



Applied Research & Advanced Development Processes Come of Age

An earlier column last September (“Innovation is Changing Preproduct-Development R&D,” Sept. 5) addressed the widespread growth over the past 12 years in industry innovation activities that precede product development. Historically, only companies in the life-sciences industries and a handful of others commit significant resources prior to product development. Today, three-quarters of all companies have innovation and design resources engaged in development before they have defined products that go through product-development processes.

This growth in predevelopment activity is likely a manifestation of Western companies trying to improve their ability to innovate. It also likely results from years of self-inflicted corporate pain when companies try to bring innovative products to market quickly — having to set product-release dates despite being unable to accurately predict how long development would take. Finally, the lean and Six Sigma movements of the past two decades have helped companies execute but have made innovation in product development more difficult.

Regardless of the reason, predevelopment processes are a step forward in the management science that companies use. Innovation typically requires some type of divergence. Product-development processes, however, are convergent in nature. Dedicated corporate functions and processes that enable divergence for innovation purposes are long overdue.

This corporate “experiment” of the past 12 years with preproduct development has evidently worked fairly well. Taking “schedule busters” out of product development is now preferred. How do we know? Well, it is almost an unwritten rule that within companies, the creation infrastructure in companies for activities lags creation of the activities themselves. If an activity does not bear fruit, its infrastructure is typically never built. Corporations are moving aggressively to create infrastructure — processes and guidelines — that addresses the specific needs of “not-ready-to-schedule” technologies and capabilities. Growth in these infrastructures over the past five years has been significant.

Applied research precedes advanced development. The

difference between the two is usually subtle. Applied research typically does not have specific product targets and it usually involves some type of “enabling technology or feature” with an unproven technical or market feasibility. Advanced development, on the other hand typically takes a feasible technology or feature and further reduces its variability so it can be reasonably forecast within the constraints of time-bounded product-development processes.

During the past five years, there has been a near-quadrupling of applied-research processes and a 50% increase in advanced-development processes. In addition, the number of generalized preproduct-development processes has risen by 25%. These generalized processes are flexible enough to handle projects in both applied research and advanced development. Three-quarters of all companies have preproduct-development activities, and 85 to 90% of those companies also have one or more documented processes or guidelines to organize and facilitate those activities. The rest of the companies wanting innovation in their portfolio that customers or markets can recognize will soon follow. Companies offering process-management software for product development will be adding modules that address preproduct-development activities. Metrics and measures for these processes will come next. Industry leaders have already begun the measurement process.

As time goes on, product development will increasingly become execution oriented. If you personally seek more creativity challenges than execution challenges, you may wish to see if you can move upstream. Innovation will always be inherent in product development, but breakthroughs and disruptive innovations will likely be found in emerging applied research and advanced development organizations in the years ahead. 

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