

**Written Testimony for the Subcommittee on  
Technology and Innovation of the Committee on  
Science of the U.S. House of Representatives  
hearing entitled: “The National Institute of  
Standards and Technology’s Role in Supporting  
Economic Competitiveness in the 21<sup>st</sup> Century:  
the FY08 Budget Request”**

**Peter Murray  
Vice President, Operations  
Welch Allyn, Inc.**

Testimony, P. Murray, hearing entitled: “The National Institute of Standards and Technology’s role in Supporting Economic Competitiveness in the 21<sup>st</sup> Century: the FY08 Budget Request”, February 15, 2007

## **Who we are**

Welch Allyn Monitoring, a division of Welch Allyn, Inc., is located in Beaverton, Oregon. The site currently employs approximately 420 people, up from 270 two years ago. Welch Allyn designs, manufactures, and markets mission critical flexible monitoring solutions that improve patient care and lower healthcare operating costs. Welch Allyn is a key player in the biomedical device industry in Oregon, nationally, and worldwide.

Our company faces increased and ongoing pressures from domestic and foreign competition. Our company was confronted with a critical need to increase profitability, quality, and shorten delivery lead times. The company also wanted to incorporate additional manufacturing capacity from another manufacturing location

## **How OMEP assisted our company**

Welch Allyn felt they needed outside expertise to achieve these objectives and conducted a search of local firms. Welch Allyn decided to work with the Oregon Manufacturing Extension Partnership (OMEP), a NIST MEP network affiliate, to help us achieve a major operational goal of continued improvement of manufacturing processes, systems and capacity building. The company views this goal as essential to long-term financial growth and success. As a corporation, Welch Allyn was faced with difficult decisions regarding consolidation of manufacturing operations from four different U.S. sites. The Beaverton operation, while operating at a high level of quality and capability, sought to strengthen the likelihood of not only maintaining but increasing the amount of manufacturing at their facility. Welch Allyn needed assistance to transforming its entire operation to a culture of continuous improvement.

The overall goal was to create a culture of continuous improvement. This was done by starting with Lean manufacturing to obtain a larger and more immediate payback. The training and implementation was initially focused at the operator level and then expanded throughout the organization. OMEP was selected to work closely with Welch Allyn to provide classroom training, implementation and support, and guidance to help them transform into a Lean enterprise.

Because of Welch Allyn's size and numerous needs, several processes were created to implement their vision of becoming a Lean enterprise.

1. A steering committee was created to evaluate opportunities, select Lean projects and Kaizen events, assign resources, and ensure continued focus, and direction. Business needs are clearly established and used to prioritize Lean activities.
2. OMEP provided numerous classes to teach the Lean principles and concepts. Principles of Lean, 5S, and Value Stream Mapping were taught as

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foundation classes. More advanced Lean and leadership classes have helped support the ongoing transformation.

3. Specific Lean projects and Kaizen events used Value Stream Mapping to implement “Future States” with less waste, increased visibility, better flow, less Work in Process (WIP), higher quality, and increased productivity. Team leaders stayed on track by reporting progress at a weekly accountability meeting where they also obtained help in overcoming roadblocks. OMEP helped Team Leaders learn valuable skills as they prepared and presented their results to company and corporate executives at celebratory “close-out” meetings.
4. OMEP worked closely with Welch Allyn to establish standards, audits, and a significant metrics program to sustain the gains and to create a continuous improvement environment.
5. Throughout the entire process OMEP has been key in developing people within Welch Allyn who can internally drive and support Lean. OMEP has provided significant coaching and mentoring in one-on-one situations. Together, they have developed custom training materials and have shared in providing Lean training.

