



## Case Study

# Crane Clears the Air with Highly Flexible Omni-Channel Order Platform

Automated order management is enabled for EDI Standards-driven transactions

## Challenge

When Crane USA (Crane) launched its own branded products in 2005, its growth brought more complexity to its operations and the need to comply with retailer requirements. The company also realized that it would be impossible to continue using its manual order fulfillment and management processes. The nature of its product portfolio means that Crane deals with a myriad of retail channels—from big box chains to mom-and-pop operations, from drug stores to gift shops, from retail to e-tail commerce.

## Solution

An automated order management solution using the GS1 System of Standards was key to meeting the demands of Crane's breadth of retailers and depth of channels as well as to introducing overall efficiency into its operations. Crane partnered with DiCentral, a GS1 US Solution Provider, to enable Electronic Data Interchange (EDI) integrated order management. A single pipeline for orders—regardless of where the orders originate—streamlines the fulfillment process—from a single unit to a truckload.

## Benefits

What began as a solution for managing orders became a much more integral component to Crane's overall operations:

- **Visibility:** Supplies real-time intelligence for inventory management, sales forecasting, sales reporting, and purchasing reports.
- **Retailer satisfaction:** Crane readily complies with its retailer purchasing guidelines.
- **Fully integrated supply chain:** From source to sale, Crane now has access to the level of valuable data that is equal to the Big Data enjoyed by much larger organizations, helping Crane's management team make informed and more accurate decisions.
- **Increased productivity:** As order volume increases, there is no need to add personnel (and labor costs) since warehousing operations are now automated and much more efficient.

The Crane logo, written in a stylized, orange, cursive font.

From adorable, kid-friendly designs to sleek, lifestyle-compatible models, Crane humidifiers, space heaters, air purifiers, fans and other products are designed to complement contemporary homes. In 2005, the Crane USA animal humidifier line—"the adorables"—was introduced at the Chicago International Home and Housewares show. Crane was the first to introduce a whimsical humidifier design that not only made you smile but added personality to your home décor. With that momentous decision, came monumental success. With great success comes greater complexity.

When Crane began producing for its retail customers, it was easy to manually manage the order process, but it was not very efficient. Receiving orders by phone, fax, and email, the manufacturer would process and send them on to a third-party warehouse for fulfillment. From using Excel spreadsheets, Crane migrated to a web-based tool that worked well with its first major retailer.

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President, Crane

But as orders for the Crane brand grew, the number of retailers multiplied, and the volume of orders swelled. In addition, Crane had created its own e-commerce platform to sell directly to consumers. Inefficiencies increased and even the addition of personnel could not address the growing pains.

"We were lucky enough to find a market niche; then we became overwhelmed by our success," says Dirk Niedermann, president of Crane. "We now have approximately 60 retailers."

The nature of Crane's product portfolio means that it deals with a wide variety of retailers: ones that cater to babies by carrying whimsical humidifiers, to home improvement chains that offer Crane space heaters and fans; from drug stores that carry the humidifiers and other wellness products, to gift shops that stock Crane's aromatherapy items. Some sales are through brick-and-mortar stores, others are omni-channel driven, and some are strictly e-commerce, including Crane's own online retail presence.

Crane's assortment of products, both in design and color, add another level of complexity to the ordering and fulfillment process.

## The Simplicity of EDI

GS1 EDI Standards power a system of electronic communications to enable the automation of business transactions across the entire supply chain: master data management, order and delivery, financial settlement management, and transport and warehouse management. Users include retailers, manufacturers, material suppliers, and logistic service providers.

"EDI is imperative for businesses today," says Peter Edlund, chief solutions evangelist of DiCentral, a GS1 US Solution Provider specializing in EDI integration and software solutions. "And non-standard implementations are crushing in terms of costs. EDI transactions based on GS1 Standards allow transactions to move efficiently between trading partners—delivering a high level of accuracy without being cost prohibitive."

## Purifying the Supply Chain

"Once we started our branded business and had our own inventory, we realized that there's a whole different world out there to comply with retailer guidelines, shipping goods the right way and at the right time," continues Niedermann. "Staying on top of it was the biggest challenge because, if you don't, there are financial penalties and repercussions. There's a financial impact."

