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Cut Costs: Improve Competitive Advantage.

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Systematic – and predictive – cost reduction in semiconductor equipment manufacturing.

After a period of double-digit growth, the semiconductor equipment industry has now stabilized to the point where recent market forecasts are predicting anemic single-digit growth rates. This is driven by total market demand from chipmakers. For example, despite strong growth of 12.9 percent in 2014, Gartner, Inc. projects worldwide semiconductor capital spending to only grow 0.8 percent in 2015, to \$65.7 billion. [1] Additionally, this industry has always been subject to volatile demand cycles that are notoriously difficult to predict.

Translation: It's extremely challenging for today's semiconductor equipment manufacturers to improve their financial performance. There are fewer and fewer opportunities to grow topline revenue through innovation and new product development. And, after several years of cutting costs on existing products and not realizing enough cost reduction to improve margins, it's difficult to know how to do it differently. Yet a viable alternative to improve financial performance does exist: A disciplined, rigorous, and systematic approach to reducing costs that delivers more predictive results.

A systematic approach to cost reduction

Where cutting costs was once perceived as the end result of "desperate times, desperate measures," many innovators are now using this approach much more proactively. By meeting the idea of cost reduction head on – as an opportunity, not a last resort – many semiconductor equipment makers are uncovering wasteful, inefficient, and costly processes, often in areas they once overlooked. At this point, you may be thinking, "All of this sounds great, but what is a systematic approach to cost reduction, and how is it different from what I'm doing?"

Remember that many manufacturers (in all industries) tend to have a hard time driving costs down. They may set cost reduction goals and then attempt to achieve them using various ad hoc approaches. But they really need to understand exactly what their true costs are, where they exist, and which areas will improve their margins.

A systematic approach to cost reduction gives them this insight. With improved visibility into the entire organization, various processes, and how they execute, semiconductor equipment manufacturers can't identify the right places to cut costs and hit their cost savings goals. This is a very detailed and planned approach in which organizations closely examine areas such as cost of goods sold, R&D, and service to make more informed decisions that will position their business for long-term success. This is the value of a systematic approach to cost reduction.

This approach also introduces the element of speed, helping equipment makers realize cost savings much faster than ad hoc cost-cutting initiatives and puts them on a path to achieve more predictive results. Beyond the positive (and more obvious) impact successful cost reduction has on a semiconductor equipment manufacturer's bottom line, it also provides a number of significant benefits such as improving productivity, freeing up key personnel, and providing needed capital to fuel new growth.

The path to predictive results

Even if the concept of a more strategic approach to cutting costs sounds reasonable, many semiconductor equipment manufacturers struggle with how to begin and where to focus. All too often they resort to making reactive decisions regarding existing products without the necessary data, leading them to ask questions such as, "Should we have an obsolescence plan for this product?" "How much could we save?" and "Will this lead to bigger problems down the road?"

Without understanding where your best opportunities for cost cutting are, it's a lot harder to predict when, and if, cost reduction goals will be met. A systematic approach to cost reduction includes establishing clear cost targets, communicating them to leadership, and measuring and reporting results along the way.

The first step is to engage with an outside firm that has a singular focus on cost reduction, and one that is clearly separated from day-to-day operations and current organizational dynamics. Such an engagement will yield an actionable list of improvements with specific cost targets, realistic timelines for achieving these goals, and future plans for reinvesting the cost savings.

More specifically, a systematic cost reduction approach will focus on three key areas: material costs, R&D costs, and service costs:

1. Material costs: The bill of materials is one of the most common ways to see all the components needed to produce the end product. But this goes well beyond the pure cost of materials. Research has shown that improving the way these components are managed can affect 80-90% of the product's total costs. [2]

For semiconductor equipment manufacturers, the cost reduction process should start with the selection of the products or sub-assemblies that have the highest potential for

savings. Focus on those products that are still generating significant revenue, but may not be receiving much attention in terms of engineering upgrades and enhancements. Thoroughly examine the bill of materials for these products by addressing materials, design, complexity reduction, the potential to create common assemblies, and more.

Value engineering efforts can simultaneously improve product functionality and performance while reducing bill of material costs. This effort should factor in ways to meet RoHS requirements and when to make end-of-life decisions for various electrical components to improve design efficiency and the effectiveness of the product.

A realistic cost reduction goal can then be created and a resulting value-engineering project can commence, often using low-cost offshore resources to best achieve those savings.

2. R&D costs: Making better decisions related to R&D processes and product development can shave considerable costs. Some areas to focus on include:

- When to officially end of life non-performing products
- When to consolidate products, or possibly even entire R&D departments
- When and how to move sustaining engineering efforts offshore, or to other lower-cost alternatives

The critical next step is to look at all products and all product variations to determine if an official end-of-life program should be employed. These decisions are notoriously hard to make and often require difficult conversations with key customers, but they are necessary nonetheless.

Many semiconductor equipment manufacturers have grown through acquisitions, creating redundant engineering groups that can be eliminated or downsized. Performing an organizational analysis of all R&D activities may uncover opportunities to consolidate and combine functions or create centers of excellence that focus on specific technical areas eliminating redundancies of technical specialty.

3. Service costs: Examine engineering and design processes to find ways to improve performance, reliability, and costs. For example, adding data collection technology or product diagnostics to enhance remote support efforts and predictive maintenance.

Improvement of product reliability is usually a large multiplier when it comes to service and spare parts costs. Collect and analyze field data to find the most significant issues driving service costs and then look to cut where possible.

For example, equipment in the field often does not have the capability to report enough information to effectively identify a problem. Adding increased data logging and communication can be used to clarify machine status and point services in the right

direction. Connectivity can also help with remote diagnostics, all of which helps reduce costs, uptime, and customer satisfaction.

Cost Reduction as a Competitive Advantage

Short-term market forecasts will continue to make it challenging for semiconductor equipment manufacturers to deliver improved financial results. Yet the concept of a systematic approach to cost reduction is a proven way for them to proactively cut costs – in the right places – and also make better decisions related to existing products and other business systems and processes.

By taking a disciplined, rigorous, and objective look at any and all parts of their organization, semiconductor equipment makers can capitalize on new opportunities to free valuable resources, improve processes and future technology, and reinvest savings for future growth. For many equipment manufacturers the greatest obstacle to successfully exploiting these opportunities is insufficient experience and expertise with a disciplined and unconventional way of approaching cost reduction projects. A systematic approach to cost reduction will be the key to success for companies looking to improve their competitive advantage.

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References

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