

Total Cost of Ownership

What factors do you consider when calculating Total Cost of Ownership (TCO) before you make a significant equipment purchase?



Russ Holmer, President, [Haumiller](#)

[Engineering](#) [1]

To get the most value out of your automated assembly machine, looking at total cost of ownership (TCO) is a must. This importance is multiplied in more challenging economic times.

Start easy by looking at the durability and reliability of the equipment. These factors relate to a machine's ease of maintenance, the man hours needed to maintain, the time between preventative or other maintenance needs, the availability and speed of spare part delivery, and the response time by a service team if needed. These are some of the most common areas where hidden costs arise with a lower-cost/lower-quality machine.

Next, quantify performance and efficiency factors. Parts-per-minute is just the beginning. How many operators does it take? Will the speed and accuracy allow you to meet stringent customer deadlines and eliminate costly delays? The costs associated with product changeovers, and the floor space occupied by the machine, are also essential calculations.

Because product lifecycles have shrunk, they play an equally significant role in TCO analysis. A product's profitability now has a shorter window, so efficient equipment makes all of the difference. You need to prove that you can receive the return on

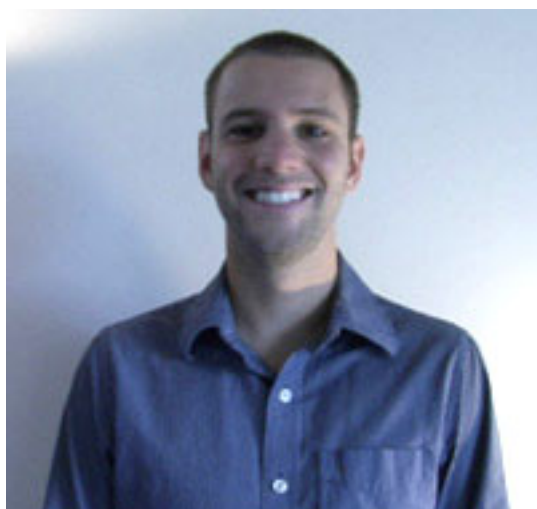
Total Cost of Ownership

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investment (ROI) on equipment during the product's expected life.

Finally, look to the product development process for a positive TCO impact. For example, we had a customer who, through minor design changes, optimized part design for automation and eliminated the need for a set of upper and lower tooling; while also allowing for a simpler feeder in the assembly system. This change saved 20 percent on the final cost of the machine.

Simple part features that facilitate automation, such as feeding and sorting, can typically save at least 10 percent on machine costs. These design tweaks are often very inexpensive to incorporate, and even if the cost of a machine can't be lowered in the end, such collaboration will always make a positive impact on efficiency, speed and other areas previously noted.



**Michael Armbruster, Project Manager,
GROWit Rapid Prototyping & Manufacturing**

If you're considering a machine purchase, first ask yourself, 'How well can I cook?' Why? I'll get to that in a moment.

The basic items to consider with total cost of ownership (TCO) are the machine's purchase price; the cost for the materials needed to operate the machine; the cost for hiring and/or delegating time from a qualified specialist to operate the machine; and the depreciation of the machine.

When you add these costs together, you can compare them to what you're currently paying for outsourcing the service. It will give you a rough idea of how worthwhile the investment might be. After you've run those calculations, consider the machine's limitations. Can it actually do everything you need it to do? Will you be able to purchase and stock every material you need? Always consider your risk. If you don't need the machine down the road, how much will it cost you to have it just sit there?

Why did I ask if you can cook? We eat at a restaurant because it offers food that we couldn't otherwise prepare ourselves. Not only is the staff well trained, but every company cost has been analyzed. The materials are ordered in bulk and the menu is a science. We not only lack the skills to provide the restaurant's dish, but it would

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often cost us more to do it on our own. Before you try to open your own restaurant, ask yourself how well you can cook, and consider going out for your needs.



Fred Young, CEO, Forest City Gear

Forest City Gear has re-invested 25 to 40 percent of our gross revenue, each year, in new equipment to enhance our productivity, technology offerings, quality capabilities, as well as a marketing tool to confirm our abilities to touring new customers.

Over the years, I have discovered that many people buy machines based only on the bottom line price instead of evaluating specific needs and seeking the best machine to provide the product they wish to deliver.

When purchasing new gear equipment, we often encounter pricing differentials of \$100,000 on similar equipment. The machine's life expectancy in our industry is typically 20 years, and if you divide the \$100,000 by 20, that equates to a mere \$5,000 per year extra cost.

Next, consider that the high-cost equipment likely has a higher resale value should you have to get rid of it for any reason, and it likely has other advantages; such as, more features, rigidity and the ability to deliver higher quality.

All of those bonus premiums may allow you to appeal to a higher class customer for whom you may command a better profit margin. Potential buyers forget to evaluate the service that is available along with spare parts inventory. Also, with higher quality equipment, you may get better training for your setup people — a factor that I am very conscious about in the decision making process.

The companies that buy the best machines are usually benchmark, world class companies that challenge machine suppliers with very difficult tasks. The ensuing training is effectively cross-pollinated to your employees who will have access to some of the best machining minds in the world.

I can remember a few rare instances when we bought foreign equipment — when the currency exchange rate was favorable — and later resold the machines for more

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than the original cost. I do confess that it is rarer these days. In any event, you certainly will have a more valuable resale machine if you do not buy the cheapest machine available.

With each new acquisition, we have tried to expand our range of offerings, extend the deliverable quality and procure technology that allows us to enter markets that we were previously unable to serve. As a fringe benefit, you can sometimes negotiate an ad campaign with the supplier to promote the new machine — and possibly direct potential customers to your company.

I hope this addresses some total cost of ownership issues that some folks may overlook. Lately, I have been trying to acquaint my staff and setup people with all of the competitors so that they are able to discern the variables involved in this critical decision making process, allowing them to make the most intelligent purchases possible.

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