



MPM²: A Project-based Improvement Process

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MPM² (Multi-company Project Management Modified) is a project-based improvement process. This process methodology is applied to equipment of strategic importance by incorporating the principles of Leadership, Teams, Project Management, and Six Sigma into a framework using the metric of Overall Equipment Effectiveness to create an implementation plan and execution that achieves double digit improvements. The integrated process consists of seven steps

Seven Steps of MPM²

1. Cooperate
2. Define
3. Measure
4. Plan
5. Improve
6. Control
7. Close

The process focuses on the following four aspects of equipment improvement opportunities:

<u>Availability</u>	<u>Performance</u>	<u>Quality</u>	<u>Upgrades</u>
Reduce Breakdowns	Speed Optimization	Defect Reduction	Functionality
Reduce Changeover Time	Reduce Idle Time	Minimize Rework	Performance
Minimize Adjustments	Eliminate Minor Stoppages	Start up Impact	Reliability

The process begins with an assessment of the opportunity for improvement based on engineered capacity and current state followed by an evaluation of the manufacturing environment. Successful completion of the assessments and contract agreement begins the process. It is executed as a project over approximately a 6 to 9 month period involving Leadership, Measurement, and Improvement teams according to the following outline:

MPM² Process Outline

- **Opportunity Assessment** – Joint broad brush evaluation of equipment capability and current state
- **Environmental Assessment** - Completed using Environmental Assessment Forms
- **Contract Agreement** - Customer issues a contract to implement MPM² process
- **Leadership Team Formation** - MPM² awareness and organization of Measurement Team
- **Measurement Team** - Formation and detailed measurement of current state
- **Leadership Team Improvement Planning** - Set goals, organize Improvement Teams
- **Multiple Improvement Teams** (simultaneous, overlapping, or sequential)
 - 1st on-site event – Analyze and make improvements
 - Homework – Complete assignments from 1st event
 - 2nd on-site event – Verify, adjust, standardize improvements
- **Leadership Receives Reports** - Each Improvement Team reports after each event
- **Leadership Close Out** - Summarize results and lessons learned

This process works best when applied to an organization with a manufacturing environment consisting of supportive leadership, effective teams, good work place organization (i.e. 5S), on-going continuous improvement activities, structured planned maintenance in place, flexible work rules, willingness to learn, and with health and safety established as the top priority. The manufacturing environment forms the foundation upon which the MPM² team process is built. The team process consists of a Leadership Team that drives the overall process, a Measurement Team for data gathering and analysis, and multiple short term Improvement Teams. The following chart details the team structure listing participants, responsibilities, deliverables, and tools used for each team.

MPM² Team Structure

	Leadership Team	Measurement Team	Improvement Team
Participants	Key Corp Exec Area Manager Maintenance Production Quality Equipment Repair Consultant	Product Supervisor Team Members TBD Equipment Repair Consultant	Operator Maintenance Quality Corp Tech Support Equip. Specialist TBD End User Consultant
Responsibility	Improvement Initiation Leadership Team Close Outs	Refine Current State Data Gap Analysis Validate Results	Assigned Goal
Deliverables	Group Norms Set Improvement Goals Corporate Org Charts Improvement Team Org Chart Establish Improvement Teams Define Team Authority Improvement Team Timing Evaluate Project Execution Process Consistency Oversee Team Events Improvement Team Site Prep	Group Norms Define Roles of Participants Current State Report Avg Tool Change/Part Avg Stock Change/Part Avg Stack Change/Part Equipment Speed by Part Speed Loss by Part Pareto of Downtime Causes First Time Quality Scrap Losses	Group Norms Adhere to Goals Participants' Roles Defined Daily Report Outs Final Report Out Maintain Daily Logs Track Goal Performance Plan/Coord Activities Visual Log On Site
Tools & Techniques	Resource/Results Matrix Group Norms Team Formation Checklist Personal History Organizational Chart Responsibility Chart Situational Matrix Set Goals Gantt Chart Pre-meeting Checklist Demand Analysis Pareto Chart	Brainstorm Group Norms Team Formation Checklist Personal Introduction Capacity Planning Tools Responsibility Chart Categorization Pre-meeting Checklist Automated Data Collection Current State Data Checklist Pareto Charts Run Charts Histograms	Brainstorm Group Norms Team Formation Checklist Personal Introduction Lean Tools, as required Responsibility Chart Categorization Site Visual Control Board Daily Summary Task List Report Out Gantt Chart Pre-meeting Checklist

The Leadership Team and the individual short term goal-specific Improvement Teams are the core elements of the process. The short term Improvement Teams provide a high degree of flexibility that allows the process to be tailored to fit the needs of any manufacturing situation in terms of resources, equipment accessibility, and urgency since they can be scheduled sequentially, overlapping or simultaneously. The Leadership Team makes decisions on priority, resources, equipment access, improvement team authority etc. required to facilitate the teams. The Improvement Teams are manned for a specific goal and given two separate event time slots to execute their assignments divided by a period of time to complete required homework assignments as defined by the team.

The MPM² Process provides a structured approach to dramatically increase the results of any manufacturing process. The initial assessment ensures all parties that the opportunity for improvement is sufficient to warrant the effort and the manufacturing environment can effectively integrate the MPM² Process. The process has the following benefits:

- ✓ Drives an increased focus on high impact improvement efforts
- ✓ Complements existing systems and teams
- ✓ Causes leadership to link all stakeholders
- ✓ Establishes clear priorities and timetables
- ✓ Assigns required resources and access to equipment
- ✓ Consolidates customer and equipment supplier experiences and knowledge
- ✓ Applies team and project management methodologies
- ✓ Utilizes Lean tools/techniques

These benefits yield an enhanced improvement process that delivers double digit improvements in overall equipment effectiveness within a short time frame at minimum expense.

A more in-depth description of the MPM² process applied to a case study of a blanking operation is available in Chapters 8, 9, and 10 of this author's book titled *Multi-Company Project Management: Maximizing Business Results through Strategic Collaboration*.

Dean Baker has an extensive background in project management and team building, and is highly skilled at organizing multi-company, multi-divisional, and multi-departmental projects to improve a company's productivity and speed of implementation. He is a Principal in Fulcrum Edge, Inc. a business advisory firm serving leaders in business. Dean has a Bachelor of Science degree in Electrical Engineering from General Motors Institute (Kettering University) and a Master's degree in Electric Engineering from the University of Michigan, and is a certified Project Management Professional[®]. He is also the author of *Multi-Company Project Management: Maximizing Business Results through Strategic Collaboration*.