

Supplier Disruption

FROM BAD TO WORSE

Scott Tilden, a supply chain manager at a division of Ashmark Corporation, was having another difficult morning. It began with the usual 7:00 a.m. internal plant meeting that listed critical production and inventory issues. Not surprisingly, many part numbers from Ashmark's largest supplier, Red Star Castings (Red Star), were on the shortage list. After the production meeting, Tilden had conference calls with two of Ashmark's original equipment manufacturer (OEM) customers. The OEMs were very concerned about Ashmark's supply disruption. Four weeks earlier, Red Star had ceased all operations and declared Chapter 7 bankruptcy.¹ While the contingency plan that Tilden had put in place was working relatively well, the OEMs were worried about Ashmark's product availability and wanted the latest updates on specific components. The disruption was threatening the OEMs' ability to deliver diesel engines that powered expensive trucks, agricultural/construction equipment and even yachts to their high-profile customers.

Unfortunately, the day got worse when Jim Davis, one of the two key project managers dealing with the Red Star situation, walked into Tilden's office. "I quit," said Davis, "The stress of this job is just too much for me. I can't take the travel or the pressure any longer." Try as he might, Tilden could not change Davis' mind, though deep down, he was not entirely surprised. Everyone in the supply chain group was working 60 to 70 hours per week on top of a grueling travel schedule. Even before Red Star's closure, Davis had told Tilden about his rising stress, declining health and a recommendation from his doctor to minimize travel. Yet in the face of Red Star's bankruptcy, stopping travel entirely was not an option.

Since Red Star closed, Ashmark had been late on 200 units of production due to missing components. Although this figure represented less than 1 per cent of the company's total monthly shipments, things were likely to get more difficult, especially with the loss of Davis. In addition, the new supplier was having trouble bringing the tooling online, there were delays in the qualification and testing process, and the modest amount of inventory built up in advance of the bankruptcy had diminished. Yet Tilden was not

¹ Note: Chapter designations refer to the U.S. Bankruptcy Code. Under Chapter 7 bankruptcy, the firm stops operations and under a court-approved plan all assets are sold with proceeds distributed to the creditors. Chapter 11 bankruptcy is a court-approved reorganization often used by firms to keep their business operating, during which time new financing can be obtained and existing creditors are typically prohibited from collecting on debts incurred before the filing.

surprised by any of these issues given the size of the challenge, and had been telling everyone that it would take at least six months to resolve these problems. Still, even Tilden wondered if he had made the right decision in joining Ashmark eight months earlier. As he thought about the company's next steps, Tilden reflected on the series of decisions that had led to this crisis.

ASHMARK: A TIER I SUPPLIER

As a major Tier I automotive supplier, Ashmark had built a reputation for having high-quality and high-technology solutions. It was a supplier of choice for complex, emissions and safety-critical engine components and had worldwide sales of several billion dollars. This U.S.-based division of Ashmark had annual sales of US\$250² million per year. In turn, annual engine and machine sales exceeded \$1 billion across several well-known OEM customers of Ashmark. Typically, Ashmark's assemblies would form a key part of the engine, and its customers were essentially captive once specified on a particular model because the qualification process was expensive and difficult. The company was profitable, with a large and growing market as global emissions and efficiency standards increased. OEMs depended on Tier I firms like Ashmark because of their technical expertise and manufacturing capabilities. The OEMs also largely relied on the Tier I firms to manage the Tier II and Tier III supply base.

Tilden seemed to have the right background for dealing with supplier issues. Tilden was an experienced supply chain professional with a background in sourcing and project management, and he had an engineering degree and an MBA. During his interview with Ashmark, the division general manager told Tilden that the company was having difficulty with Red Star and needed his help. He also promised Tilden opportunities for promotion as Ashmark was expanding: "You won't be in this role a year from now, but come here and help us out. We have an opening for the division supply chain director, and we are opening a new plant next year and need top talent. In the interim, you'll report to the division director of marketing, but that is temporary. You could be our next senior leader, and in any case I want you."

RED STAR: A TIER II SUPPLIER

Like many foundries, Red Star used a casting process that was centuries old, but now had sinister-looking machinery to speed production. To make an aluminum casting, damp green sand was compressed in a molding machine into a large block, with an impression formed in the pattern of the finished part. Sometimes, a separately formed internal core (also made of sand) was included, so that when molten aluminum was poured into the sand block, it cooled in the shape of the part. At the end of the line, the sand was broken away with hammers or pneumatic tools and the casting sent for finish machining. At Red Star, workers transported much of the molten aluminum by hand in large ladles, creating an environment that was hot, dusty, loud and dangerous. The foundry had conveyors to move the green sand back for re-use, furnaces melting aluminum and open flames to keep molds and equipment at temperature. While Red Star owned the molding machines, conveyors and other equipment, Ashmark owned the tooling, which consisted of the molds and core patterns for each specific part. Ashmark's molds lasted for years and many were over 10 years old; it was prohibitively expensive to have duplicates for all of the tooling, especially as most had low annual production volumes.

