

# 2009

## UW-Stout: Becoming LEAN



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## **Abstract: UW-Stout is Committed to Becoming Lean**

Education today is struggling with maintaining strong curricular programming with declining viable financial support. As part of the Growth Agenda Action Steps that were derived from the Advantage Wisconsin Strategic Framework, the UW System has committed to keeping administrative costs among the lowest in the nation in order to focus its limited resources on its Growth Agenda. At the same time, the System plans to take operational excellence to a new high. To do so, Chief Business Officers at each institution began reviewing their current business practices to see where they might be standardized, streamlined, simplified, and automated across the UW System.

With this agenda in mind, UW-Stout chose to utilize a Lean approach to doing business. A few key areas were identified by reviewing Lean principles:

- Specify the value desired by the customer;
- Identify how each program is accomplished and challenge the wasted steps;
- Identify steps so that the product or service flows continuously;
- Introduce pull between all steps where continuous flow is impossible (meaning, if something goes wrong, one is “pulled” to investigate the source of the problem);
- Manage towards perfection so that the number of steps and the amount of time and information needed to serve the customer continually diminishes.

The idea behind taking a Lean approach to a few projects is to eventually expand this way of thinking and doing business to other programs and projects. After reviewing Lean practices with several departments, UW-Stout identified a couple of “starter” projects:

- **Reduce time it takes to hire classified (civil service) staff;**
- **Use value stream mapping to improve our Physical Plant’s Maintenance Work Order Process;**
- **Use the 5S process to make the Physical Plant’s storage facility more effective.**

The emphasis behind using Lean principles was not simply to cut costs. The idea was to use the process to become the most effective, streamlined, customer-oriented educational system we can be. The plan is to eliminate or simplify hard or complicated work, and teach staff to spot and eliminate waste in their practices. There’s a trickle-down theory involved here as well: as we eliminate waste and make things easier and faster, we do so with our customer in mind. Everyone should benefit by this change in philosophy.

## **Introduction to University of Wisconsin-Stout**

UW-Stout is a comprehensive, career-focused polytechnic university where students, faculty and staff use applied learning, scientific theory and research to solve real-world problems, enhance the state's economy and serve society. For well over 25 years, over 90 percent of our students have been employed within a year after graduation, and many of them work in their area of study.

No matter what their area of interest, all our students benefit from our active, innovative, and technology-rich environment. Our applied learning approach combines theory and practice to fully engage students in learning, and we constantly adapt to the new demands of business, industry and society to ensure that our graduates are ready for the marketplace. Upon joining UW-Stout, each student is provided with a laptop, training, and the required software and hardware through our e-Scholar program. As a wireless and wired campus, 90 percent of our classrooms are modern, mediated learning centers. UW-Stout has a rich history of balancing access and excellence: one of our goals is to provide educational opportunities across the board so that every student has the opportunity to excel.

In the Fall of 2008, we had a record enrollment of 8,800 students. Our staff is comprised of approximately 1,213 employees in a town of just under 15,000 residents. A resident full-time undergraduate student pays a yearly tuition and fees of \$7,272.

### **Statement**

Education today is expected by society to do more with less. With a recession in full bloom, funding is dwindling. If we're going to continue to be in the business of providing

students with an education, providing businesses with personnel who know how to work, and providing our shareholders with a business they can back, it only makes sense that we're going to have to focus working with what we have. Utilizing Lean philosophy and practices is a down-to-earth, simplified way of doing business that frees workers up to concentrate on what is most important. It saves money and time by eliminating waste and allowing us to become more responsive and competitive. In today's fast-changing, technologically-savvy customer-oriented global economy, it is essential we have the most stream-lined programs available to meet needs.

Over 40 employees at UW-Stout have been trained in the Lean process by Northwest Wisconsin Manufacturing Outreach Center (NWMOC) located on campus. NWMOC specializes in teaching Lean principles. During the initial training, a couple of key projects in different areas were identified as needing streamlined.

- **Reduce time it takes to hire classified (civil service) staff;**
- **Use value stream mapping to improve our Physical Plant's Maintenance Work Order Process;**
- **Using the 5S process to make the Physical Plant's storage facility more effective.**

The problem with the current way we were hiring classified staff was that it took a long time from the point the job opening took place until the actual hire. Supervisors would hold onto paperwork longer than was needed, holding up the process, and we were losing good qualified people. Our goal in reducing time to hire classified staff is to go from the current timeframe of 57 days down to 42 days.

