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managing design

Tips on guiding product development

The future of CE

Recent surveys of product development processes indicate that industry managers have much to learn about stimulating team-based product development efforts. Industry recognition of team performance lags far behind that of individual performance.

In the private sector, Current Engineering's (CE) genesis can be traced to the Boston Consulting Group's early 1980s concept of "execution of a product development process." Later, the Institute for Defense



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Analysis (IDA) extended this concept to include "integrated product development" after studying best commercial and industrial practices. IDA's purpose was to reduce resources required for new product development and to improve its processes. These concepts quickly evolved to mean a "lean and competitive CE process with its supporting technologies."

Over time, this body of knowledge took shape around the product and process improvement efforts and technologies related to working in parallel. The original focus of CE's objective was broadened. The CE knowledge base is now only 10 years old. It will be at least 30 more years before "parallel methodologies" will fully mature.

Today's focus. CE's basic principle is a dedicated, cross-functional product development environment from project start-up to new product launch. A CE team's task begins with product definition, a critical but under-appreciated aspect of product success, and continues through the development process to market launch.

Parallel work methods are counter-intuitive for most western countries, whose beliefs have been driven by Taylor theories of assembly-line management. Our work methods have been established to be functional, not cross-functional. It will take

several more decades to fully explore parallel work methods. However, industry has already established that functional and sequential, Taylor-driven product development is no longer sufficient to lead in competitive markets. The marketing function can no longer hand off its concept to engineering, which subsequently passes along its design to manufacturing and then to testing and validation. The future of more competitive product development will be based on cross-functional


development, not on traditional assembly-line work methods.

Today's implementation. Application of new CE knowledge is driving changes in management procedures for industrial and high-tech organizations, with the resulting need for new implementation tools. Technology change generally lags behind

'A CE team's task begins with product definition...'

process change. New processes have longer development and adoption time frames. For example, Manufacturing Resource Planning (MRP) substantially changed from its 1960's inception to what MRP/MES/ERP is today. The same evolution of tools and technologies will characterize product development. CPD is where MRP was 30 years ago!

MRP for rapid CE processes is on the horizon as off-the-shelf software becomes available to plan, manage, and control new product development. Some companies are working on software that "automates" product development activities. Initial products are beginning to come to market.

Until more integrated CE software technologies are available, integrated planning, management, and control of product development processes will proceed slowly. New product development process management and technology has only just begun to unfold. 

Ask the Manager

Q Is Concurrent Engineering important for all business organizations?

A CE is not applicable to all organizations, only to those that develop new products. Its precepts are widely applicable across industries, including service industries. High-tech industries, banks, insurance companies, and utilities can all use CE practices to develop better products and services. Specific applications of technologies differ across industries, but fundamental principles are common. CE also has specific applications to value engineering, as well as sustaining and improving existing products.

Q When will suites of software be available to manage product development processes and organizations?

A Right now, software tools consist of independent, stand-alone solutions to solve specific problems and automate routine tasks like CAD.

The signs of the first comprehensive integrated product development management are just beginning to emerge. Project management system suppliers are expanding to multi-project planning systems. PDM suppliers are expanding into process management and workflow. Eventually these technologies will integrate to become the functional equivalent of MRP and ERP systems in manufacturing. Active and backlogged projects will be managed within the real capacity constraints of a cross-functional product development organization. These applications will better enable concurrent parallel practices as industrial productivity takes another leap forward.

It will take another decade for an MRP-equivalent CE tool for performing Product Development Resource Planning to become generally available. Islands of technology (such as groupware, Workflow, and EDM/PDM) exist but users must find and interface with them.

Fax your management questions to **Design News** at (617) 558-4402 or e-mail your question to dn@cahners.com