





## 2000 Product Development Metrics Survey

A2. Is this a  public or  private company?

A3. For what type/scope of company or organization will you be responding to the questions regarding metrics in this survey? [Check One That Best Applies]

- |  |   |
|--|---|
| <input type="checkbox"/> Parent Corporation [A P/L Unit]         | <input type="checkbox"/> Functional Org/Dept. [Cost Center] |
| <input type="checkbox"/> Strategic Business Unit/HQ [A P/L Unit] | <input type="checkbox"/> Manufacturing Plant [Cost Center]  |
| <input type="checkbox"/> Division/Business Unit/Grp [A P/L Unit] | <input type="checkbox"/> Other: _____                       |

A4. Identify your company's industry or service: [Check One That Best Applies]

<input type="checkbox"/> Aerospace	<input type="checkbox"/> Defense	<input type="checkbox"/> Medical Products
<input type="checkbox"/> Automotive	<input type="checkbox"/> Durable goods	<input type="checkbox"/> Metals
<input type="checkbox"/> Chemical	<input type="checkbox"/> Education	<input type="checkbox"/> Oil/Gas
<input type="checkbox"/> College/Univ. R&D	<input type="checkbox"/> Electronics	<input type="checkbox"/> Pharmaceuticals
<input type="checkbox"/> Communications	<input type="checkbox"/> Engineering/Contract Design	<input type="checkbox"/> Research/Nat'l Labs
<input type="checkbox"/> Computers	<input type="checkbox"/> Food	<input type="checkbox"/> Semiconductors
<input type="checkbox"/> Construction	<input type="checkbox"/> Heavy Machinery	<input type="checkbox"/> Telecomm. Products
<input type="checkbox"/> Consulting/Services	<input type="checkbox"/> Industrial products	<input type="checkbox"/> Textiles
<input type="checkbox"/> Consumer Products	<input type="checkbox"/> Materials	<input type="checkbox"/> Other Ind. _____
<input type="checkbox"/> Software-Web	<input type="checkbox"/> Software-Digital	<input type="checkbox"/> Software-Embedded
<input type="checkbox"/> Consulting	<input type="checkbox"/> Market Research	<input type="checkbox"/> Financial Services
<input type="checkbox"/> Government	<input type="checkbox"/> Utility	<input type="checkbox"/> Other Svc. _____

A5. Sales revenue over your last full year: [Check One That Best Applies]

- |                                 |                                    |                                     |                                     |                                    |
|---------------------------------|------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| <input type="checkbox"/> <\$25M | <input type="checkbox"/> \$25-100M | <input type="checkbox"/> \$100-250M | <input type="checkbox"/> \$250-500M | <input type="checkbox"/> \$500M-1B |
| <input type="checkbox"/> \$1-5B | <input type="checkbox"/> >\$5B     |                                     |                                     |                                    |

A6. Number of full-time employees: [Check One That Best Applies]

- |  |  |                                    |                                      |
|--|--|------------------------------------|--------------------------------------|
| <input type="checkbox"/> 1-500         | <input type="checkbox"/> 500-1000      | <input type="checkbox"/> 1000-5000 | <input type="checkbox"/> 5000-10,000 |
| <input type="checkbox"/> 10,000-25,000 | <input type="checkbox"/> 25,000-50,000 | <input type="checkbox"/> 50,000+   |                                      |

A7. Please indicate the types of manufacturing operations covered by the metrics discussed in this survey: [Check All That Apply]

- Process Mfg     Repetitive Mfg     Discrete Mfg     Job Shop/Customized Mfg

	North America	Europe	Asia	Rest of World
Sales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R&D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mfg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A8. Places your company does business: [Check All That Apply]

A9. What function do you personally perform in the company? [Check One That Best Applies]

- |                                  |   |                                  |  |   |   |
|----------------------------------|---|----------------------------------|--|---|---|
| <input type="checkbox"/> Mgt     | <input type="checkbox"/> Sales                      | <input type="checkbox"/> Mktg    | <input type="checkbox"/> R&D/Engrg           | <input type="checkbox"/> Mfg-Production | <input type="checkbox"/> Mfg-Purchasing/Materials |
| <input type="checkbox"/> Quality | <input type="checkbox"/> Environ./Safety/Regulatory | <input type="checkbox"/> Finance | <input type="checkbox"/> Information Systems | <input type="checkbox"/> HR             |   |



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### SECTION B R&D LINKAGES TO CORPORATE STRATEGY

#### Corporate/Business-Wide Metrics

B1. How many metrics are in the set of metrics that are used to measure and/or steer the company as a whole? This question pertains to all functions across the company, i.e. the company as a whole including R&D and product development activities.

