

INVESTING IN IMPROVEMENT

Aerospace & Defense Supply Chains Need to Accelerate Improvement

But is it worth the investment? Is there really a return when investing in improvement efforts such as lean and six sigma? Is this the best way to spend my money? Are there other priorities that are higher?

These are important questions to answer – and they're not easy to answer.

Of course, there is the easy answer. If suppliers don't dramatically increase their performance – on-time delivery, quality, lead time, inventory turns, etc. – then they're going to lose business and in the long run fail because they won't be competitive. But unfortunately this answer doesn't seem to motivate very many in this industry.

So we look for real assurances that lean, six sigma, and other improvements really work.

The Cost

Here are the kinds of costs to consider:

- Wages and overhead while people are in training or improvement activities
- Value of lost production – lost productivity during training or improvement activities
- Cost of outside trainers or consultants
- Cost of inside experts

Companies with under 300 employees invest less than 1% of their labor in training and improvement activities. That's less than 20 hours per year. At \$30 per hour fully loaded, this is \$600. (we simply picked a common number, \$30/hour including benefits and overhead – it could be too high or too low for your operation so feel free to use your own numbers but include wages/salary, benefits, indirect costs like administration and overhead)

A kaizen event lasting 5 days or 40 hours with 8 people involved consumes 320 hours in both training and improvement activities. This single event represents approximately 2% of a person's time annually at a cost of about \$1,200 for wages and overhead (again using \$30/hour).

World Class companies involved in the Baldrige program report spending 3-5% of total payroll annually on training alone.

If a supplier invested 5% of total labor in training and improvement activities, using the same \$30 per hour fully loaded, the cost for labor would be \$3,120 per year. A 100 person company would invest \$312,000 if they involved every person in their company. This is usually not the case, however. A typical plan might involve half this amount for \$160,000. Again, this is simply labor and overhead invested in training and improvement activities. If you have your own in-house improvement experts – black belts, lean belts, etc. then you would incur only the cost of the salary for these experts.

Meanwhile let's look at the cost of outside services assuming the company has no internal resources.

Certainly a trainer can be secured on an hourly basis for practically nothing but if you wish to get help with implementing lean or six sigma, you don't want a trainer, but rather you want an experienced practitioner who will train but then coach people to implement what they learn. So let's take the worst-case situation

where you don't have anyone in-house who is capable of implementing and you are under considerable pressure to improve.

A good experienced consultant will charge between \$300 and \$400 per hour of onsite work. This means the hypothetical kaizen event described above will cost 40 hours times \$400/hour or \$16,000. Now we also should consider travel expenses so the actual cost might be at least \$18,000. That's about \$3,600/day.

If we take the typical average engagement for a large supplier for the first year of effort for about 40 consulting days, the cost would be about \$144,000.

Add this to the already significant time-off-the-job figure of \$160,000 and you get over \$300,000 in one year. This is certainly a major "investment" – and it would be best to treat it as an investment and not just a cost because as a cost it's too much to spend. You must get a return for this kind of investment.

The Return

Now what are the potential returns and are they real?

- Cost savings from improvements including reduction in WIP and finished goods; more cash
- Reduction in labor, space, or equipment from productivity improvements
- Increased revenue from customers who place new orders
- Increased company value resulting from increased net profit before taxes

One of the first returns to consider is the average return from a Kaizen event. Kaizen events can increase yield, shorten cycle time, improve throughput, reduce WIP, reduce scrap and rework, eliminate unnecessary labor hours, and free up floor space. The net effect of most Kaizen improvements is to free up capacity. In turn there are many customer benefits many of them immediate such as improved on-time delivery, better quality, and lower cost.

A scan of hundreds of Kaizen report outs that convert these types of improvements to potential annual cost savings show that many Kaizens can produce \$100,000 to over \$1 million in annual savings. The typical engagement we've been seeing includes 4-5 Kaizen events per year so we would expect that with the proper management involvement, these Kaizens might produce a minimum of \$500,000 in savings and easily could top \$1M (being very conservative).

