PRODUCT DEVELOPMENT
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RAPID PRODUCT DEVELOPMENT: DOES YOUR COMPANY LEAD OR FOLLOW?

Since 1990, when Business Week put the words "Concurrent Engineering" on the cover story of its April 30 issue, companies worldwide have been aggressively working to reduce their average product development time-to-market. In 1998, it might seem that much of the work has been accomplished. This is simply not true. Based on historical industry maturation and adoption patterns for new tools and techniques, we estimate that less than 20% of companies that could be faster are actually faster today.

A few companies have accomplished a great deal in their product development cycle-time reduction efforts, which we will call the "front five percent" of industry. They began their journey in the early to mid-1980s, investing heavily to be first, and created a competitive advantage by keeping the lid on their cycle-time reduction discoveries for a few years. Companies like Motorola, Hewlett-Packard, Intel, Dell, Sun Microsystems, and Chrysler went to work to achieve competitive advantage through decreased product development cycle time and won. When news of their consistent results began to leak out, these "front five percent" firms reversed strategy and officially took the lid off. They began marketing their capabilities aggressively to create further competitive advantage by managing industry perceptions of their capabilities.

The "fast-followers," which generally comprise the remainder of the "first quartile" of industry, now began to move quickly. Once a technique is "not known not to work most of the time," this fast-following group cannot adopt quickly enough. In the mid-to-late 1990s, it is the fast followers that are filling up all the seats at conferences and seminars and all the plane seats for benchmarking visits. Unfortunately, this passion for adopting best practices ends with the second quartile.

The "back half" of industry is much more passive in their pursuit. The "third quartile" of companies simply generally talk incessantly until the best practice technique becomes available in commercial shrink-wrapped software. They simply install it and train the masses, a kind of keeping up with the Joneses. In 1998, shrink-wrapped product development software is not yet available for the masses. The "last quartile" of companies generally never start. Their entitlement comes from osmosis over time, primarily through company-to-company relationships and inter-company movement of people. A few members of this quartile achieve no competitive advantage or disadvantage from any given best practice.

If one looks back over the last half of the 20th century, it is clear that functional and cross-functional improvement efforts take a great deal of time to permeate industry. First, initial improvement concepts must be tried and tested over a few years by a few leaders or leading companies. Then, some tools must be created to assist in leveraging the application of the initial concepts to a broader population. A broader population then tries the techniques. If the results and excitement of the originators cannot be quickly translated into results and excitement by the broader population, the concept usually dies quickly. If results are positive, a twenty- to forty-year effort to flush out the new "body of knowledge" often results.

Take MRP (the business system used by most manufacturing operations today) for example. The first MRP-type logic was espoused in the 1950s. In the 1960s, some companies with deep pockets created a computerized version of this initial manual methodology. In the 1970s, a broader company population validated the results. In the 1980s, the tool ran on all platforms and became closed-loop MRP II. In the 1990s, advances in database technologies and processor speeds enabled flexible and "queryable" Manufacturing Execution Systems [MES] and the complete integration with most all other business systems to achieve Enterprise Resource Planning. Over the forty-year period from the 1950s to the 1990s, MRP-type logic ran its course to become a mature body of knowledge.

Design For Manufacturing and Assembly [DFM/A] is another good example. Geoff Boothroyd, Peter Dewhurst and others began work in this area in the 1960s. By the 1980s, initial software tools existed and a broader population started getting results from DFM/A tools. By the late 1980s, the body of knowledge was expanding from primarily mechanical applications to electrical and electronic applications. In the 1990s, further refinements and segmentation, such as Design for Disassembly and Design for Recycleability, began. This body of knowledge still contains a great deal of undiscovered invention and innovation.

Rapid product development improvement efforts will be no different. If anything, the flushing-out of this body of knowledge will take a longer period of time than most. Improvement efforts for deterministic activities generally go faster than those for probabilistic activities. Manufacturing operations are more deterministic than product development operations. Product development improvement will therefore take at least as long as manufacturing improvement.

In a pure product development context, across the continuum of basic research, applied research, advanced development, and product development, industry should expect to see the maturation beginning at one end of the product development continuum some time after the year 2020. The other end of the continuum will take longer. Is your company leading or following?$^{P}_{D}$

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