



How To Implement An Enterprise-Wide Lean System In 2 Years

Wayne Pitchford

VP Operations

Neptune Technology Group



NEPTUNE
TECHNOLOGY GROUP INC.



Neptune Management System

- History
- Neptune Management System
 - What we are doing today
- How we implemented
- Lessons learned
- What is next



Fully Integrated Manufacturing Facility



- Tallassee, Alabama since 1972
- > 600 employees
 - 375 are operations employees
- 300,000 Square Foot Facility
 - 100% Lead Free foundry
 - Machining, assembly and testing
 - Electronics assembly
 - Injection molding



History of Lean Efforts at Neptune

- Tools based efforts attempted
- Did not understand how to change the culture
- Starting was easy, sustaining was difficult
- We had the WILL, but not the SKILL



Why Lean at Neptune

- Improve employee engagement
- Create a culture of continuous improvement
- Transition from:
 - 80% Firefighting – 20% Continuous Improvement
 - 20% Firefighting – 80% Continuous Improvement



Neptune Management System

- True North
- Core Team
- Enterprise Wide Deployment
- Employee Focused
- Time to Market
- Operations Implementation
- Supplier Involvement

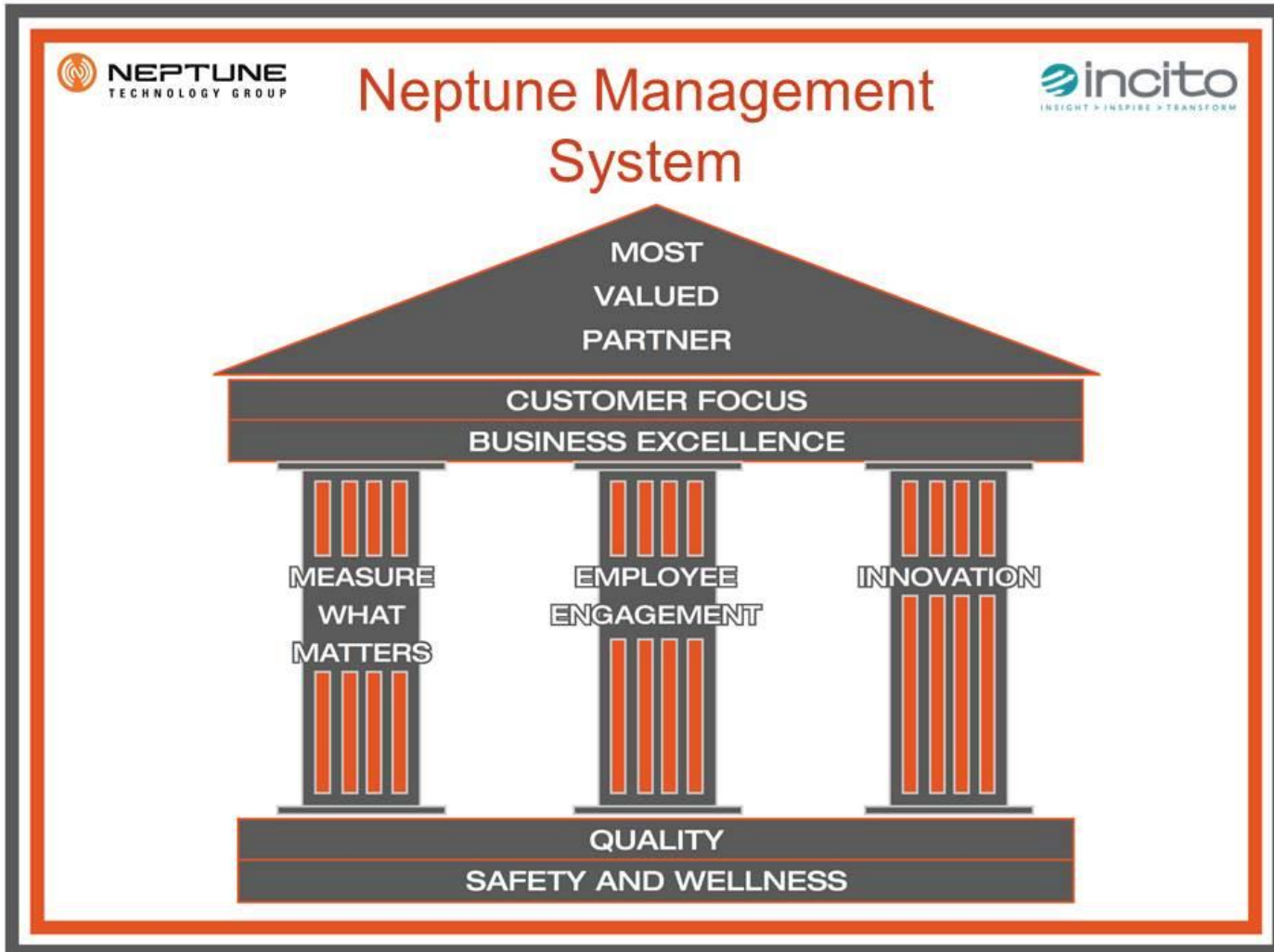


True North – Define Yourself





Neptune Management System



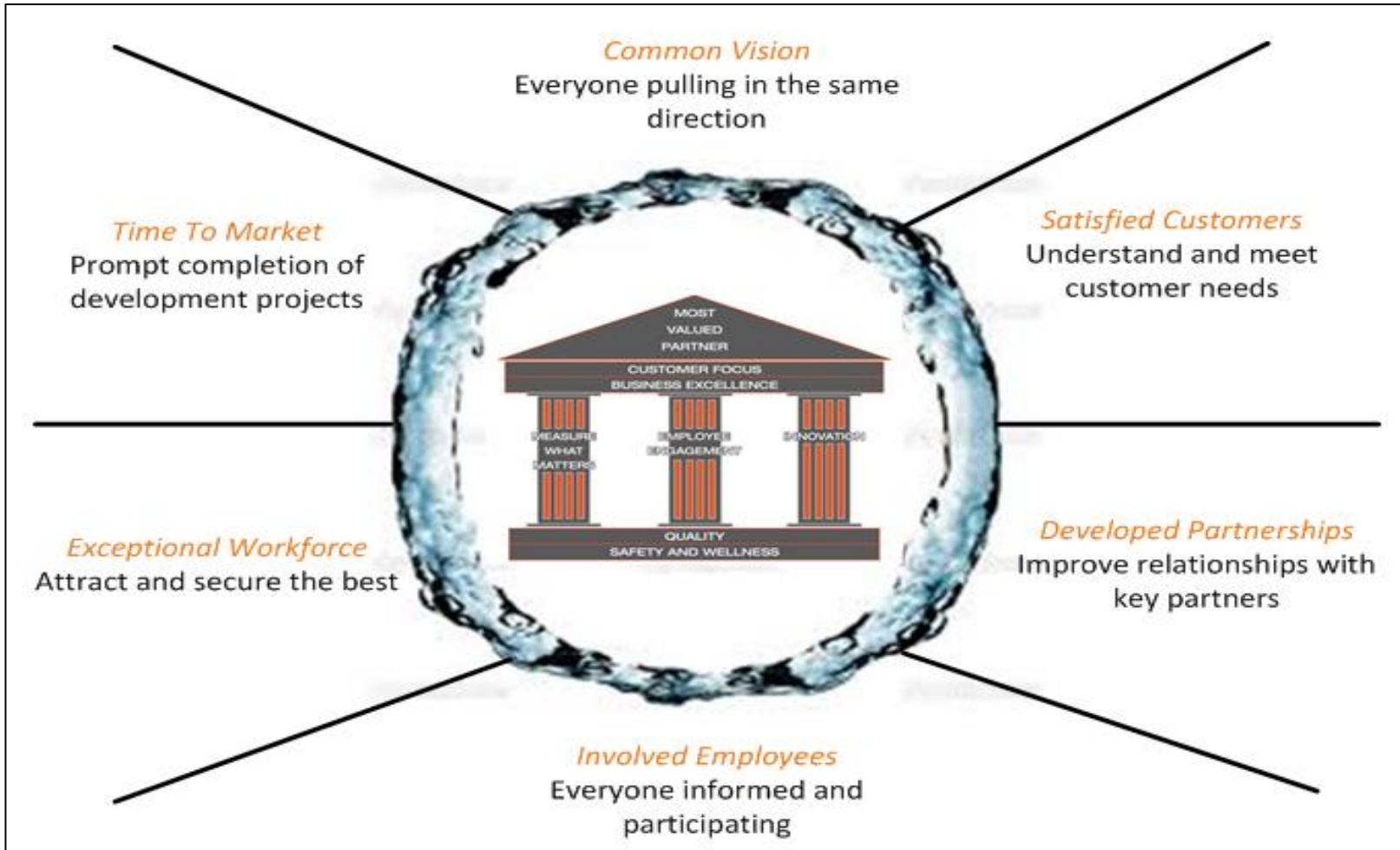


True North – Vision Elements





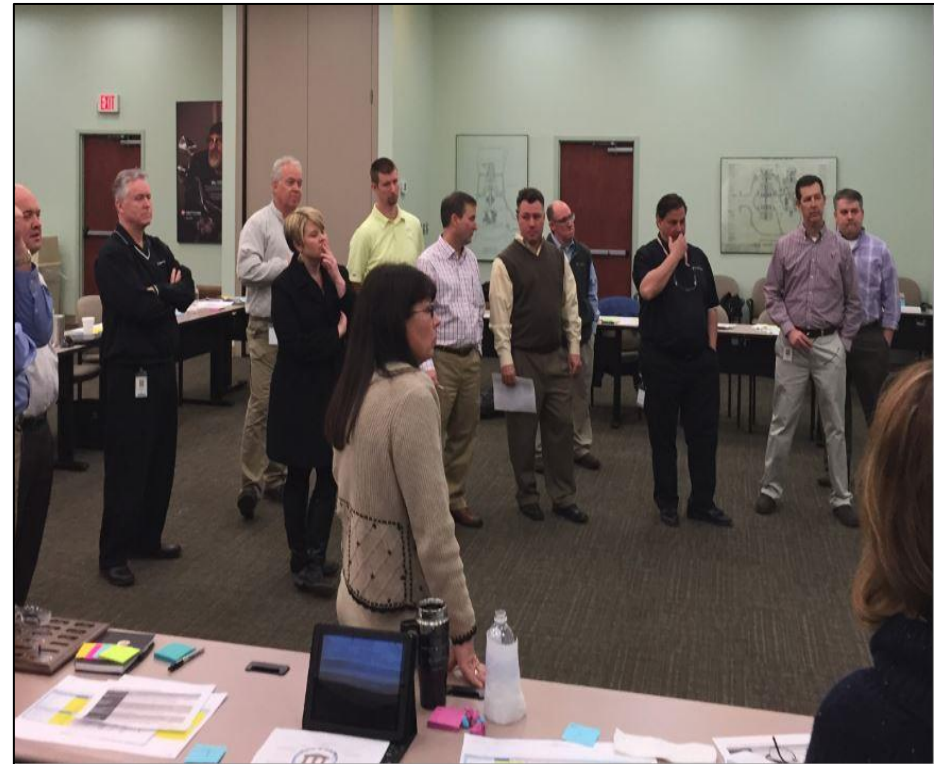
Neptune Vision Elements, Rev 1





Re-Visit of Vision Elements

- Progress made on 1st set of Vision Elements
