# Forge New Possibilities for Success

**REAL SOLUTIONS FOR MANUFACTURERS** 



# Who Is OMEP?

The Oregon Manufacturing Extension Partnership (OMEP) is a Private-Public nonprofit Management Consulting firm funded by federal, state and client funds established in 1996 to provide services that help small and medium manufacturers to improve competitiveness in the global market.





Federally funded under the Department of Commerce, OMEP is part of a national network of Manufacturing Extension Partnerships in every state of the U.S. As part of the National Institute of Standards and Technology (NIST), MEP provides technical support to manufactures in Manufacturing Operations, Business Financials and Strategy, and Workforce Solutions.

## Mission

### OMEP works side by side with Oregon manufacturers to help build successful businesses







SUCCESSFUL BUSINESSES OMEP's services are rooted in continuous improvement, executed with care, and designed to nurture prosperous manufacturing businesses. Your success is our legacy.

#### MANUFACTURING OPERATIONS

#### LEAN MANUFACTURING & CONTINUOUS IMPROVEMENT

Process Flow Design Quality Systems Inventory Management Systems Supply Chain Management & Logistics Energy Management

#### MANUFACTURING ENGINEERING

Plant & Facility Layout Equipment Selection & Design Preventive & Predictive Maintenance Tooling & Fixture Design

#### TECHNOLOGY SOLUTIONS ERP Selection & Implementation Robotics & Automation Smart Factory & IoT Device Integration Data Visualization & Intelligence Systems Augmented & Virtual Reality Cyber Security & IT Support

#### **BUSINESS FINANCIALS AND STRATEGY**

#### FINANCIAL UNDERSTANDING

Financials For Decision Making Product Costing & Margin Analysis Budgeting & Cash Flow Modeling Pricing Strategy Product Management

#### **GROWTH SERVICES**

Sales Process Development & Training Marketing Strategy & Implementation Lead Generation Market Research New Product Development

#### STRATEGY

Strategic Planning Strategy Deployment Business Planning Ownership Transition Planning

#### WORKFORCE SOLUTIONS

#### **ORGANIZATIONAL STRUCTURE & ALIGNMENT**

Organizational Design Employee Succession Planning Change Management

#### LEADERSHIP & EMPLOYEE DEVELOPMENT

Team & Communication Dynamics Leadership Training Management Systems Conflict Resolution

#### **RECRUITING, ON-BOARDING & TRAINING**

Structured On-the-Job Training Programs Competency Based Pay Systems Recruitment & On-Boarding Assistance

# Measuring OMEP/MEP Success

 As an MEP center, OMEP is measured by the real-life results we bring to our clients. An independent third-party contractor, hired by NIST, surveys our clients six months after the end of an engagement to determine the impact on: new and retained jobs, increased and retained sales, cost savings and new business investments.

### **OMEP MPP Projects**











### **OMEP MPP Projects**







# **OMEP MPP Type of Work**

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# **OMEP MPP Type of Work**

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1	1 Phase 1- General Training							П		П	Т	П	Т			
2	2 Ph	se 2 - Implementation of Six Sigma/SPC and Lean principles in Faceplate Dept.	Π	Т							T	Ħ	Т	H	П	T
	1	Develop Current State Value Stream Map for Faceplate (FP) Reform SME for equivalent applicite to identify class point follows: Jessey infectiously or development of the	П	+	H	П			П	П	Ŧ	П	Н	П	Н	+
	2	for modemization/automation	Ш			П		Ш		Ш		Ш			Ш	
	3	Create Future State Value Stream Map for FP - Iterate with FMEA analysis	П	T		Π		T	H	П	T	Ħ		H	П	
	4		П	Т	П	П	Τ	П	П	П	Т	Π	П	Π	П	Т
-	-	Establish project plan and identify needed resource internal or external to achieve desired results	Н	∔	H	Н	4	Н	Н	Н	∔	Н	н	Н	Н	+
	5	Evaluate risk/reward return on investment of identified process or infrastructure - Management review and approval	Ш			П		Ш		Ш		Ш			Ш	
	6	Investigate use of collaborative robots in material handling to improve efficiency	Ħ	t	Ħ	Ħ	t	Ħ	Ħ	Ħ	t	Ħ	Ħ	Ħ	Ħ	+
	7	Execute against plan [Testing]	Π	Τ	Τ	Π		Π	Π	Π	T	Π	Т	Π	П	Τ
+	8	Check implanted changes against desired results	11	+	H	Н	4	Н	н	н	∔	н	н	Н	н	+
		Act upon and addition findings or correct action necessary to bring the process changes to the qualification stage	Ш			П		Ш		Ш		Ш			Ш	
-	10	Qualify improvements with Protégé customer[s]	Ħ	t	Ħ	Ħ	t	Ħ	H	Ħ	t	Ħ	Н	Ħ	Н	t
	11	Implement improvements at the production level	П	T	T	Π	T	Г	IT	П	T	П	Г	П	П	Ţ
3	Ph	se 3 - Implementation of Six Sigma/SPC and Lean in the Precision Optics Dept.	μĪ	1	Щ	μ	4	Ц	ЦĨ	μ	Į.	ļ		ЩĨ	Į.	ſ
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+	2	Develop Current State Value Stream Map	#	+	H	μ	+	Н	H	#	+	H	+	Н	Н	+
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	4	Create Future State Value Stream Map - iterate with FMEA analysis	Ħ	t	H	Ħ	t	Ħ	H	Ħ	t	Ħ	Ħ	H	Ħ	t
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	8	Execute against plan [Testing]	Ħ	t	Ħ	Ħ	t	Ħ	H	Ħ	t	Ħ	Ħ	H	Ħ	t
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Ť	1	Develop standard work for meetings including timing, agendas, attendees and accountabilities	Ħ	+	H	Ħ	H	Ħ	H	Ħ	$^{+}$	tt	Ħ	H	fl	f
	2	Develop current state value stream map for order fulfillment - quotation through collection	Ħ	t	I	Ħ		Ħ	I	Ħ	t	Ħ	Ħ	H	Ħ	t
	3	Hold Kaizen event to identify improvement ideas	Ħ	T	Ц	Ħ		Ħ	Ц	Ħ	T	Ц	П	Ш	П	1
T	4	Create future state value stream map	Π	Τ	T	Π	T	Γ	Π	Π	Τ	П	Γ	IT	Π	T
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-	6	Develop Current state value stream map for customer driven product development	11	+	Н	μ	4	+	Н	11	+	H	Н	Н	Н	+
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Hardin Optical Company is a manufacturer of precision optics. We are a key subcontractor for several DoD programs of record where we have been a reliable and consistent supplier of high-quality optical lenses. This vignette highlights a Continuous Improvement initiative to streamline operations and improve efficiency on the Precision Optics line.

