PRODUCT DEVELOPMENT
BEST PRACTICES REPORT
April 2000 Volume 7 Issue 4

METRICS FOR ALIGNING STRATEGY, R&D, AND THE FACTORY

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A few simple measures provide insight as to whether or not the triad of Business Strategy, R&D, and the Factory are aligned on the overall allocation of capacity and resources to focus on products that provide the most revenues and profits. The Business Strategy, of course, would be to focus on the products that generate the most revenues and profits. If older products make more money, than perhaps new R&D efforts have their returns in sustaining older profitable products. On the other hand, if you are like most companies, new products generally make more money. The time period constituting "new products" varies by industry. In the two case study companies below, which are provided to illustrate the linkage between the triad, new products will be defined as those *less than three years old*. One of these companies designs and manufactures pressure and flow Instruments; the other does Integrated Circuits.

Business Strategy

The first metric, "CYS/PDTPRITPNY," is used to measure whether older products or newer products are strategic to increasing revenue and profit streams over the long haul. "Current Year Sales/Profit Due To Products Released In The Prior N Years" was popularized by 3M in 1988 and is now the most used overall R&D metric in North America for measuring the linkage between R&D and Business Strategy. For the example on the next page, N=3.

CYS/PDTPRITPNY %	**YEAR 1**	**YEAR 2**	**YEAR**	**YEAR 4**	**YEAR 5**
INSTRUMENTs - Sales	No Data	No Data	10%	24%	15%
INSTRUMENTs - Profit	No Data	No Data	16%	34%	20%
ICs - Revenue	41%	44%	65%	44%	No Data
ICs - Profit	>41%	>44%	>65%	>44%	No Data

Clearly, for both case study companies, new products make more money. In all cases the profit from new products each year exceeds the percentage of the revenue coming from new products in the same year. Therefore "new products" utilize capacity and resources more effectively than "old products" in that they produce more revenue and profit per unit of capacity. Therefore the larger the percentage of new products in the product portfolio, the larger will be the average gross margin of overall company operating results. Creating this linkage is strategic.

R&D and the Factory

The second metric requires that two other metrics, Annual New Product Releases and Average Annual Active Products Manufacturing, be tracked regularly or it cannot be effectively calculated.

CYAPDTPRITPNY %	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**
INSTRUMENTs - Avg. Active	107	111	144	143	146
INSTRUMENTs -<3 Years	No Data	13	25	32	43
CYAPDTPRITPNY %	***No Data***	***12%***	***17%***	***22%***	***29%***
ICs - Active	196	133	153	161	No Data
ICs - <3 Years	No Data	43	77	106	141
CYAPDTPRITPNY %	***No Data***	***32%***	***50%***	***66%***	***No Data***

The second metric is "CYAPDTPRITPNY," "Current Year Active Products Due To Products Released In The Prior N Years." GGI coined this metric in 1994. It is the "Factory version" of 3M's metric. It uses the same logic and is applied in the same way as 3M's metric, except it calculates newness of the "operations portfolio" versus the "sales/profits portfolio."

FACTORY METRICS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
INSTRUMENTs - Releases	8	5	12	7	12
INSTRUMENTs - Avg. Active	107	111	144	143	146
ICs - Releases	19	24	24	29	35
ICs - Avg. Active	196	133	153	161	No Data

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Which of the two companies does a better job of aligning Business Strategy and R&D with the capacity and resources of the Factory? Clearly, the IC company more clearly ties business strategy to the utilization of capacity and resources in R&D and the Factory.

R&D and Factory capacity, regardless of the intentions of business strategy, contain the bottom-line results of management's decisions over time. If there is good alignment, CYS/PDTPRITPNY will align and/or be highly correlated with CYAPDTPRITPNY. Companies that make more money from new products, had better be actively managing capacity and resources to optimize the presence of new products. For companies where old products make more money, decisions are necessarily different. Two simple metrics can drive the alignment of Business Strategy, R&D, and the Factory to optimize revenue and profit producing capacity.PD

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The Management Roundtable

Product Development — Best Practices Report (ISSN 1049-8400) is published monthly by The Management Roundtable, Inc., 92 Crescent Street, Waltham, MA 02453 (781)891-8080.