- a. My company *does have* a clearly defined "set of metrics" that is known by most people.  
 The number of metrics in the set is  Number
- b. My company *does not have* a clearly defined set, but the number *can* be derived.

I have derived/estimated an answer by adding up the number of metrics reported by staff members at company meetings. Therefore, the number of metrics in the company-wide "set of metrics" determined by way of my calculation for the purposes of completing this survey is:

- |                     |                          |                          |                          |
|---------------------|--------------------------|--------------------------|--------------------------|
| Ten or Less Metrics | <input type="checkbox"/> | 101-125 Metrics          | <input type="checkbox"/> |
| 11 - 25 Metrics     | <input type="checkbox"/> | 126-150 Metrics          | <input type="checkbox"/> |
| 26- 50 Metrics      | <input type="checkbox"/> | 150-175 Metrics          | <input type="checkbox"/> |
| 51- 75 Metrics      | <input type="checkbox"/> | 176-200 Metrics          | <input type="checkbox"/> |
| 76-100 Metrics      | <input type="checkbox"/> | Greater Than 200 Metrics | <input type="checkbox"/> |

- c.  My company *does not have* a clearly defined set, and the number *cannot* be derived.

#### R&D Metrics

B2. How many metrics are in the set of metrics that are used by R&D Officers to measure and/or steer R&D as a whole? This question pertains solely to R&D and related product development activities.

- a. R&D *does have* a clearly defined "set of metrics" that is known by most R&D managers.  
 The number of metrics in the set is  Number .
- b. R&D *does not have* a clearly defined set, but the number can be derived.

I have derived/estimated an answer by adding up the number of metrics reported by staff members at company meetings. Therefore, the number of metrics in the company-wide "set of metrics" determined by way of my calculation for the purposes of completing this survey is:

- |                     |                          |                          |                          |
|---------------------|--------------------------|--------------------------|--------------------------|
| Ten or Less Metrics | <input type="checkbox"/> | 101-125 Metrics          | <input type="checkbox"/> |
| 11 - 25 Metrics     | <input type="checkbox"/> | 126-150 Metrics          | <input type="checkbox"/> |
| 26- 50 Metrics      | <input type="checkbox"/> | 150-175 Metrics          | <input type="checkbox"/> |
| 51- 75 Metrics      | <input type="checkbox"/> | 176-200 Metrics          | <input type="checkbox"/> |
| 76-100 Metrics      | <input type="checkbox"/> | Greater Than 200 Metrics | <input type="checkbox"/> |

- c.  R&D *does not have* a clearly defined set, and the number *cannot* be derived.



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### R&D Metrics Linkages

B3. Please refer to your answers to the two questions above to answer this next two-part question.

a. Using your answer to "B2," the total number of R&D measures being used, how many of these R&D measures are also part of the overall company-wide "B1" set of metrics?

b. % R&D Metrics In Company-Wide Metrics Portfolio =

$$\frac{\text{Number R\&D Metrics In Company-Wide Portfolio} = [B3a] = \text{Number}}{\text{Total Number Of Metrics In Company-Wide Set} [B1] \text{ Number}} = \text{Number} \%$$

## SECTION C PORTFOLIO MANAGEMENT METRICS

### Portfolio Frameworks

C1. Which of the three frameworks below does your company actively use in company management reports to categorize products? For each framework used, please indicate any individual elements of the Model that closely align with the terms for the elements that your company uses. [Check All That Apply]

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> a. Product Family Model | <input type="checkbox"/> b. Product Type Model | <input type="checkbox"/> c. Project Size Model |
| Line Of Business <input type="checkbox"/>        | Platform <input type="checkbox"/>              | Large Project/Program <input type="checkbox"/> |
| Product Family <input type="checkbox"/>          | Major Derivative <input type="checkbox"/>      | Medium Project <input type="checkbox"/>        |
| Product Line <input type="checkbox"/>            | Derivative <input type="checkbox"/>            | Small Project <input type="checkbox"/>         |
| Product <input type="checkbox"/>                 | Extension <input type="checkbox"/>             |  |
|  | Sustaining <input type="checkbox"/>            |  |

OR,  d. My company does not use any of the 3 above frameworks for product/project analysis.

