sites
8

Key Challenges
There was a lack of visibility and accountability because there was not a "single source of truth" to align strategy and drive results.

Results
LeanDNA helped JCI connect systems, sites, and suppliers to:

- Reduce days of inventory by 12% in first year
- Improve supplier commitment by 28%
- Streamline processes through collaborative, automated reports accessible in a centralized platform

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–Mandeep Sahota,
Vice President of Operations,
Johnson Controls

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daunting task. The lack of data harmonization led JCI to look for a solution that could simplify and standardize their data and operational workflows. They needed readily available, actionable insights to continuously improve their operations, a system that could take their millions of rows of data and put it together in a platform that would make decision-making faster and more straightforward for their teams.

"We were ready for a digital transformation of our supply chain operations, and while our inventory data also needed work, we knew that waiting for the output to be perfect was just one more way to delay this process. What we did was to start with what we had and continue to troubleshoot along the way," said Sahota.

In efforts to continuously improve their manufacturing and supply chain operations data, Johnson Controls chose to implement LeanDNA, a cloud-based platform that connects their numerous ERP systems. Like many companies with distributed locations and processes, Johnson Controls data was scattered and difficult to find and understand. LeanDNA provides the company with a comprehensive, organized view of cross-site analytics.

Since JCI has global sites, someone could look at a purchase order cost previously and say "why do I have two million dollars in purchase orders open?" Now, LeanDNA makes it simpler and quicker to realize that it's in that site's local currency. Normalization of this information across different countries and systems was key.

Improving and ensuring data quality is critical for advanced analytics, and finding these opportunities is quickly identifiable in LeanDNA, another way it saved JCI teams the time and hassle of finding a needle in the haystack.

When JCI's IT team notices that the master data is off, it is no longer a guessing game. LeanDNA makes it easy to find the source of the problem and make faster, more accurate decisions continuously. JCI can now have active discussions around what is going on, pinpoint any issues, and show how to fix them to proactively absorb, adapt, and avoid supply chain headaches.

"The raw data is processed by LeanDNA and turned into useful information our teams can actually use and take actions on, giving our team the competitive edge necessary to meet and exceed our customers' expectations," said Sahota.

Prior to LeanDNA, some sites were spending several hours a day in meetings to discuss reports and part status. LeanDNA automatically updates reports daily, allowing teams to reallocate the time spent on reporting to higher-valued tasks. Having readily-available analytics at their fingertips has allowed JCI to act faster and with more confidence. LeanDNA's technical depth aligns business strategy and workflows with the tools that enable those processes to operate effectively. By leveraging LeanDNA's recommended actions, JCI is now able to bridge the execution gap for optimal results.

Rightsizing & Optimizing Inventory

Johnson Controls now has the confidence their team has the parts they need without ordering too much and ending up with excess and obsolete inventory that constrains capacity and working capital. JCI reduced their DOI by 12% for the applied business unit using LeanDNA in the first year.

Inventory optimization has become crucial for JCI – understanding the Plan-for-every part (PFEP) and where they can optimize ordering policies and parameters for purchased and finished goods to help drive insightful actions.

"Instead of the buyer needing to fall back on their institutional knowledge, (for example, 'I think we usually buy six and have four on the shelf, and three parts on a boat'), they can make decisions based on real-time, actual data," said Sahota.

The approaches that worked in the past are now too reactive, which has led them to shift towards predictive analytics that will eventually become prescriptive through machine learning and augmented intelligence.

"Back to the cake analogy for predictive analytics – 'we have ten cakes due but do not have the batter for it now and it might not show up until next week' to the prescriptive insights, 'if I plan around the seasonal pattern for the ingredients or the holiday where the vendor is closed, then I can avoid these delays in the future,'" Sahota said.

The goal is for everything that is coming through JCI's factory to eventually leave as a complete customer order. Johnson Controls is establishing velocity by pulling the needle through that digital thread to improve the flow and create a collaborative ecosystem that helps ensure their team is ordering the right part and pulling it at the right time.

