



# Assuring The Payback Of Technology Investments

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*This is the second of a two-part article on technology payback. The first part, "Answers 'Why?'" appeared in the March 2007 PMPA insert.*

## Part 2 - Answers "How?"

**Profitability analysis of deployed technology.** Profitability engineering gives us another means to improve our chances for success. It assures that we are using the technologies we already have in our shops in order to achieve our best and least cost performance.

**Document nameplate capability.** The equipment was purchased to a stated or specified capacity and capability. The manufacturer's specification sheets, equipment manuals and purchase order documents are the initial sources for understanding your equipment's nameplate or nominal capability.

Don't look merely at the size ranges' minima and maxima. Look for other features that can be denominated in time (e.g., rpm, fpm or other derived units). Also, look for resulting attributes that were warranted as a deliverable for the device (e.g., microfinish).

**Determine current state.** Before trying to make improvements, you should document the current state to provide a benchmark or a measure for success. By determining the current state, you also make it possible to prove or disprove the initial claims made when first justifying the purchase. To accurately characterize the equipment's performance, make sure the data obtained for the current state covers a period of time and not only a single shift or job.

**Compare to nameplate.** If the cycle time, accuracy or other performance attribute being studied differs from the nameplate capability that was used

to justify the technology's purchase, an analysis of the gap is needed. Is it only one attribute that's not being achieved or is it several? Is the machine close to the capability or is it "light years" away from the initial parameters? Often, if the machine is "close," it's only a matter of further training. However, while a major miss might signal to some that it is a training issue, a wide discrepancy between "should" and "is" is a sign that there could be cultural or institutional issues that need to be addressed.

**Gap analysis.** The most important aspect of doing a proper gap analysis is to work from the data and ask, "Why?" rather than go to the foreman and ask, "Who?" Quantifying the differences in performance between capability and current state will allow all involved to discuss the performance and issues without feeling "prosecuted."

To work from data, it is important to look beyond the day's production reports. Rather than work from the machine back, it is better—and usually much faster—to work from the top down. Start at the top by auditing company or department standing instructions, policies and procedures, and process control plans. Then, move on to the work instructions and job visual aids. By doing so, you will find the institutional and organizational barriers that are preventing the successful adoption of the new technologies.

When the new technology hasn't been written into the current release of the job ticket or process control plan, it can't be the operator's fault. It is the system's fault. Now that it's identified, it is easily corrected. Generally speaking, system and cultural obstacles will be found more frequently than will operator failures.

Evidence of old equipment, gaging, tools or techniques in these documents is often the basis of organizational inertia against the full implementation of the new technology.

**Eliminate fear: share lessons of success.** "Communicate findings" would be the expected heading for this last step of a technology audit, but that would miss an important point. Merely communicating findings brings the organization closer to understanding, but not achievement.

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## MIND THE GAP

The barriers to achievement are fears: fear of failure by the operator, fear of lost production by the supervisor and fear of a quality excursion by the Quality Department. These fears must be recognized and plans should be developed to remove the fear of the consequences of implementing the new technology to its fullest extent. Sharing the successes and lessons learned takes away a substantial portion of the fear by answering the unspoken question, "Why should we do it this new way?"

**Management's role.** Elimination of fear is a responsibility that falls squarely on the shoulders of management. The profitability engineer can "mind the gap" and do the analysis, but it is our job as managers to create a workplace where intelligent management of risk is a characteristic of all our people, not just the boss. Happy hunting!