## **Results**

- Corporate has moved a significant manufacturing operation to Beaverton resulting over 50 new jobs plus an additional 50 jobs from organic growth created in Oregon
- Operations have expanded into a new facility to accommodate the increased growth. There has been over \$600,000 invested in the new facilities
- Welch Allyn has saved nearly \$1 million in direct expenses as a result of implementing Lean
- Inventory has been reduced by more than \$500,000
- Sales of over \$120 mil/year have been retained at the Beaverton location.
- Over 250 employees have received Lean training in a total of 750 training occurrences (most completed numerous classes)
- More than 20 Lean projects and 10 Kaizen events have successfully been completed
- 10 to 15 Lean “Stars” have emerged and are driving daily continuous improvement activities
- Lean methods have been shared and implementation has expanded and is being used throughout the corporate organization.
- Employee morale and daily improvement involvement has significantly increased
- Workforce training and skills investment: Over \$300,000

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### **Why we support MEP:**

We have had experience with purely private consulting firms and we are convinced that, based on our experience with OMEP, there are key differences between MEP (a public/private partnership) and private providers;

- What distinguishes OMEP from similar groups who claim to provide the same services is OMEP's unique focus on their client's success and less so on selling future services
- They provided core training and implementation experience to get us started and were able then to adjust their approach as we progressed through our Lean journey.
- Their consultants are both hands on and strategic
- OMEP has been key to our success in making our Lean transformation
- We are continuing to expand our Lean Enterprise and we look forward to continuing to work with OMEP.

### **The Administration's reduced funding of the program**

I understand that the administration wants to cut by 56% the funding for the MEP program to \$46.332 Million for FY08. I am on the Board of OMEP and from a purely local perspective the impact to the Oregon affiliate would be disastrous. If the board were faced with such a funding cut we would likely be forced to dramatically reduce costs (primarily staff) and thereby services. I would expect many of the clients could not afford to make up the difference and OMEP's ability to market to new clients would also be reduced. The loss to the local economy from a withdrawal of OMEP would lead, in my opinion, to a loss of growth for many of the small companies in the area.

I view the federal funding as an efficient use of federal dollars. From my perspective of a board member for OMEP I view the administration of the organization as a model. I have served on board of several profit and non profit organization and I view OMEP as one of the best run organizations

### **Appendix: Copy of Oral Presentation**

Testimony, P. Murray, hearing entitled: "The National Institute of Standards and Technology's role in Supporting Economic Competitiveness in the 21<sup>st</sup> Century: the FY08 Budget Request", February 15, 2007



Pete Murray  
V.P. Operations  
February 15, 2007

Oral Presentation

The National Institute of Standards and Technology's Role in Supporting Economic Competitiveness in the 21st Century: the FY08 Budget Request



## Agenda

- Welch Allyn's Experience Implementing Lean Manufacturing with **OMEP**
- Why choose an OMEP?
- The Administration's FY08 funding proposal



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## Getting Started – Finding The Right Partner

- August '04 – Launched company wide CI initiative
- November '04 – Site Management organizes to pursue program
- December '04 – Applied for State Grant through WSI to fund initial efforts
- January '04 – Grant approved, OMEP first meeting
- February '04 – **OMEP** contract signed, assessment begun
- April '04 – After 3 weeks delay for FDA inspection, training began

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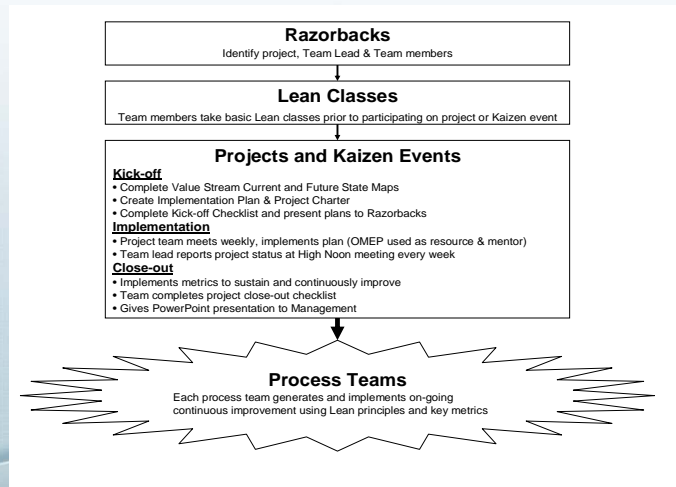


## Examples of OMEP Engagement work

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# Custom Program Deployment Model



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## Generalized Lean Classes

### Everyone receives Basic Lean training

- Principle of Lean Manufacturing
- 5S and Visual Factory
- Value Stream Mapping

### Advanced Lean training for key personnel

- Leadership and Workshop Facilitation
- Performance Measures
- Teams
- Problem Solving

