



Continuous Improvement Using Lean Principles

Fiscal Year 2013 Report

**Kaizen Improvement Events**

Event Name	Sponsoring Department	Event Type*	Description	Results	Estimated Annual Savings**
Graduate Application Compilation Process	Graduate School	Delivery	A graduate admissions team review of the application process with a focus on identifying areas for improvement	<ol style="list-style-type: none"> <li>1.) Identified most time consuming part of application processing, validated EAS plan to reduce over processing time for this component of the application by 15%.</li> <li>2.) Increased security through the reduction of the personal data being emailed.</li> <li>3.) Reduced waiting time for departmental reviewers and graduate applicants and increase quality assurance.</li> <li>4.) Better utilization of graduate admissions staff capabilities and time.</li> <li>5.) Reaffirmed that the graduate admission team has incorporated Lean principles into their daily operations.</li> </ol>	
Residential Dining ID Check Stand	Dining Services	Cost	Further automation and cost savings, while increasing timeliness for the end users.	<ol style="list-style-type: none"> <li>1.) Revised Dining Hall policies to be included in student hand books.</li> <li>2.) New training to be developed for Dining Services staff.</li> <li>3.) New visual controls with standardized methods for dealing with enforcement of Dining Hall policies.</li> <li>4.) Surveillance cameras to be installed in Dining Halls.</li> <li>5.) Public Safety, Judicial Services and IT are now part of regular meetings to help improve Dining Hall security and loss prevention.</li> <li>6.) New technology to be purchased to accurately verify ID cards.</li> </ol>	\$39,000
I-9 Process Mapping	Human Resources	Quality	Documentation of the entire value stream (current state) with a zoomed-out view. Our goal is to get the process on paper – getting the whole team involved – to identify improvement opportunities and to prioritize the high risk areas.	The process map illustrates the current state of the I-9 storage locations and workflow process and will serve as a base to develop new best practices.	
Mont Ripley Process Mapping	Mont Ripley	Quality	Identify non-value added steps that may exist in processes at Mont Ripley, focusing on guest pathways.	<ol style="list-style-type: none"> <li>1.) A process map has been created illustrating the pathways of Mont Ripley's typical guests in preparation to access the slopes. The map will serve as a basis for further improvement events.</li> <li>2.) The need for 5S has been identified and an event is scheduled for Oct 9, 2013.</li> <li>3.) Guest pathways within the Chalet to be optimized and signs directing guests in and around Chalet to be updated to improve customer service.</li> </ol>	
Interlibrary Loan (ILL) Lending Process	J. Robert Van Pelt Library	Quality	The ILL Lending process was recently transferred to Access Services. Due to a staff retirement and new staff hires, a Kaizen event was organized to bring a team together to resolve questions pertaining to functions - what's working, what's not working (waste), and why we do it.	<ol style="list-style-type: none"> <li>1.) Identified an opportunity to eliminate future waste: Technical Services will create a report and send to RAPID showing all items that the Library does not have a subscription for. This will eliminate requests that they do not own or have access to.</li> <li>2.) Staff gained confidence that the process was not "lost" in transition.</li> <li>3.) Identified that the current documentation/training was effective. Small changes were made in areas such as resolving Connection Manager errors and charging of material.</li> <li>4.) Identified a need for more training on errors and issues for graduate student staff.</li> </ol>	

