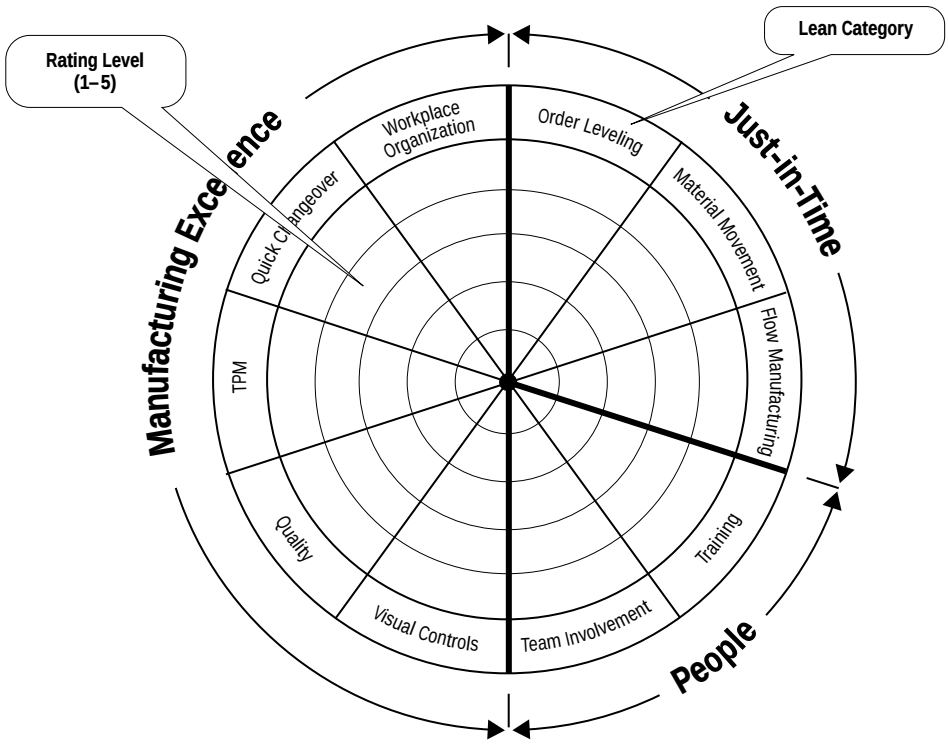
Step 5: Lean Manufacturing Assessment

This Lean manufacturing assessment or gap analysis is designed to be a team's self-evaluation used to identify specific areas within the organization upon which improvement initiatives can be focused. It is intended to assess and monitor the process to which Lean manufacturing tools/techniques have been applied. The Lean manufacturing principles are based on the world-class Toyota Production System.

This assessment also allows you to set a baseline and perform "gap" analysis to compare your current state to a Lean future state. It allows everyone at your site to discern at a glance where you are and where you hope to be when you achieve a more Lean state. The assessment is meant to monitor progress in relation to Lean concepts/tools; it is not meant to replace bottom-line metrics such as work-in process, inventory turns, scrap reduction, value-added time, cycle times, etc. It will allow your organization to communicate Lean language using a common visual tool.

Note: In this assessment, "the workforce" refers to the individuals within the specified area of focus. Each category may not directly relate to your value stream. If it does not, list it as "not applicable." Do not include such items when determining the average score.



Gap Analysis Chart

Step 5: Lean Manufacturing Assessment

Just-in-Time

Batch manufacturing exists throughout the value stream.	1 2 3 4 5 N/A	Order leveling used to reduce variations in production valume and variety.
Product control releases multiple orders on the specific value stream without knowledge of true throughput lead time.	1 2 3 4 5 N/A	Heijunka box is loaded based on production volume and variety.
No takt image.	1 2 3 4 5 N/A	Takt image is understood by everyone, and pace is kept by utilizing a runner or material handler.
Pitch is not utilized.	1 2 3 4 5 N/A	Pitch is understood by all and determines product movement and time periods.
ORDER LEVELING AVERAGE		