### Portfolio Population

C2. a. About how many products are currently in the "released/active product portfolio."

- b. The "counting method" below that most accurately represents the counting method I used is: [Check One Box Only]
1. All SKUs that the factory will produce/sell if a customer order is placed for one.
  2. All SKUs currently listed in the current/active sales catalog, end items and spare parts.
  3. All SKUs currently listed in the current/active sales catalog, end items only.
  4. Product Lines/Models, each of which may have many variations, colors, etc...
  5. Only aggregate Product Families/Lines, each of which has many end items/models.
  6. None of the counting systems above is analogous to the counting system I used.



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- C3. a.. About how many products are currently in the "R&D backlog product portfolio." Number
- b. The "counting method" below that most accurately represents the counting method I used is:  
 [Check One Box Only]
1. All SKUs that the factory will produce/sell if a customer order is placed for one.
  2. All SKUs to be listed in the current/active sales catalog, end items and spare parts.
  3. All SKUs to be listed in the current/active sales catalog, end items only.
  4. Product Lines/Models, each of which may have many variations, colors, etc...
  5. Only aggregate Product Families/Lines, each of which has many end items/models.
  6. None of the counting systems above is analogous to the counting system I used.

### Portfolio Dynamics

C4. When going through the mechanics of portfolio analysis, what product life cycle is typically assumed for decisions being made in the year 2000? The product life cycle is the length of time that the product is expected to sell in the marketplace before it needs to be replaced. Do not include spare parts support that may occur subsequent to the actual retirement of the production of the product itself. Put this answer in the first column, Then, in the second column, indicate the number of years that spare parts are produced and/or sold to support or service the product subsequent to the production of the product itself. [Single product line businesses probably need only to use one Line below. Larger companies may need to use several Lines.]

Product Life Cycle - Initial Number Of Years	Years	Parts-Only Cycle - After Product Life Cycle End	Years
a. 1st Line of Business	Years	aa. 1st Line of Business	Years
b. 2nd Line of Business	Years	bb. 2nd Line of Business	Years
c. 3rd Line of Business	Years	cc. 3rd Line of Business	Years
d. 4th Line of Business	Years	dd. 4th Line of Business	Years
e. 5th Line of Business	Years	ee. 5th Line of Business	Years

OR,  f. My company does not track or calculate product or parts life-cycles.

C5. Is the average product life cycle [PLC] of the products in the company portfolio currently increasing or decreasing in the year 2000? [Select One Of Three Choices]

- a. PLC Is Increasing. [Sell for longer periods than in the past.] Yes 100 %
- b. PLC Is Decreasing. [Sell for shorter periods and get replaced sooner.] Yes 100 %
- c. Both Increasing and Decreasing PLC portfolio dynamics are present. About % of the portfolio is Increasing, and % of the portfolio is Decreasing.
- d. PLC Neither Increasing or Decreasing. All PLC's are stable at this time. Yes 100 %



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C6. The "CYS/PDTPRITPNY" metric is one of the most popular R&D metrics in use by industry. It was first popularized by 3M in the late 1980s. It stands for "Current Year Sales/Profits Due To Products Released In The Prior N Years." It is an indicator of the newness of the released/active product portfolio. [If your company already maintains this metric, then the question is easy. If your company only recently started calculating the metric, then put "NC" in the boxes for the FYs that your company did not calculate the metric. If your company does not maintain the metric, then check "g" and proceed to Question C7.]