Fryer Oil Improvement	Dining Services	Cost	While reviewing the purchasing schedules it was identified that Wadsworth Hall was using an excessive amount of fryer oil, relative to Douglass Houghton Hall and McNair Hall.	<ol style="list-style-type: none"> <li>1.) Team identified that fryer oil was being changed out every 7 days, on Saturdays. After collecting data, it was identified that the oil quality was good for roughly 10 days.</li> <li>2.) A new procedure was established, utilizing an oil tester to determine when to change the oil.</li> <li>3.) The team further experimented with many variables, including type of oil purchased, filtering frequency, etc. The data collected proved it was more cost effective to purchase a higher quality oil which lasted closer to 20 days.</li> <li>4.) Oil is changed 15 fewer times each academic year, saving 15 student labor hours.</li> <li>5.) For academic year 11-12 Wadsworth kitchen purchased 2,400 gallons of fryer oil at a cost of roughly \$11,500. After making the above changes, in academic year 12-13 they purchased 1,270 gallons of fryer oil at a cost of roughly \$7,750.</li> </ol>	\$3,850
Charitable Gift Annuity (CGA) Process	Office of Development	Delivery Quality	Charitable Gift Annuities are a type of life-income gift. They are popular among donors, and often lead to additional annuities or larger bequests. Currently, the Michigan Tech Fund holds over \$5.5 million in annuities for living annuitants. Each illustration or funded annuity must be customized to the individual donor. The retirement of the gift planning manager resulted in gift annuity illustrations done by staff new to the process. This change added a considerable amount of time to process annuities and illustrations.	<ol style="list-style-type: none"> <li>1.) Shortened the average illustration and annuity processing time from two hours to 30 minutes, containing an estimated 45 hours of staff time per year.</li> <li>2.) Documented a standardized CGA process to shorten the learning curve and support faster processing of annuity illustrations.</li> <li>3.) Standardized data entry sheet was created, aiding in fewer errors, omissions, and calls back to donors for more information saving time and building donor confidence.</li> <li>4.) The team documented the procedure and created twelve (12) templates. Legal document templates and state regulate process templates aid in reducing legal risks.</li> <li>5.) Knowledge file exists for staff members who fill in to carry out the process.</li> <li>6.) Reduced paper required per annuity and illustration.</li> </ol>	\$1,400
Navigating the MUB for guests	Memorial Union Building	Quality	Customers of the Memorial Union Building have a difficult time finding meeting rooms due to the building's unique layout, multiple entrances (10) and inconsistent and outdated signage. This causes excess motion and frustration for the customer and work interruptions for the MUB staff.	<ol style="list-style-type: none"> <li>1.) Removed all outdated signage to reduce customer confusion.</li> <li>2.) Established standard room names and numbers for all meeting rooms.</li> <li>3.) Developed a building directory and visual signage for all entrances and meeting rooms.</li> <li>4.) Created and distributed customer service packets to all areas in the MUB to assist staff in routing customers to their meeting rooms.</li> </ol>	
Dining Inventory "Red Tag Room" Project	Dining Services	Cost	Dining Services has equipment stored in nine rooms (four buildings) on campus; occupying 4,400 square feet of storage space. There is a lack of knowledge of the inventory in these spaces which leads to purchasing new items when existing inventory is available. There is a lot of outdated, broken or excess inventory; wasting the valuable storage space.	<ol style="list-style-type: none"> <li>1.) Established sorting criteria for inventory and piloted the criteria on a few rooms.</li> <li>2.) Cleared and established a central location for seasonal items to be stored.</li> <li>3.) Removed all items that are not needed and sold the excess inventory, a \$750 profit.</li> <li>4.) Created a list of items that remained in the sorted rooms.</li> <li>5.) Established a plan to tackle the remaining rooms and implement a tracking system in Fiscal Year 2014.</li> <li>6.) Identified an auction process for future auctions of larger, high-cost kitchen inventory.</li> </ol>	\$750
Building Cleanliness	Memorial Union Building	Quality	The Memorial Union Building has five full-time custodial staff, working multiple shifts, with minimal overlap. This is resulting in a lapse in cleaning of certain areas and confusion for completing seasonal projects resulting in unsatisfactory building cleanliness and customer complaints.	<ol style="list-style-type: none"> <li>1.) Established standard daily, weekly, monthly and seasonal duties for proper building cleanliness.</li> <li>2.) Created a visual system to convey duties to all staff, which incorporates communication among shifts.</li> <li>3.) Creating audit system to insure that all duties are done daily, weekly, monthly, and seasonally as needed.</li> <li>4.) Developed a standardized location for staff to have communication, mail boxes, use of computer for web time entry and email checking.</li> </ol>	
Utilization of Student Staff	Human Resources	Quality	A lack of knowledge of student schedules and a process to submit work is resulting in an overwhelming amount of work to be performed and underutilization of student staff.	<ol style="list-style-type: none"> <li>1.) A process and a work request board have been developed for Human Resources staff to submit projects for student staff. All information is available to the student to fully carry out the project.</li> <li>2.) A task board for daily, weekly and monthly duties is being utilized by the students to plan work during their shifts and amongst themselves.</li> <li>3.) Student projects are being reported on at the Human Resources daily huddle to promote the new process.</li> </ol>	