The Physical Plant's Work Order Process has to do with work requested in buildings, ranging from fixing a leaky sink to remodeling areas. Prior to the training in Lean, initiating a work order was a lengthy process that required filling out paperwork which needed to be approved at different levels. Requests could be made from different people in departments, sometimes resulting in requests that did not have budget to cover the work, or was duplicative. Orders came into the Physical Plan in a variety of ways: requests were made on paper, some were done over the phone, yet others were done online. It was a full-time job just trying to accumulate the various requests. Paperwork piled up, and it would take months to get jobs accomplished. Some simple requests – having a white board put on a wall, for example – took up to 6 months to complete! It was determined the work loop needed to be shortened and customer service improved.

In order for a work order to be completed, the materials have to be available. While reviewing the need to update the Physical Plant's Work Order Process, it soon became clear the Physical Plant's storage facility also needed to be reviewed. There was no workable system in place for storage of materials. Workers would order parts for a job, and then not be able to locate them. Materials were scattered throughout the large, warehouse facility and it would take a long time to find what was needed for jobs. Because of the lack of any type of filing system, parts that were already in the warehouse would be re-ordered because they couldn't be located.

## **Design**

One of the reasons that Lean can be most effective is that it involves all employees – it's a bottom-up approach. This means the people who are actually involved in the job are also actively involved in the ways it needs to change. Not only is this more effective than management attempting to change a process they may not fully understand, but it makes change easier on the employees. It also resolves the trust factor: if employees are involved in the process, they grow quickly to understand that there is no desire to "downsize," but rather the intent is to utilize the resources we already have, although perhaps differently than the way they are currently being used. With Lean we are investing in our employees with the goal of doing better tomorrow than we are today for the people we serve. The Lean approach is based on respect: respect for staff's knowledge and contributions, as well as respect for the customer's needs and desires.

Once the three projects were identified, a group of staff in each area sat down and did a blueprint showing each step of the current process. They then went step by step, evaluating the value of the process and whether or not it should be maintained, cut out, or changed in some way. The blueprint was changed always with the end goal in mind. A staff member from the NWMOC was on hand when needed for further mentoring.

### **Reduce time it takes to hire classified staff**

While the goal to cut back on time in hiring classified (civil service) staff is still a work in process, the plan the team came up with will reduce time (and greatly increase satisfaction of

all concerned) by 27.5 days when hiring and needing a civil service exam, and by 2 days when hiring without needing a civil service exam. While cutting back on days is the clear measurement of the success of the program, having a buy-in with supervisors involved in the process is also important. Having the supervisors prioritize their portion of the process will help to reduce the turnaround time and retain the best people for the job. Right now we have developed a flow chart to explain what is needed by supervisors to fast forward the process, and will soon be training supervisors on our expectations during the hiring process.

We have also petitioned the UW System to pursue delegation for classified (civil service) staff hiring procedures. This requires at least a 3-month auditing by UW System, or until there is enough staffing transactions to evaluate. Currently, each applicant completes an exam which is then sent to the UW System for review. By transferring delegation back to us (the source) we eliminate the middleman (UW System), cutting back on at least 3 days in the hiring process. We are also attempting to build a database of exams and to establish group rater trainings and work days.

### **Use value stream mapping to improve our Physical Plant's Maintenance Work Order Process**

The Physical Plant formed a committee of staff, ranging from supervisors and directors to technicians, to closely look at the current work order process to see what steps could be taken out. They utilized the Value Stream Mapping process to begin. Value stream mapping is a technique used to analyze the flow of materials and information currently required to bring a

product or service to a consumer and is commonly used to identify opportunities for improvement in lead time. By using this technique, UW-Stout's Physical Plant was able to:

- Reduce the Administrative Support in the work order processing system by approximately 77%;
- Implement final review of work orders by technicians to increase accuracy of data;
- Purchase and deploy PC's for all Building Maintenance staff.

