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PRESS INFORMATION

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Justifying High Technology in the Machine Shop

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In the ongoing battle for survival and profitability in the precision parts production business, the latest CNC technology is more important than ever. It allows shops to do more in one operation with less direct labor, produces more consistent, higher quality parts and helps reduce the cost per piece produced.

Still, some shops, accustomed to the 'way they've always done it' may feel old technology will see them through. It won't. At least not in this global market. The need to understand how to profitably invest in CNC is urgent—if you want to be competitive. Buying new technology is a strategic decision to assure the future competitiveness of your company.

Justifying new technology is a multi-step process:

Step #1: Understand your costs

- Use a transparent costing system
- Evaluate *all* cost factors
- Evaluate the influence of new technology on the cash flow, and
- Calculate piece-cost and evaluate the influence of investment of new technology on production cost and return on investment

Step #2: Understand potential benefits of CNC technology

Measurable benefits include:

- Productivity
- Reduced set-up and tool change time
- Improve uptime
- Throughput
- Scrap rate
- Tooling cost
- Maintenance cost
- Job preparation cost

Intangible benefits include:

- Quality, accuracy, surface finish - does not depend on operator skill
- Process flexibility - single-step, drop-off complete
- Preset quick change tooling with standardized inserts
- Single point turning rather than costly form tools
- CNC equipment is environmentally friendlier

Step #3: Understand the costs of older equipment

- Lower efficiencies
- Longer than planned set-up times
- Requires vanishing skills to set up and operate
- Requires “tweaking” to successfully run good parts--only a few set-up/operators in your company have this ability
- Incapable of today’s quality requirements
- Cannot statistically hold tolerances
- Produces excessive scrap parts, hurting efficiency, adding to material cost. (With today’s material prices you could be throwing away \$1 each on a large 12L14 part!)
- Frequent unplanned downtime for repairs
- In-house maintenance personnel (overhead)

Calculating payback. There are a number of ways to evaluate the payback of new technology. Doing a Return on Investment (ROI) analysis can help you to make a good decision on whether to buy an expensive or less expensive machine.

ROI analysis indicates how the investment will impact a company’s cash flow, based upon the revenues and expenses associated with the project. ROI is given as a *percentage rate of return*.

The company performing the ROI analysis must determine the rate of return for the investment based on the project cost and the impact the investment would have on its cash flow. Once the rate of return is determined, the company must then determine if it is an acceptable rate of return. Typically a 20% or greater rate of return is considered acceptable.

There’s more. However, this justification method does not consider important technical and strategic aspects for maintaining competitiveness. Quality for instance is one of today’s top priorities for end-users. This factor is a good example of what is not fully recognized in an ROI analysis. Quality depends not only on the type of equipment being used but also on the process, such as making parts complete in a single step.

In addition to quality, there are a number of other benefits, (Intangible Benefits), which will have an impact on the competitiveness of the company. These may be as important as the impact of the investment on the cash flow. Considering these other benefits is a longer-term approach to investment that can ensure the survival of the company.

While the ROI analysis method has traditionally been used to analyze high-volume multi-year projects, it can also be used to analyze the wisdom of buying a machine for low-volume production of a large variety of parts over a number of years. The example shown was very simple, and there are many additional factors that you might want to consider, such as tax implications regarding new machinery.

Finally, ROI is not necessarily the same as the profitability and competitiveness. Profitability depends on the cost per hour rate of the machine being considered for purchase and on the impact of the intangible benefits. Depending on a company's capital investment decision, the cash flow impact can be quite different from long term competitiveness and profitability.

It is possible to have a high ROI and a low profitability, and the opposite is also true.

Look at a new machine purchase from both standpoints. Perform an ROI analysis, and also look at the long term impact of the investment. Although profitability may initially be higher when looking at a lower priced machine; due to the long term benefits, the higher quality machine purchase can be the most favorable choice for the precision parts producer.

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