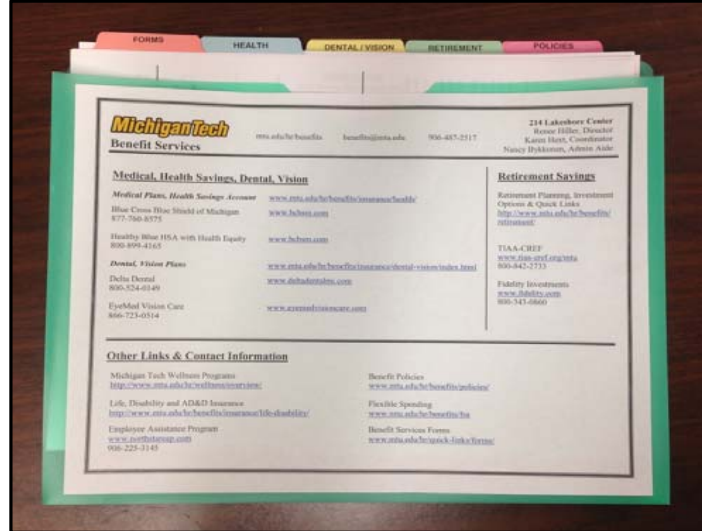
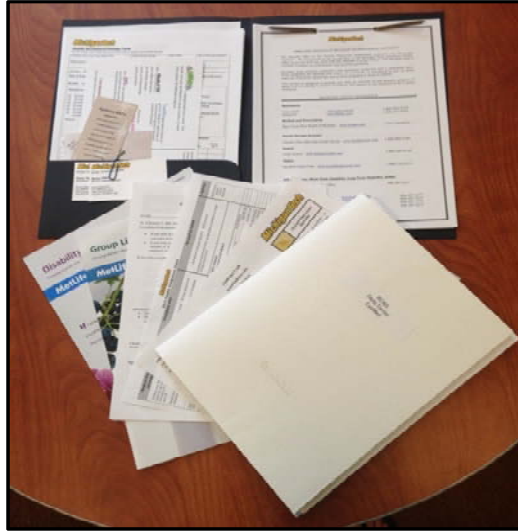
Duplicate Persons in Banner	Administrative Information Services	Quality	Data downloads and manual entry into Banner create duplicate people/ID's. Staff manually respond to each instance by researching the duplicates to combine down to one record. The longer a duplicate exists, the more time that is required to fix them.	<ol style="list-style-type: none"> <li>1.) New multi-stage matching rules and file load standards were created for the data load process, reducing duplicate creation as well as causing fewer suspend records requiring manual review.</li> <li>2.) Results of testing these changes: TOEFL files went from 22% suspended to 6%, GRE files went from 13% suspended to 6%, and an annual large data load of 15,304 records went from 11% suspended to 1.6% suspended.</li> <li>3.) There have been 68 fewer duplicates so far in 2013, freeing up nearly 34 hours for other projects.</li> </ol>	\$1,360
Engineering Services Project Close Out	Facilities Management	Quality	Engineering project files provide valuable information that is often needed after a project's completion. Current filing is unmaintained resulting in missing information and too much unnecessary information. This causes the engineer to make a decision without information or waste a considerable amount of time to locate or recreate the information.	<ol style="list-style-type: none"> <li>1.) Identified 20 documents should be saved for every project.</li> <li>2.) Established a standard practice to electronically save these documents in one central file and maintain hard copies in one file folder.</li> <li>3.) A tracking list was developed to audit the new standard practice for each project.</li> <li>4.) Director of Engineering Services and Administrative Assistant monitor the tracking list. Projects are not considered closed out until the checklist is completely filled out.</li> <li>4.) List is equipped with hyperlinks to immediately find any saved documents as they are needed.</li> <li>5.) Old project files are currently be cleaned up to meet the new filing standard.</li> <li>6.) New filing standard has reduced storage needs by 40%.</li> </ol>	
Energy Usage	Golf Course	Cost	The Golf Course spends between \$8,000 and \$13,500 per year on fuel. The usage varies year to year and a more consistent forecast needs to be identified for budgeting.	<ol style="list-style-type: none"> <li>1.) Identified that the rough mowing is the main expense in regards to fuel.</li> <li>2.) Recorded data on how much time is needed, the mowing sequence, and the fuel consumption for mowing the roughs.</li> <li>3.) Adjusted mowing patterns to eliminate excess movement and idling, estimated to save \$500 in fuel costs and \$1000 in salary containment each season.</li> <li>4.) Improved course quality due to less time mowing and freed time for special projects.</li> </ol>	\$1,500