- a. In FY 1995,  % of company sales was due to new products released within the prior  Years years.  
 In FY 1995,  % of company profit was due to new products released within the prior  Years years.
- b. In FY 1996,  % of company sales was due to new products released within the prior  Years years.  
 In FY 1996,  % of company profit was due to new products released within the prior  Years years.
- c. In FY 1997,  % of company sales was due to new products released within the prior  Years years.  
 In FY 1997,  % of company profit was due to new products released within the prior  Years years.
- d. In FY 1998,  % of company sales was due to new products released within the prior  Years years.  
 In FY 1998,  % of company profit was due to new products released within the prior  Years years.
- e. In FY 1999,  % of company sales was due to new products released within the prior  Years years.  
 In FY 1999,  % of company profit was due to new products released within the prior  Years years.
- f. Our company maintains this metric but does not disclose it.
- g. Our company does not calculate the CYS/PDTPRITPNY metric.

C7. Is there an active product obsolescence and/or product retirement practice at your company that occurs on a frequency of not more than every two years?  Yes Or, do old products just sort of fade away over time as fewer and fewer orders are placed for them?  Fade [Check Only One Box]

### Portfolio Analysis

C8. Numerous frameworks for R&D and product portfolio analysis have been in use in industry for many decades. Below are some of the more popular frameworks that companies use. Which of the frameworks below, if any, does your company formally and consistently use? [Check All That Apply]

- a. 

Growth Potential	BCG MATRIX
Market Share	
- b. 

Overall Risk	WallStreet MATRIX
Overall Return	
- c. 

Overall Return		
Product Life Cycle		
- d. 

Product Return		
Product Investment		



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<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; flex-direction: column; align-items: center;"> <span style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Product Price</span> <table border="1" style="border-collapse: collapse; width: 40px; height: 40px;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <span style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Product Performance</span> <input type="checkbox"/> e.         </div> </div>					<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; flex-direction: column; align-items: center;"> <span style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Market Risk</span> <table border="1" style="border-collapse: collapse; width: 40px; height: 40px;"> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr> </table> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <span style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Technical Risk</span> <input type="checkbox"/> f.         </div> </div>					<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; flex-direction: column; align-items: center;"> <span style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Clarity Of Objective</span> <table border="1" style="border-collapse: collapse; width: 40px; height: 40px;"> <tr><td style="width: 20px; height: 20px; text-align: center; font-size: x-small;">WR Grace</td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px; text-align: center; font-size: x-small;">MATRIX</td><td style="width: 20px; height: 20px;"></td></tr> </table> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <span style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Ability To Do</span> <input type="checkbox"/> g.         </div> </div>	WR Grace		MATRIX		<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; flex-direction: column; align-items: center;"> <span style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Project Size</span> <table border="1" style="border-collapse: collapse; width: 40px; height: 40px;"> <tr><td style="width: 20px; height: 20px; text-align: center; font-size: x-small;">GGI</td><td style="width: 20px; height: 20px;"></td></tr> <tr><td style="width: 20px; height: 20px; text-align: center; font-size: x-small;">MATRIX</td><td style="width: 20px; height: 20px;"></td></tr> </table> </div> <div style="display: flex; flex-direction: column; align-items: center;"> <span style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">Project Duration</span> <input type="checkbox"/> h.         </div> </div>	GGI		MATRIX	
WR Grace																			
MATRIX																			
GGI																			
MATRIX																			

**SECTION D      PRODUCT SELECTION METRICS**

### Critical Selection Variable

D1. Assuming that it is always necessary to accurately determine the product requirements and specifications for any given product to be successful, which of the following execution criteria is usually the second most important factor to the financial success of products in your company. [Check One Box Only]

- |  |  |
|--|--|
| a. Time-To-Market <input type="checkbox"/>           | d. Varies Widely By Product <input type="checkbox"/> |
| b. Target Product Cost <input type="checkbox"/>      | e. Other: _____ <input type="checkbox"/>             |
| c. Development/Capital Cost <input type="checkbox"/> | f. Not sure of the answer <input type="checkbox"/>   |

### Selection Process

D2. How many times does your company review a given idea/concept/definition/proposal before finally making a business decision to either formally approve or formally reject a proposed R&D product and/or investment project. [Check One Box Only]

