The MANAGEMENT ROUNDTABLE

PRODUCT DEVELOPMENT PROCESSES: READY FOR THE NEXT CENTURY!

By Bradford L. Goldense

In 1983, George Stalk and Tom Hout of Boston Consulting Group authored the *Harvard Business Review* article "Time-Based Competition," constituting the first true peg in the ground regarding competing in the area of product development time-to-market. In the ensuing sixteen years, the rapid-product-development body of knowledge and tool set have been evolving at a great rate.

In 1983, the "state-of-science" in this field was limited to a few practical principles and values that leading edge companies began to test. Shortly thereafter, these initial values and principles began to evolve into skeletal frameworks. Robert Cooper of MacMaster University in Canada, along with Stephen Wheelwright and Kim Clark of Harvard University were among the original pioneers of time-to-market practices. Companies with deep pockets and a zest for excellence started applying the frameworks.

By the mid-eighties, Donald Reinertsen, then a McKinsey consultant, was among the first to document the importance of minimizing time-to-market and product cost over all other variables in competitive marketplaces. It took a few years for this information to leak into the general marketplace. Later, in the early 1990s, Reinertsen would team with Preston Smith to publish the next evolution of this work in *Developing Products In Half The Time,* one of the best-selling product development books of all time.

In the late eighties, the Department of Defense, in response to taxpayer concerns about huge government inefficiencies, did some breakthrough work in the public sector. The Institute for Defense Analysis, a Washington, DC-based consultancy, issued a report entitled "The Role of Concurrent Engineering In Weapons Systems Acquisition." Among this report's many valuable findings was perhaps the first documented evidence of the "shadow theory of cost management." Most of us today know this as "80% to 95% of a product's cost is determined in the first 5% to 15% of a development project."

In the late eighties, simultaneously in Japan and in America, practitioners began to realize that this meant that traditional project staffing methods did not make sense. Historical staffing processes, whereby Marketing did their thing, followed by Engineering, then Manufacturing, and so on was causal to engineering change and slow time-to-market. In fact, the ultimate stakeholders of product designs needed to work together from the beginning. Enter Team-Based Product Development. Teams were not, and are not, a flavor of the month, but a fundamentally different way to organize resources given the new discoveries in the management science of product development.

In the early nineties, design-for-manufacturing and assembly were becoming mainstream practices. This body of knowledge addressed the needs between combinations of two functions, engineering and manufacturing. This concept, pioneered in the 1970s by Boothroyd and Dewhurst, was an initial attempt to keep people from "throwing products over the wall between two functional

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areas." By the early 1990s, industry realized that in fact the challenge was much greater than DFM/A alone. Concurrent Engineering and Team-Based Product Development were born. The cover story of the April 30, 1990 *Business Week* issue was entitled "Concurrent Engineering," and that changed everything.

In 1993, another landmark *Business Week* article entitled "Flops," brought to fruition work being done in the front-end of product development. Until this article, describing alarming product failure rates across industries in business terms, inventors of QFD and VOC did not have an acceptable business case. Donald Clausing and John Hauser, authors of the landmark 1988 *Harvard Business Review* article on QFD could finally say "I told you so." All of a sudden the continuum of the product development process was now in play, from the concept and product definition to DFM/A.

In the mid nineties, 3-D design technologies and object programming for mainstream industry were both about seven years old. Data translation standards are improving, Rapid prototyping, CAM, and testing technologies can now be leveraged. The tools that constitute the majority of activities in the middle of the product development process evolved from "functional" to "almost cross-functional."

In the mid-nineties, the last of the pieces fell into place. Executives could no longer turn their heads to the fact that there is big money on the table for relatively small amounts of improvement in product development processes and product designs.**P**_D

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