

Contractors Are Using Technology To Tighten Supply Chains



Centralized material tracking is key to shoring up the weak links in the procurement process exposed by the pandemic, construction execs say. Contractors are beginning to centralize and automate their supply chain processes. The COVID-19 pandemic exposed the industry's soft underbelly when it comes to materials procurement and management, but the next step — utilizing blockchain and artificial intelligence to track and predict material flow — is still several years away.

"We're in a very fragmented business," said Tim Jed, who started as Redwood City, California-based DPR Construction's supply chain lead in February 2020, just a few weeks before COVID hit. "We procure things on a project-by-project basis, and materials are generally bought through subcontractors, so the general contractor doesn't always have a line of sight to what's going on with the material supply chain." Jed said it became clear that the firm had to figure out a way to quickly get and communicate a line of sight — "and that really meant we needed to think about process, and we needed to think about technology."

Using several different tech solutions, Jed and his team cobbled together a centralized platform that warehouses all the information DPR gets from suppliers, subcontractors and its own project teams so that everyone within the enterprise can hop on a dashboard to search for real-time updates on supply chain issues, including regional and global material delays and supplier relationships. Using the centralized platform, DPR's supply chain team can proactively address issues and potential issues with manufacturers instead of leaving that up to project teams — "because if we wait to get information about a material through a subcontractor, it could literally be weeks, and by the time we get it, we're late to the party," Jed said.

Centralize First

Companies like DPR are ahead of the curve. Most contractors are still using splintered systems and manual spreadsheets, because it's not easy to build a tech stack that supports centralized access to essential supply chain metrics. "It's very difficult to centralize at the moment because there are a lot of technologies, a lot of clients, a lot of different ideas about how to do it," said Michael Hardman, vice president and head of cost management for the New York City office of construction project management service provider Turner & Townsend. "So, just even embracing that technology and moving away from your traditional RFP, there's definitely an element to improve there. The technology needs to be better. Adoption needs to be better as well."

Across all industries, PwC's 2023 Digital Trends in Supply Chain Survey found that 80% of respondents said supply chain technology investments haven't fully delivered expected results. More than half of the engineering and construction companies in an IBM survey said they consider managing materials quality and risks a vital function, but only 38% said their supply chain functions were effective at it. Startups are emerging to address the gap, and the pandemic has heightened their appeal. Kojo, an all-in-one materials management platform founded in 2018 that brings together field, office, warehouse teams and vendors to give contractors visibility into their supply chain from project takeoff to closeout, has seen its customer base grow by more than 100 times since 2020, said CEO and founder Maria Davidson.



“We saw a huge surge in demand because contractors needed to ensure they were getting the best deals at the best price and, crucially, that they were utilizing their warehouses and that everyone on their projects was using the same system,” Davidson said. “During the pandemic, we had a lot of contractors tell us all their data was in filing cabinets or in email inboxes. If they couldn’t get access to that inbox, they had no idea what had been ordered and what was outstanding.”

Kojo has about 12,000 active monthly users, who access its information via desktop computers, smart phones and tablets, and estimates it has saved its customers more than \$22 million on materials orders, helped them cut 90% of waste on their jobs and reduced manual data entry by 75%.

AI and Blockchain

Once contractors have centralized supply chain data and made it transparent, the next step is to analyze it using AI. The IBM survey identified construction and engineering leaders whose organizations are furthest along in executing a digital supply chain strategy and found that more than three-quarters plan to invest heavily in cloud computing, predictive analytics, IoT and AI. Though AI-driven supply chain management is still several years away, it will eventually allow companies to optimize inventory and sourcing, forecast supply and demand, manage warehouse inventory, spot potential disruptions and swap out materials based on pricing and availability. Blockchain distributed ledger technology is also poised to bring improved visibility and transparency to supply chain processes, but it’s barely on contractors’ radars at this point. Implementing blockchain will require an industrywide effort to establish comprehensive audit trails. “There’s not currently a focus in the industry on that,” Jed said. “The entire industry has to get on board. That will happen over time, but I think it will probably be slow.”

Digital Supply Chain Solutions

- Cemex Go is a digital platform that allows contractors to purchase products, track deliveries and manage orders.
- COINS cloud-based supply chain management software automates procurement processes and provides access to real-time information.
- Geometrid provides visibility and analytics across the supply chain, delivering real-time updates in an interactive BIM environment.
- GoFor provides same-day, last-mile delivery of construction materials, allowing users to track orders and costs, and provides contactless delivery of materials.
- Kojo is a materials management platform that gives contractors visibility into materials supply chain and gives them control over margins to reduce costs.
- Oracle NetSuite ERP is a cloud-based integrated solution offering real-time inventory visibility and procure-to-pay purchasing.
- SiteSense streamlines material, inventory and equipment tracking with insights into material availability constraints.
- Voyage Control helps construction companies manage end-to-end supply chain functions including jobsite deliveries and payments, inventory control and compliance.

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