Network Drive 5S	Human Resources	Quality	Lack of organization and maintenance of the office network drive is slowing the response time to locate files and causing staff confusion and frustration. At the time of kaizen initiation, the department had maxed their storage limit.	<ol style="list-style-type: none"> <li>1.) Organized a sorting event to engage all staff in purging outdated files, folders, and eliminating duplicates.</li> <li>2.) Developed a standard set of root folders that reflects the department as well as standard for naming and filing documents.</li> <li>3.) Prior to event, 208 items were in the drive, now there are only 18. This 91% decrease provides a clean and user friendly interface.</li> <li>4.) Reduced the network storage needs by over 50%.</li> </ol>	
Tech Fit Process	Human Resources	Quality	TechFit is a benefit that provides a monetary allotment to employees for wellness activities. Employee and vendor confusion on submitting requests for the TechFit benefit results in 38% of vendor invoices with errors, 2.6 times more administrative time to process invoices with errors, and frustration for all parties involved.	<ol style="list-style-type: none"> <li>1.) Identified the areas of confusion for employees and vendors.</li> <li>2.) Updated the TechFit request to eliminate confusion and invoice errors.</li> <li>3.) Created information sheets for vendors to properly submit invoices.</li> <li>4.) Reduced the number of incorrect invoices due to overspending TechFit balances, missing M numbers, and requests for non-qualifying dependents.</li> <li>5.) Reduced processing time for administrative staff due to the reduction in invoices with errors.</li> </ol>	
Temporary Employee ISO Process	Human Resources	Delivery	A lack of a standard process for temporary employees to obtain and understand their ISO login information is resulting in delays in electronic processes that require use of this information (i.e. electronic payroll) and frustrated employees.	<ol style="list-style-type: none"> <li>1.) Developed standardized communication/instruction on the ISO for departments to educate temporary employees on it's use.</li> <li>2.) Removed waste and defined the process for employees to obtain their ISO credentials.</li> <li>3.) Reduced ISO confusion for new employees.</li> <li>4.) Developed communication between HR and hiring department on when their employee is set up in the system.</li> </ol>	
Central Tape Backup Dropped Paths	Information Technology	Quality	Tape backup unit would report dropped paths to central storage each morning which necessitated manual restart of that night's backups, consuming many hours per day to manage.	<ol style="list-style-type: none"> <li>1.) A concerted effort was made to use a problem solving template to guide the Backup Services team to troubleshoot, find, and resolve the root cause of the dropped paths.</li> <li>2.) Contained 1-5 hours each day, depending on the number of dropped paths.</li> </ol>	\$21,200