It became obvious that an automated global order management solution, using GS1 Standards, was the only rational business answer and the key to:

- Meeting the demands of a wide array of retailers and individual consumers
- Introducing efficiency into Crane's business operations
- Doing business worldwide, using scalable EDI transactions

"Pressure comes from all sides," Niedermann says, "From the end-user consumer wanting to have convenience, quality and transparency; to retailers wanting to hold their margins; to our manufacturing sites where costs are going up and we have to balance a three-month production window with one-day order turnaround cycles."

Crane partnered with DiCentral, an EDI integration expert solution provider, and implemented the DiCentral Order Management System - DiOMS - to automate its order-to-cash processing.

"Crane pushed us to expand the capabilities of our order management solution due to challenges in scaling to business growth, and they kept coming back to us for our expertise in omni-channel supply chain," says Peter Edlund, chief solutions evangelist of DiCentral. "Crane's challenges surfaced as a result of having to serve multiple sales channels, and customer satisfaction was their top priority."

Simply put, Crane's goal was to not miss any orders, fulfill them correctly, be in compliance with retail purchasing guidelines, and have a full overview of what was going on through accurate data. No small task, but one that was achievable.

While order turnaround intervals had not changed—24 hours for an online order and 4-7 days for less-than-truckload and truckload orders—the need for accuracy and intelligence surrounding those orders was becoming more urgent.

“Not being able to fulfill our orders, being dependent on humans – people leave or go on vacation or whatever...,” Niedermann says. “We needed a process that anybody could do at any time. It had to be intuitive.”

It was also clear that streamlining Crane's order flow and communications would have to extend to its warehouse operations. So simultaneously, Crane changed to a third-party logistics (3PL) provider that was willing to cooperate with the changes and be a crucial link in the EDI-driven value chain.

### Pressurized Retail Environment

Many retailers don't appreciate the complexity behind the scenes for their small and medium-sized suppliers, like Crane. They simply want a solution and compliance. Non-compliance does not result in discussion—it results in chargebacks. “It was really on our side to do the homework and find the right 3PL provider to work with us and integrate. That was a difficult process,” explains Niedermann.

“As a service provider, we uncover the challenges within the supply chain and use the opportunity to help drive more value-added transactions for our clients,” DiCentral's Edlund says. Edlund also notes the digital transformation occurring within retail as another reason suppliers need to stay current with supply chain technology.

“Small businesses are having to adapt to a great many changes, particularly with retailers that may be having a tough time or quickly transforming to meet the needs of consumers. It has impacted small businesses, and they've had to reevaluate where they can go to get more business. Obviously, they're going online, and they're trying to find different channels to accomplish that. Those channels range from large e-tailers (like Amazon and Walmart) to reinvented retailers who are trying to enforce an omni-channel presence.”

Clearly, the challenge associated with disparate channels is managing them all. Suppliers need to play in all of them, hoping to compensate for any potential failure of any of the larger customers. “I think that is the biggest challenge: how to be everywhere and accommodate the uniqueness of each of your channels, while scaling to make a profit,” Edlund says.



Crane's new 3PL provider allowed for a strengthened EDI connection to work in concert with the changes going on throughout Crane's business in terms of order management, healthy retail relationships, and the overall efficiencies and productivity that are the normal outgrowth of automation.

“DiOMS turned out to be a real success story for us,” Niedermann says. “Once we had control over the business, we were able to use the data profitably. All the data that DiOMS is collecting, we are now using to further optimize our business and make everything more efficient.”