Now what should be our minimum return on investment? In the first year, a return of 2 to 1 would mean that we doubled our money. Where can you get a return like that?

But that's only one type of return. As you make improvements to your operations, you begin to make presentations to your customers and potential customers. Customers are tired of hearing what you do – that's for a buyer to find out. What customers really want to know is do you have the process capability to do what you promised without fail? And do you have the capacity to take on my job? Do you even know what your capacity is?

And so as you accelerate improvement, you gain opportunities for more top line business. What is that worth? Suppliers who have participated in lean improvements for several years report doubling and tripling their business. It is absolutely essential that you do this because no matter how many improvements you make, and how many projected earnings show up in Kaizen report outs, and no matter how much capacity you free up, you will not realize any of these benefits unless you land more business.

But let's again be conservative and say that we only pick up \$1-2M in additional top line business. That business was made possible through your improvements. What is the gross margin on that business (before taxes)? 20% 30%? Let's say you make another \$400,000 in gross margin.

Summary

So you realize \$500,000 in savings that moves to the bottom line, and you move another \$400,000 in gross margin to the bottom line in new business, and you're at 3 to 1 return on investment without considering the increased value of the business. The simple truth here is that costs avoided move to the bottom line. New business using existing capacity moves to the bottom line. Even if you don't use your increased capabilities to land new business, you still stand to gain a first year return of 2 to 1. A company with a normal net before taxes of 10% of revenue that moves another 10% to the bottom line **DOUBLES THEIR PROFIT.**

What happens to the value of your business when you double your profit?

Of course, anything that improves the net before taxes for a business increases its value. A business that has been developed for sale – one that has processes that can continue without the owner being present -- can often sell for a multiplier of 2 to 3 times the profit before taxes. Using the hypothetical \$500,000 in cost savings that moved to the bottom line and the \$400,000 gross margin from new business you have \$900,000 X 2 or an increase in the value of the company by at least \$1.8 million.

The foregoing illustrates that even with the maximum expenditure on outside resources, and the most conservative estimates of return on investment, the pursuit of lean and six sigma improvements is financially sound if the senior leader makes its success a #1 priority.

At the end of the day, those who survive the next decade will be those who became leaders.

SEA Frequently Asked Questions

Who is behind SEA?

SEA is an industry alliance that is prime-empowered and supplier led – SEA is owned and operated by the industry

Who is SEA for?

SEA benefits the entire industry, but its focus is sub-tier production suppliers of less than 500 employees

What is SEA's Intent?

To accelerate supply chain performance

How does SEA work?

Suppliers serious about improvement make investments to accelerate their performance using the SEA Roadmap – as they begin to produce results they gain more visibility and increased opportunity to build top line business reducing their overhead.

What does it take to join SEA?

Your improvement effort must be led by your CEO/President or senior officer at your location. You must be prepared to invest in your improvement effort. You must make improvement your number one priority.

How long will it take?

You will be in the SEA process for 2-5 years or more.

What happens if I don't work with SEA?

Everything remains the same. Other suppliers accelerating their improvement efforts will be more competitive and win more business. If you are better you will win more business. If you stumble, others will take advantage. Nothing changes.

How can I use my own tools and approaches and still participate in SEA?

Join SEA. Attend a SEA Leader course to learn the basics of the Roadmap. Complete the initial assessment (included). Submit the quarterly reports. Participate in SEA member meetings. Make presentations on your progress. Submit to the annual certification audit (fees not included).

What happens to a supplier after several years?

The supplier can produce small batches sizes with very little inventory. All work is organized into cells or work areas that are very effective and have little waste or downtime. Setups times are very fast. Machine downtime is minimal. Inventory turns are 12-15 turns, on-time delivery is 99.9%, Defective Parts per Million Opportunities are mostly at six sigma levels. Sales per employee are over \$200,000. Volume is two to three times what it was and production requires the same or less space and equipment. Overtime is minimal. The workforce goes home at night. There are very few crisis, and managers get a good nights sleep and go on vacations.