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Just-in-Time

Delivery of goods and services is not based on a schedule.	1	2	3	4	5	N/A	Delivery of goods is based on a schedule. On-time delivery performance is tracked, documented, and used to review supplier performance. On-time delivery is over 98%.
Delivered goods wait in receiving area for an undetermined time.	1	2	3	4	5	N/A	Goods are delivered to the point of use.
Over- and undershipments to the customer occur often.	1	2	3	4	5	N/A	Shipments conform to customer requirements and meet shipment windows 100% of the time.
Standard pack concepts are not used for in-process movement of product.	1	2	3	4	5	N/A	Product is presented in common lots. Standard pack concepts are fully implemented.
No organized approach to the movement of product through the workplace exists.	1	2	3	4	5	N/A	Product delivery throughout the workplace is based on pull signals.
Operators leave their workstations to pick up and deliver material.	1	2	3	4	5	N/A	Product is delivered and removed from workstations without affecting job requirements.
Pull system is not in use between operations.	1	2	3	4	5	N/A	Pull system is fully implemented, maintained, and regularly analyzed for appropriateness.
There is no planned approach to in-process inventories.	1	2	3	4	5	N/A	All inventory buffers are planned, are set at minimal levels, and do not interfere with operator performance.
Flow space and availability dictate the amount of workplace inventory.	1	2	3	4	5	N/A	Overall product cycle-time measurement drives appropriate inventory levels.
MATERIAL MOVEMENT AVERAGE							

Step 5: Lean Manufacturing Assessment

Just-in-Time

The value stream concept is not understood or in place.	1 2 3 4 5 N/A	The product value stream map is current and reflects existing process changes. High level of continuous improvement activity exists.
Takt time has not been calculated.	1 2 3 4 5 N/A	Takt time has been calculated.
Inventory and quality issues hold up process rearrangements.	1 2 3 4 5 N/A	Workplace layout optimizes integrated flow paths. Supermarkets and continuous flow are in full usage where appropriate.
Standardized worksheets are not in use. Manpower is fixed regardless of customer demand.	1 2 3 4 5 N/A	Standardized work is fully developed and implemented. Flexible manpower responds to changes in customer demand.
Product is pushed through the workplace without any direct request from the downstream operator.	1 2 3 4 5 N/A	Pull system drives production. Approaching one-piece flow, manual transfer, and compact work areas. Nothing moves downstream unless in response to customer demand.
Product is routed through functional process areas.	1 2 3 4 5 N/A	Fully integrated process flows throughout the workplace.
No mixed-model processing is in use.	1 2 3 4 5 N/A	Mixed-model processing concepts are in use. One-piece or small economical lot sizes are transferred throughout the workplace.
FLOW MANUFACTURING AVERAGE		

Step 5: Lean Manufacturing Assessment

People

No employee-training plan exists.	1	2	3	4	5	N/A	All employees contribute to their training plans, which are used extensively throughout the year.
No training gap analysis exists for each employee	1	2	3	4	5	N/A	Each employee has a training gap analysis completed to drive the training plan.
Training is not documented.	1	2	3	4	5	N/A	Training is well documented through a central point. All training, including OJT (on-the-job training), CBT (computer-based training), WBT (web-based training), and classroom training is documented.
The workforce is not cross-trained.	1	2	3	4	5	N/A	The workforce is cross-trained and certified, and a rotation system is in place.
Employees have no access to continuous improvement tools.	1	2	3	4	5	N/A	Regularly scheduled continuous improvement courses are held.
TRAINING AVERAGE							

Step 5: Lean Manufacturing Assessment

People

The workforce is unaware of the company's core beliefs and values.	1	2	3	4	5	N/A	The workforce has completely embraced the company's core beliefs and values, and they are evident in business decisions.
There is no improvement suggestion plan in place.	1	2	3	4	5	N/A	The workforce is encouraged to submit individual and team suggestions. The suggestion system has quick turnaround (<10 days).
The workforce has no knowledge of the seven types of waste.	1	2	3	4	5	N/A	Waste is made visible and there are teams trained in problem-solving skills that are actively tracking their waste reduction efforts.
The workforce has little or no input on cell display or layout.	1	2	3	4	5	N/A	The workforce is actively involved in improvement activities both upstream and downstream of target cells.

