Effective Utility Management and Lean at Water-Sector Utilities

Improving Performance and Addressing Key Management Priorities

November 8, 2012
Webcast Agenda

• Overview of EUM and Lean for Water-Sector Utilities
  Jim Horne, EPA Office of Water

• Utility Case Study
  Diane Taniguchi-Dennis, Deputy General Manager, Clean Water Services, OR

• Utility Case Study
  Randy Brown, Utilities Director, and
  Maria Loucraft, Utilities Compliance and Efficiency Manager, City of Pompano Beach Utilities Department, FL

• Questions and Answers
How to Participate Today

Open and close your control panel

You will be automatically muted for the webinar

Please submit questions using the questions box
Polls

- Polls will be launched during the presentation
- Please be sure to respond to the polls
- You will not be able to view the presenter’s screen until the poll is closed by a webinar organizer
Overview of EUM and Lean for Water-Sector Utilities

Jim Horne, EPA Office of Water
Utilities face many challenges: aging infrastructure, increasing regulatory requirements, aging workforce, funding constraints, competing local priorities, etc.

Effective Utility Management (EUM) sets strategic direction for utilities—endorsed by EPA and major water sector associations.

Lean provides powerful tools that support EUM:
- EUM Attributes identify *what outcomes* to achieve
- Lean methods describe *how to achieve the outcomes*
Effective Utility Management

• EUM is a framework that helps water-sector utilities:
  • Assess strengths and weaknesses
  • Set priorities
  • Identify outcomes to achieve
• Three key components:
  • 10 Attributes of Effectively Managed Utilities
  • Five Keys to Management Success
  • EUM Self-Assessment Tool (Primer)

http://www.watereum.org/

<table>
<thead>
<tr>
<th>10 Attributes of Effective Utilities</th>
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<tbody>
<tr>
<td>Product Quality</td>
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<td>Employee and Leadership Development</td>
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<td>Financial Viability</td>
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<td>Community Sustainability</td>
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<td>Stakeholder Understanding and Support</td>
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<td>Customer Satisfaction</td>
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<td>Water Resource Adequacy</td>
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Example EUM Assessment Through the Primer

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<th>Rating</th>
<th>Lower Achievement</th>
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More Important | Less Important

Ranking

OR  Operational Resiliency
SS  Stakeholder Understanding & Support
OO  Operational Optimization
IS  Infrastructure Stability
Lean

- Lean is a business improvement approach and set of methods that eliminate non-value added activity or “waste”
- It uses practical, implementation-based methods
- Often combined with Six Sigma – a set of statistical tools designed to eliminate defects and variations

“Lean forces you in a deliberate and logical way to evaluate a process. You have to walk through step-by-step and evaluate areas that are wasteful and refine them. Lean shows you how to do things better, more quickly, and more efficiently.”

— Gwendolyn Ruff, Columbus Water Works
Lean Eliminates Wastes ("DOWNTIME")

- Defects
- Overproduction
- Waiting
- Non-utilized or under-utilized talent
- Transportation
- Inventory
- Motion
- Excess Processing
Water-Sector Utilities Results from Combining EUM and Lean

• City of Palm Bay Utilities
  • Improved **financial viability** and **operational optimization**
  • **40% reduction in energy costs** at its water and wastewater treatment plants from Lean and EMS process improvements

• Charleston Water System
  • Improved **financial viability** and **operational optimization**
  • Saved **$1.3 million/year** in O&M costs and **increased plant capacity by 2.62 MGD** through an I&I project using Lean methods
Lean Methods Used by Utilities (Examples)

5S: A 5-step process to improve organization, cleanliness, safety, and efficiency of work areas (Sort, Set in order, Shine, Standardize, Sustain, and sometimes Safety as 5S+S or 6S)
## Lean/Kaizen Events:
A 2-5 day period when a cross-functional team of employees analyzes and improves a process

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
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<tbody>
<tr>
<td>Training Day</td>
<td>Discovery Day</td>
<td>Do Day</td>
<td>Do, Re-Do, Document Day</td>
<td>Celebration Day</td>
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<td>Begin mapping and measuring current work process</td>
<td>Measure and analyze current work process</td>
<td>Create and map new process</td>
<td>Finalize new process design, estimate benefits, develop action plan</td>
<td>Present results and celebrate</td>
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Lean Methods Used by Utilities (Examples)

**Six Sigma**: An improvement approach and set of statistical tools designed to eliminate defects and variation

- **Define**
- **Measure**
- **Analyze**
- **Improve**
- **Control**
## Example EUM and Lean Connections

<table>
<thead>
<tr>
<th>Selected EUM Attributes</th>
<th>Lean Connections</th>
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<tbody>
<tr>
<td><strong>Operational Optimization</strong></td>
<td>• Lean has tools for identifying sources of variation and inefficiency in the use of resources, time and can help optimize performance</td>
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<td>• Many Lean tools are simple, visual, and can be implemented in a variety of processes (e.g., administrative, maintenance, treatment processes, etc.)</td>
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<td><strong>Financial Viability</strong></td>
<td>• Cost savings is one of the most frequently cited benefits of Lean events</td>
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<td>• Cost savings and avoidance are realized from process changes allowing utilities to increase machinery and process efficiency</td>
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“The EUM Assessment is a good tool for prioritizing your utility’s goals and initiatives – but it only makes a difference if you then take action. That’s where Lean fits in.”

– Ed McCormick, East Bay Municipal Utility District, CA

“We used EUM to develop our strategic plan and recently used Lean techniques to optimize our backflow program. We were so impressed with the outcome as far as better use of staff time and increase in productivity that we have trained three people in our department in Lean techniques. We expect this will become part of our culture.”

– Tyler Richards, Gwinnett County Water Resources, GA
Resource Guide to EUM and Lean

- **Resource Guide** -- a “bridging document to show how utilities can use EUM and Lean together to:
  - Address key management priorities
  - Deliver financial and operational results, improve customer service, and reduce risk
  - Enhance continual improvement efforts
Steps for Getting Started with EUM and Lean

1. Conduct an EUM Self Assessment to determine improvement priorities
2. Engage leadership
3. Learn more about Lean
4. Find technical assistance
5. Conduct EUM and Lean improvement projects

REMEMBER: APPLY THE “KISS” APPROACH WHEN STARTING OFF!
Tips from Water-Sector Utilities on Getting Started with EUM and Lean

Where to Start and What Tools to Use

• Do the EUM assessment to better understand where to focus your improvement efforts

• When considering improvement efforts, be sure to address the culture of your organization, what you want to change, and how fast—set your own pace!

• Lean can be as easy as understanding waste; you can start at many places

• You can adjust Lean tools; you don’t have to do everything “by the book”
# EUM & Lean Steering Group: Critical to Success

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
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</thead>
<tbody>
<tr>
<td>Richard Bickerstaff</td>
<td>Charleston Water System, SC</td>
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<tr>
<td>Randy Brown</td>
<td>City of Pompano Beach Utilities Dept., FL</td>
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<td>Maria Loucraft</td>
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<td>Dan Roberts</td>
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<tr>
<td>Gwendolyn Ruff</td>
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<td>Mat Stickler</td>
<td>Clean Water Services, OR</td>
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<tr>
<td>Diane Taniguchi-Dennis</td>
<td>Clean Water Services, OR</td>
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<tr>
<td>Donna Wies</td>
<td>Union Sanitary District, CA</td>
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The Resource Guide is available at:
Thank you!
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Questions and Answers

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Thank you for participating

Please take a moment to provide feedback through the poll you receive when you exit the webinar