- a. 2.5-Step  First a simple short, probably one-page, description of the idea is discussed. Little work has been performed, if any. The idea is in a highly raw state. At this time, it is either killed, tabled, or moved forward for further analysis.
- b. 2- Step  First a preliminary marketing and and technical analysis is reviewed. At this time, it is either killed, tabled, or moved forward for final estimation.
- c. 1- Step  A single top management meeting is held for a go/no go decision. A complete comprehensive plan/analysis has been prepared for consideration. Work leading up to this meeting has been conducted in functional organizations.
- d. No Step  A single organization determines the R&D products/projects to be done. There is no cross-functional multi-disciplined management team making decisions.
- e. Other \_\_\_\_\_

### Selection Process Metrics

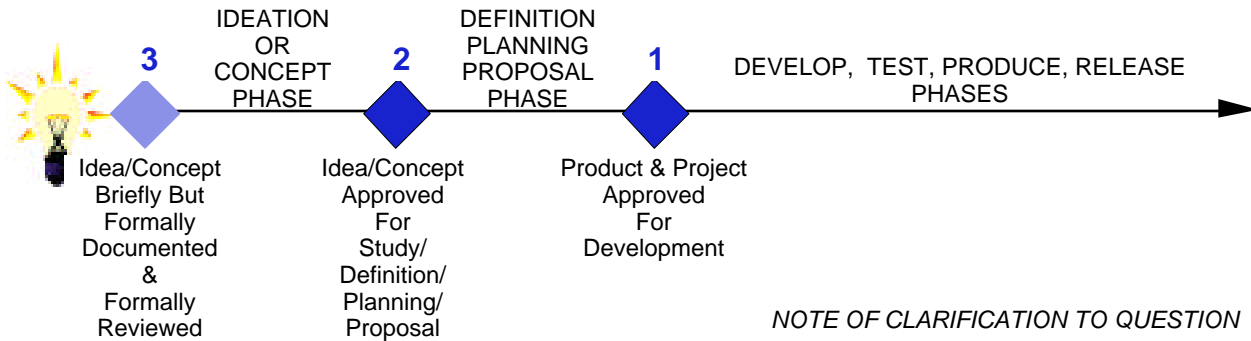
D3. If you answered "d" or "e" to Question D2 above, then skip this question and continue with Question E1. If you answered Question D2 above with either "a," "b," or "c" you should be able to answer this question. This question measures "throughput and yield rate" of product selection decisions made during a one-year period. Does your company approve every product/project presented, or do some products/projects not get approved? [If you have a "1-Step Process," fill out only "Column 2" in the box below. If you have a "2-Step or 2.5 Step Process," fill out "Columns 1 and 2" and "Died Mid-Phase."]





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My Company Does Not Perform Any Of The Metrics/Activities Listed Below



NOTE OF CLARIFICATION TO QUESTION

	COLUMN 1	COLUMN 2
# Approved	<input type="text"/>	<input type="text"/>
# On Hold	<input type="text"/>	<input type="text"/>
# Rejected	<input type="text"/>	<input type="text"/>
# Died Mid-Phase	<input type="text"/>	<input type="text"/>
<b>TOTAL REVIEWED</b>	<input type="text"/>	<input type="text"/>

Often, in many companies, the specific cycle for "Capital Approval" is separated from the actual company decision to approve a Project/Product for development. Many companies wait until prototypes are built to formally approve the capital for the project. Ignore this type of a "subsequent capital process." The question here pertains to "Product/Project Approval," not Capital Approval [unless it occurs simultaneously].

### SECTION E PRODUCT SUCCESS METRICS

E1. What is the historical success rate of the products your company launches? It is well documented that company success rates range from as low as 10% success to as high as 90% success. What is your company new product success rate? [Enter Two Numbers That Total 100%]

- a. Company products are successful % of the time.
- b. Company products are not successful % of the time.
- 100 %

E2. What is the primary financial measure that is used to determine a product's success or failure at your company. If your company does not calculate a financial return for R&D investments, please check only the first box thereby identifying your company as a "Judgment Company." [Check One Only]

