

Office of Continuous Improvement

Annual Report

Fiscal Year 2016

This report is a summary of the continuous improvement activities on the campus of Michigan Technological University for the 2016 fiscal year.

Office of Continuous Improvement (OCI) Mission Statement

The mission of Michigan Technological University's OCI is to provide exceptional value to the university by spreading a continuous improvement culture using Lean principles administratively, experientially, and academically through faculty, staff, students, and the Lean community.

OCI Activities for Fiscal Year 2016

OCI conducts activities in three areas. First, it advises, encourages, and supports Michigan Tech students and the Leaders in Continuous Improvement (LCI) student organization on their Lean journey. Second, OCI provides consultation and education on Lean thinking to the academic units as they create a Lean culture and curriculum and to administrative units as they improve the efficiency and effectiveness of their processes. Third, it forms a central hub for training, coaching, and improvement activities to enrich and optimize the university workforce and the community. The work of OCI directly supports the major goals in Michigan Tech's [Strategic Plan](#) by contributing to multiple subgoals. For an extended description of OCI activities, please see the Board of Trustees [Updates](#) on the Michigan Tech website.

1. Advise, encourage, and support Michigan Tech students and LCI.

- Provided Lean overview to Blue Marble Enterprise
- Created two Lean academic courses for students
- Connected guest speakers from Lean organizations with students
- Delivered classroom presentations on overview of Lean and continuous improvement including Lean at Michigan Tech
- Successfully connected a Michigan manufacturer who had a Lean internship position with an LCI student
- Included students in campus Rapid Improvement Events
- Provided advisor, support, and resources for LCI
- Guided, supported, and trained student process improvement coordinators to work collaboratively with campus Lean facilitators

2. Provide consultation and education on Lean thinking to academic and administrative units.

- Facilitated Rapid Improvement Events in support of:
 - The Provost's office dual career function, Graduate School student forms, faculty working to create the infrastructure to support the development of a National Science Foundation ADVANCE research grant, and the curriculum binder process for new course proposals

- The Van Pelt and Opie Library's Archives, Digital Commons responsibilities, hardcover book returns, and shared network drives
- Human Resources' payroll, workforce statistics, and employment eligibility verification
- Housing and Residential Life's adult summer programs and residence hall wayfinding
- Dining Services' catering storage and student hiring
- Facilities Management's purchasing process to fulfill work-order parts requirements
- The Vice President of Administration's promotional item ordering and distribution

For more information on these improvements, see [Table 1, Curated List of Rapid Improvement Events](#), below

- Linked School of Business and Economics faculty with Lean Accounting Summit scholarship opportunity
- Connected Engineering Fundamental lecturer with Lean Product Development instruction

3. *Develop and engage our workforce and community.*

- Trained new cohort of 14 campus Lean Facilitators
- Supported jointly sponsored event with the Michigan Lean Consortium and local manufacturer, Pettibone, to benefit community knowledge and growth in Lean
- Encouraged several Michigan Tech employees as they presented their department's Lean improvements at state and national conferences
- Delivered Lean overview at Michigan Tech's New Huskies Employee Orientations
- Managed Copper Country Lean Group meetings
- Delivered Lean module for UAW Certification Program
- Delivered basic Lean Principles workshop to Michigan Tech employees
- Provided presentation on Lean culture to Hancock Rotary Club
- Contributed to Lean community via social media, including twitter and a blog with frequent guest bloggers
- Facilitated campus Rapid Improvement Events, as shown in [Table 1, Curated List of Rapid Improvement Events](#), below
- Brought in distinguished guests to provide lectures and workshops to the campus and community
- Presented on Lean and continuous improvement topics to a variety of campus organizations
- Supported monthly report outs for Auxiliary Services
- Provided continuing education and training to campus Lean Facilitators

Office of Continuous Improvement
Table 1. Curated List of Rapid Improvement Events

Event Name	Sponsoring Department	Event Description	Results	<u>University Strategic Goals</u>
Limiting Inconsistent Application of HR Data	Human Resources	Inconsistencies in data entry were causing errors in HR records.	Established new workflow. Assigned responsibility for accurate data. Appointed person to research data inconsistencies to find and eliminate errors at their source.	1.3.1 1.3.2
Map Promotion and Tenure Process	Provost and Vice President for Academic Affairs	The schedule of deadlines in the tenure and promotion process was a source of confusion. It was difficult to understand the schedule of deadlines to ensure nothing was missed.	Created list of guidelines for faculty going up for tenure and promotion. Created single timeline of events. Clarified memo language to reduce misunderstandings. Partnered with academic HR to ensure common form usage and eliminate duplication of effort.	1.1.2 1.3.1 3.1.4
Missing Books	Van Pelt and Opie Library	No process existed for reporting and replacing missing library books.	Developed standard process for reporting and replacing missing books.	3.1.5
5S Catering Storage Room	Dining Services	The catering storage area was unorganized and contained equipment and supplies that were never used.	Applied the 5S organizational tool. Purged unused equipment and supplies. Organized space with only items needed by catering.	1.3.1
Keweenaw Professional Jobs Network	Provost and Vice President for Academic Affairs	Attracting and retaining professionals to the Keweenaw was challenging for many of the organizations.	Launched community group with common interest in attracting and retaining talent. Identified needs, resources and goals. Prioritized interest areas and established next steps.	1.1.2 1.1.3 3.2.2
Simplify Form I-9 Flow	Human Resources	Filing of employment eligibility verification form I-9 passes through many people creating long processing times and holding up the processing of electronic personnel action forms and status forms for employees.	Decoupled form I-9 processing from the processing of employment paperwork. Standardized delivery method of form I-9 from departments. Performed bi-weekly audits to determine the number of employees working without a processed I-9. Established escalation plan for notification of missing paperwork.	1.2.2 1.2.4 1.3.1