There were several ways the group working on the Work Order Process re-fashioned the process. They narrowed it down so that only one select person in each department who has access to the departmental budget could make a work request. They developed an online form – with training, both in a classroom and online – in order to use the form. Only emergency work requests can be done over the phone. One of the previous time-consumers was that the paperwork had to be checked by a supervisor, resulting in paperwork being sent back and forth. By taking out the middleman (supervisor), the technicians are now responsible for checking their own work, resulting in faster service and better accuracy of data. PC's were also purchased for the Physical Plant Staff so that everything could be done via the computer.

Once the work order process was well on the way to becoming streamlined, the Physical Plant turned its attention to its storage facility.

#### **Using the 5S process to make the Physical Plant's storage facility more effective**

Achieving total organization, cleanliness, and standardization in the workplace is the ultimate goal of the 5S process. This in turn will result in a safer, more efficient, and more productive operation and help to boost morale of workers.



The 5S is a series of activities designed to improve workplace organization and standardization. They are:

1. Sort – Remove all unneeded items; everything that is left behind should be necessary and kept to a minimum.
2. Set In Order – Establish assigned locations for items so they can be retrieved quickly and put away easily as well as only maintain the quantities needed for an efficient operation.
3. Shine – Everyone is responsible for keeping the workplace clean – from operators to supervisors.
4. Standardize – Implement visual displays and controls. Color-coding, signage, and labeling fall under this category.
5. Sustain – Keep in place through training and total employee involvement. This denotes the commitment to the process and constant diligence to maintain the status quo and improve upon it.

Using the 5S method, the staff in UW-Stout's Physical Plant was able to:

- Sort out all the unneeded items and discard the items or send them to surplus;
- Arrange the items of value by type (electrical, plumbing, etc.) and locate them within a specific area of the warehouse;
- Make the locations visual by developing signage and labels;
- Designate an area for items which are returned from jobs so that disposition of the items can be made immediately;
- Designate areas for new projects so that purchased items may be gathered there until items are needed on the job site;

- Reduce employee stress with less time spent looking for parts.

Purchasing PC's for the staff was beneficial in helping them maintain order. There is also a plan for a scanning system for easy re-ordering and identification of parts.

### **Implementation**

The Lean process at UW-Stout started with training through the Northwest Wisconsin Manufacturing Outreach Center located on campus. After identifying our priority projects, one of their trainers sat down with each group of people – supervisors through line workers – to make a map of the current process. This is called Value Stream Mapping and is used to help identify opportunities for improvement. It's important to clearly define the current steps, delays, and information flow required to deliver the target service and then the future map is redefined by getting rid of the non-value added processes. The changes were done with the end result always in mind.

Once the groups had defined their future map for their projects and began implementing the changes, the opportunity to meet with their trainer for additional mentoring was always an option.

We have been fortunate in that we have commitment for this process not only on our own campus, but also at the UW System level. Once staff has been involved in the process and starts seeing the potential for change, the excitement is contagious. We expected to have some resistance to change – and there was some resistance - but overall the response has been

very gratifying. The more that is accomplished with Lean in the identified projects, the more projects are identified for the Lean process.

The one thing that must always be kept in mind is that Lean really isn't effective if viewed as a point solution. It is a process that is applied to all areas of business. It is a philosophy of making continuous, small changes over time.

While the individual projects had varying timelines, it's important to remember that one of the key premises of Lean is that the work is never really done. It takes diligence to maintain change, and projects are always open to being tweaked to accommodate changes in the environment, customer base, etc.

One of the biggest perceived barriers is the need to work around certain rules and regulations – particularly with the classified hiring project. There are some things that cannot be changed and need to be worked around. The group has not allowed that to stop them, however, and have been persistent in finding ways to work around them and change what we have the power to change.

### **Benefits**

One of the most prevalent benefits of introducing Lean at UW-Stout has been the positive reaction from the staff involved. It is not unusual when discussing a project that needs to be revamped to hear one of the staff say, "We should apply Lean to this." With the identified projects, it was necessary for the people involved to come together as a team. When everyone has a hand in the change and can firsthand view the results of their work, they work much more cohesively.

Lean is all about working smarter, not harder. Getting rid of non-value-added steps has reduced the amount of time involved in the projects, freeing staff up for other projects. Projects also run more smoothly when the materials needed are right at hand which results in less stress and positive customer response.

Lean also sets the stage for a positive outlook. When reviewing projects with the Value Stream Mapping process, staff is taught to take a non-judgmental, learning approach (because blame is a waste of time) and to re-examine the assumptions that resulted in the current process.