- Two Day Session facilitated by Incito
- Revised set of Vision Elements





NMS Vision Elements

Common Vision

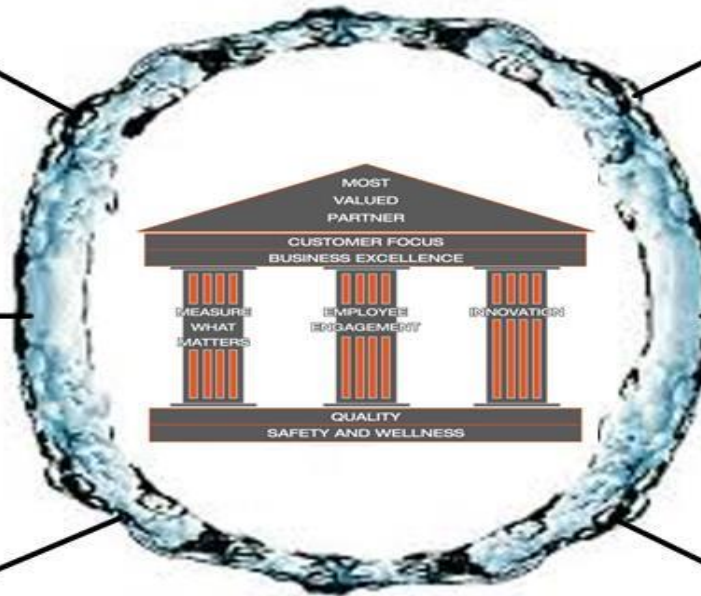
Everyone pulling in the same direction

Time To Market

Timely development of innovative solutions

Satisfied Customers

Understand and meet customer needs



Ecosystem Development

Add value through a network of alliances

Reliability

Focus on electronics

Exceptional & Engaged Employees



Core Team

- 12 – 15 members
- Appointed by Executive Team
- Mission is to ensure all Neptune team members
 - Are aware of company vision
 - Have an understanding of the Neptune Management System
 - Deploy Neptune Vision Elements to support our overall company vision