- a. Judgment Companies  Companies not using financial criteria
- b. Financial Companies
- |                            |                               |                                      |     |                          |
|----------------------------|-------------------------------|--------------------------------------|-----|--------------------------|
| Payback                    | <input type="checkbox"/>      | Break Even Time                      | BET | <input type="checkbox"/> |
| Internal Rate Of Return    | IRR <input type="checkbox"/>  | Time To Profit                       | TTP | <input type="checkbox"/> |
| Net Present Value          | NPV <input type="checkbox"/>  | Composite Measure- of several above  |     | <input type="checkbox"/> |
| Return On Investment       | ROI <input type="checkbox"/>  | Other: _____                         |     | <input type="checkbox"/> |
| Return On Assets           | ROA <input type="checkbox"/>  | Our primary measure not listed above |     | <input type="checkbox"/> |
| Return On Net Assets       | RONA <input type="checkbox"/> | Not sure of the answer               |     | <input type="checkbox"/> |
| Return On Capital Employed | ROCE <input type="checkbox"/> |                                      |     |                          |





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E3. What is the sales/revenue/profit forecast time period that is used to calculate the financial return measure identified in Question E2? What is the length of the revenue/profit stream used to justify an R&D investment? If your company does not calculate a financial return for R&D investments, please check only the first box thereby identifying your company as a "Judgment Company." [Check One Box Only]

- a. Judgment Companies  Companies not using financial criteria
- b. Financial Companies
- |             |                          |                        |                          |
|-------------|--------------------------|------------------------|--------------------------|
| 6-Months    | <input type="checkbox"/> | Four Years             | <input type="checkbox"/> |
| 9-Months    | <input type="checkbox"/> | Five Years             | <input type="checkbox"/> |
| One Year    | <input type="checkbox"/> | Six To Ten Years       | <input type="checkbox"/> |
| 18-Months   | <input type="checkbox"/> | More Than Ten Years    | <input type="checkbox"/> |
| Two Years   | <input type="checkbox"/> | Other: _____           | <input type="checkbox"/> |
| Three Years | <input type="checkbox"/> | Not sure of the answer | <input type="checkbox"/> |

E6. Are post-launch project/product reviews systematically conducted by a cross-functional management team consisting of marketing, engineering, manufacturing, finance, and/or other functions for each new product for the purpose of seeing if the product results met the original technical and business goals? [Check One Box Only]

- Yes, all new products are systematically reviewed against their goals after launch
- Yes, some new products [not all] are systematically reviewed against their goals after launch
- ....Approximate percentage with formal cross-functional post-launch review  %
- No, individual functions and/or managers review projects separately within their functions
- No, cross-functional post-launch project/product reviews are not conducted

If yes, are there specific target points after a product launches that reviews are conducted? Or, are reviews done during periodic and/or annual operational and planning cycles as a batch across active/key products.

- As a batch across active products  Yes or No Targeted project/product reviews\*\*  Yes or No

If reviews are targeted\*\* on a per product basis, what are the common time periods that targeted reviews are conducted after any given product launches? [Check All That Apply]

- |                                  |                          |                                 |                          |
|----------------------------------|--------------------------|---------------------------------|--------------------------|
| Six months after product launch  | <input type="checkbox"/> | Four years after product launch | <input type="checkbox"/> |
| One year after product launch    | <input type="checkbox"/> | Five years after product launch | <input type="checkbox"/> |
| Two years after product launch   | <input type="checkbox"/> | End-of-life/Obsolescence        | <input type="checkbox"/> |
| Three years after product launch | <input type="checkbox"/> | Other: _____                    | <input type="checkbox"/> |

If reviews are targeted\*\* on a per product basis, what is the average number of times a project/product [targeted to be a reviewable one] is reviewed after it is actually launched?  Number



## 2000 Product Development Metrics Survey

### SECTION F R&D METRICS USED IN INDUSTRY

Section F consists of one single long question. This question from the well regarded 1998 Survey is repeated in the 2000 Survey. The results from this question in 1998 jumped off the page. It turned out that there are very few metrics that are commonly and widely used by R&D organizations. The results of the 2000 survey will be contrasted to the 1998 findings so first time participants in the 2000 survey will get the benefits of both surveys. For those persons that simply cannot bear to wait, please refer to the February 2000 issue of CFO Magazine published by The Economist.

