

Section IV: Innovation

I. Innovation Investment *(Please refer in your answers to the last two fiscal years)*

I01 At the plant level, what was your average research and development (R&D) budget *as a percentage of total plant sales?*

- 0-0.25% 0.26-0.50% 0.51-0.75% 0.76-1% 1.1-2% 2.1-4% more than 4%

I02 At the plant level, what was your average investment in new process technologies and equipment *as a percentage of total plant sales?*

- 0% 1-4% 5-8% 9-12% 13-16% 17-20% more than 20%

I03 What was your plant's average training budget for education of employees *as a percentage of total plant sales?*

- 0-0.5% 0.51-1% 1.1-1.5% 1.6-2% 2.1-3% 3.1-4% more than 4%

I04 In your plant's innovation activities, what percent of total investment (effort, capital, labor, etc.) was spent on product innovation [defined as the improvement or development of novel and inventive products], and what percent was spent on process innovation [defined as the application of novel process technology or the implementation of improved process performance] (total number should be 100%).

Product innovation % Process innovation %

II. Innovation Performance

I05 What percentage of your plant's total number of products were introduced in the last two years?

- 0% 1-10% 10-15% 16-30% 31-45% 46-60% more than 61%

I06 Please compare the levels of product innovation at this plant in the last two years to those of your major competitors.

Product Innovation Performance	Much lower / Far worse		About the same / Competitive			Much higher / Far better	
1. Percentage of total sales stemming from new products.	1	2	3	4	5	6	7
2. Percentage of market share stemming from new products.	1	2	3	4	5	6	7
3. Number of new products.	1	2	3	4	5	6	7
4. Speed of introducing new products.	1	2	3	4	5	6	7
5. Frequency of new products introduction.	1	2	3	4	5	6	7

I07 Innovations can be characterized as incremental or radical. An incremental innovation refers to the development of a derivative product/process that is based on modifications to the existing product/process. A radical innovation refers to the development of a new product/process that makes the existing product/process obsolete or creates new market/capability opportunities. (The two percentages should add up to 100%.)

1. What percentage of the plant's total number of products come from radical product/process innovations?
% of total number of products
2. What percentage of the plant's total number of products come from incremental product/process innovations?
% of total number of products

I08 What percentage of your plant's *existing* products were *improved* by the plant in the last two years?

- 0% 1-10% 10-15% 16-30% 31-45% 46-60% more than 61%

I09 What percentage of your plant's *existing* products were *discontinued* by the plant in the last two years?

- 0% 1-10% 10-15% 16-30% 31-45% 46-60% more than 61%

I10 Please indicate your degree of agreement with the following statements describing your plant's engineering capability.

	Strongly disagree		Neutral			Strongly agree	
1. Engineering capability at this plant is high.	1	2	3	4	5	6	7
2. Engineering skills and abilities at this plant are unique.	1	2	3	4	5	6	7
3. Engineering is a core strength of the plant.	1	2	3	4	5	6	7

III. Process and Product Innovation

I11 Please indicate your degree of agreement with the following statements describing your plant's process innovation.

Process Innovation	Strongly disagree		Neutral			Strongly agree	
1. We are learning more about the newest processes than our competitors.	1	2	3	4	5	6	7
2. We are the first within the industry to deploy new processes.	1	2	3	4	5	6	7
3. We keep up with the latest process developments.	1	2	3	4	5	6	7
4. Process innovation is important to this plant.	1	2	3	4	5	6	7
5. We frequently introduce processes that are radically different from existing processes in the industry.	1	2	3	4	5	6	7
6. We lag behind others in introducing processes based on radically new technologies. (R)	1	2	3	4	5	6	7
7. We have no difficulty in introducing processes that are radically different from existing processes in the industry.	1	2	3	4	5	6	7

I12 Please indicate your degree of agreement with the following statements describing your plant's product innovation.

Product Innovation	Strongly disagree		Neutral			Strongly agree	
1. We are the first within the industry to introduce new products.	1	2	3	4	5	6	7
2. We keep up with the latest product developments.	1	2	3	4	5	6	7
3. Product innovation is important to this plant.	1	2	3	4	5	6	7
4. We frequently introduce products that are radically different from established products in the industry.	1	2	3	4	5	6	7
5. We lag behind others in introducing products based on radically new technologies. (R)	1	2	3	4	5	6	7
6. We have no difficulty in developing products that are radically different from existing products in the industry.	1	2	3	4	5	6	7

IV. Intellectual Capital

I13 Please indicate your degree of agreement with the following statements describing each aspect of your plant's intellectual capital

