U.S. firms are finally getting up to speed

By Preston G. Smith and Donald G. Reinertsen

There's good news from the new product front: American companies are getting faster.

It's about time. For too long American manufacturers have been eating the dust of foreign competitors, who were accelerating their development cycles and getting higher quality, better performing, more attractively priced products to customers while U.S. firms were still lacing up their sneakers.

Now the tide is turning. Xerox, which was tardy in responding to Japanese low-end copiers, reduced its product development cycles by 50 percent over the past decade and plans to cut another year out by 1993. A rapid development team at Carrier Transicold of Syracuse, N.Y., introduced a highly successful semi-trailer refrigeration unit in six months instead of the customary two years.

Other winning new products have resulted from rapid development projects at Honeywell (thermostats), Ingersoll-Rand (air-powered grinders), Warner Electric (clutch brakes) and Hewlett-Packard (computer printers).

What are these companies doing right? According to some observers, credit is due primarily to the introduction of Japanese-style cultural techniques in the workplace, such as wearing baseball caps and going on group rock-climbing adventures. We think there's another, subtler reason: the most successful companies measure and communicate how crucial time is to everyone involved with the product's development. They make these measurements in simple, clear terms so that non-quantitative people can understand them. Each month of the development cycle is assigned a monetary value, based on the anticipated lifetime profits of the new product. As a result, trade-off decisions during the development process are based on facts, not emotion.

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Here's a common example of how this works. Should an outside drafting service be used to speed up the preparation of engineering drawings for a new product? In this case, two weeks would be cut from the schedule by hiring the outside service to do 200 hours of drafting at $25 per hour. The product team has calculated that each month of the development schedule is worth $470,000 in profits. That means that two weeks, or half a month, is Worth about $240,000. To spend just $5,000 on the outside drafting to gain these two weeks would thus be a smart business decision.

In another instance, say the development team has dreamed up a feature that will enhance the product's performance but will require more development time. Which should be favored, performance or time? The leading-edge companies work out the costs and benefits. If the feature would add two months of delay valued at $470,000 each, then the cost of the delay is $940,000. The extra feature must therefore add at least this much to the product's profits. Assuming that the feature will add one percent to sales of $100 million, it will create an extra $1 million of revenues. If 16 percent of the incremental sales dollar is converted into profit before tax, the feature would be worth only $160,000 in additional profit. Conclusion: It would be a poor decision to delay the product to add this feature. If the feature is really that good, it can be added during a model extension or else saved for a future product.

These decisions are based on rough but powerful rules of thumb, quantifications that can shed enormous light on key management choices. Senior management sometimes gets excited when a development team goes over budget, but in many markets a cost overrun of as much as 50 percent will only reduce profits by a relatively small amount — less than 4 percent. In contrast, shipping the product six months late to the same market can eliminate one-third of after-tax profits.

These methods are especially valuable during what we call "the fuzzy front end" — the earliest days and weeks of product conception, when time typically gets wasted while the market clock ticks away. We have seen situations where as much as 90 percent of the available development cycle elapsed before the team started work. In one case, a company sat on a new product idea for 15 years, then initiated a crash two-year development effort. Because it is so neglected, the fuzzy front end is where measuring and accelerating the development cycle can result in the most dramatic improvement in life-cycle profits.

During the 1980s, the techniques of just-in-time revolutionized the way companies managed their manufacturing. Similarly, the concepts of rapid product development In the 1990s will revolutionize the way companies manage their huge investment in partially completed development programs, which appear on no balance sheets but which form the lifeblood of future profits. Smart managers are already emulating the firms that have made speed to market the centerpiece of how they compete.

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