Continuous Improvement: Vegetation Management

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The Journey to Security, Resiliency and Reliability

"Time spent amongst trees is never wasted time" – Katrina Mayer

It's not uncommon for your organization's bottom line to be a focal point of conversations about vegetation management. Continuous Improvement (CI) concepts can be a valuable tool in providing structured ways to improve your programs — which can also improve your bottom line.

Using the important risk area of vegetation management as an example, we will examine how utilizing the DMAIC (Define, Measure, Analyze, Improve, Control) approach to CI can set you up for success in addressing challenges and implementing improvements to your Utility Vegetation Management (UVM) program.

Previous articles have discussed the DMAIC approach, but what about the human side? Can the implementation of improvement initiatives be successful without human buy-in, especially during the Improve and Control phases of DMAIC?

This article goes one step further to explore the benefits of introducing a change management approach – like the ADKAR (Awareness, Desire, Knowledge, Ability, and Reinforcement)[1] change method – to address the human side in our quest for CI.

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[1] ADKAR: A Model for Change in Business, Government and our Community

Vegetation Management Challenges and DMAIC

The 2003 blackout forced the industry to evaluate its operational practices. It highlighted UVM challenges, such as:

- **Costs** – UVM is one of the most expensive maintenance activities for Entities. If the funds are not there, the program suffers. UVM budgets are generally at risk during year-end initiatives and project funding reprioritization.

- **Pests** – The Emerald Ash Borer causes significant tree damage, making them structurally unsound and unsafe to remove. This requires more precautions, thus proving more costly.

- **Personnel** – It is increasingly difficult to find personnel willing to work in this field. Utilizing a contractor workforce introduces external risks and potential issues with training and quality of work.

- **Landowners** – Landowner education is critical to combat misinformation about UVM programs. Landowners often object to utilities entering their property to prune or remove vegetation.

DMAIC includes five steps that help remediate challenges and lead to improvement. How can this concept bring value to your UVM program?

Step 1

Define the issue, such as pest control. What types are there and where are they prevalent? Don't forget that "Define" includes targeted risk thresholds but also stretch goals for opportunity and profit.

Steps 2 & 3

Measure and **Analyze** the data, such as outage information, various vegetation growth rates, soil information, geographic location and mitigation cost differential.

Step 4

Prioritize and implement **Improvements** uncovered by the process; and then

Step 5

Control those improvements through sustainability, producing a cycle of CI.

Through DMAIC you have identified ways to improve the challenges, including:

- **Costs** – Implement competitive bid processes to drive down program costs, add risk ranking tools to mitigate identified hazards/risks, and continuously seek cross-departmental efficiencies.

- **Pests** – Use this as an opportunity to educate all stakeholders, including Public Utility Commissions/Public Service Commissions, about increased costs for mitigating risks associated with unplanned, unforeseen pests and the need for research and funding.

- **Personnel** – Tap into vocational schools to recruit new talent, and champion training and certificate programs in the UVM field.

- **Landowners** – Educate landowners about the issues prior to vegetation maintenance. This develops a rapport and common ground, allowing the Entity to proactively remove unhealthy and unsafe vegetation.

The DMAIC/ADKAR Connection – Implementing Improvement Initiatives from a Human Standpoint

Once improvements are identified, how do you implement the changes during the Improve and Control steps? Could it be useful to employ a change management concept, such as ADKAR, to address the human side of change?

According to Ric McCormick, special guest author for the Change Management Learning Center, there is a link between DMAIC and ADKAR.[2] He ties DMAIC's Define step to ADKAR's Awareness step, Measure and Analyze to Desire, Improvement to Knowledge and Ability, and Control to Reinforcement. Let's examine how addressing UVM challenges through the lens of the ADKAR approach can assist in successfully implementing improvements.

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[2] [How Change Management Fits with Six Sigma Success](#)

- **Awareness** – All stakeholders must have clear awareness of the issues. For example, most remember the 2003 blackout, but it was a long time ago.

- **Desire** – Even though stakeholders are aware of the issues, the desire to contribute to the changes includes the question "What's in it for me?" Are there added incentives, such as bonuses for meeting specific KPIs, increased safety, and protecting your company's reputation by avoiding a blackout? How can landowners be incentivized?

- **Knowledge** – This involves training and awareness on new UVM practices, as well as encouraging stakeholder involvement in the process from the start.

- **Ability** – Now that the knowledge is ingrained, is the ability there? Has the Entity provided tools for safer and more effective maintenance? Are some personnel not able to implement the improvements due to issues like force of habit? Again, ADKAR delves into human change, so even issues going on in their personal lives can be a factor.

- **Reinforcement** – Like the Control stage of DMAIC, ADKAR's last step is Reinforcing the change. Leadership must be aware of

variations in acceptance of the new processes. When this happens, reinforcement is paramount. This includes providing ownership of the process all the way down to the folks in the field, as well as providing additional incentives that might include company recognition.

Reduce Costs through Vegetation Management Improvement

UVM CI also should improve your bottom line through improved processes. There are innovative ways to reduce costs or even discover opportunities. ADKAR may even drive culture change that does not currently use the Define stage in DMAIC for both risk and reward. Here are a few interesting examples on how UVM can reduce costs:

Right-of-way (ROW) Opportunities

Exploring opportunities to transform ROW's from traditional maintenance programs (e.g., mowing, herbicide) to establishing allelopathic vegetation (i.e., vegetation that affects the development and growth of neighboring plants through the release of chemicals into the environment) is one opportunity to experience long-term positive maintenance cost return on investment. As Robert Richens, former president of the Utility Arborist Association, says, "the ROW corridor can be transformed into environmentally sustainable habitat."

He goes on to say that "Utility ROW corridors provide utilities with a huge opportunity to aid pollinators and other species on an unprecedented scale across every state and province in North America in a highly visible way, often in partnership with other stakeholders such as government agencies and nonprofits."[3]

Using a Risk Based Approach

An Entity can use risk ranking tools that include data, such as tree species, soil information, wind direction, etc., to prioritize the removal of identified hazard trees. Tom Martin, E Source's Vice President of Product, Data Science Division,

estimates that, "utilities that take a risk-based approach to vegetation management typically see a 10% to 20% reduction in operating costs, with no negative effects on safety or reliability. [This] approach will help you dramatically reduce the amount you spend on expensive data-collection methods, and some utilities are even able to fully fund their data-science-based optimizations with the money they save by reducing the number of expensive LiDAR scans."[4]

Conclusion

This article touched on UVM challenges, the CI concept DMAIC, and the change management concept ADKAR. DMAIC helps identify improvements, while ADKAR can drive successful implementation of the improvements from a human side, both with internal and external stakeholders. Significant improvements can only be realized and sustained with solid change management that is appropriate for your situation. Identified improvements can also improve your bottom line.

For more information on CI and Change Management, I encourage you to read more about these concepts, as there is a plethora of information out there. To learn more about how RF can assist you in your CI journey, please [contact](#) our Entity Engagement department.

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[3] [A Green ROW Can Save Both Money and the Planet](#)
[4] [Cut costs and improve grid reliability with data-driven vegetation management](#)