Social Capital	Strongly disagree		Neutral			Strongly agree	
1. There is ample opportunity for informal conversations among employees in the plant.	1	2	3	4	5	6	7
2. Employees from different departments feel comfortable calling each other when need arises.	1	2	3	4	5	6	7
3. People are quite accessible to each other in the plant.	1	2	3	4	5	6	7
4. We are able to discuss problems and tough issues openly.	1	2	3	4	5	6	7
Structural Capital	Strongly disagree		Neutral			Strongly agree	
5. Standard operating procedures are in place.	1	2	3	4	5	6	7
6. Much of this plant's knowledge is contained in manuals, archives, or databases.	1	2	3	4	5	6	7
7. We usually follow the sequence of written procedures and rules.	1	2	3	4	5	6	7
8. Processes in our plant are well defined.	1	2	3	4	5	6	7
Human Capital	Strongly disagree		Neutral			Strongly agree	

9. Employees in this plant are highly skilled in their respective jobs.	1	2	3	4	5	6	7
10. Employees in this plant are considered among the best people in the organization.	1	2	3	4	5	6	7
11. Employees in this plant are experts in their particular jobs and functions.	1	2	3	4	5	6	7
12. Every employee in this plant has useful experience.	1	2	3	4	5	6	7
Cognitive Capital	Strongly disagree		Neutral			Strongly agree	
13. This plant and its major external partners have common understanding about what activities are best for our relationship.	1	2	3	4	5	6	7
14. This plant and its major external partners have shared objectives and visions.	1	2	3	4	5	6	7
15. This plant and major external partners share common language and codes (e.g. special vocabulary, abbreviation, and technical terms).	1	2	3	4	5	6	7
16. This plant and its major external partners have common understanding about the same concepts (e.g. good, fast, cost, quality).	1	2	3	4	5	6	7
17. This plant and its major external partners have similar behavioral rules and norms.	1	2	3	4	5	6	7
18. This plant and its major external partners have common values and culture.	1	2	3	4	5	6	7

V. Supply Chain Leveraging

I14 Leveraging one's supply chain can also be an important aspect for innovation, specifically also within the context of new product development (NPD). Please indicate your degree of agreement with the following statements assessing the innovation involvement of your plant with suppliers and customers.

Supplier leveraging	Strongly disagree		Neutral			Strongly agree	
1. We are able to obtain a tremendous amount of technical know-how from our suppliers.	1	2	3	4	5	6	7
2. We rapidly respond to technological changes in our industry by applying what we know from our supplier.	1	2	3	4	5	6	7
3. As soon as we acquire new knowledge from our supplier, we try to find applications for it.	1	2	3	4	5	6	7
4. Our key supplier's technological knowledge enriched the basic understanding of our innovation activities.	1	2	3	4	5	6	7
5. Our key supplier's technological knowledge reduced the uncertainty of our innovation activities.	1	2	3	4	5	6	7
6. Our key supplier's technological knowledge helps us to identify new aspects of innovation activities that would otherwise have gone unnoticed.	1	2	3	4	5	6	7
Customer leveraging	Strongly disagree		Neutral			Strongly agree	
7. We are able to obtain a tremendous amount of our product knowledge from our customers.	1	2	3	4	5	6	7
8. We rapidly respond to technological changes in our industry by applying what we know from our customer.	1	2	3	4	5	6	7
9. As soon as we acquire new knowledge from our customer, we try to find applications for it.	1	2	3	4	5	6	7
10. Our key customer's technological knowledge enriched the basic understanding of our innovation activities.	1	2	3	4	5	6	7
11. Our key customer's technological knowledge reduced the uncertainty of our innovation activities.	1	2	3	4	5	6	7

12. Our key customer's technological knowledge identified new aspects of innovation activities that would otherwise have gone unnoticed.	1	2	3	4	5	6	7
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I15 Please indicate your degree of agreement with the following statements assessing your plant's mass customization capability.

Mass customization	Strongly disagree		Neutral			Strongly agree	
1. We are highly capable of large-scale product customization.	1	2	3	4	5	6	7
2. We can easily add significant product variety without increasing cost.	1	2	3	4	5	6	7
3. We can customize products while maintaining high volume.	1	2	3	4	5	6	7
4. We can add product variety without sacrificing quality.	1	2	3	4	5	6	7
5. Our capability for responding quickly to customization requirements is very high.	1	2	3	4	5	6	7
6. Our plant produces a high volume of products.	1	2	3	4	5	6	7
7. Our plant produces a high variety of products.	1	2	3	4	5	6	7