Enterprise Wide Deployment

- Lean Training
- Value Stream Map for each Functional Area
- VSM and Vision Elements drives Rapid Improvement Events (RIEs)
- Departmental Communication Boards
- Management Review Gemba Walk



Lean Simulation – Incito Man





VSM Report Out





Management Review Gemba

- Monthly management Gemba walk
- PDCA room
- Functional boards





Engagement

11 Incito Man Classes - **514** employees attended
40 Suppliers attended in October 2013.

53 Value Stream Map Events

71 Rapid Improvement Events

11 Strategic Events

16 Rattlesnake Hunts



Employee Focus

- Safety and Wellness Culture
- Vision Element “attract and retain the best”
- VSM and Rapid Improvement events
- Expanded On-Site College Recruiting
- Created dedicated Web Site page with “employee testament” videos
- Multiple programs for Employee Engagement



Neptune Wellness Center





Wellness

- Employed Physical Therapy group to help Prevent Repetitive Motion injuries





Employee Engagement

- Added Quarterly Reward and Recognition Lunches for all employees
- Interactive Events throughout the year
 - Safety Bingo
 - Opening Day – MLB
 - National Pizza Day
 - 12 Days of Christmas

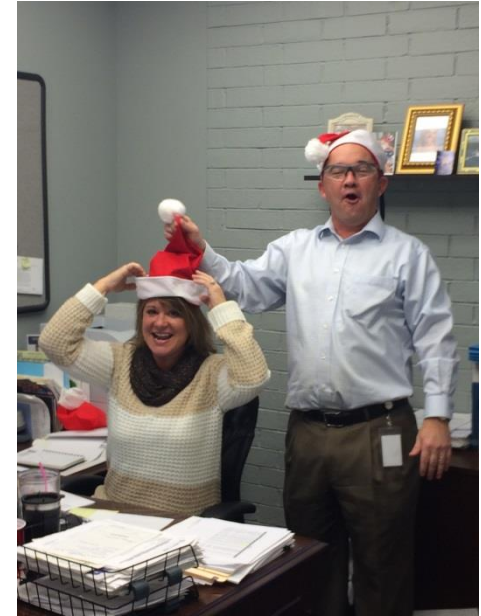


Quarterly Luncheons





12 Days of Christmas





Time to Market

- Apply Product Development Workshop Principles
 - Project Priorities
 - Cross Functional Collaboration
 - Visual Workflow Management
 - Visual Accountability



Time to Market

- Visual Project Planning and Risk Mitigation
 - Create **realistic** project plan, using collaborative team event
 - Highlight dependencies needing handoffs
 - Identify early start opportunities
 - Identify critical risk and develop mitigation plans





Time to Market

- Visual Project Management
- Project Boards
- 15 Minute Project Stand Up meetings twice per week
- Optimizes team communication, efficiency, accountability





Operations

- Daily Meetings
- Communication Boards for each cell
- Coaching Cards / SW4L Audits
- Top 5 Issues
- Customer Complaints
- VSM / RIE
- Rattlesnake Hunts
- Kata



Daily Meetings





Communications Board

TPM STATUS

ACTION ITEMS

COACHING CARDS

DATE 8/24 1ST 2ND DATE 8-20

PNY LEAK% SCHEDULED 1ST 2ND

SUNDAY					
MONDAY					
TUESDAY					
WEDNESDAY					
THURSDAY					
FRIDAY					
SATURDAY					

SHIFT NOTES / IDEAS

Safety Alert

Don't complain about it...
Do something about it!

Find It → ← Fix IT
Find It → ← Fix It

Good Job
Good Job
Good Job
Good Job
Good Job
Good Job

Floor needs to be swept (Stair nos on floor)
Take Pens sitting in the floor
Good Job
Good Job
Floor needs to be swept



Coaching Cards and SW4L

NMS Coaching Card

1. Safety & Wellness Key Points

LOTO is followed No

Required PPE is used

Safe conditions observed

Machine guarding is in place

2. Quality Key Points

Quality checks are performed as required

Quality records are properly maintained

3. Standardized Work

A standard work document is posted

Standard work is followed

4. 5S Workplace Organization

Operators document 5S work

Everything is properly labeled

Everything is in its place

Inventories levels are maintained

5. Total Productive Maintenance (TPM)

All TPM Documentation is filled out and up to date

If any of the areas above are checked NO, circle the area that failed on the other side of the card and display the other side of the card.