#### **Description / Return on Investment:**

- Precision Optics (PO) creates high-precision, small quantity orders. One of the most time-consuming portions of PO is the process of continuous polishing and grinding.
- The team mapped out the 7-step process, producing a spaghetti diagram to visualize:
  - Wasted motion
  - Poor process layout
  - Non-sequential workflow
- Leveraging lessons from previous flow improvement projects, and incorporating a facility expansion, the team developed a new area layout and adopted a revised workflow.
- Layout changes in Precision Optics resulted in:
  - Reduced motion waste by 65% with a more efficient layout.
  - Increased throughput capacity 50% with simplified part processing (flow).
  - Reduced footprint 25%, enabling a critical expansion to the High Speed line.
    - Accommodates \$1.3M capital purchase.
    - Increases production on highly-sensitive parts.
  - Improved lighting and climate controls reduce variation errors.









Protégé: Hardin Optical Company



Mentor: MilTech (Montana State University)

Hardin Optical Company is a manufacturer of precision optics. We are a key subcontractor for several DoD programs of record where we have been a reliable and consistent supplier of high-quality optical lenses. This vignette highlights a kaizen event focused on improving the shipping/receiving functions of the warehouse, with additional benefit to inventory management.

#### **Description / Return on Investment:**

- Shipping struggled with cycle time for retrieval of parts and packaging. It took more than 30 minutes to locate parts and packaging. Mismatched boxes were in a far corner, and we struggled deciding which box to use. Low use inventory was in the same location as high use inventory. A new layout focusing on inventory, packaging and flow was developed.
- The team established goals to increase shipping and inventory throughput while improving space utilization for finished and raw materials.
- In process, we looked to:
  - Locate high use inventory closest to the packaging area.
  - Sort, set in order inventory and eliminate obsolete inventory.
  - Locate parts in 30 seconds or less.
  - Improve flow from part retrieval to packaging and shipping.
- Notable results included:
  - Order packaging time reduced 75%.
  - 83% reduction in time to locate inventory.
  - Overall labor savings of 30%, reducing FTE by 1.
  - Space utilization improvement of 25%, enabled relocation of in-process parts, saving 5 hrs/wk.



<b>Package and Ship an Order</b>	<b>Shipping</b>	75%
Topic – Improved Task	Area	% Time Reduction
<b>Restocking</b>	Final Inspection	83%
Topic – Improved Task	Area	% Time Reduction
Walking Distance	<b>Shipping</b>	<b>75%</b>
Topic – Improved Task	Area	% Time Reduction





Protégé: Hardin Optical Company

Mentor: MilTech (Montana State University)

Hardin Optical Company is a manufacturer of precision optics. We are a key subcontractor for several DoD programs of record where we have been a reliable and consistent supplier of high-quality optical lenses. This vignette highlights a Continuous Improvement (CI) initiative to streamline operations and improve efficiency on the Faceplate line.

#### **Description / Return on Investment:**

- The Faceplate line produces critical optical components for Night Vision Goggles. High volume necessitates standardized processes and tools to detect problems early before many parts are affected.
- The CI team identified visual management tools as an improvement opportunity for the Lapping process.
- To make visual tools visible and useful, the team first conducted a 5S project to organize the work center.
- The 5S project uncovered opportunities to improve flow and layout, thus reducing motion, inventory and waiting wastes.
- The resulting visual management tools, combined with layout changes resulted in:
  - Improved production efficiency by providing immediate and continuous status through visual controls - only the necessary parts at workstation.
  - Created a pull system between Lapping and Generating, reducing motion waste and WIP.
  - Visual mgt tools improved output consistency, resulting lower WIP and less labor.
  - Reduced labor hours by 25%.
  - Cleanliness improving preventive maintenance and contributing to a safe work environment.
  - Freed up capacity for employee-led knowledge transfer of 5S practices in other areas.



Before

After



# Forge New Possibilities for Success

**REAL SOLUTIONS FOR MANUFACTURERS** 