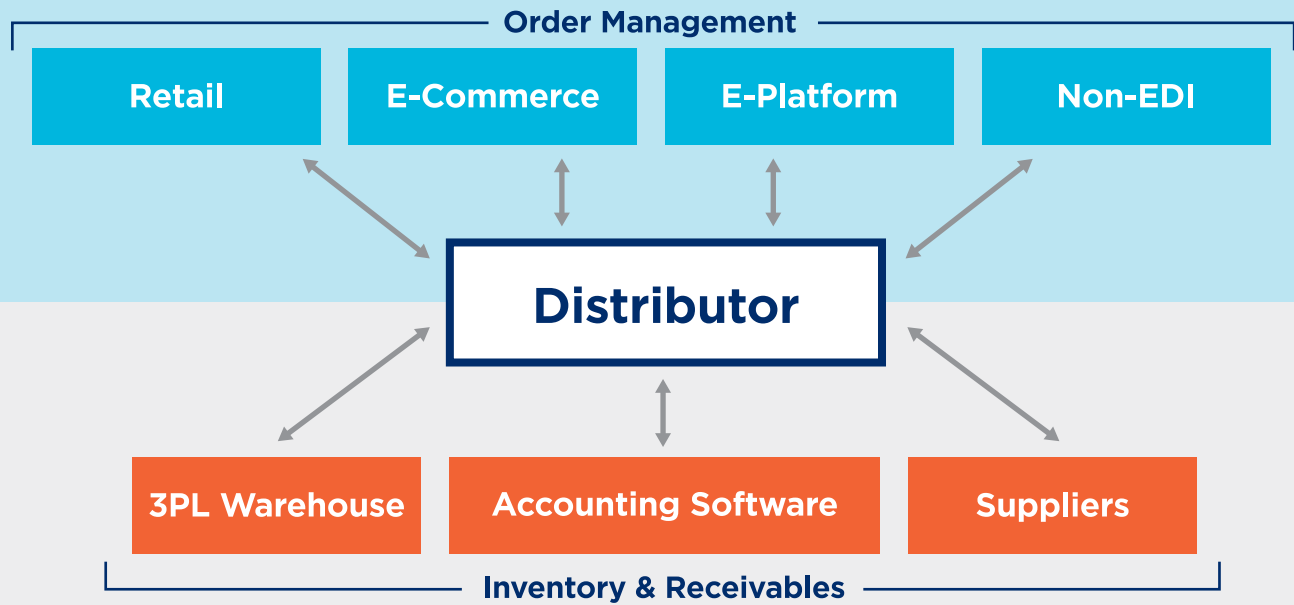
DiCentral helped Crane connect all its retailers, streamlining Crane's order flow by making its enterprise resource planning (ERP) system the heart of its operation and tying in its QuickBooks™ accounting system as well. “We get the full picture of what we're actually doing – and we're doing it better. Visibility is a major benefit, not just with order submission and receipt of orders, but by extracting useful intelligence: inventory, forecasting, sales reports, purchasing reports, and so on,” Niedermann says.

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President, Crane

## Built on a Foundation of GS1 Standards



An order management system collects orders, regardless of channel, in a single platform. The technology offers visibility to every player in the value chain.

### Built on a Foundation of GS1 Standards

Crane's Illinois headquarters sends an EDI Purchase Order (PO) to its Hong Kong office, which places an order directly with the factory in mainland China. Once the merchandise is produced, the factory applies the GS1 barcode labels provided by the Hong Kong office to all master cases. Encoded in the barcodes are the product's unique identifier, the GS1 Global Trade Item Number® (GTIN®), along with the batch/lot number, and the master case identifier. The state-side warehouse receives the merchandise and scans the barcodes to "capture" all of the data, which is carried forward with the product throughout the supply chain. When the warehouse fulfills orders, it closes the transaction loop, maintaining the lot number to preserve information on what is sold from each lot.

Changing the process at the production level was not difficult.

"There was no issue. Everybody loves accuracy, so everybody was on board," Niedermann says. "It took time to get it right, but now everything runs smoothly."

In fact, the Hong Kong operation welcomed the process changes. "Now if we don't issue an EDI-based order, they can't download anything, and they are on our case to do it. Everybody's embracing it and it has been a positive thing, absolutely," Niedermann continues.

"I didn't understand paperless transactions. I never fully understood the power of the electronic transactions until

we integrated our order management system, supported by GS1 barcodes, with the ERP system. I realized all the data that we're capturing is really valuable."