Red Star had been providing quality products at competitive prices to Ashmark for decades and had expanded its capabilities to better serve Ashmark's needs. Several years earlier, Red Star had added more capacity for finish machining so that instead of making only castings, it could provide complete parts. In

² All currencies are in US\$ unless otherwise stated.

fact, Ashmark had stopped doing in-house finish machining more than three years prior to Red Star's bankruptcy. This move fit with Ashmark's corporate strategy of focusing on higher-value-added machining, design and assembly, while leaving the (supposedly) less important and lower value-added repetitive machining to Tier IIs like Red Star. Recently, Ashmark had sourced a few of its higher-volume products from other suppliers in low-cost countries, which left Red Star with a higher mix of lower-volume products.

RED STAR: IN DISTRESS

When he started at Ashmark, Tilden was shocked at the mess he had inherited: it was far worse than he had expected. While its total sales were less than \$10 million per year, Red Star supplied components for more than 75 per cent of Ashmark's products, and Ashmark represented 90 per cent of Red Star's business. Prior to Tilden's arrival, a few buyers had looked into re-sourcing some of Red Star's products, but Red Star's prices were far lower than those of its competitors and no one at Ashmark wanted to consider a price increase. Indeed, Red Star's prices were competitive with world-class suppliers from Mexico, Brazil and China, and far below other domestic sources. Despite this, some two years earlier, the previous supply chain manager had negotiated a price decrease of \$400,000 from Red Star, which assured his annual performance bonus for achieving his individual cost reduction goals. That price decrease, coupled with the mix of lower-volume parts, had put additional financial pressure on Red Star.

Shortly after joining Ashmark, Tilden met the president and majority owner of Red Star, Barry Loudon. Loudon was covered in grease and had just repaired one of the sand conveyors. Loudon's father had founded Red Star in 1968, and the company had won awards from Ashmark, including being named Supplier of the Year several times. Control of the privately held firm passed to Loudon after his father had retired several years ago. Yet despite his leadership role, Loudon seemed happiest when he was on the factory floor, fixing a machine or solving a production issue. It turned out that Loudon had fired Red Star's accountant 18 months before the company had declared bankruptcy. Though it only emerged later, by the time Tilden came on board, Red Star had months of unpaid invoices piling up in a drawer in Loudon's desk. Furthermore, as a private firm, there were virtually no publicly available indicators of financial distress, which made it difficult for Ashmark (and the OEMs) to recognize the problem.

Loudon was respected by the local community, and was on the board of directors of the local bank. Some years before, that bank had loaned Red Star several million dollars, in addition to two small business administration loans that enabled Red Star to expand its building and add more finish machining capacity when Ashmark outsourced that activity to Red Star. Yet the creditors had begun calling in earnest even while their other customers sought new suppliers. Six months before Red Star closed; virtually all other customers had pulled their tools and stopped doing business with the firm. Around the time that Tilden joined Ashmark, Red Star demanded a 15 per cent price increase, retroactive to include deliveries over the last eight months. That action moved it further up on the general manager's agenda. Of course, this was well after Ashmark's previous supply chain manager had been promoted out of direct supervision of the supply chain, up to director of manufacturing.

As the situation at Red Star became more desperate, Ashmark increased its support, sending a team of its retired maintenance technicians to work on site at Red Star to keep the foundry operating. Ashmark also advanced Red Star money each week, enough to fund the aluminum purchases and payroll. That gave Red Star some breathing room, but eventually creditors seized the account just after Ashmark had wired the weekly operating funds. After the seizure, Ashmark encouraged Red Star to go into Chapter 11 bankruptcy, so that the company could stabilize and have time to re-organize. Under Chapter 11, at least the wired funds could no longer be seized without a court order, and Red Star kept operating for several months.

