

*** The Sophistication of Organic R&D Innovation Management Continues ***

by
Bradford L. Goldense

In the July 7, 2014 issue of 2PLM, the scope and focus of recent research on R&D Operating Environments, Organic Innovation, Open Innovation, Intellectual Property, and the Top Corporate Metrics used to measure R&D and Product Development was highlighted. The July 21 issue addressed R&D Operating Environments. In this third of a six part series, selected GGI findings on Organic R&D Innovation will be discussed. Organic Innovation is the ability of a corporation to invent and innovate from within, including the use of contracted personnel to supplement employee-equivalent responsibilities.

The study, entitled the "2014 Product Development Metrics Survey", was conducted by sending questionnaires to a wide range of companies developing products throughout North America. Participating companies had headquarters throughout the Americas, Europe, and Asia, but their response was for North American R&D-Product Development operations. Complete data sets were received from 200 companies. Consumer, industrial, medical, chemical, and automotive/vehicular products were the top respondent industries. Participants completed 31 questions across the five primary research subjects. The research period was September 2012 to October 2013. The results were published March 3, 2014 in a 138-page report. This research is statistically valid and provides a Margin Of Error for each research question.

Three Organic R&D Innovation areas were researched: Types of R&D Performed, R&D Processes for Pre-Product Development Innovation, and Product Development Processes. All three of these areas were researched thoroughly in our 2008 study enabling a pre/post great recession analysis.

Types of R&D Performed: Recognizing that R&D is a continuum, there are four basic categories of "R&D-Product Development" that can be logically culled out: Basic Research, Applied Research, Advanced Development, and Product Development. Corporate utilization of one or more categories depends on the industry and/or the company's product portfolio strategy. After an unprecedented corporate push for innovation, resulting in unprecedented growth in pre-product development activities between 2000 and 2008, the 2014 findings found no additional growth in pre-product development activities. This is actually good news and affirms that corporations are committed to innovation. In previous times of economic challenge, and this challenge being twice as long as the rest, funding and activities in these areas would have been structurally affected. One fifth of all companies still perform Basic Research. Half of all companies still perform Applied Research. Three-quarters of all

companies still do Advanced Development. Just about all respondent corporations, as expected, have Product Development.

R&D Processes for Pre-Product Development Innovation: With the cross-industry growth of Basic Research, Applied Research, and Advanced Development, and its apparent staying power dating to our analyses in 2004, it was sure that "process-ware" for these activities was soon to follow. The Venn diagrams of these pre-product development areas overlap more greatly versus Product Development. As such, it could be foreseen that some of these activities could be done under a "general" process. And, compared to Product Development, there were sure to be many more variations on corporate pre-product development processes of innovation. Remember the days of the "R&D Sandbox?" For the most part, they are gone. While a third of the cross-industry participants do not yet have processes for pre-product development, the growth in the corporate formalization of these activities we identified in 2008 has continued throughout the great recession. Consistent with the "staying power" findings above, companies have continued to create process-ware to better organize these historically "new or newly focused" activities. There are some stages and gates to be sure. This is a back-handed positive for commitment. In 2014, the number of companies with dedicated documented processes for Applied Research increased four-fold to twenty percent. Companies with processes for Advanced Development rose to thirty-percent. Companies with a general or "combination" process rose to thirty-percent.

Product Development Processes: How many Product Development processes do you have? When Robert Cooper introduced Stage-Gate® to the world in 1986, corporate product development processes and constructs began changing for most companies. Since that time the number of Product Development processes a company maintains, has gradually grown. North America is now approaching European program management approaches for documented Product Development processes. Perhaps this is the result of globalization and the leveling of corporate approaches. Perhaps this is the result of economic challenges driving better corporate organization of portfolios and projects. Perhaps it is the continued decrease in the cost of product development process software suites as they become mature and internet-based. Likely it is a combination. Companies with a single process decreased five percent in the past five years to a third. Companies with two and three processes remained level, at a third and fifteen percent respectively. Companies with four or more processes increased five percent to ten percent. About twenty percent of industry added a documented Product Development process to the suite of process-ware they maintained in 2008.

SUMMARY: While remaining level the past five years, corporate commitment to innovation withstood the onslaught of a double-long recession. The changes put in place the last fifteen years to increase innovation through pre-product development R&D remain structurally intact. A great many more companies across all industries now engage in these activities; not just the chemical, pharmaceutical, and life sciences industries. Staying power necessitates infrastructure. Process-ware and accounting/tracking systems lag the activities themselves, and take up to a decade to be available COTS. The growth in pre-product development process-ware, identified in 2008, has continued throughout the great recession. Software is becoming visible. Relatively speaking, Product Development processes were more stable. About twenty-percent of industry added a single-process. About seventy percent of North American companies now run with either one or two processes. Corporations reduced their

portfolio risk during the past five years, but the infrastructure is growing to better manage risk in the future.

For more information about Goldense Group Inc.'s (GGI) R&D, Product Development, Innovation, and Metrics research approach and topics, ongoing since 1998, please visit their [research portal](#). Licensed pdfs of the 2014 findings and other research are available in GGI's iStore or through regarded distributors including Baker & Taylor and MarketResearch.com.

Bradford L. Goldense, NPDP, CMfgE, CPIM, CCP, president of Goldense Group Inc. has advised over 300 manufacturing companies on four continents in product management, R&D, engineering, product development, and metrics. GGI is a consulting, market research, and executive education firm founded in 1986. Brad writes a monthly column in Machine Design magazine for product creation professionals.