QSF 01.01.03 Rev.002

Coaching Cards are used to continuously verify standard work is or can be being done.

Each Shift, the process is audited to assure each of the items listed are in compliance. If mark should be placed in the 'No' column next to any item found to be out in compliance and the card should be returned to the rack with the Red side visible. If all items are complete return the card to the rack with the Green portion visible.

Any operator found to be not in compliance should be immediately coached and the process returned to a condition of compliance.

If an area is not in compliance and received a 'No' check on the other side, please circle the area that was out of compliance.

1. Safety
2. Quality
3. Standard Work
4. 5S
5. TPM

Standard Work For Leaders

Name: _____ Date: _____

NEPTUNE TECHNOLOGY GROUP

Dept: _____

Specific Leader Activities		Audit Area:	Operator Interviewed:
Daily	<input type="checkbox"/>	Using the Gemba Walk Map; Audit the department for safety issues, PPE, and 5S compliance	Safety Improvement Ideas and Issues
Daily	<input type="checkbox"/>	Using the Gemba Walk Map; Audit the department for TPM issues	
Daily	<input type="checkbox"/>	At each Communication Board; Review the Coaching Cards for the Department	
Daily	<input type="checkbox"/>	At each Communication Board; Review the departments metrics	Quality Improvement Ideas and Issues
Daily	<input type="checkbox"/>	Audit one area of the department for Standard Work documentation and compliance	
Daily	<input type="checkbox"/>	Ensure the area being audit is in compliance with the PQP requirements	
Daily	<input type="checkbox"/>	Conduct operator interviews in the area being audit to ensure the operator understands the departments metrics, standard work procedures and PPE requirements	Other Comments
<i>Note issues found on the Communication Board (If none found please write none in this area)</i>			

QSF 01.01.02 Rev.002



Top 5 Improvement Ideas

- Each area identifies top 5 opportunities for improvement
- Visually posted
- Updated and progress discussed with team weekly



Customer Complaints

- Posted visually in factory
- Discussed with each employee in daily meeting
- Corrective action discussed as a group
- Emphasis on Quality





VSM / RIE

- VSM – Each cell every 2 years
- RIE – Chosen based on VSM or Top 5 list
- Cross functional teams
- Usually over 50% hourly employees





Rattlesnake Hunts

- AME Conference – Mark Preston
- Method to help with 5S implementation
- Encourages learning, teamwork, and employee engagement
- 2 or 3 day event – 12 participants
- Facilitated by Supervisors / Engineers
- Report Out at conclusion of event



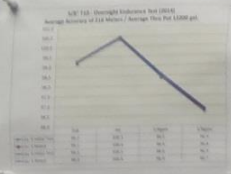


Toyota Kata

- Introduced at Neptune as a tool for complex problem solving
- Aim for target condition
- Daily stand up meetings



CURRENT CONDITION




TARGET CONDITION

FOR NEW METER ACCURACY,
THE TARGET VALUE IS:

1/8 GPM PERFORMANCE
(AVERAGE) ≥ 97%

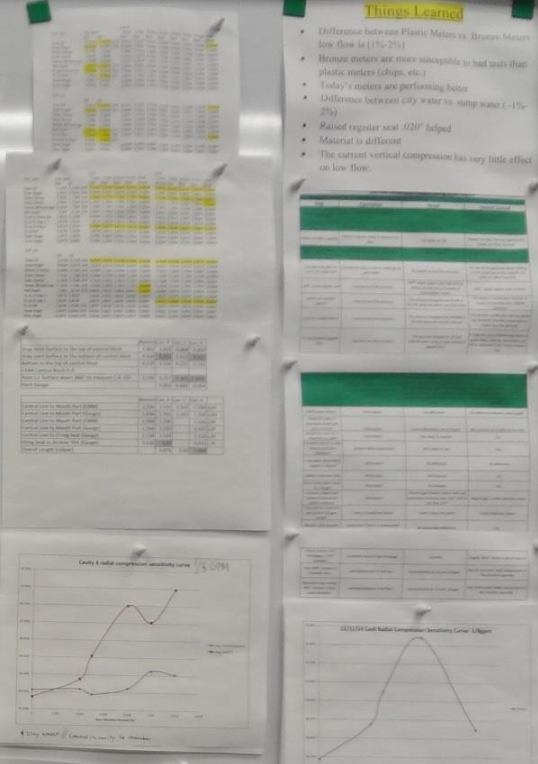
The Five Questions



PRIORITY	ACTION	WHO	RESULTS
	Sample Sump water collected - <i>to be sent out</i>	Stephen	1/31/15
	A. Schumann is working to improve Teflon size & dispersion		1/17/15
	Analyze PTFE dispersion new vs old ↳ Parts have been shipped	French	1/21/15
	TEST SABIC MATERIAL - 5% PTFE	French/ Brandon	TBD (Sampled. Testing ongoing)
	Priority → Current material - 2 passes Old vs. New Sabic mat'l testing Test mac cav. 5	Jack	1/23/15
	Rebuild cavity 5 to replace cavity 6	MOORE	1/23/15
	Develop ETP (Std. Work) for meter testing (Rough draft)	French	1/15/15
	Laser scan performed on Cavity 2 Caves (accurate enough?)	French	1/15/15
	Run sensitivity curve @ multiple flow rates to see drop off point CAV. 4 - Model Shop to machine	Jack	1/14/15 New

Things Learned

- Difference between Plastic Meters vs. Bronze Meters low flow is (1%-2%)
- Bronze meters are more susceptible to bad parts than plastic meters (ships, etc.)
- Trade's meters are performing better
- Difference between city water vs. sump water (-1%-2%)
- Rained register seat .020" helped
- Material is different
- The current vertical compression has very little effect on low flow.





Supplier Symposium

- 40 Supplier attendees
- Incito Man simulation
- Lean Guest speakers
- Goal – Introduce lean principles to the supply chain





Supplier Involvement

- Shipping VSM with Freight supplier
- Machining Kaizen with Tooling supplier





Supplier Involvement

- Multiple events held with MCA
- Event 1 at Neptune – Inventory Management
- Event 2 at MCA – Product quality event





Summary

- NMS / Vision Elements
- Enterprise Wide Deployment
- Culture of Employee Engagement
- VSM / RIE
- Project Management Tools
- Gemba / SW4L / Coaching Cards
- Other Tools



How We Started

- Initial meeting with Incito Consulting Group
- Named a Manager of Lean Processes
- Enterprise assessment
- Agreed to partnership with Incito in December 2012 with kickoff in January 2013

AME**CHICAGO**2012
EXCELLENCE
INSIDE
CONFERENCE
SM





Our Early Journey

- Operations Focused
- Value Stream Maps
- Management Report Outs – KEY TO SUCCESS
- Enterprise Deployment began quickly



Benchmarking Trips

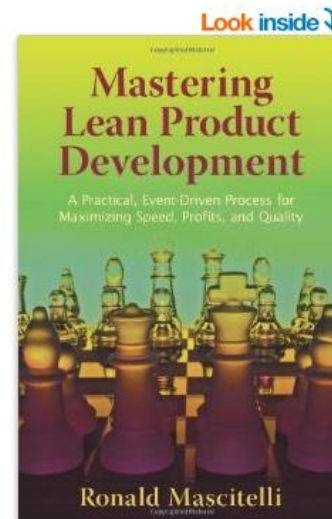
- RexMoore in Sacramento, CA
- Sur-Seal in Cincinnati, OH





AME Conference 2013

- R&D VP Attends with Manufacturing staff
- Introduced to Visual Project Management tools
- Partnered with Ron Mascitelli, who helped us with Project Management and Engineering Project boards



Mastering Lean Product Development: A Practical, Event-Driven Process for Maximizing Speed, Profits, and Quality

Hardcover – February 15, 2011

by [Ronald Mascitelli](#) (Author)



More Benchmarking

- Joined AME Champions Club in 2014
- Attended Event at Lincoln Industries
 - Created an action plan regarding:
 - Health and Wellness Center
 - Reward and Recognition



AME Conference 2014

- Ten attendees
- Sales VP attended entire conference
- Four attendees from R&D group
- Introduced our largest supplier to conference (MC Assembly)
- Major takeaways
 - Toyota Kata process
 - Rattlesnake Hunts



Lessons Learned

- Not a program
- Employee based (Change the culture)
- Upper management has to be committed
- Use consultants (carefully choose)
- Create Core Team to spread the vision
- Management participate in all report outs
- Financially support objectives
- Benchmark
- Be flexible



What's Next?

- TPM Events
- Ask us Friday



Thank You!

Please complete the session survey at:

www.ame.org/survey

Session: TP/16

**How To Implement An Enterprise-Wide Lean
System In 2 Years**

Wayne Pitchford

Neptune Technology Group

wpitchford@neptunetg.com