BREAKING FREE OF RED STAR

Tilden soon realized there was no formal plan for exiting Red Star and no real contingency plan if the foundry closed its doors. He developed a transition plan and oversaw its execution. He tasked Davis with finding new sources for Red Star's castings, and put together a plan to build up as much inventory as possible — something Ashmark had failed to do thus far. In addition, Tilden immediately made sure all of Ashmark's tooling was cataloged and stored off site, so ownership could not be disputed if Red Star unexpectedly closed. On the higher-volume parts, new duplicate tooling was expedited at significant cost and was coming on line. Tilden's plan was to get most of the highest-volume parts from a suitable supplier in Mexico and eventually have two sources for the high- and medium-volume parts. Yet it was not possible to duplicate the lower-volume tools, which had to be moved to an alternate source with compatible molding equipment. These low runners were produced to build up inventory, and the tooling was moved to another domestic foundry under Davis' supervision. This process started to work, as the new supplier came on line and a modest inventory accumulated.

Meanwhile, Tilden tried to help Red Star reorganize, but there were virtually no viable options. He explored purchasing Red Star outright, but the environmental liabilities of the old foundry would have been millions of dollars, and no one wanted to take on that additional unknown responsibility. An outside firm looked at buying Red Star, but also decided against it. Finally, shortly before closing the company's doors, Loudon made a desperate final proposal: Ashmark would loan Red Star several million dollars to pay off some of the immediate debts and help modernize the facility, accept an immediate incremental 30 per cent price increase this year and agree to guarantee price increases over the following years. In addition, Ashmark had to agree to bring all new business to Red Star for the duration of the contract. Tilden had no confidence that Red Star could be profitable and even less confidence that Loudon could capably manage the new firm. Further, this arrangement would have maintained the symbiotic relationship between the firms. After considering the plan and discussing it with division executives, Tilden declined Loudon's proposal.

When the closure seemed imminent, Tilden suggested that Red Star plan for an organized shutdown at the end of the following month, and offered that Ashmark would pay more for each completed part during that shutdown period. Having a date more than a month away would allow greater potential to keep Red Star as a going concern and possibly to find other buyers or investors. It would also permit Red Star to reduce its inventory of unfinished castings and maximize the value to all parties. Tilden suggested that this would benefit Red Star employees as well and even offered to hire Loudon as a consultant for at least 90 days after the shutdown. Tilden also realized that more time would mean even more tooling could be qualified at the company's other sources while maximizing production at Red Star for as long as possible. Ultimately, Loudon rejected all options for an organized shutdown. He told Ashmark to remove its tools and that Red Star would close its doors. Tilden's on-site team shipped the remaining tooling directly to the new supplier and sent any remaining inventory to Ashmark.

DISRUPTION AND AFTERMATH

Tilden recalled that fateful conference call four weeks earlier, the day after Red Star initiated Chapter 7 bankruptcy and consequent closure. Ashmark's largest OEM flew in four managers for an emergency meeting starting at 7:00 a.m. on a Saturday. As the supply chain manager, Tilden had a central role at the meeting. In preparation, he talked to Davis late on Friday and got a status update about his efforts at the new supplier. Davis had just landed back home at the airport, stressed and tired from his recent efforts. Both Tilden and Davis were worried about the increased workload that the closure of Red Star would bring. Knowing very little could be done with the tooling in transit, together they agreed on a plan that

would give Davis the weekend at home, but would get him back to the new supplier on Monday morning. Tilden also assured Davis that he would soon get more assistance, especially once the Ashmark team (including those formerly on site at Red Star) could come to help.

Before the meeting on Saturday morning, Tilden had talked to his supervisor, Ashmark's director of marketing. Tilden provided an overview of what he would be presenting to the OEM. He learned that the meeting would include the four managers from the OEM, Tilden, the director of marketing and two of Ashmark's customer account managers. In addition, Ashmark's corporate vice-president of supply chain would be calling in to let the OEM know that he was aware of the situation and he offered to assist in any way possible. Finally, Tilden told the director that Davis would not be at the meeting, and that he was not to be contacted at home under any circumstances.

As the meeting began, Tilden went over his strategy and outlined the specific action steps Ashmark was taking given the circumstances. The plan included: active management at Red Star to maximize its output for as long as possible; sourcing a suitable new supplier; and duplicating the highest-volume tooling for production at another source. In particular, one of Tilden's two key managers (the other being Davis) had been located on site at Red Star since the past summer, executing the withdrawal plan for Ashmark's specialized production tooling. In recent months, Ashmark had stored that tooling off site in a nearby rented warehouse (except for what was in immediate production) and had painstakingly built up an inventory of parts in expectation of the Chapter 7 outcome. Ashmark employees working at Red Star also organized, documented and labeled all the tooling and arranged for immediate shipment if necessary.

A number of tools had been successfully moved to a new supplier and more were already in production pending final approval. Davis had been instrumental in locating that new supplier and he was in charge of bringing the transferred tooling on line. Tilden also described the detailed qualification process, which went far beyond typical dimensional quality and conformance verification; because they were a key part of the emissions system of the customer's diesel engines, the components had to go through both performance and destructive testing. This insured that the engines would meet the mandated pollution standards and be physically safe for the end user if one of the systems failed.