### Return to Sender

In the past, merchandise returned to the warehouse might be lost or ignored, representing money lost. To streamline it, Crane integrated returns into DiOMS, as just another factor in the sales continuum alongside orders. Crane now has a full picture of the merchandise the warehouse has, including returns, and the adjustments made. What merchandise was salvaged? What needs to be destroyed? Might some merchandise merely need to be repackaged? With this information, no merchandise goes unnoticed or unaccounted for, and a complete sales picture is achieved.

"Only with doing it did we realize, 'there's so much more we can do aside from just sending orders back and forth. We can do sales budgeting and forecasting,'" Niedermann says.

Other less routine obligations were more easily addressed: "We sell humidifiers, which are medical products, so U.S. Food and Drug Administration (FDA) regulation compliance comes into play. 'What do we do if you have a recall? How much production was sold? To what customer? What was the sales order number?'" Niedermann says. "Now we have the tracking data that tells us."

## Direct from the Warehouse

Because its business spans continents and time zones, one of Crane's challenges was determining how to incorporate the Advanced Shipping Notice (ASN) to automate its supply chain and electronically communicate the contents of a shipment. Ultimately, it was decided the ASN would go directly from the warehouse to the retailer, skipping headquarters in the interest of timeliness.

"This had a huge impact on integration, because the warehouse had to develop different maps for each and every retailer rather than one map between the warehouse and us. I did not realize the impact this would have on workload and the extent of the challenge," Niedermann says.

The efficiency is indisputable. Crane processes between 60,000 and 70,000 orders per year with only three people. The amount of personnel involved in the order process has not changed, despite the company's 20 percent growth and the increase in volume.

"Around days like Black Friday, Cyber Monday, and then during the Christmas season, we get a high volume of orders. It doesn't really matter for us if you get a hundred orders or a thousand orders, it's the same process. We don't write any invoices or packing slips. We just click, send, receive, convert and that's it. There's pretty much nothing to do anymore in terms of the order processing *and* it's all accurate. Absolutely 100 percent more efficient, definitely."



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President, Crane

## Sophisticated Forecasting

Crane once calculated its forecasts in an Excel spreadsheet based on past sales coupled with the seasonal estimates from a few large retailers.

"We ballparked it," Niedermann says. "The system we have now is sophisticated. It takes real-time data into account and then projects the sales going forward based on historic sales. Our inventory is far more accurate. We have reduced out-of-stock situations. We actually have a good view into the future, which we never had before. I have solid answers for the retailer - when we will get stock based on current demand."

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## A Single Product or a Pallet?

What is true for Crane and any manufacturer that hosts an e-commerce site while it sells wholesale to the retail industry, is the disparity between the size of its shipments, reflecting the dissimilarity in its sales channels. Crane could be selling a single humidifier to a mother in Missouri or a pallet of space heaters to a Home Depot in Houston. While a third-party logistics warehouse has the skills to fulfill both orders, it is the technology that integrates these shipments into an organized whole that gives the business the accuracy it needs to manage inventory, prepare sales reports, and much more. One thousand orders could be deceptive. One thousand orders that result in 74 shipments is less so. EDI technology that tells the precise story beneath the numbers is a manufacturer's most accurate tool.

"I would say our inventory management is 100 percent better because we really didn't have any before. Our order management system has probably reduced our inventory by 30 percent or more, by being more accurate," continues Niedermann. "It has definitely alleviated stress on both sides: on the warehouse side and on headquarters' side. There's more clarity. Less data entry. There's an additional 'happiness factor' that came with it."

### A Better Partner

Niedermann is the first to admit he did not fully appreciate the value and impact a fully integrated order management system across the supply chain would have for his mid-sized company. "Sometimes it feels like we are more a data company than a humidifier and air purifier manufacturer. But that's really what the reality is nowadays. It's the data."

"To know what you're doing - if you're not compliant with your retail customer - you need to find out why. Only the data can show you," Niedermann says. "Everything's about Big Data. Big companies do Big Data because small companies haven't had the money to do it. Now, we can leverage data, too. It dawned on us what power there is to take the data and analyze it to benefit our business."

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## Sophisticated Forecasting



**Inventory management**  
**Accuracy**  
**Clarity**



**Extra inventory**  
**Data entry**  
**Stress**



**Happiness factor**





## Voice of Experience

DiCentral's Edlund emphasizes the importance of organizations assembling team members that are familiar with the tools and applications their businesses rely on, in addition to those involved in the order fulfillment processes.