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# Project Selection Tools

Updated: 4/15/06

Project/Kaizen and 6 Sigma #	2005												2006												Lead	Tech Support
	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December								
1 POEM																			Sheila	Mike L						
2 Propaq																			Kevin L.	Tom N.						
3 Incoming Insp																			Pam	Tim W.						
4 Whse																			Sean D.							
5 Service																			Eric							
6 Shipping																			Matt	Tom N.						
7 DUET																			Sheila	Tom N.						
8 Propaq #2																			Kevin L.	Tom N.						
K1 Shipping Kaizen																			Matt							
9 Atlas																			Tom S.	Tom N.						
10 Whse2																			Sean D.	Tom N.						
11 Service #2																			Eric	Tom N.						
12 Doc Center																			Dennis S.							
13 Planning																			Jim D.							
15 Propaq LT																			Jason	Tom N.						
16 VSM																			Enn	Tom N.						
6-Sigma Trng (Green Belt)																										
S1 6-S #1 Line Down																			Dan, Sean							
S2 6-S #2 NCR Turn																			Mike, Brian							
S3 6-S #3 Propaq																			Dewey, Rich							
S4 6-S #4 Redundant																			Andrey, Scott							
K2 Whse Inv Rationalization Kaizen																			Frank							
K3 Acuity Kaizen																			Perry							
K4 Service Kits Kaizen																			Tom N.							
17 Purchasing																										
18																										
K5 open Kaizen slot																										
K6 open Kaizen slot																										
K7 open Kaizen slot																										

Razorbacks select projects, team members and schedule durations



# Program Administration Tools: Scheduling

LEAN Classes, Key Project Dates, & OMEP Support Dates for 2006

Updated: Mar 13, 2006

Date	Class/Event/Activity	Projects	Class Time	Comments
17-Apr	M	General OMEP Support	8am - 3pm	Aaron teach (Rubin gone)
19-Apr	W	VSM class	8am - 3pm	
24-Apr	M	6 Sigma - Day 3	8am - 3pm	
25-Apr	T	6 Sigma - Day 4	8am - 3pm	
1-May	M	Project kick-off Day 1	8am - 4pm	
2-May	W	Project kick-off Day 2	8am - 4pm	
8-May	M	6 Sigma - Day 5	8am - 3pm	
8-May	T	HP/EC Learning Tour at Welch Allyn		
9-May	W	6 Sigma - Day 6	8am - 3pm	
10-May	Th	General OMEP Support	8am - 4pm	
15-May	M	6 Sigma - Day 7	8am - 3pm	
17-May	W	Class on running a Kaizen Event	8am - noon	1/2 day class
22-May	M	6 Sigma - Day 8	8am - 3pm	
24-May	W	General OMEP Support	8am - 3pm	
27-May	F	General OMEP Support	8am - 3pm	
5-Jun	M	General OMEP Support	8am - 3pm	
7-Jun	W	Project Event Day 1		
12-Jun	M	General OMEP Support		
14-Jun	W	PLM class	8am - 4pm	include project team #17 & 18
19-Jun	M	General OMEP Support		
21-Jun	W	Project Event Day 2		
26-Jun	M	General OMEP Support		
28-Jun	W	IS class	8am - noon	include project team #17 & 18
5-Jul	M	General OMEP Support	8am - noon	
10-Jul	M	Class on running a Kaizen Event	8am - noon	1/2 day class
12-Jul	W	VSM class	8am - 3pm	include project team #17 & 18
17-Jul	M	Project kick-off Day 1	8am - 4pm	
19-Jul	W	Project kick-off Day 2	8am - 4pm	

