



For each of the items listed below, how does your plant's performance compare with your competitors? (Circle a number.)

	Far Worse		Competitive			Far better	
CG02 direct manufacturing costs	1	2	3	4	5	6	7
CG03 total product costs	1	2	3	4	5	6	7
CG04 raw material costs	1	2	3	4	5	6	7
CG05 product features	1	2	3	4	5	6	7
CG06 product performance	1	2	3	4	5	6	7
CG07 perceived overall product quality	1	2	3	4	5	6	7
CG08 order fulfillment speed	1	2	3	4	5	6	7
CG09 delivery speed	1	2	3	4	5	6	7
CG10 delivery as promised	1	2	3	4	5	6	7
CG11 delivery flexibility	1	2	3	4	5	6	7
CG12 flexibility to change output volume	1	2	3	4	5	6	7
CG13 flexibility to change product mix	1	2	3	4	5	6	7
CG14 manufacturing throughput time	1	2	3	4	5	6	7
CG15 new product design time	1	2	3	4	5	6	7

Using an index of 100 as the starting point 2 years ago, give an approximate index for the following (e.g., a 5% increase would be 105, a 5% decrease would be 95).

- CG16 Manufacturing cost (without inflation) _____ index
 CG17 Labor productivity _____ index
 CG18 Equipment productivity _____ index

What are the plant's approximate reject/return percentages at each of the following stages now and two years ago?

	Currently	Two years ago
CG19 (A&B) Percent rejects of incoming material	_____ %	_____ %
CG20 (A&B) Percent rejects during processing (scrap rate)	_____ %	_____ %
CG21 (A&B) Percent rejects at final inspection	_____ %	_____ %
CG22 (A&B) Percent returns from the customer	_____ %	_____ %

	Currently	Two years ago
CG23 (A&B) What percentage of the plant's customer orders is delivered late ?	_____ %	_____ %
CG24 (A&B) What percent of the plant's purchase orders do suppliers deliver late?	_____ %	_____ %

Using 100 as the base 2 years ago, give the current index for the following (e.g., a 20% decrease would be 80).

- CG25 Product design time _____ index
 CG26 Cycle time _____ index
 CG27 Manufacturing throughput time _____ index
 CG28 Delivery speed _____ index

CG29 By sales volume, what are the **top four product lines** at this plant (if less than 4 leave others blank):
 1. _____ 2. _____ 3. _____ 4. _____

CG30 What percent of your customer orders require after-sales service from this plant? _____ %

CG31 What percent of the cost of goods sold is spent on transportation costs to the customer. _____ %

Approximately, how many calendar days into the future have the plant promised delivery?

	Currently	2 years ago
CG32 (A&B) minimum days to delivery promise date	_____ Days	_____ Days
CG33 (A&B) maximum days to delivery promise date	_____ Days	_____ Days
CG34 (A&B) usual days to delivery promise date	_____ Days	_____ Days



On average, what percentage of the plant's orders is delivered to customers **after** the promised date?

	Currently _____ %	2 years ago _____ %
CG35 (A&B) Percent of orders delivered after promised date		

For customer orders that are **delivered late**, what is the average number of days late?

	Currently _____ Days	2 years ago _____ Days
CG36 (A&B) average number of days late		

Section IP: Internal Manufacturing Practices

About how much time elapses from the start of the first operation until a batch of the plant's products is finished

	Now _____ days	2 years ago _____ days
IP01 (A&B) average time from start to completion		

IP01 (A&B) For about how many individual products or product lines does the plant develop production plans?
 _____ products in production plan _____ product lines in production plan

IP02 How far into the future does the plant's production plan extend? _____ weeks

IP03 About how many times per year is the plant's production plan revised? _____ times per year

IP04 How far into the future does the plant freeze the production schedule? (0 = the firm does not freeze the production schedule.) _____ weeks

How accurate are these manufacturing records?

