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OPTICS INNOVATIONS

Thorlabs: *Swimming in the Fast Lane*

Alex Cable and Laurie Morgus

Thorlabs is taking a series of swift, precise strokes to meet its goals for aggressive growth.

Like many technology companies, Thorlabs has never been content with merely treading water. In 2011, the company's growth was a healthy 18 percent over the previous year, and revenue broke through the \$200-million-per-year mark. Last year was slightly slower, but the company still expects double-digit growth for 2012. Although Thorlabs' legacy products represent the major portion of its revenue, new product development is also key to its sustained rapid growth. Here's how the company compresses its time to market.

Incubating ideas. Thorlabs has built an idea depository that has evolved into an online product incubator called BrainWave. It provides an internal space to post product and technology ideas. The tool then encourages comments from any of Thorlabs' roughly 850 employees and industry friends. As ideas gain support (measured in votes), BrainWave monitors a number of parameters to push high-potential ideas forward. Currently there are 7,421 active product ideas at various stages of development. BrainWave gathers estimates on resource allocation from marketing, engineering, manufacturing and other groups as the ideas pass through the system, and staff

conversations move from unstructured dialogs into formal interdepartmental product meetings. In the near future, BrainWave will also act as a full-lifecycle management tool. Company leaders ultimately hope to make large portions of it available to the entire industry.

Going local. As many companies extend the length of their supply chains by seeking the lowest-cost batch production methods, Thorlabs has taken the opposite approach—building local manufacturing facilities and synchronizing production with customer demand. This strategy conveys a multitude of benefits: Worldwide, more than 93 percent of roughly 20,000 products ship on the day a customer places the order. The team at Thorlabs can take product improvement ideas and produce an updated product within days or weeks, since there's no need to purge its inventory channel.

Customer-driven design. Thorlabs is also successfully synchronizing design with demand. For example, in the first half of 2012, the company released 1,012 new products, over a third of which were inspired by customers. This milestone has been many years in the making,

as Thorlabs has invested heavily in building the infrastructure that can sustain bringing 500 new products to market per quarter.

Investing and restructuring. The leaders at Thorlabs invested in both the personnel and capital equipment needed to streamline design, manufacturing, marketing and fulfillment processes. There have been a few strategic restructurings to allow engineers more time to actually engineer. On the manufacturing side, to keep up with increased production, Thorlabs added new CNC optics fabrication equipment, machine tools and metrology capabilities.

Integrating processes to promote quick development. The various business units within Thorlabs use what company personnel refer to as “swim lanes.” These are processes that allow a design to move unimpeded through the various stages of product development outlined in the BrainWave incubator. During the initial stages, 3-D printers as well as dedicated machines and optics shop tools

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are used for prototyping. Then the design is modified as needed. Finally, manufacturing, marketing and warehousing occur, and the product is released for sale on the company’s e-commerce website. Thorlabs also learned to use the swim-lane manufacturing infrastructure to build initial inventory.

Creating a high-speed culture. Regardless of whether a project makes it into a swim lane or stays in normal development channels, there is a sense of urgency throughout the company. Engineers and key members of the manufacturing team engage in short, twice weekly meetings. This streamlines the flow of new products by having everyone on the same

page, with the same priorities, and swimming in the same direction. BrainWave also ensures that others who are not present at the face-to-face meeting are kept informed of individual projects as well as the overall future demand for their services. This is especially important for the marketing staff.

Without careful flow management, projects tend to bunch up, creating bottlenecks. The guiding principle at Thorlabs is “touch it, finish it.”

In 2013, the company is expecting to achieve two milestones: One is attaining a new product rate of 600 per quarter, and the other is to realize more than \$15 million in revenue growth from market extensions

that reach outside its core scientific and product R&D segments. For example, the Microscopy Tools division based in Sterling, Va.—which represented 22 percent of the company’s growth in 2012—is expected to accelerate to 30 percent

for 2013. This group is a purely green-field initiative that has established its ability to build from scratch a new division that serves a new-to-Thorlabs market.

For 2014 and beyond, there are other substantial green-field projects in the BrainWave incubator mixed in with several thousand incremental ideas. With Thorlabs’ average compounded annual growth rate of 20 percent and ambitious future plans, it seems the company was built for life in the fast lane. **OPEN**

Alex Cable (acable@thorlabs.com) is the founder and CEO of Thorlabs. Laurie Morgus is the marketing communications manager.

Laura Field



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PRESIDENT & CEO

Alex Cable

NUMBER OF EMPLOYEES

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AVERAGE CAGR

20 percent