Class	Performance Measures	PLM (Swing)		SS	VSM	Six Sigma
		200 Building	BDU Building			
Date(s)	19-Mar	27-Mar	5-Apr	12-Apr	3-May	Apr 18-19, 24-25 May 8-14, 20-21
Day	Mon	Mon	Wed	Wed	Wed	Mon-Fri
1	Kevin Lavery	Eric Satter	Sharon Curley	Sharon Curley	Sharon Curley	Don Nelson
2	Sean O'Day	Shawn Long	Jason Spang	Jason Spang	Jason Spang	Patrick R
3	Tim Sigavala	Vick Towles	Patricia Meeks	Patricia Meeks	Patricia Meeks	Debra Nelson
4	Rene Brewer	Chae Johnson	Scott Madson	Scott Madson	Scott Madson	Scott Christensen
5	Mike Orban	Michael Tran	Nina Han	Service	Service	Rich Wyrabock
6	Tim Sagar	Walt Meyer	Andy Stovall	Andy Stovall	Andy Stovall	Scott O'Neil
7	Nova Colson	Brandy Chung	Lynn Nayson	Lynn Nayson	Lynn Nayson	Brian Weigand
8	Nina Lim	Jack Simpson	Yong	Yong	Yong	Debra Nelson
9	Eric Satter	Leah Tru	Ann Wiley	Leah Tru	Leah Tru	Mike Christ
10	Ron Clayton	James Keck	William Burghard	William Burghard	William Burghard	Paul
11	Scott Jensen	Van Cole	William Burghard	William Burghard	William Burghard	Paul
12	Frank O'Connor	Alex Goodson	Thom Woodbridge	Bob Nayson	Bob Nayson	
13	Spish Worley	Don Hanson	Rich Nayson	Jeff Priddy	Jeff Priddy	
14	Matt O'Brien	Erica Straley	Laura Do	Tanya Yarnitzkaya	Tanya Yarnitzkaya	
15	Tom Nordmark	Mike Farrel	Alan Kozminski	Alan Kozminski	Alan Kozminski	
16	Dennis Shaw	Maria Hernandez	Vibid Vain	Vibid Vain	Vibid Vain	
17	Tom Nordmark	Alvin Colantoni	Don Lofsky	Don Lofsky	Don Lofsky	
18		Adrian Roman	Anton Colaneri	Anton Colaneri	Anton Colaneri	
	Paul	Paul	Paul	Paul	Paul	

Managers responsible for selecting/notifying attendees



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# Customized Project Summary Plans

Project Status designated by color codes: Green = On Target, Yellow = Concerned, Red = Major Concern/Issue, Blue = Complete

Updated: April 12, 2006

Project	Major Tasks/Actions	Deliverable	Target Compl Date	Percent Complete	Status/Comments	Kick-off Month				Project Month 1				Project Month 2				Project Month 3				Task Leader	Required Resource
						1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Planning	Identify & implement strategy/method to reduce manual inputs (import Excel into Proman) (last Excel format)	Importing items from Excel into Proman	28-Apr	50%																		Paul	ProCo & Jim
	Start planning those items in weekly buckets	Items planned in weekly buckets	26-May	0%																		Jim & Matt	
	Identify & implement strategy/method to reduce manual inputs (import Excel into Proman)	Importing items from Excel into Proman	28-Apr	50%																		Paul	ProCo & Jim
	Improve forecast process	Documented and trained forecast process	26-May	20%	Marketing is working on model to assist in developing an accessory forecast																	Jim & Matt	Kevin, Buyers, & Team
	Create method to allow opening of work order to trigger elimination of master schedule demand		28-Apr	0%																		Paul	ProCo, Jim & Matt
	Improve production schedule work order completion process	Documented and trained production schedule work order process	28-Apr	0%																		Jim	
	Improve process for stock adjustment of negative balance of purchased parts		28-Apr	0%																		Kevin	Frank, Nevik, & Matt
	Create and implement metrics			25%																			
	Prepare project summary & report																						
	Complete project	Closeout checklist completed																					

These are select key milestones reported each week from the detail implementation plan



# Customized Project Management tools

**Welch Alllyn Project & Event Kick-off Checklist**

Note: Normal continuous improvement activities are encouraged and should follow established guidelines provided by the appropriate managers. This checklist applies to all "projects" and "events". Prior to implementing any project/event changes, the following:

- A Compass (or Charter) is completed and approved by Razorback team
  - Team name, Team Leader & Team Members
  - Project/Event Purpose and Objectives
  - Boundaries (in-scope and out-of-scope)
  - Project/Event Timeline
- A detailed implementation plan is completed (using standard Welch Alllyn format)
  - Metrics (that will measure project/event effectiveness) are clearly defined.
- Note: If no baseline metrics are available, sufficient baseline data has been collected prior to implementing changes.
- Implementation plan and key milestones are saved in the "Project Status" file on the T-drive.
- The implementation plan, team goals, and metrics have been presented to the Razorback team.
- Meetings and "events" have been scheduled to accomplish the implementation plan.

