

Implementing Lean Throughout the Extended Enterprise

Three companies band together for a leaner supply chain.

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You've made strong progress internally. It's time to begin working on lean more actively with your supply chain. As you begin that work, here are important points to consider from leaders within three companies that continue working together to lean their supply chain:

1) "There is a cost of inefficiency; pushing it down to a supplier does not eliminate it. EPIC and Respironics understand that."

Ed Smith, senior vice president, director of sales operations Americas for Avnet.

2) "We had a real partnership (with Respironics) before we began this joint effort, so trust was never an issue for us. We have open and frequent communication." *John Sammut, president and CEO, EPIC Technologies.*

3) "You have to strive to understand each other's key business drivers." *Eric Kulikowski, plant manager, Respironics Murrysville, PA.*

The executives were presenters during a recent AME educational event, "The Next Frontier in Lean Implementation ... Implementing Lean Throughout the Extended Enterprise." The session was held at EPIC Technologies, Huron, OH and nearby Sawmill Creek.

Extending Lean Through the Supplier Base

In 2001, Avnet, an electronics distributor, was a supplier to EPIC Technologies, a growing electronics assembly manufacturer that was a supplier to Respironics, a fast-growing manufacturer in the sleep and respiratory market. Each company

In Brief

Faith, trust, and open communication are among the success factors of the lean supply chain improvement partnership between EPIC Technologies, Respironics, and Avnet. They've learned how to improve inventory turns, achieve better on-time delivery performance, and make other gains through their joint efforts.

was making progress internally with lean. Each company wanted to make even more progress.

Respiroics decided it was time to extend its lean activities into its supplier base. They began by focusing on their strategic supply base, which included EPIC. EPIC, enjoying the benefits of its own lean journey, welcomed the invitation to participate in the initial Respiroics supplier conference. That first conference was, in retrospect, a bit one-sided. The company used that meeting to roll out its expectations of its strategic supply base in areas ranging from Kanban and quality control systems to lead-time, flexibility, and freight systems. They didn't really invest much time in seeking feedback about what the suppliers would need from them. That would come later in the process. But they did begin the process with EPIC and other key suppliers to lean the supply chain.

First-year results were positive, but not great. Among other things, Respiroics created a web-based portal to aid supplier information access. An improvement, but not the giant leap forward they were seeking.

Strategy Change

Then they read *The Purchasing Machine* (Nelson, Moody, and Stegner). While they had been a good partner with their strategic suppliers, they discovered that they could be a much better partner. Kulikowski credits the book with providing the foundation of the model Respiroics began to use with its strategic suppliers in 2002 - a model that enabled a significant change

in how the company works with its suppliers and the mutually beneficial results of those relationships. Strategy changes included cascading lean practices to the strategic supply base and internally creating an organizational focus on strategic supply management.

Respiroics holds quarterly business reviews with each of its strategic suppliers. They exchange information about critical business drivers, proactively discuss risk factors, and have an open and honest exchange of ideas, concerns, and commitments. These meetings are a tool to ensure that the supply chain is aligned, as the conversation extends beyond Tier I concerns. For example, they have dealt with issues ranging from supplier capacity constraints to root cause investigation of quality problems. This partnership planning and communication commitment is instrumental to the success of the lean activities of the supply chain.

Following that initial supplier conference, EPIC and Respiroics personnel began to work together to develop a Kanban implementation plan. They used a pilot approach, starting with part numbers that had consistent high volume and a high chance of success. They were able to work out the bugs and reduce kanban quantities on those, before starting work on more complex parts.

They knew they would face both forecast accuracy and packaging problems as they moved forward, but working together, they have made great progress in both arenas. They developed standard containers with flexibility provided by ESD (electrostatic discharge) inserts to match the various component and assem-

bly shapes and sizes. Through their collaboration in quarterly meetings and constant communication in between, they have enhanced the value of their forecasting process. Forecast quality has also benefited from the reduction of leadtimes.

The companies agree to "plan to a forecast; build to demand." What that means in practice is that there is no master production schedule based on a forecast. A general level of output is determined based on the forecast, but the actual schedule is a function of incoming customer orders, updated several times per day as orders are regularly reviewed.

Challenges of Lean Partnership

The transition from three separate companies working individually on becoming lean to a single supply chain working together to become leaner is not without challenges, even with the healthy relationships Avnet, EPIC, and Respiroics shared going in. The majority of problems they have seen were expected, but a few have been difficult to resolve.

For example, they found they initially set their inventory turns goal too high. The problem was not that they couldn't hit it; it was that they could. Actual turns approached 100 times on some items; however, freight, Kanban, and other business process systems simply could not handle turns that high. So the choice became: Back off the goal, or find a way to change all the systems to handle the high turns. Talking honestly together, they decided in this particular case to back off - it made more sense to the supply chain

Sample Results to Date

- EPIC doubled its raw materials turns
- EPIC increased its WIP turns by a factor of ten
- Respiroics turns of EPIC products increased by a factor of almost ten
- EPIC has maintained a 99 percent on-time delivery to Respiroics
- EPIC's lead time to Respiroics decreased from two weeks to less than two days (often the next day).

Figure 1.

– but it was not an easy decision. The companies agreed to work together to improve the logistics and related infrastructures and will be revisiting the turns goal.

As they became more and more comfortable making improvements, they found themselves stressing the business and operating systems more frequently, and finding the limits of those systems. They are becoming better at understanding the limits of their processes, better at setting targets, and better at deciding if they should find a way to expand those limits or back off on the goals.

***Initial Accomplishments,
More Opportunities Await***

What have they accomplished together? A few numbers (raw material turns, WIP turns, etc.) indicating their progress are shown in Figure 1.

Respiroics, EPIC, and Avnet are each more effective, and their supply chain more competitive because of the work they have done individually and together. And while they continue to work with each other and with their supplier bases, they realize that working with their customer bases is an un-

tapped opportunity. They know that the concept of postponement may hold great potential as well. There is no end in sight to the opportunity to work together to improve.

One last point to ponder, as you begin working with your supply chain: Beauty is only skin deep, but inefficiency can go all the way to the bone.

As Eric Kulikowski of Respiroics Murrysville said, “You can’t stop at the first tier supply base. Identify the largest risk - it may be the fourth tier; you have to identify it and work it. You could include your intermediate channel partners in working with those tiers, but you cannot abdicate the responsibility to them.”

Editor’s note: Additional presenters included Dave Curry of Global Supply Management, Inc. and Wal-ly Johnson of EPIC Technologies.

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