

A Model For American Manufacturing Growth

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At the recent Building America conference at Hypertherm, Inc., one of the world's leading designers and manufacturers of advanced plasma cutting systems, something amazing happened: the 50+ customers and distributors in attendance stopped a Q&A session with the president to praise the company for its success in supplying a high quality product, delivering performance and exceeding customer expectations.

Hypertherm's Cause for Applause

As an operation that manufactures about 97 percent of its product in the United States with a local labor force, yet sells 60 percent internationally, Hypertherm has become a model of how American manufacturing can be competitive globally with low-cost, low-wage markets.

What's the secret to Hypertherm's success?

The company's growth is the result of its unique approach to manufacturing operations, starting with its application of lean tools. Most organizations have tried to apply lean tools like kaizens, setup reduction, point-of-use tooling and others to drive efficiency and productivity, and reduce lead times. These same companies may have even utilized more advanced methodologies like value stream mapping or mixed model production to achieve further gains. And they have educated their workforce in lean tools and empowered them to use them to get better each day. In effect, they have created a "journey of continuous improvement."

But while Hypertherm used these same tools and methodologies, its journey was

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different. The company did not strive to get better each day, to increase efficiency or productivity, or to reduce lead time by setting management goals and running kaizens. Instead, it set a destination for its journey.

Early on, it described how the factory should perform when the customer gives it an order. It designed how information and material should flow. It answered questions such as, “How would each associate know what to work on next — without a schedule or management?” The destination of all of its continuous improvement efforts was to create an operation that ran autonomously. In other words, its destination was one of “operational excellence,” where flow would occur without the need for management intervention, even when it breaks down.

OpEx Defined

Operational excellence is defined as when “each and every employee can see the flow of value to the customer, and fix that flow before it breaks down.” Hypertherm set this as its overall operating philosophy, or what might be called the destination for its continuous improvement efforts, and then used lean to reach it, taking value streams to a whole different level in the process.

“Operations aren’t a fundamental business problem,” said Jim Miller, the vice president of manufacturing for Hypertherm. “[It] gets time; it’s not ignored. It’s not like we don’t want to talk about it. It’s that we don’t have to talk about it.”

Visiting the production area at Hypertherm and speaking with a team leader, Sarah, drives home how the company is able to continue pursuing the goal of autonomous, management-free production even as it experiences strong growth.

Sarah is responsible for an area of production for one of Hypertherm’s assembly value streams, in which roughly a dozen associates work, and is tasked with ensuring daily production quantities are met and orders are shipped on time. However, this is not where she spends each day. Rather, Sarah spends her time teaching production associates, in training, and in the sales department, working to place customer demand into her value streams. At times, she also works with other associates to make improvements to the flow, which are implemented where needed directly, without meetings or management sign-off on the requests for improvement.

The time Sarah does spend in the production area is to ensure potential breakdowns in flow are taken care of or even pre-empted by recognizing when product has fallen into a red zone and jumping in to another assembly station to help get flow back on track. If the backup in flow is greater than something she can handle herself, Sarah might pull someone in from another part of production to help temporarily, or even seek out an engineer to fix a more deep-rooted problem — which happens minimally, if at all.

Offense for Growth

While other companies saw lean tools and methodologies as a way to cut costs,

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reduce lead times and drive productivity growth while leaving existing layers of production management intact, Hypertherm designed and implemented a flow where the associates who build the product can see if the flow of product to the customer is normal or abnormal, and take action to fix abnormal flow without management. All of this is done to the point where Hypertherm does not need a production control department, and delivers customer orders each day without one.

The result is that Sarah and other team leaders can spend their time on “offense,” or activities that grow the business. And the benefits to the company’s growth are many:

- Each associate looks at the flow of product to the customer and does something to ensure that flow is maintained.
- Each associate works on “offense” activities.
- Very little management in manufacturing and no production control department greatly reduces overhead costs and product costs to the customer.
- Management can spend more time in technology development and satisfying future customer needs rather than managing a factory.

By enabling the company to provide high quality products at a competitive price globally, invest time and effort on technology development, and allow leadership the time to work with emerging markets, Hypertherm had to plan for continued growth over the next ten years near its New Hampshire headquarters. To accommodate its future success, the company completed the construction of a new 160,000 square-foot Cutting Technology Center in 2012.

A Formula for Future Success

Hypertherm is a model of how to be successful in manufacturing in America. Its belief in its associates to sustain Operational Excellence to drive autonomous, management-free manufacturing operations has enabled the company to compete in low-cost areas that most domestic manufacturers could only dream of penetrating.

“Going forward,” said Miller, “we’re going to keep pushing the envelope for how autonomous our operations can be in terms of not relying on management for their day-to-day functioning.”

Autonomous operations is the secret to Hypertherm’s success, and it is philosophy that appears to have poised the company to continue to generate strong business results well into the future.

Kevin J. Duggan is a renowned expert in applying advanced lean techniques to achieve Operational Excellence and the author of three books on the subject: Design for Operational Excellence: A Breakthrough Strategy for Business Growth, Creating Mixed Model Value Streams, and The Office That Grows Your Business – Achieving Operational Excellence in Your Business Processes. As the

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Founder of the Institute for Operational Excellence, the leading educational center on Operational Excellence, and Duggan Associates, an international training and advisory firm, Kevin has formally educated and assisted many major corporations worldwide over the past 12 years, including United Technologies Corporation, Caterpillar, Pratt & Whitney, Singapore Airlines, IDEX Corporation, GKN and Parker Hannifin. A recognized authority on Operational Excellence, Kevin has contributed to many publications, is a frequent speaker at both public and private conferences, and lecturers graduate students in business at colleges throughout the United States. Kevin received a Bachelor's Degree in Mechanical Engineering from Roger Williams College.

Learn more about Duggan Associates at www.dugganinc.com [1].

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