**Welch Alllyn Project & Event Completion Checklist**

Note: The following items need to be completed prior to closing out a project or event

- A summary of the project/event is written and submitted to the Razorback team.
  - Include an assessment of how well the project/event met its stated objectives.
  - Summary has been submitted to the Razorback team
  - Summary has been saved in a folder on the T-drive
- Improvements have been documented (using data).
- Metrics are in place to ensure continual improvement of process.
- A PowerPoint presentation (using standard format) of project/event is given to top management.
- Future improvements (with suggested agency, responsibility, and timing) are summarized and reviewed with Razorback team.
- Documentation (to new process or changes) has been submitted to Doc. Center.

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**Kaizen Event Compass**

Department: \_\_\_\_\_

Project Name: \_\_\_\_\_

Purpose: \_\_\_\_\_

Process Boundaries: Start: \_\_\_\_\_ End: \_\_\_\_\_

Process Tools: \_\_\_\_\_

Project Goals:

Description	Goal	Values		Change
		Before	After	

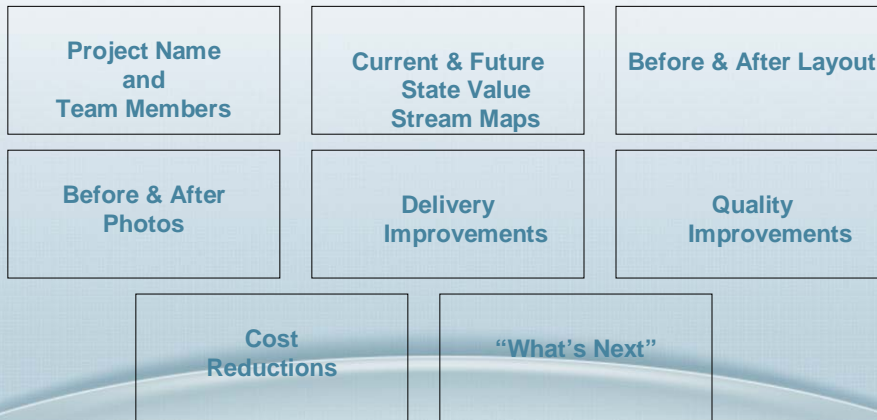
Project Team: \_\_\_\_\_

Standard Forms for each team/project



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# Standardize PowerPoint Summary Presentation



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## Training & Implementation Accomplishments in First Year

- ✓ Over 250 have completed the Lean course,
- ✓ Over 100 have implemented their training on projects,
- ✓ Over 20 Lean projects and 10 Kaizen events have been completed,
- ✓ Pleasure of seeing 10 – 15 CI “Stars” emerge!

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## Results, Results, Results!

- ✓ Reduced labor expenses >\$1 Million
- ✓ Reduced WIP >\$500k
- ✓ Saved ~2500 ft<sup>2</sup> of manufacturing space
- ✓ Added over 100 jobs in the past year (450 FTE in FY06 up from 270 FY04)
- ✓ **Great improvement in Morale**

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## Why Choose an OMEP?

- What distinguishes OMEP from similar groups who claim to provide the same services is OMEP's unique focus on their client's success and less so on selling future services
- They provided core training and implementation experience to get us started and were able then to adjust their approach as we progressed through our Lean journey.
- Their consultants are both hands on and strategic
- OMEP has been key to our success in making our Lean transformation
- We are continuing to expand our Lean Enterprise and we look forward to continuing to work with OMEP.

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## The Administration's FY08 funding proposal

- The Administration 56% cut to the funding for the MEP program to \$46.332 Million for FY08 I feel would be a serious blow for the affiliates to overcome
- I sit on the Board of OMEP and I would expect the following to occur if the budget reduction went through;
  - Staff reductions
  - Reduced ability to attract new clients
  - Client base unable to make up revenue shortfall
- The funding model of MEP is a very efficient use of federal dollars and the funding level should be restored.

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