IP05 About how accurate are the plant's inventory records (0 = do not measure)?	_____ %
IP06 About how accurate are the plant's bills of material (0 = do not measure)?	_____ %
IP07 About how accurate are routings (0 = do not measure)?	_____ %

IP08 On approximately what percent of orders do engineering changes occur after the start of production? _____ %

IP09 (A, B, &C) What is the approximate percentage breakdown of the production elapsed time for a typical production batch (These should sum to 100%)?
 _____ % set-up time _____ % processing time _____ % non-processing operations (queue & move time)

IP10 (A, B, &C) What is the approximate total number of part numbers in each segment of the plant's inventory system?
 _____ raw material part numbers _____ component part numbers _____ finished goods part numbers

IP11 What is the approximate value of the plant's total inventory in all stages of production including finished goods? (State currency units.) _____ total inventory value

IP12 (A,B, &C) What is the approximate distribution of the plant's inventory value? (These should sum to 100%.)
 _____ % purchased materials and parts _____ % work-in-process _____ % finished goods

IP13 (A, B, C &D) In this plant, what percent of production (manufacturing) orders are in these categories (sums to 100%):
 _____ % one of a kind _____ % small batch _____ % large batch _____ % semi-continuous _____ % continuous

IP14 (A, B, C &D) In this plant, what percent of manufacturing orders fall into these categories?
 _____ % Engineer to order _____ % Made to order _____ % Assemble to order _____ % Made to stock

IP15	Approximately, <u>how many items are on a typical end item bill of material</u> (check one)?	<50 <input type="checkbox"/>	50-100 <input type="checkbox"/>	100-200 <input type="checkbox"/>	200-300 <input type="checkbox"/>	300-400 <input type="checkbox"/>	400-500 <input type="checkbox"/>	500-1000 <input type="checkbox"/>	1000-5000 <input type="checkbox"/>	5000+ <input type="checkbox"/>
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IP16	Approximately, how many annual permanent changes are made to this plant's bills of materials?	<50 <input type="checkbox"/>	50-100 <input type="checkbox"/>	100-200 <input type="checkbox"/>	200-300 <input type="checkbox"/>	300-400 <input type="checkbox"/>	400-500 <input type="checkbox"/>	500-1000 <input type="checkbox"/>	1000-5000 <input type="checkbox"/>	5000+ <input type="checkbox"/>
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IP17 About how many suppliers does the plant have, on average, per part? _____suppliers per part

In the last two years, to what extent has the plant invested resources (money, time and/or people) in programs in the following areas? (Circle a number for each program.)

	Not At All			To Some Extent			To a Great Extent
IP18 Cellular Manufacturing	1	2	3	4	5	6	7
IP19 Factory Automation	1	2	3	4	5	6	7
IP20 Process Redesign	1	2	3	4	5	6	7
IP21 Enterprise Resource Planning (e.g., SAP)	1	2	3	4	5	6	7
IP22 Material Requirements Planning	1	2	3	4	5	6	7
IP23 Just-In-Time	1	2	3	4	5	6	7
IP24 Manufacturing Throughput Time Reduction	1	2	3	4	5	6	7
IP25 Setup Time Reduction	1	2	3	4	5	6	7
IP26 Total Quality Management	1	2	3	4	5	6	7
IP27 ISO 9000 Certification	1	2	3	4	5	6	7
IP28 Supplier Certification	1	2	3	4	5	6	7
IP29 Statistical Process Control	1	2	3	4	5	6	7
IP30 Total Quality Management	1	2	3	4	5	6	7
IP31 Six Sigma (Green belt/ Black Belt)	1	2	3	4	5	6	7
IP32 ISO 14000 Certification	1	2	3	4	5	6	7
IP33 Pollution Prevention	1	2	3	4	5	6	7
IP34 Recycling Of Materials	1	2	3	4	5	6	7
IP35 Waste Reduction	1	2	3	4	5	6	7
IP36 Work Place Health And Safety	1	2	3	4	5	6	7

IP37 Approximately what percent of the parts and components that comprise the plant's products are fabricated within the plant? _____% fabricated in plant

Assume a normal demand for a month to be 100, what would be the:

IP38 demand level for a "peak" month (e.g., 20 % more than normal = 120) 'Peak' Month = _____

IP39 demand level for a "trough" month (e.g., 30 % less than normal = 70) 'Trough' Month = _____

IP40 For an individual product, what percent would be the forecast error for two months in the future? _____%

IP41 For the total sales for this plant, what percent would be the forecast error for 24 months in the future? _____%

Section MT Research Method: To be filled in by the Academic Researcher

MT01 _____

MT02 _____