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Table 1. Curated List of Rapid Improvement Events

Event Name	Sponsoring Department	Event Description	Results	<u>University Strategic Goals</u>
Manual Time Sheet Errors	Human Resources	Incomplete and inconsistent entries led to many re-work loops and delays.	Created timekeeper training to fill gap in timekeeper knowledge. Developed more and better defined instructions on the manual time sheet form itself.	1.3.1 1.3.3
MTU Filmboard Student Organization Use of the Projector in Fisher Hall	Students	Filmboard students did not know who to contact when they experienced problems with the projector in Fisher 135.	Put instructive labeling on applicable breakers and switches. Changed process to lower projector earlier, when both facilities and IT are available to respond quickly.	1.1.1 1.1.3 1.2.1 2.2.2 2.2.5
Wadsworth Hall Signage	Housing & Residential Life	Visitors to Wadsworth Hall were often confused when entering and unable to find where they needed to go.	Created self-explanatory signage system that allowed visitors to make their way through the building with minimum effort.	1.3.1 3.1.5
Library Archive Binders	Van Pelt and Opie Library	Lack of organization for binders created waste of time looking for binders, unnecessary duplications, and pages missing.	Developed organization scheme. Created a key, replaced worn binders, and designed a standard binder label. Developed monthly audit to sustain the new process.	1.3.2 3.1.5
Library Digital Commons	Van Pelt and Opie Library	Publishing the work of Michigan Tech's faculty into the university's digital institutional repository was difficult. Copyrighting, uploading, and publishing was complex due to many options.	Created a visual management board that captures citation metrics and required effort. Helped both employees and supervisors understand the workload, and enabled the team to accurately report progress.	1.3.3 3.1.2
Payroll Process for Student Hires	Dining Services	Once a student was hired and working it took a long time to process their payroll documents leading to delays in payment.	Developed a dining services hiring resource page and spreadsheet to track paperwork completion. Kept all returning students on payroll. Held job fair in spring to get students on payroll before the fall rush.	1.1.1 2.2.1

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Event Name	Sponsoring Department	Event Description	Results	<u>University Strategic Goals</u>
Facilities Purchasing Process	Facilities Management	Employees made own purchases leading to charges being missed on work orders, incorrect invoices, and lack of reallocation to work orders. Time was being wasted in correction and money was not being recovered.	Compared best practices across departments and adopted and spread existing standards. Reduced rework and improved billing.	1.3.1 1.3.3
Adult Summer Programs	Housing & Residential Life	Lack of a consistent process and standards between facilities, dining, and housing were causing customer needs to not be met.	With the process streamlined and standards developed, more time was available for other summer projects. Reduced the number of last minute changes for dining and facilities.	1.2.1 1.3.1 1.3.3 3.2.2
Library Drive 5S	Van Pelt and Opie Library	The drive lacked consistent name of files, many versions of the same file, and access restrictions. This created difficulty in finding required files.	Developed criteria for file retention and standards for file naming. Purged unnecessary and outdated files. Established sustainability plan.	1.3.1 1.3.3
Curriculum Binder Process	Provost and Vice President for Academic Affairs	Cumbersome paper intensive process required large storage and prep area, thousands of pages, massive binders to contain largely reference materials, and hours of assembly time.	Significantly reduced printouts by committing to PDF products for reference materials. Eliminated rework on course descriptions by creating a form that limits character entry to the space available.	1.2.1 2.2.1
Graduate School Forms	Graduate School	There were many variations of student forms with repeating information, and the forms didn't always work properly.	Audited form requirements. Eliminated information requirements that were repetitive or were no longer needed because of system changes.	1.1.1 2.2.1
Promotional Item Process	Vice President for Administration	Promotional item selection was difficult and time consuming. Employees were confused about the item selection process and delivery. The time line for the process wasn't standard, making it difficult to place/receive orders on time.	Reinforced and supplemented communications about process and deadlines. Shifted ordering and distribution so that orders are placed in the spring and delivered in the early fall.	1.1.2 1.2.2

