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Metrics bring control to product development



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For product-development managers, one trend is unmistakably clear: Unless you can measure R&D activities, you cannot improve profitability in a planned fashion. Only by measuring development processes can companies control their future and avoid being buried by unforeseen market events or competitors' innovations.

The metrics most valuable to R&D professionals and executive managers are those that shorten product-development cycles, help reach product-cost goals, and indicate the capabilities of a product-development group.

This type of information is valuable because it directly ties R&D performance to profitability. In fact, according to a recent survey, 78% of managers who use metrics tend to focus on R&D spending as a percent of sales, and 68% of managers who use metrics focus on new-product releases. Also, 61% focus on project backlog. These numbers let companies look backward, but they offer little insight as to whether R&D has the right goals, whether new technologies need to be introduced, or how to provide realistic expectations for true design innovation.

The core problems are that too few measurements are in place, and the ones that are used are not standardized or focused on the right targets. The results of a recent survey of product-development metrics used by 190 manufacturing companies worldwide showed little commonality in measurement methods. In fact, of 30 potential product-development metrics surveyed, more than half of industry had only 5 metrics in common.

Today's managers are looking farther upstream to shorten product-development cycle times and finding that metrics are essential to understanding and controlling the pace of new-product development. Most R&D team members, however, do not use metrics to determine which sets of activities produce the shortest development path.

A common result is that engineering estimates a 14-month lead time on developing a new product, and 22 months later engineers are still performing tests. This happens because the company's R&D process is out of

control, and the engineering department says it cannot be improved. This has a direct impact on profitability.

Although it is difficult to imagine existing in business without measuring profits, most firms do not conduct profit analyses on their product-development organization. In fact, 26% of the companies in a recent survey use only one profit measure in their R&D efforts. The measure they use is "average current year profit from new products released in the prior n years."

Moreover, only 7% of the companies use two or more measurements to determine the profitability of their R&D organization. They measure "average profits per engineer/developer/scientist" and "average n-year profit/contribution of new products." Only 6% use these two metrics plus the metric, "average new-product profits per engineer/developer/scientist." These types of profit metrics help companies advance their approach to R&D from a technology or cost-driven approach to a market-driven or profit-generation approach.

Research also shows that most engineering managers have not formally studied their department's capacity. Consequently, their organizations annually approve a level of projects that represents between 150 and 300% of department capacity. As a result, there are too many projects in the pipeline, development cycles are unnecessarily long, and development teams lose their focus.

Today, many engineering managers approve projects with the hope of commercial success. In the future they will work with other departments to analyze and approve only those projects with the strongest potential. As industry moves into the next century, corporate success will increasingly hinge on the ability to measure and improve product-development processes. This will give R&D an even greater correlation to profit. ■

Goldense Group, Inc. is a consulting and education firm specializing in process and technology integration between product strategy, R&D, design engineering, product development, manufacturing, and materials management. For more information, contact Bradford Goldense at (781) 444-5400 or visit the company Web site at www.goldensgroupinc.com.