School of Six Sigma

Calculating Savings

Overview



In this module we're going to discuss some ways to go about calculating the financial savings of continuous improvement projects. By the end of this module, you'll learn some basic guidelines that can be used to help you calculate financial savings of any continuous improvement project or initiative, while also gaining a better understanding of the different types of savings available to Lean and Six Sigma practitioners.

The Financial Lead

As we mentioned in the Project Charter module, we strongly recommend all project teams have a finance department lead. This person could be the Financial Controller of the facility or someone else in the financial department and their role is to help validate the financial savings of the project. The financial lead should be deeply involved as the project is being selected, while also being the person performing the final financial benefit calculations.

This module will introduce guidelines on how to go about calculating savings, but it is ultimately up to each and every company to validate and confirm all savings on a case-by-case basis.

Cost Benefits

I'd like to cover, at a high level, the main types of benefits Lean and Six Sigma projects address. The first type of benefit is **hard savings**. These benefits relate to an expense or liability reduction that directly impacts the company's profit and loss statement. In other words, these benefits flow to the bottom line of the company.

The next type of benefit is **cost avoidance**. While these types of benefits don't directly impact the bottom line, they do help to avoid or reduce a future expense or liability to the organization. An example of a cost avoidance project is to improve the utilization of existing, fully depreciated, equipment, instead of buying new equipment.

Finally, there will be situations where calculating financial benefits are difficult. For example, it's next to impossible to assign a financial value to improved employee morale. But, obviously, having a motivated and happy workforce committed to continuous improvement can have a massive impact on the bottom line.

Additionally, there may be situations where things such as additional space is freed up but isn't immediately used for production. As such, there may not be an immediate cost savings for this. Or we may improve on-time delivery which makes our customers very happy but, aside from eliminating things such as expediting fees and lost orders, on-time delivery projects can be difficult to assign hard financial savings to.

In other words, it's very hard to say that for every percent of on-time delivery it's worth a certain dollar figure. Some refer to these types of savings as **soft savings** since hard, bottom-line, savings cannot be calculated.

The last thing I'd like to mention in this section is that from my own personal experience, the worst thing a continuous improvement team can attempt to do is calculate what some refer to as Monopoly Money.



Monopoly Money is used when teams attempt to place dollar values on random things like 5S audit scores or reducing the cycle time of a non-bottleneck process.

Of course, things like improved 5S can have a direct impact on productivity, but to assign a dollar value against a 5S score will do nothing but make the Lean and Six Sigma doubters even more against what you're attempting to do. So, work with your financial team lead and do your very best to keep things real.

Financial Savings

Let's turn our attention to some of the most common types of financial savings Lean and Six Sigma projects focus on. There are other types of benefits that can be calculated, but these will definitely help get things started if your company doesn't already have a formal benefits calculation policy.

First we have **Productivity Savings**. These benefits may impact the Profit & Loss statement as hard savings and may also have a cost avoidance impact. For example, if a Productivity Improvement project directly leads to a reduction in overtime, these benefits can be captured as hard savings.



Another example of hard savings is when the cycle time of a bottleneck process is reduced, allowing the organization to produce more units with the same, or fewer resources, that are then able to be immediately sold to the customer. In other words, as a result of this

cycle time reduction, the overall lead-time of the product is shortened.

This type of benefit can also lead to cost avoidance savings if it keeps the organization from spending money on new equipment. The key here is that the process in question must be a critical path, or bottleneck process.

A common way to calculate the benefits of increased sales as a result of productivity improvements is to multiply the increased throughput that is able to be immediately sold using the same resources by the contribution margin of that product. Additionally, if overtime has been reduced, this cost reduction should also be documented as hard savings.

Next, we have **material cost savings**, which are usually classified as hard savings. These types of benefits are achieved when material cost elements are reduced, which positively impact Operating Income. While there are different ways to calculate material cost savings one of the most common calculations is **(Old Cost – New Cost) x quantity used**.

Now, to convert this into a percentage the calculation is **(Old Cost – New Cost) / Old Cost**. Now, in most situations, material cost savings are calculated on a month-to-month basis, as well as annually. But, most companies cap these benefits at 12 months, since the new costs are ultimately rolled into updated standards.



Next, **Working Capital Savings** are generated through projects focused on things such as inventory reduction, accounts receivables, accounts payables, and days' sales outstanding. For example, if a company reduces inventory by $5 million, and we assume their carrying costs are 15%, the working capital savings would be $5 million x 15% which equals $750,000.

Obviously, you'll need your financial department lead to help calculate these types of savings for your particular situation, as things such as carrying costs will vary. Additionally, financial benefits can be realized when inventory reductions

result in a reduction in the cost to maintain that inventory such as insurance, floor space, and even additional storage locations used to hold the material.

Another form of Working Capital savings results from projects that focus on DSO, which stands for **Days Sales Outstanding**. These types of projects are related to the number of days it takes to receive payment from customers. Now, these types of benefits can be reported as financial gains as well as in number of days improved.

Here is one way to go about calculating DSO benefits: **(Current Payment Days – Improved Payment Days) x Annual Sales Amount x Interest Rate / 365 days** if you wish to calculate this on an annual basis. For example, let's say our annual sales for a particular product and customer are $15 million and our project reduced DSO from 82 days to 68 days, a 17 day improvement. Let's also assume the interest rate is 8%. So, the annual benefit would be (82 days – 68 days) x $15,000,000 x 8% / 365 days resulting in a working capital benefit of a little more than $46,000.

Another way to calculate benefits of projects related to payments is to focus on **Accounts Receivable** – or AR – reduction. In most cases, these sorts of projects focus on reducing the amount of overdue AR invoices. One way of calculating AR savings is to multiply the reduction of the AR average by the interest rate. So, for example, let's say we reduced the Overdue AR average from $6 million to $ 3 million and our interest rate is 8%. The benefit of this project would be $6 million - $3 million x 8% or $240,000.



Last, but certainly not least, we have the **cost of poor quality**. There are many ways to go about calculating the cost of poor quality. Some of the most common methods are to look at internal failures, external failures, and product liability insurance. Internal failures can include things such as scrapped material, as well as the costs to repair or rework

items. External failures often account for the total amount of credit notes issued for returned product or product that is scrapped in the field.

Finally, product liability insurance is normally charged to a company's operating statement. And while not the only way of doing it, measuring the cost of poor quality as a % of sales is quite common.

Obviously, there are other types of savings that can be achieved through the use of continuous improvement methods, and we'd strongly encourage you to work with your financial community on the creation of a formal benefits calculation document that can be shared throughout the company. This way, everyone is on the same page and there are no surprises as to how things are calculated.