Niedermann took the lead for Crane in bringing about its transformation and has several recommendations for those seeking to implement EDI transactions:

- **Accept the inevitable.** "Our business came to a point where we couldn't do it anymore. We came to a stop. In order to ensure growth, we just had to do it," Niedermann says. "The future is based on standards and automation, so embracing that reality is a positive first step."
- **Seek advice.** Connect with other companies. Find out what you need to do and plan ahead before you start with one solution. You could be wasting time and money going in the wrong direction. Talk to others. GS1 US can help you make the industry connections needed for sharing and learning.

GS1 US offers workshops and best practice resources, and they bring together business communities to enable organizations to uniquely and consistently identify products, assets, shipments, and physical locations throughout the global supply chain, while also enabling trading partners to exchange information critical to their businesses.

- **Plan upfront.** What are the costs at the beginning? There will be follow-up costs going forward. Whatever cost is involved – it's just a starting point. There's more in integration and implementation costs, so set those aside. Be aware of your timeline. Do it in your off-season, not at your peak season, if possible.
- **Seek outside expertise.** Get a consultant on board who can advise you.
- **Take it slow but act fast.** Do not rush into it without getting a full analysis of cost and impact. But, things change rapidly in retail. Be progressive and implement as quickly as you can, rather than waiting.

For Crane, the benefits have been profound. "Our confidence is high. It adds to the equity of the company," concludes Niedermann. "Having an automated order management system and access to the data it brings—it's an asset being a more competent partner to the retailer."

## About the Companies

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# Crane

### About Crane USA

Crane products are designed with efficiency, function and style in mind. Crane humidifiers, space heaters, air purifiers and fans promote comfort and health throughout the home. Headquartered in Itasca, Illinois with an office in Hong Kong and global distribution, Crane's parent company is Wachsmuth & Krogmann, Inc (W&K), an international trade company founded over 200 years ago. [www.crane-usa.com](http://www.crane-usa.com)



### About DiCentral

DiCentral is an innovative EDI company, enabling customers to expand their supply chain without limit by solving complex EDI and supply chain integration challenges. Founded in 2000, DiCentral is a leading global provider of EDI and supply chain solutions headquartered in Houston, Texas, with 10 offices worldwide supporting customers across multiple sectors in over 27 countries. [www.dicentral.com](http://www.dicentral.com)

### About GS1 US

GS1 US®, a member of GS1 global, is a not-for-profit information standards organization that facilitates industry collaboration to help improve supply chain visibility and efficiency through the use of GS1 Standards, the most widely-used supply chain standards system in the world. Nearly 300,000 businesses in 25 industries rely on GS1 US for trading-partner collaboration that optimizes their supply chains, drives cost performance and revenue growth while also enabling regulatory compliance. They achieve these benefits through solutions based on GS1 global unique numbering and identification systems, barcodes, Electronic Product Code-based RFID, data synchronization, and electronic information exchange. GS1 US also manages the United Nations Standard Products and Services Code® (UNSPSC®). [www.gs1us.org](http://www.gs1us.org)



### About the GS1 US Solution Partner Program

The GS1 US Solution Partner Program is a network of companies with services, hardware, software, business intelligence and database applications to help companies implement GS1 Standards. The program provides education, certification and marketing opportunities to reach over 300,000+ U.S. companies in 25 industries currently using GS1 Standards. [www.gs1us.org/becomeasolutionpartner](http://www.gs1us.org/becomeasolutionpartner)



### About the GS1 US Apparel and General Merchandise Initiative

The GS1 US Apparel and General Merchandise Initiative is a retail industry group that is committed to defining business challenges and opportunities, and organizing members to explore solutions and create adoption plans. More than 100 suppliers, distributors, retailers and logistics providers are participating members in Initiative activities, focused on improving inventory accuracy, exchanging standardized product data and achieving traceability with GS1 Standards. More information about the GS1 US Apparel and General Merchandise Initiative is available at [www.gs1us.org/ApparelGM](http://www.gs1us.org/ApparelGM).

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