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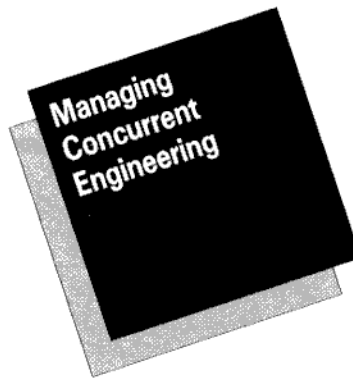
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Key to
improvement

Concurrent engineering can be the key to improving the new product development processes. However, all the relevant functions must be involved at an early stage of the process. The new product development process must also be continuously measured with the focus on proactive assessment rather than reactive evaluation.

Concurrent engineering is a structured, management-led, team approach in which all processes in the product development process are managed simultaneously to achieve the desired end result. Functions work together, not in isolation.

Concurrent engineering goals cannot be achieved without the early involvement of all the functions which interact in the new product development process, believes **Bradford L. Goldense**, president of **Goldense Group Inc.**, of Cambridge, Massachusetts. There are nine key areas which should be addressed to manage and measure concurrent processes successfully:

Core
team

- (1) *Balanced resources.* A critical management question which must be tackled early is the human resources which should be devoted to new product development. Another issue is the ratio of staff assigned to each of the functions of the new product development process, such as marketing, design, purchasing, engineering, etc. Benchmark studies in the consumer electronics industry have shown that the best companies typically achieve ratios of 8:1 engineering:marketing and 4:1 engineering:manufacturing, compared with companies looking to improve their process with 50:1 and 30:1 ratios respectively.
- (2) *Dedicated teams.* Teams should be physically located together or at least as close as practically possible, i.e. all the dedicated core team members should sit together in the same place, surrounded by the facilities required to develop the product. Some of the most valuable pieces of information come from being overheard by people working within ear-shot.
- (3) *Concept and product filters.* The whole company should be geared to new product development, aiming for a high proportion of revenue coming from products developed in the last couple of years. But inferior development effort (e.g. poor product definition and design) and the wrong decisions taken in the new product development process can result in numerous negative effects on the staff and the company as a whole. Therefore the right ideas must be filtered as quickly as possible through the new product development pipeline. Rapid decision making is a key function at each phase of the process. Dialogue should be open and conducted face-to-face, all views

expressed, and decisions documented and communicated. Senior management must be involved to clear obstacles, provide resources and to make the tough decisions.

Milestone-driven processes

- (4) *Phased management.* The filtering process can best be operationalized by the “phase management” approach. Never lose sight of the whole picture during new product development. The overall process can be managed according to five simple and well-understood phases to which the whole company can relate: concept, feasibility, development, production and launch. It is important not to leap too far into the next phase until the current tasks have been completed. Consider the use of phased funding, in which funds are budgeted for and released into the system only on the successful completion of each phase. However, this will require a more flexible and dynamic accounting approach to new product development.
- (5) *Milestone orientation.* A structured and consistent approach to new product development, delivering reliable products which meet customers’ needs in quick time, can be worth the organization required for concurrent engineering to be successful. The use of milestone-driven processes can simplify the structure. Simple milestones within each of the five phases are determined and clearly understood by everyone in the company. This provides a focus and also a framework to which the new product development process can be related.

Concurrency matrix

- (6) *Concurrent team activities.* The early involvement of all the critical functions required for a particular product is essential. Multi-functional involvement is also critical at *all* stages during the development process. One technique to determine project staffing is the “Functional-Milestone Matrix” (FMM). This lists the key activities which each function must perform in order to complete the requirements of the milestone. By ensuring that each activity takes place as early as possible in the process, the necessary staffing requirements can be estimated. As well as providing a guide to concurrency and project staffing, the FMM can also help to integrate new people into a project quickly.
- (7) *Process measurement.* Having geared team activities to milestones within phases and tasks within milestones, the new product development process can be measured with a concurrency matrix (CM). The CM can be used early and proactively during any phase of the project, and can also be applied to past projects. The results will show which functions are lagging behind and, when applied retrospectively, can highlight systematic weaknesses within the company as well as organizational and functional strengths.
- (8) *Product definition.* This is a critical activity all too often overlooked; a recent study estimated that around 70% of problems with new products can be traced back to poor product definition. A recommended approach is to focus on the actual process of product definition; it can thus be seen and managed as a subactivity of the new product development approach itself, with structured steps within phases required to define the overall product using common tools.
- (9) *Performance measurement.* A major feature of industry today is the measurement of performance. This has been driven by factors such as the quality movement, global competition and a renewal of top management direction. However, measurement must become more proactive, not reactive as in the past. Not only the product, but the

Performance
measurement

process must be measured and the entire company must be geared to performance, which is in turn tied to collective (not individual) achievement. This means increasing the investment in performance measurement systems and their importance, and managers must take control by setting strategies and directions for measurements.

Measurement of performance is not an end in itself; it must be something on which action can be taken. Measures must be devised to be frequently made, at low cost and easy to understand. There will always be a place for reactive measurement, i.e. a look backwards to see how we did in the past, but the future will see an increasing number of simple and proactive measurements, while maintaining meaningful reactive measurements.

Although concurrent engineering is a team-based philosophy, senior management must ultimately make the decisions on the products to be developed and then provide the necessary resources. Continuous proactive measurement and the early involvement of all functions are the key factors to successful new product development processes.



Long-term
guarantee

To win on a world platform it is not enough to rely on strategies which have been employed effectively in a single country or continent. The new significance of the world market presents a serious challenge to multinational organizations seeking global market domination. Many corporations have encountered severe difficulties in implementing their chosen international strategy. Often technically well-considered strategies prove to be troublesome, impractical and costly in practice. To avoid failure, management must recognize, understand and confront wider issues. So what are the key factors which determine success?

Mark Lutchen, managing partner of **Price Waterhouse's** Management Consulting Services in New York, believes that a considerable effort is required even to maintain position. There are no long-term guarantees of success, nor any sure model to follow; international ventures are inherently risky. But there are some primary rules for skillful implementation. In concise summary: plan internationally, enact locally, and execute with due care.

In international enterprise, the local economies and cultures of dozens of different countries must be considered. The task is complicated by the wide range of different market structures, regulations, competitive