When asking why we do things a certain way, how many times have all of us heard, “Because we’ve always done it that way.” By coming together as a team to review our assumptions, it’s been freeing to understand that staff really can make a difference. Lean has given our staff a sense of accomplishment and motivation. Plus, as we move along in the process, it is making their jobs easier.

Customers can see a clear difference between the quality of the work and a time differential. Jobs are getting done at a much faster rate, and it’s easier for customers to access, especially with the work orders.

Part of the reason for adapting Lean principles is its focus on continual review. We will not be satisfied with changing a process and then sitting on our laurels but will constantly be reviewing the process to improve.

UW-Stout has charted the differences made when the Value Stream Mapping technique was applied to the **Reduce time it takes to hire classified (civil service) staff** project and the **Physical Plant’s Maintenance Work Order Process**. The chart below demonstrates the clear cost and time efficiencies:

Project	Project Scope/Goals	Number of People Trained	Method	Current State	Future State
Human Resources Reduce Time it Takes to Hire Classified (Civil Service) Staff	<ul style="list-style-type: none"> <li>Identify and eliminate waste from the process</li> <li>Reduce lead time</li> <li>Improve % complete and accuracy</li> </ul>	12	Value Stream Mapping	<ul style="list-style-type: none"> <li>Lead time with exam: 84.5 days</li> <li>Process time: 16.5 hours</li> <li>Lead time without Exam: 42 days</li> <li>Process Time without exam: 7.3 hours</li> <li>Process Steps: 30</li> </ul>	<ul style="list-style-type: none"> <li>Lead time with exam: 57 days</li> <li>Process time: 28.1 hours</li> <li>Lead time without exam: 40 days</li> <li>Process time without exam: 7.3 hours</li> <li>Process Steps: 22</li> </ul>
Physical Plant Word Order Process	<ul style="list-style-type: none"> <li>Improve response time for requests</li> <li>Reduce work order process time</li> <li>Improve data entry and collection</li> <li>Move toward a more productive system</li> </ul>	16	Value Stream Mapping	<ul style="list-style-type: none"> <li>Admin support process time: 2.15 days</li> <li>Lead time: 27 minutes</li> <li>Data collection and chargeback process time: 23.65 days</li> <li>Lead time: 17.7 minutes</li> </ul>	<ul style="list-style-type: none"> <li>Admin support process time: .5 days</li> <li>Lead time: 18 minutes</li> <li>Data collection and chargeback process time: 7.56 days</li> <li>Lead time: 8.5 minutes</li> </ul>

It’s important to note that the hiring process improved its lead time with exam (time from the minute it’s announced there’s a hiring need to the actual hiring of the staff) by 33%.

The process time (time needed to actually do all the paperwork) increased because Human

Resources staff has petitioned UW System to change the delegation process, resulting in slightly more work for the staff. However, this is preferable as it gives UW-Stout the ability to manage that process in-house and reduces lead time by at least 3 days in the hiring process. The staff was also able to improve lead time without exam by 27%, and cut back on the number of steps required to hire by 8 steps.

The Physical Plant's Work Order Process was able to decrease the administrative support process time needed by 77%; and the data collection and chargeback process time by 68%. This greatly improved customer satisfaction.

### **Retrospect**

UW-Stout is perfectly positioned to best benefit from utilizing Lean, primarily because of our close working relationship with Northwest Wisconsin Manufacturing Outreach Center (NWMOC) located on campus. But we are also actively involved in Lean at the UW System level. All projects have a much better opportunity to succeed when there's a shared philosophy at the highest echelons of an organization. Utilizing Lean at all levels in the System is a better use of our organization's assets while providing superior customer service. Lean's focus is always on maximizing customer value which becomes the responsibility of every employee in the organization. Everyone is looking for the smallest amount of waste so they can work better, not harder.

We are in the beginning stages of realizing the Lean philosophy. But as we move through projects and others see the pride of the employees involved, it is easy to see how the philosophy will permeate everything we do.

Lean is a nationally recognized philosophical and production process which assists in the identification and steady elimination of waste in the workplace. All that is required for any organization to implement Lean is training. UW-Stout has paid \$6,000 per project for training and project support, but once the processes are inducted into everyday thinking, there is no additional cost to identify non-value added work, only potential savings.