



# The MPI Group

## MPI Manufacturers Benchmarking Toolkit Available Metrics and Types of Responses

### PLANT PROFILE

1. Please indicate if this plant is part of a public or private company:

- Public
- Private

3. What is the nature of manufacturing operations for primary products at this plant?

- Discrete (measured by numeric quantities)
- Process (measured by weight or volume)
- Both or hybrid

4. What is the primary product that this plant produces? (classified as percentage of respondents in the following three-digit North American Industry Classification System code)

- Food manufacturing
- Beverage and tobacco product manufacturing
- Textile mills
- Textile product mills
- Apparel manufacturing
- Leather and allied product manufacturing
- Wood product manufacturing
- Paper manufacturing
- Printing and related support activities
- Petroleum and coal products manufacturing
- Chemical manufacturing
- Plastics and rubber products manufacturing
- Nonmetallic mineral product manufacturing
- Primary metal manufacturing
- Fabricated metal product manufacturing
- Machinery manufacturing
- Computer and electronic product manufacturing
- Electrical equipment, appliance, and component manufacturing
- Transportation equipment manufacturing
- Furniture and related product manufacturing
- Miscellaneous manufacturing
- Product not classified

5. How many years has it been since plant start-up?

- Less than 5 years
- 5 - 10 years
- 11 - 20 years
- More than 20 years

6. In which of the following industry value chains does this plant primarily participate?

- Aerospace
- Automotive
- Chemicals
- Construction
- Consumer packaged goods/nondurables
- Consumer product durables
- High tech
- Industrial equipment and machinery
- Pharmaceuticals, biotechnology, medical

Printing and publishing

Defense industry

Other

7. Which criterion below best describes the volume and product mix of your plant's operations?

High volume/High mix

High volume/Low mix

Low volume/High mix

Low volume/Low mix

8. What is the approximate annual revenue of the plant's corporate parent?

Median

Average

75th Percentile

25th Percentile

9a. What is the approximate annual revenue of this plant? Past year

Median

Average

75th Percentile

25th Percentile

9b. What is the approximate annual revenue of this plant? This year

Median

Average

75th Percentile

25th Percentile

9c. What is the approximate annual revenue of this plant? Anticipated next year

Median

Average

75th Percentile

25th Percentile

10. How much progress has the plant made toward achieving world-class manufacturing status?

No progress

Some progress

Significant progress

Fully achieved

**HUMAN RESOURCES**

11. How important is human-resource management to your plant's success over the next five years?

Not important

Minor importance

Somewhat important

Important

Highly important

12a. Approximately how many employees (all staff) are at this plant location? Past year

Median

Average

75th Percentile

25th Percentile

12b. Approximately how many employees (all staff) are at this plant location? This year

Median

Average

75th Percentile

25th Percentile

12c. Approximately how many employees (all staff) are at this plant location? Anticipated next year

Median

Average

75th Percentile

25th Percentile

13. What percentage of plant production workers are represented by a union(s)?

- 0%
- 1 - 25%
- 26 - 50%
- 51 - 75%
- 76 - 99%
- 100%

14. What is the plant's annual labor turnover rate for the most recent year?

- Median
- Average
- 75th Percentile
- 25th Percentile

15. What percentage of production employees participate in empowered or self-directed work teams?

- 0%
- 1 - 25%
- 26 - 50%
- 51 - 75%
- 76 - 99%
- 100%

16. What are the average annual hours of formal training received by each plant employee?

- (N)
- Less than 8 hours
- 8 - 20 hours
- 21 - 40 hours
- More than 40 hours

17. What percentage of positions have documented skill standards supported by training aligned with those standards?

- 0%
- 1 - 25%
- 26 - 50%
- 51 - 75%
- 76 - 99%
- 100%

18a. What are the approximate wages for production employees (hourly rate without overtime)? Average wage

- Median
- Average
- 75th Percentile
- 25th Percentile

18b. What are the approximate wages for production employees (hourly rate without overtime)? Starting wage

- Median
- Average
- 75th Percentile
- 25th Percentile

19. Which of the following human-resource practices/programs are used at this plant? (multiple responses allowed)

- Formal employee training program
- Apprenticeship program
- Teaming/team-building practices
- Leader/supervisor development
- Recruiting and hiring program
- Paid medical benefits
- Paid sick and/or personal days
- Formal safety/health program
- Paid vacation days
- Annual review and raise program
- Employee-ownership options
- Profit or revenue-sharing plan
- Bonus plan
- Education reimbursements

None of these

20a. For the past year, how many job-related injuries and illnesses?

Median

Average

75th Percentile

25th Percentile

20b. For the past year, how many job-related injuries and illnesses resulting in lost work days?