Shortage Management and Production Readiness

"It's difficult to notice or remember these supply chain fluctuations on an individual level, but when you shift your reliance to a trusted platform, you become more aware of these trends and can act on them faster and better. LeanDNA helps us plan and anticipate the supply chain issues to come," said Sahota.

The LeanDNA platform's shortage management capabilities give a full-scope view into situational awareness along with the ability to plan accordingly.

- The Clear-to-Build workbench shows factory managers if they have everything they need to begin production in the present.
- Continue-to-Build unlocks a new level of efficiency and improves accuracy in production planning. It recognizes that you might not have all the parts that you need today but that based on the average cycle time you should continue building because in three days the part will show up and go straight to the production line.
    - LeanDNA shows what the production team can build over the next 13 weeks with consideration of incoming commitments.
- Shortage risk management shows light on what the team needs to focus on for their material fulfillment efforts to reduce risk.
- Supplier collaboration through the platform shows suppliers the purchase orders they should prioritize to stay on track with clear objectives on what to work on next.

"The cross-team collaboration using LeanDNA's Supplier Connect with customer and production orders can help lay out the production schedule," said Sahota.

By utilizing the full functionality of LeanDNA, manufacturers like JCI have the chance to strengthen their supplier relationships.

Connecting Procurement and Suppliers

"LeanDNA is a key component to our collaborative ecosystem to drive better visibility to our delivery commits and help drive the right business decisions." Sahota continues, "Partnering with our suppliers allows us to give them the visibility they need to understand what parts are critical for production."

Suppliers are also dealing with inventory shortages and instead of asking them for every part, JCI is creating mutually beneficial relationships with vendors and working together to share information openly.

Sahota's team is passionate about setting JCI's suppliers up for success by improving their visibility and communication channels to achieve their goals. LeanDNA has helped improve supplier commitment visibility by 25-28%.

"We share the key insights our suppliers need to be successful. With LeanDNA we are able to share long-range data and forecasting into our investment, people, and growth as well as information about critical purchase orders impacting production. LeanDNA has become an essential collaboration tool for us," said Sahota.

JCI took the initiative one step further by hosting a Supplier Connect Symposium in 2022. The purpose of the event was to introduce LeanDNA to their network of suppliers, share best practices, and offer support to partners leveraging the tool.

"During the event, one of our suppliers actually stood up to say, 'I love LeanDNA,' which I think just goes to show that we are on the right path," said Sahota.

JCI has been able to connect with hundreds of their suppliers through LeanDNA to streamline status updates so there is no confusion or lag in communication. Now, Johnson Controls is focused on the stickiness of the Supplier Connect initiative, encouraging their suppliers to make LeanDNA part of their daily routine.

"LeanDNA's Supplier Connect helps with the flow of information by providing the critical details needed to plan effectively," said Sahota. "Our partnership and relationships with suppliers are much better as a result."

Previously, JCI's suppliers were used to seeing an open purchase order report with thousands of lines – it is easy to miss dates. Now, LeanDNA visualizes the report using a line of balance that shows their weekly bucket on quantities that need to be reached.

"If you are trying to get stable material flow, this is definitely a platform you can utilize to connect different parts of your supply chain. It is very easy to stand on the manufacturing floor and see the units being produced, but when it comes to the transactional world of data servers, you do not have that visibility. You don't have eyes and ears on what is going on in the cloud, whether purchase orders are being placed or delivered on time," said Sahota.

Through improved transactional transparency, JCI's supply chain leaders can use LeanDNA to link their supply chain ecosystem. They are able to see how well the factory floor is performing with the procurement actions that are critical for production operations. JCI's inventory levels, data health, and workflow efficiency have all drastically improved with the help of LeanDNA.

"It use to take roughly 5 minutes per SKU to create a line of balance report, but now using LeanDNA, a line of balance report is automatically created with thousands of part SKUs in under a minute." Instead of repetitively reporting using manual processes, Johnson Control's teams leverage automation to streamline work and shift focus onto higher value-added tasks.

Learn how you can digitally transform your supply chain to create a collaborative ecosystem for maximized efficiency and value like Johnson Controls.

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