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Event Name	Sponsoring Department	Event Description	Results	<u>University Strategic Goals</u>
ADVANCE Grant Kaizen #6 –Implementation	Provost and Vice President for Academic Affairs	This was the final kaizen in the development of the ADVANCE grant proposal. All of the data collection and faculty hours from the previous five kaizens converged in this event which focused on an implementation plan to sustain the momentum.	Identified leaders/key participants for each main implementation area. Organized by both topic area and functionality via matrix approach. Decided on optimal process for qualitative and quantitative data to inform programs/interventions in each area. Solidified ownership of programs. Initiated the Advanced Matrix Process for University Programs (AMP-UP)	1.1.3 1.2.2 1.2.4 1.2.3 2.1.2

Office of Continuous Improvement
Table 2. Alignment with University Strategic Goals

Strategic Goal Alignment: Michigan Tech has a strategic plan which helps align the daily activities of the university. Continuous improvement using Lean principles aids in this effort.

 Indicates a strategic plan subgoal supported by OCI.

[University Strategic Goals Website](#)

University Strategic Goals:

Goal 1: An exceptional and diverse community of students, faculty, and staff.

1.1: Exceptional academic and professional community.

1.1.1: Recruit, support, recognize, and graduate bright, motivated, and adventurous students.

1.1.2: Attract, retain, and support faculty and staff by providing recognition, rewards, and competitive compensation.

1.1.3: Provide professional development and leadership opportunities for students, faculty, and staff.

1.2: Diverse, inclusive, and collegial environment.

1.2.1: Promote inclusiveness and collegiality through openness, engagement, mutual respect, and understanding of diverse perspectives.

1.2.2: Provide a rich cultural environment and a welcoming campus.

1.2.3: Develop and implement initiatives to increase the diversity of students, faculty, and staff.

1.2.4: Pursue opportunities for dual-career faculty and staff.

1.2.5: Enhance work-life blending for all members of our community.

1.3: Exceptional services and infrastructure.

1.3.1: Promote a university-wide culture of safety, responsiveness, effectiveness, and efficiency.

1.3.2: Provide exceptional technology, library, and laboratory facilities that support education, research and innovation.

1.3.3: Create an aesthetic, sustainable, and effective infrastructure.

Goal 2: A distinctive and rigorous action-based learning experience grounded in science, engineering, technology, sustainability, business, and an understanding of the social and cultural contexts of our contemporary world.

2.1: Integration of instruction, research, and innovation to achieve the University Student Learning Goals.

2.1.1: Provide research, service-learning, project-based, entrepreneurial, and international opportunities for students.

2.1.2: Promote mutual appreciation and collaborative opportunities across academic disciplines.

2.1.3: Continually review and update existing programs and develop new offerings in emerging disciplinary and interdisciplinary areas.

2.2: Transformative educational experience grounded in a residential-based technologically-rich learning environment.

2.2.1: Encourage and support high quality, innovative, and effective instruction and experiences to enhance student learning.

2.2.2: Contribute to students' development and application of critical thinking skills, creativity, leadership,

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- collaborative skills, and ethical reasoning.
- 2.2.3: Enhance student learning through activities that promote long-term physical and mental health.
- 2.2.4: Foster healthy relationships and the ability to productively manage conflicts.
- 2.2.5: Enhance students' communication skills as well as information, technology, and global literacies.
- 2.2.6: Encourage social responsibility and the understanding of public policy issues.
- 2.3: Education that responds to the needs and challenges of the 21st century.**
- 2.3.1: Expand Ph.D. and master's enrollments, degrees awarded, and scholarly productivity.
- 2.3.2: Improve access via non-traditional delivery of graduate programs.
- 2.3.3: Promote lifelong learning by providing opportunities for continuing education using appropriate delivery models.

Goal 3: Research, scholarship, entrepreneurship, innovation, and creative work that promotes a sustainable, just, and prosperous world.

3.1: Growth in research, scholarship, and creativity.

- 3.1.1: Increase external support for research, scholarly, and creative activities.
- 3.1.2: Recognize and reward our accomplishments and promote them both internally and externally.
- 3.1.3: Encourage and support interdisciplinary activities.
- 3.1.4: Cultivate a community of research inspiration, productivity, and excellence.
- 3.1.5: Increase development and optimize maintenance of shared research facilities, library resources, equipment, and infrastructure.
- 3.1.6: Facilitate coordination of research activities to address problems of social significance.
- 3.1.7: Improve efficient management and administration of externally funded activities.

3.2: Economic and social development and innovation.

- 3.2.1: Create a culture of responsible innovation and entrepreneurship and expand entrepreneurship in undergraduate and graduate programs.
- 3.2.2: Support workforce development and social engagement through collaborative outreach and technology transfer.
- 3.2.3: Encourage and support technology commercialization and start-up businesses.
- 3.2.4: Expand international and cross-cultural engagement with universities, industries, non-governmental organizations, and governments.