Median

Average

75th Percentile

25th Percentile

**OPERATIONS**

21. Please indicate which of the following improvement methodologies are followed at the plant: (multiple responses allowed)

Agile Manufacturing

Lean Manufacturing

Theory of Constraints

Six Sigma

Total Quality Management

Toyota Production System

Other methodology(ies)

No methodology

22. Please describe the depth and breadth of adoption of your chosen methodology(ies)?

None

Minimal

Moderate

Extensive

Complete

23. How important is process improvement to your plant's success over the next five years?

Not important

Minor importance

Somewhat important

Important

Highly important

24. What percentage of your workforce is fully engaged in your improvement methodology(ies)?

Median

Average

75th Percentile

25th Percentile

25. Which of these programs and/or practices occur at this plant? (multiple responses allowed)

Benchmarking

Total productive maintenance

Quality certifications (e.g. ISO)

Continuous-improvement program

Open-book management

Strategy/policy deployment

Waste elimination (i.e., seven wastes)

Value-stream mapping

Kaizen events/blitzes

PDCA problem-solving

None of these

Please estimate the following operation/production measures for your plant:

26a. Manufacturing cycle time (start of plant production to completion of primary product)

**Current Year (hrs)**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago (hrs)**

Median

Average

75th Percentile

25th Percentile

26b. On-time delivery rate (% of goods delivered on time)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

26c. Perfect delivery rate (% of goods on time to customer-requested date, perfect quality, and to customer specifications)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

26d. Finished-product first-pass quality yield (% of product that passes final inspection)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

26e. Scrap and rework (as % of plant sales)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

26f. Warranty costs (as % of plant sales)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

- Median
- Average
- 75th Percentile
- 25th Percentile

**27. How has total production output (unit volume) changed in the past 12 months?**

- Decreased more than 20%
- Decreased 11 - 20%
- Decreased 1 - 10%
- Stayed the same
- Increased 1 - 10%
- Increased 11 - 20%
- Increased more than 20%

**What are the plant's costs as a percentage of costs of goods sold (COGS)?**

**28a. Labor**

- Median
- Average
- 75th Percentile
- 25th Percentile

**28b. Overhead**

- Median
- Average
- 75th Percentile
- 25th Percentile

**28c. Materials**

- Median
- Average
- 75th Percentile
- 25th Percentile

**29. What is the plant's cost of goods sold as a percent of plant revenue? (annual COGS ÷ annual revenue)**

- Median
- Average
- 75th Percentile
- 25th Percentile

**30. What are the approximate sales per employee for the most recent fiscal year? (include all employees, not just direct labor)**

- Median
- Average
- 75th Percentile
- 25th Percentile

**31. How have sales per employee changed in the past year?**

- Decreased more than 10%
- Decreased 6 - 10%
- Decreased 1 - 5%
- Stayed the same
- Increased 1 - 5%
- Increased 6 - 10%
- Increased more than 10%

**32. How have per-unit manufacturing costs, excluding purchased materials, changed in the last 3 years?**

- Decreased more than 20%
- Decreased 11 - 20%
- Decreased 1 - 10%
- Stayed the same
- Increased 1 - 10%
- Increased 11 - 20%
- Increased more than 20%

**33. Which of the following practices are used to manage inventory? (multiple responses allowed)**

- One-piece flow techniques
- Pull systems with kanban signals
- Parts/goods supermarkets
- Quick equipment changeovers
- RFID and computerized inventory tracking
- Production leveling/heijunka
- Just-in-time supplier deliveries
- Vendor-managed or -owned inventories
- None of these

**What are the plant's inventory turn rates for the following categories of material?**

34a. Raw material (turns per year) (annual COGS ÷ average value of raw material on hand)

- Median
- Average
- 75th Percentile
- 25th Percentile

34b. Work-in-process material (turns per year) (annual COGS ÷ average value of WIP on hand)

- Median
- Average
- 75th Percentile
- 25th Percentile

34c. Finished goods (turns per year) (annual COGS ÷ average value of finished goods on hand)

- Median
- Average
- 75th Percentile
- 25th Percentile

34d. Total inventory (turns per year) (annual COGS ÷ average value of total inventory on hand)

- Median
- Average
- 75th Percentile
- 25th Percentile

**35. Approximately what percentage of the plant's total inventory is obsolete?**

- Median
- Average
- 75th Percentile
- 25th Percentile

**36. How has the total inventory turn rate changed in the last three years?**

- Decreased more than 20%
- Decreased 11 - 20%
- Decreased 1 - 10%
- Stayed the same
- Increased 1 - 10%
- Increased 11 - 20%
- Increased more than 20%

