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MPI Manufacturers Benchmarking Toolkit
Available Benchmarks

Plant Profile

Public or private company

Nature of manufacturing operations for primary products at plant

- Discrete
- Process
- Both or hybrid

Primary product produced (industry)

Years since plant start-up

Volume and product mix of your plant operation

- High volume/High mix
- High volume/Low mix
- Low volume/High mix
- Low volume/Low mix

Approximate annual revenue of plant

Approximate annual revenue of *plant*

- Past year
- This year
- Anticipated next year

Progress toward achieving world-class manufacturing status

- No progress
- Some progress
- Significant progress
- Fully achieved

Human Resources

Importance of human-resource management to plant success over the next five years

Number of employees (all staff) are at plant location

- Past year
- This year
- Anticipated next year

Percentage of plant production workers represented by a union

Plant's annual labor turnover rate for the most recent year
(number of voluntary and involuntary separations ÷ typical staffing level)

Percentage of production employees participating in empowered or self-directed work teams

Average annual hours of formal training received by plant employees

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Positions with documented skill standards supported by training aligned standards

Approximate wages for production employees
Average wage

Starting wage

Human-resource practices/programs at the plant

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

Job-related injuries and illnesses

Job-related injuries and illnesses resulting in lost work days

Operations

Improvement methodologies followed at the plant

Agile Manufacturing	Lean Manufacturing	Theory of Constraints	Six Sigma
Total Quality Management	Toyota Production System	Other methodology(ies)	No methodology

Level of adoption of chosen improvement methodology(ies)

Importance of chose process improvement to your plant's success over the next five years

Percentage of fully engaged workforce in chosen improvement methodology(ies)

Programs and/or practices occurring at a plant?

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	

Estimate of operation/production measures for a plant for the current year and 3 years prior, including:

Manufacturing cycle time (start of plant production to completion of primary product)
On-time delivery rate (% of goods delivered on time)
Perfect delivery rate (% of goods on time to customer-requested date, perfect quality, and to customer specifications)
Finished-product first-pass quality yield (% of product that passes final inspection)
Scrap and rework (as % of plant sales)
Warranty costs (as % of plant sales)

Total production output (unit volume) change in the past 12 months.

Plant's costs as a percentage of costs of goods sold (COGS), including:

Labor Overhead Material

Plant's cost of goods sold as a percent of plant revenue (annual COGS ÷ annual revenue)

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Approximate sales per employee for the most recent fiscal year and change in the past year (include all employees, not just direct labor).

Per-unit manufacturing costs, excluding purchased materials 3 year change.

Practices used to manage inventory:

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

Inventory turn rates per year for: (If plant has no inventory for a category because goods move just-in-time, reported as 365 turns)

Raw material (annual COGS ÷ average value of raw material on hand)
Work-in-process material (annual COGS ÷ average value of WIP on hand)
Finished goods (annual COGS ÷ average value of finished goods on hand)
Total inventory (annual COGS ÷ average value of total inventory on hand)

Approximate percentage of the plant's total obsolete inventory.

Total inventory turn rate change in the last three years

Supply Chain

Importance of supply-chain management to plant's success over the next five years

Relationship with suppliers and customers:

Buy and sell Certification Cooperation Partnership

Criteria used to assess and document material/component suppliers:

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

Per unit changes in the past 12 months:

Price for your products	Component/material costs	Employee wages
Employee benefits	Logistics/transport costs	Utilities/fuel

Estimate the customer and supplier measures for:

Customer reject rates (parts per million)
Customer retention rate (% customers retained from previous year)
Overseas sales (as % of total dollar volume)
Imported material/components (% of dollar volume purchased outside home country)

Supply-chain programs and/or practices in place, including:

Certification of major suppliers	Supplier-management program	Sharing forecasts with suppliers
Collaborative design with suppliers	Customer-satisfaction surveys	Kitting/preassembly for customers
Collaborative design with customers	Access to customer forecasts	None of these

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Production volume (by percentage) location(s) for current year and three years prior, including:

- This plant
- Other corporate plant(s) in United States
- External contractor plant(s) in United States
- Corporate plant(s) outside of the United States
- External contractor plant(s) outside of the United States

Capacity/Equipment/IT

Estimated capacity/equipment measures for:

- Production volume (as % of designed plant capacity)
- Machine availability (as % of scheduled uptime)
- Overall equipment effectiveness (% machine availability X % quality yield X % of optimal rate that equipment operates)
- Percentage of unplanned maintenance as a percentage of total maintenance (% based on annual maintenance expenses)
- Return on invested capital (net operating profit after taxes ÷ by capital invested)

Plant's capability to monitor and measure:

- Process-specific quality
- Process-specific productivity (i.e., value vs. waste)
- Process-specific pace or speed
- Process-specific safety
- Process-specific sustainability performance
- Location-specific inventory levels
- Individual equipment or machine performance
- In-plant material-handling performance
- External logistics/distribution performance
- Supplier performance

Internet of Things (IoT) strategy adoption:

Yes | Planning an IoT strategy | No | Never heard of an IoT strategy

IoT strategy improvement to plant performances for:

Safety	Quality	Production costs	Energy usage
Machine uptime	Machine longevity	Other	No improvements

Percentage of plant's *intelligent* equipment (i.e., incorporates technologies that enable machine-to-machine or machine-to-IT system communications).

Extent to which the plant able to track supplies and products in real time at:

- Original source of materials or ingredients or furthest tier of suppliers
- At mid-tier suppliers
- At immediate suppliers
- Within the plant
- En route to customers
- At customers

Why a plant uses real-time tracking of suppliers and products:

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To ensure product quality	Required by regulations	Required by customer
To improve production	Other reason	No tracking

Functions that are *effective* information technology (IT) applications and/or systems *currently in place:*

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

Functions for which applications and/or systems are *likely to be purchased* in the next 12 months:

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

Percentage of IT systems and applications that are cloud computing (SaaS).

Cloud-based systems or applications in place:

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

Investments/expenses as a <u>percentage of plant sales</u> for the current year and estimate for next year:

Capital-equipment spending	Information technology spending
Process improvement initiatives	Employee costs (all wages, benefits, etc.)
Utilities/energy	Material and components

Affect of IT/equipment/methodology on company's profitability:

Use of improvement methodology(ies)
Application of new capital equipment
Implementation of new IT
Development of new products/services
Investments in the workforce

<u>Green/Sustainability</u>

Importance of green/sustainability to a plant's success over the next five years.

Green programs and/or practices occurring at a plant:

Energy management	Recycling/reuse programs	Use of renewable energies
Formal Green corporate program	Carbon footprinting	None of these

Estimate of green/sustainability measures:

Green products (% of plant products that are recyclable/reusable)
Carbon footprints (% of plant products with documented carbon footprint)
Green components and materials (% of purchased components or materials that are recycled/regrind/etc.)

Percentage of energy reduction per unit of product output in the past year.