TEAM INVOLVEMENT AVERAGE

Step 5: Lean Manufacturing Assessment

Manufacturing Excellence

Visual controls are not easy to understand and don't convey the proper message.	1 2 3 4 5 N/A	Visual control signals are very easy to understand and convey the proper message.
Visual control signals are manual, and they are not answered.	1 2 3 4 5 N/A	Visual control signals are automatic.
Visual controls are not standardized throughout the workplace.	1 2 3 4 5 N/A	Visual controls are standardized throughout the workplace.
There is no common communication system throughout the workplace.	1 2 3 4 5 N/A	The entire workplace uses a standard visual communication system.
VISUAL CONTROLS AVERAGE		

Step 5: Lean Manufacturing Assessment

Manufacturing Excellence

Quality is the sole responsibility of the quality organization.	1	2	3	4	5	N/A	Quality derives its direction from the organization's leadership and the workforce is empowered to fully implement a proactive quality system.
There is no documented system for the calibration of measurement and testing equipment.	1	2	3	4	5	N/A	There is a fully implemented measurement and test equipment maintenance and calibration process. There is documented evidence that the equipment is regularly checked and that problems are reviewed.
Process capability and stability are unknown.	1	2	3	4	5	N/A	Process capability and stability are known. There is evidence to demonstrate Six Sigma performance.
Process inspections are performed away from the workstations, taking samples from batches.	1	2	3	4	5	N/A	Inspections are incorporated into the processing at the workstations. Defective parts are prevented from further processing through error-proofing techniques.
Error-proofing techniques are not evident in the processes, and there is no implementation plan to utilize error proofing.	1	2	3	4	5	N/A	Error-proofing techniques are deployed throughout the workplace. Key processes demonstrate error proofing or there is evidence that error proofing was investigated.
There is no continuous improvement process in the workplace.	1	2	3	4	5	N/A	Continuous improvement teams are actively studying and implementing continuous improvement projects. DPPM reduction is documented using continuous improvement teams. The teams use the corrective action as a source of continuous improvement projects.
QUALITY AVERAGE							

Step 5: Lean Manufacturing Assessment

Manufacturing Excellence

Productive maintenance is not in evidence.	1	2	3	4	5	N/A	TPM is evident and documented. Task lists are regularly used, prioritized, and filed.
Equipment histories are not kept.	1	2	3	4	5	N/A	Equipment histories are maintained, analyzed, and used to help establish PM priorities.
Response to breakdowns is not organized.	1	2	3	4	5	N/A	Breakdowns are quickly communicated to responsible response team(s). Teams are well trained and organized. There is a sense of urgency within the workforce.
Maintenance metrics are not in use.	1	2	3	4	5	N/A	80% of maintenance is proactive. 95% of scheduled PM is completed within the schedule window.
New and rebuilt equipment maintenance planning is not in use.	1	2	3	4	5	N/A	Maintenance is fully integrated into the planning phase of new or rebuilt equipment.
No analysis or planning done on training needs for operators or maintenance personnel prior to the introduction of new equipment.	1	2	3	4	5	N/A	Training needs are fully integrated into the planning process prior to the introduction of new equipment into the workforce.
Equipment replacement part inventories are not planned.	1	2	3	4	5	N/A	Equipment replacement part inventories are a result of planned activities (e.g., JIT, pull system).

TOTAL PRODUCTIVE MAINTENANCE (TPM) AVERAGE

Step 5: Lean Manufacturing Assessment

Manufacturing Excellence

Set-up and changeovers are improved with no relationship to a specified value stream.	1 2 3 4 5 N/A	Set-up and changeovers are improved based on value stream plans.
Set-up and changeover activity metrics are not being kept.	1 2 3 4 5 N/A	Set-up and changeovers have been flow-charted. Analysis on process improvements is ongoing. There is evidence of reduced downtime due to improvements made in set-ups and changeovers.
Set-up and changeover times take hours.	1 2 3 4 5 N/A	Set-up and changeover times take minutes or seconds.
Set-up and changeover tooling is unorganized and not immediately available.	1 2 3 4 5 N/A	Set-up and changeover tooling is well organized, using visual controls, and is immediately available.
QUICK CHANGEOVER AVERAGE		