**SUPPLY CHAIN**

**37. How important is supply-chain management to your plant's success over the next five years?**

- Not important
- Minor importance
- Somewhat important
- Important
- Highly important

**38a. Which of the following best describes your relationship with suppliers?**

- Buy and sell (e.g., cost and quality focus)
- Certification (e.g., broad qualifications established)
- Cooperation (e.g., sharing product ideas, best practices)
- Partnership (e.g., sharing resources, intellectual property, cost savings)

**38b. Which of the following best describes your relationship with customers?**

- Buy and sell (e.g., cost and quality focus)
- Certification (e.g., broad qualifications established)
- Cooperation (e.g., sharing product ideas, best practices)
- Partnership (e.g., sharing resources, intellectual property, cost savings)

39. Which of the following criteria are assessed and documented for material and component suppliers? (multiple responses allowed)

- Quality/reliability
- Delivery (to schedule)
- Productivity
- Total cost
- Adherence to specifications
- Service/responsiveness
- Labor practices
- Ethics
- Environmental performance
- Criteria of supplier's suppliers
- Other
- No criteria

How have the following (on a per unit basis) changed in the past 12 months?

40a. Price for your products

- Decreased more than 10%
- Decreased 6 - 10%
- Decreased 1 - 5%
- No change
- Increased 1 - 5%
- Increased 6 - 10%
- Increased more than 10%

40b. Component/material cost

- Decreased more than 10%
- Decreased 6 - 10%
- Decreased 1 - 5%
- No change
- Increased 1 - 5%
- Increased 6 - 10%
- Increased more than 10%

40c. Employee wages

- Decreased more than 10%
- Decreased 6 - 10%
- Decreased 1 - 5%
- No change
- Increased 1 - 5%
- Increased 6 - 10%
- Increased more than 10%

40d. Employee benefits

- (N)
- Decreased more than 10%
  - Decreased 6 - 10%
  - Decreased 1 - 5%
  - No change
  - Increased 1 - 5%
  - Increased 6 - 10%
  - Increased more than 10%

40e. Logistics/transport costs

- Decreased more than 10%
- Decreased 6 - 10%
- Decreased 1 - 5%



No change

Increased 1 - 5%

Increased 6 - 10%

Increased more than 10%

40f. Utilities/fuel

Decreased more than 10%

Decreased 6 - 10%

Decreased 1 - 5%

No change

Increased 1 - 5%

Increased 6 - 10%

Increased more than 10%

To what degree are the following activities outsourced?

41a. Fabrication

All

Some

None

41b. Assembly

All

Some

None

41c. Electrical

All

Some

None

41d. Design and/or R&D

All

Some

None

41e. Maintenance

All

Some

None

41f. Information Technology

All

Some

None

41g. Purchasing

(N)

All

Some

None

41h. Transportation

All

Some

None

41i. Customer service

All

Some

None

41j. HR management

All

Some

None

41k. Sales and marketing

All

Some

None

Please estimate the following customer and supplier measures for your plant:

42a. Customer reject rates (parts per million)

**Current Year (ppm)**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago (ppm)**

Median

Average

75th Percentile

25th Percentile

42b. Customer retention rate (% customers retained from previous year)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

42c. Overseas sales (as % of total dollar volume)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

42d. Imported material/components (% of dollar volume purchased outside home country)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

42e. Imported material/components from China (% of dollar volume from China)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

43. Which of the following supply-chain programs and/or practices are in place? (multiple responses allowed)

Certification of major suppliers

Collaborative design with suppliers

Collaborative design with customers

Supplier-management program

Customer-satisfaction surveys

Access to customer forecasts

Sharing forecasts with suppliers

Kitting/preassembly for customers

None of these

Please indicate how the following have changed in the previous 12 months:

44a. Insourcing (production work brought back to plant from outside suppliers as % of total volume)

Median

Average

75th Percentile

25th Percentile

44b. Outsourcing (production work moved to external suppliers as % of total production volume)

Median

Average

75th Percentile

25th Percentile

**CAPACITY/EQUIPMENT/IT**

Please estimate the following capacity/equipment measures for your plant:

45a. Production volume (as % of designed plant capacity)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

45b. Machine availability (as % of scheduled uptime)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

45c. Overall equipment effectiveness (% machine availability X % quality yield X % of optimal rate that equipment operates)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

45d. Percentage of unplanned maintenance as a percentage of total maintenance (% based on annual maintenance expenses)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

45e. Return on invested capital (net operating profit after taxes ÷ by capital invested)

**Current Year**

Median

Average

75th Percentile

25th Percentile

**Three Years Ago**

Median

Average

75th Percentile

25th Percentile

Please rate your plant's capability to monitor and measure the following:

46a. Process-specific quality

1=No capability

2

3

4

5=Real-time capability

46b. Process-specific productivity (i.e., value vs. waste)

1=No capability

2

3

4

5=Real-time capability

46c. Process-specific pace or speed

1=No capability

2

3

4

5=Real-time capability

46d. Process-specific safety

1=No capability

2

3

4

5=Real-time capability

46e. Process-specific sustainability performance

1=No capability

2

3

4

5=Real-time capability

46f. Location-specific inventory levels

1=No capability

2

3

4

5=Real-time capability

46g. Individual equipment or machine performance

1=No capability

2

3

4

5=Real-time capability

46h. In-plant material-handling performance

1=No capability

2

3

4

5=Real-time capability

46i. External logistics/distribution performance

1=No capability

2

3

4

5=Real-time capability

46j. Supplier performance

1=No capability

2

3

4

5=Real-time capability

allowed)

Enterprise management

Planning/scheduling

Design/development

Procurement/purchasing

Production/operations

Logistics/distribution

Human resources

Accounting/finance

Supply-chain management

Asset management

Customer service/support

None of these

48. For which functions are applications and/or systems likely to be purchased in the next 12 months? (multiple responses allowed)

Enterprise management

Planning/scheduling

Design/development

Procurement/purchasing

Production/operations

Logistics/distribution

Human resources

Accounting/finance

Supply-chain management

Asset management

Customer service/support

None of these

49. Approximately what percentage of IT systems and applications are cloud computing (SaaS)? (multiple responses allowed)

Median  
Average  
75th Percentile  
25th Percentile

**change next year?**

50a. Capital-equipment spending

**Current %**  
Median  
Average  
75th Percentile  
25th Percentile

**Anticipated change next year?**

Increase  
Same  
Decrease

50b. Information technology spending

**Current %**  
Median  
Average  
75th Percentile  
25th Percentile

**Anticipated change next year?**

Increase  
Same  
Decrease

50c. Process improvement initiatives

**Current %**  
Median  
Average  
75th Percentile  
25th Percentile

**Anticipated change next year?**

Increase  
Same  
Decrease

50d. Employee costs (all wages, benefits, etc.)

**Current %**  
Median  
Average  
75th Percentile  
25th Percentile

**Anticipated change next year?**

Increase  
Same  
Decrease

50e. Utilities/energy

**Current %**  
Median  
Average  
75th Percentile  
25th Percentile

**Anticipated change next year?**

Increase  
Same  
Decrease

50f. Material and components

**Current %**

- Median
- Average
- 75th Percentile
- 25th Percentile

**Anticipated change next year?**

- Increase
- Same
- Decrease

**How did the following affect your company's profitability in the most recent year?**

51a. Use of improvement methodology(s)

- Major increase
- Some increase
- No change
- Some decrease
- Major decrease
- Not applicable

51b. Application of new capital equipment

- Major increase
- Some increase
- No change
- Some decrease
- Major decrease
- Not applicable

51c. Implementation of new IT

- Major increase
- Some increase
- No change
- Some decrease
- Major decrease
- Not applicable

51d. Development of new products/services

- Major increase
- Some increase
- No change
- Some decrease
- Major decrease
- Not applicable

51e. Investments in the workforce

- Major increase
- Some increase
- No change
- Some decrease
- Major decrease
- Not applicable

**GREEN/SUSTAINABILITY**

**52. How important is green/sustainability to your plant's success over the next five years?**

- Not important
- Minor importance
- Somewhat important
- Important
- Highly important

**53. Which of these Green programs and/or practices occur at this plant? (multiple responses allowed)**

- Energy management
- Formal Green corporate program
- Recycling/reuse programs

- Carbon footprinting
- Use of renewable energies
- None of these

Please estimate the following green/sustainability measures for your plant:

54a. Green products (% of plant products that are recyclable/reusable)

**Current Year**

- Median
- Average
- 75th Percentile
- 25th Percentile

**Three Years Ago**

- Median
- Average
- 75th Percentile
- 25th Percentile

54b. Carbon footprints (% of plant products with documented carbon footprint)

**Current Year**

- Median
- Average
- 75th Percentile
- 25th Percentile

**Three Years Ago**

- Median
- Average
- 75th Percentile
- 25th Percentile

54c. Green components and materials (% of purchased components or materials that are recycled/regrind/etc.)

**Current Year**

- Median
- Average
- 75th Percentile
- 25th Percentile

**Three Years Ago**

- Median
- Average
- 75th Percentile
- 25th Percentile

55. By approximately what percentage has energy per unit of product output been reduced in the past year?

- Median
- Average
- 75th Percentile
- 25th Percentile

year?

- Median
- Average
- 75th Percentile
- 25th Percentile