F1. Which of the following R&D metrics are "in use" at your company? To qualify as "in use," these metrics should: (1) be measured at least on an annual basis; (2) be visible to *all* members of the top management group as active ongoing tools; (3) be stored in a manner that numerous people in the organization could find them easily; and (4) have some reliability in that the method used to calculate them is consistent from year to year. Please be strict in applying this definition of "in use" when responding to the measures listed for your consideration below. [Check All That Apply]

#### Revenue Management

- Current-year % sales due to new products released in the past N-years
- If used, what is N =  year(s) (i.e., past 1, 2, 3, 4, 5 years)
- Average first- N year(s) sales of new products
- If used, what is N =  year(s) (i.e., past 1, 2, 3, 4, 5 years)
- Average N-year sales of new products
- If used, what is N =  year(s) (i.e., past 1, 2, 3, 4, 5 years)
- Current-year % sales due to total Non Recurring Engineering Billings
- Current-year % sales due to total technology licensing
- Current-year % sales due to total royalty income

#### Profit Management

- Current-year % profits due to new products released in the past N-years
- If used, what is N =  year(s) (i.e., past 1, 2, 3, 4, 5 years)
- Average first- N year(s) profits of new products
- If used, what is N =  year(s) (i.e., past 1, 2, 3, 4, 5 years)
- Average N-year profits of new products
- If used, what is N =  year(s) (i.e., past 1, 2, 3, 4, 5 years)
- Current-year % profits due to total Non Recurring Engineering Billings
- Current-year % profits due to total technology licensing
- Current-year % profits due to total royalty income



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### Productivity Management

- Average sales per engineer or developer or scientist
- Average profits per engineer or developer or scientist
  
- Average new products released per engineer or developer or scientist
- Average new product sales per engineer or developer or scientist
- Average new product profits per engineer or developer or scientist
  
- Average number prototypes built per new product
- % First pass design success

### Investment & Capacity & Throughput & Backlog Management

- R&D spending as a % of sales [Managed As A Single Number]   
[Managed as a single number across the organization.]
- R&D spending as a % of sales   
[Research spending managed separate from Development spending.]
- R&D spending as a % of sales   
[Process R&D spending managed separate from R&D spending.]
  
- Average development cost per project/product
- Average capital cost per project/product
  
- R&D capacity plan target level
- % Over/under R&D capacity plan target level
  
- % Increase/decrease in R&D headcount
- % Resources/investment dedicated to new product development
- % Resources/investment dedicated to sustaining existing products
  
- Staffing Ratios: Internal-To-Engineering staffing ratios   
Cross-Functional staffing ratios
  
- # of idea/concept screened/reviewed   
% of ideas/concepts accepted/rejected
- # of products in definition/planning/estimation stages   
% of defined products/projects accepted/rejected
- # of products/projects approved but not started [inactive backlog]
- # of products/projects in active development [active backlog]
- # of products released and being actively supported
- # of products retired/obsoleted
  
- Average # factory products supported per engineer or developer or scientist
- Average # active projects/ products per engineer or developer or scientist

### Intellectual Property Management

- Total patents filed/pending/awarded
- Average patents per development professional
  
- Total industry standards planned/pending/achieved



## 2000 Product Development Metrics Survey

Total licenses granted and/or acquired   
Total value of licenses granted and/or acquired   
Total grants received   
Total value of grant revenues received

**PLEASE RETURN YOUR SURVEY BY AUGUST 15, 2000**

**SEND BY MAIL TO**

**Ms. Lisa Mosquera  
Research Associate  
Goldense Group, Inc.  
6 Bigelow Street  
Cambridge, MA 02139**

**617-876-6776 ext. 201**

**FAX IT TO US**

**617-876-6766**

**No cover page is necessary. Simply drop it in the fax machine. Your name and contact information is already on the first page of the questionnaire. Thank you.**

**IF YOU HAVE QUESTIONS OR NEED CLARIFICATION**

**Mr. Jonathan Gilmore  
Manager, Research & Education Products  
Goldense Group, Inc.  
6 Bigelow Street  
Cambridge, MA 02139**

**617-876-6776 ext. 202**

**!! THANK YOU FOR PARTICIPATING !!**

**IN THE**

**2000 PRODUCT DEVELOPMENT METRICS SURVEY**

**!! THANK YOU !!**