Step 5: Lean Manufacturing Assessment

Manufacturing Excellence

Many workstations have clutter and debris laying around that is not used to accomplish the required tasks.	1	2	3	4	5	N/A	The workstations are all organized such that the only materials and tools present are regularly in use.
There is no organized approach to the placement of necessary materials and tools at the workstations.	1	2	3	4	5	N/A	Inspections reveal that the workstations are well organized and materials and tools are in their proper places.
The workplace is extremely dirty and disorganized.	1	2	3	4	5	N/A	The workplace is neat and clean.
Workers are not expected to maintain the cleanliness and organization of their workstations.	1	2	3	4	5	N/A	Workers use cleaning standards and checklists and are responsible for organizing and cleaning their workstations.
There are no documented standards to follow for workplace organization.	1	2	3	4	5	N/A	Team members have workplace responsibilities and there is evidence that the responsibilities are being carried out in accordance with documented standards.

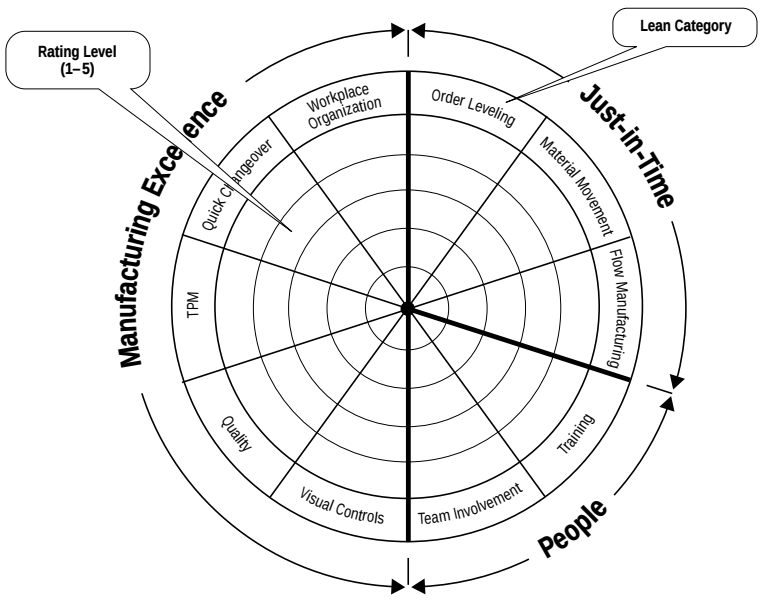
WORKPLACE ORGANIZATION AVERAGE

Step 5: Lean Manufacturing Assessment

Averages

Just-in-Time						
Order Leveling	1	2	3	4	5	N/A
Material Movement	1	2	3	4	5	N/A
Flow Manufacturing	1	2	3	4	5	N/A
People						
Training	1	2	3	4	5	N/A
Team Involvement	1	2	3	4	5	N/A
Manufacturing Excellence						
Visual Controls	1	2	3	4	5	N/A
Quality	1	2	3	4	5	N/A
Total Productive Maintenance	1	2	3	4	5	N/A
Quick Changeover Training	1	2	3	4	5	N/A
Workplace Organization	1	2	3	4	5	N/A

AVERAGE TOTAL LEAN ASSESSMENT



Gap Analysis Chart

Step 5: Identify Lean Metrics Worksheet

Purpose: To help you complete Step 5: Identify Lean Metrics

Directions:
1. Use this worksheet after completing and discussing the Lean manufacturing assessment.
2. Determine the Lean metrics for the target value stream.
3. Determine precisely how each of the metrics you have selected will be calculated.

Value Stream _____

Metric	Calculation

Common Metrics:

- Inventory turns
- Days of intentory on-hand
- Defective parts per million
- Uptime
- Total value stream WIP
- Total cycle time
- Total lead time
- On-time delivery
- Overall equipment effectiveness
- First-time-through capacity
- Health and safety