As he finished his presentation, Tilden could see a few glimmers of hope. While initially very agitated, the managers from the OEM had calmed down once they recognized that there was a plan in place. They asked about what would happen next, and Tilden noted that all of the remaining tooling was currently on a truck from Red Star to the new supplier. Davis would be there on Monday morning to help assist in starting production. As the meeting went on, the focus turned to the details of which parts had been built up in inventory and how that inventory matched with the customer's ever-changing build schedule. The triage process drove the sequencing of components for pre-production and the qualification and approval process. The discussion went into considerable detail, mostly between the OEM and Ashmark's account managers, who were used to managing production schedules under constraints of one form or another. Though it took some time, the group had made good progress and at 12:30 p.m., Tilden excused himself and went out to pick up sandwiches for the participants.

When he arrived back a few minutes later, Tilden was stunned to find the group huddled around a speaker phone, with Davis on the line. Apparently, during the time Tilden was out of the room, the OEM had a specific question about one of the tools that had already been transferred to the new supplier but had not yet been approved for production. Ashmark's director of marketing pulled out Davis' phone number and called to ask about the part. After reaching Davis at his home, they kept him on the call some 45 minutes. Davis became increasingly frustrated as the call went on, especially when pressed by the OEM to personally commit to

specific deadlines beyond his control. By the end of the call, the director told Davis to get on a plane immediately so that he could be there to supervise unloading the truck if it arrived late on Sunday night.

After the meeting ended, the director of marketing visited Tilden's office to discuss the meeting and next steps. Tilden explained again that he had instructed Davis to take the weekend off, but had agreed on a plan to get him back to the new supplier on Monday morning. Though reluctant to share what he knew of the confidential medical issues, Tilden explained that Davis was under a lot of stress and needed some time at home to recover. Tilden noted that he was trying to provide some balance for his team, especially as there was little to be gained from Davis being present at the new supplier when the tools were in transit. The director was unsatisfied and directly questioned Tilden's commitment to serving the customer. As he left Tilden's office, he turned back and said, "You made a bad call. Davis should have flown back out on Friday, and been there waiting for that truck if it arrived on Sunday night."

WHAT NEXT?

Later that afternoon, Tilden thought about all of the events and Davis' resignation weighed heavily on his mind. Tilden planned to try to talk to Davis the next morning and see if he could change his mind, but it seemed clear that Davis would not continue at Ashmark. Tilden thought again about his supervisor's decision to call Davis at home and then have him fly back immediately to the new supplier. While that may have made Ashmark and the director look better in front of one OEM at that moment, it was Tilden and the rest of the supply chain team who had to pick up the pieces. Tilden could handle his supervisor's criticism but it particularly bothered him that he had apparently failed to protect his team. It would be nearly impossible to replace someone with Davis' expertise and years of experience.

Furthermore, there had been more than enough internal organizational changes and a lack of communication. The general manager that hired Tilden had already taken a promotion and moved over to Europe. It was somewhat ironic that the director of manufacturing was named the interim general manager — he had been the supply chain manager in charge of vendors like Red Star and had recommended continuing the sole source strategy with Red Star. Now, Ashmark could not ship all products that were on order. Nearly every day, Tilden was badgered about when the company would be done with the transition, even though the plan he had communicated indicated it would take a minimum of six months to get back to reasonable health and a year to be fully back on track. Tilden had tried to remind everyone that Red Star had been Ashmark's single biggest supplier, and the recovery process would not be easy.

Yet that did not stop the customers from calling. That morning, Ashmark's largest OEM was particularly upset about six units of a very low-selling model, one where the inventory was low prior to the closure. These had never been a production or qualification priority, but they suddenly seemed to be red hot. They were destined for engines going on three custom-built yachts that could not be completed, and those yachts were now in danger of missing their promised spring delivery schedule. Though such calls were not pleasant, Tilden recognized that he could deal with the customer's demands and deflect some of the pressure off his team. Still, Tilden shook his head. Since the bankruptcy, the transition plan and dedicated teamwork of many Ashmark employees had kept parts flowing so that thousands of engines made it out on time at the OEM, yet he was getting substantial push-back over six units.

As he looked out the window at the late winter sunset, Tilden wondered what more he could have done: How could he have made the case for more resources, qualifying more suppliers or getting buy-in on the timeline required to return to full production? Or had he done all he could given the circumstances stretching back many years? Most importantly, what should he do next?