Credit Card Purchases and Reallocations	J. Robert Van Pelt Library	Quality	The Library makes an average of 150 credit card purchases each month. Various record-keeping methods are contributing to missing receipts and delayed information to effectively reallocate the purchases. In December 2012, 16 receipts were missing at the time reallocations needed to be made.	1.) A standardized system was developed for all Library card holders and users. 2.) Designated one purchasing agent for all office supplies. 3.) Eliminated the reallocation approval at the Director level (non-value add). 4.) Significantly reduced the number of handoffs and questions that were related to the non-standard process. 5.) After changes were implemented, a 90% reduction in missing receipts was attained. Thus, the time needed to search for missing the receipts was drastically reduced (containment of 4-6 hours per month).	\$1,500
Cap and Gown Shuffle	Merchandising	Delivery	Grad Fest is an event designed specifically for cap and gown pick-up. For Spring 2013 roughly 30% of graduates attended resulting in inventory control issues and frequent interruptions during the Spring 2013 semester. This also resulted in multiple places for and movement of inventory, running out of inventory, and last minute orders that require expedited shipping.	1.) Designated one space for the cap and gown inventory to eliminate excess movement and provide a quick customer interaction. 2.) Established a standard ordering cycle, timeline, and late order policy. 3.) Developed communication plan for graduating students which will include the ordering timeline and late order policy. 4.) Redesignated Grad Fest to collect graduate measurements for cap and gown ordering with packaged distribution when product is received. 5. Changes will be practiced in December 2013 and are anticipated to provide a better customer flow and a reduction in late orders	
Box Office Ticket Sales Standardized Work	Rozsa Center	Delivery	Ticket sales for University events are very customized and typically processed by students who come and go each semester and work irregularly. Training new students within the complex system can take weeks and is extremely burdensome on the employees.	1.) Identified the quick sale process as the easiest way to introduce someone new to the complex ticket sale system 2.) Developed and experimented with a training guide to train new staff on processing a quick sale 3.) Anecdotal data supports that the training aid has been successful in providing entry level experience using the complex system and serves as a great foundation to move on to the more complex features of the system.	
Otter River Cabin Key Management	School of Forest Resource and Environmental Science	Cost, Delivery	The Otter River Cabin can be reserved by staff, faculty, students and alumni. No effective method for key delivery or pick-up is causing excess time for coordination, wasted time, additional fuel costs, and confusion among guests.	1.) Public Safety and Police services agreed to administer the key, eliminating staff time and fuel costs to deliver and collect the key. 2.) New process now allows 24/7 access to key for customers. 3.) Key requests are now tracked, there is an average of 5 to 6 requests per month. 4.) Outlined future steps to incorporate controls and actions for lost/unreturned keys.	\$3,700
Otter River Cabin Reservation and Data Management	School of Forest Resource and Environmental Science	Quality	The Otter River Cabin can be reserved by staff, faculty, students and alumni. Numerous methods (seven identified) to reserve the Otter River Cabin result in overbooking, a lapse in Cabin management, and a loss of data for tracking Cabin use.	1.) Established an online reservation form to reduce confusion and double bookings. 2.) Updated user guidelines/rules to include key policy. 3.) Established a customer survey and evaluation form. 4.) Implemented a customer database for feedback and contact information, which will also aid in sources of funding and volunteers for cabin maintenance. 5.) Set standards for students groups to reserve Otter River Cabin.	
Sponsored Programs Invoicing Process	Sponsored Programs Accounting	Delivery	Numerous handoffs and inefficiencies from the monthly generation of invoices to the submission of the invoice to the sponsor are causing delays of cash flow, staff frustration and labor & paper waste.	1.) Reconfiguration of office layout to aid in material handoff. 2.) Delayed online submission until after invoice review to eliminate excessive handoffs. 3.) Changed sort criteria on printed invoices to submit them in order of priority. 4.) Saved one ream of paper per month by converting Grant Reports to PDF files. 5.) Eliminated the generation of invoices with a zero balance, which eliminates about 35 invoices being handled each month. 6.) Standard process developed when invoices require supporting documents from PIs. 7.) Along with other small changes, these improvements eliminated an estimated 15 hours of support staff and billing coordinator time each month.	\$2,800
<b>Total Estimated Annual Savings** for Fiscal Year 2013 Improvements</b>					<b>\$70,560</b>

\* Quality, Cost, Delivery, and Safety are considered key performance indicators used to measure improvement efforts within Lean.

\*\*Estimated annual savings includes realized savings and cost containment savings. To understand more about each individual savings number refer to the "Results" column.

## Project Examples



**Benefit Orientation Packet 5S** - Information overload was causing a lack of understanding, retention, and follow-through for new employees. The current packet (picture on left) lacked organization and contained 124 pieces of paper. The 5S project identified 36 pieces that were non-value added to the customer and were removed. The packet was then designed (picture on right) to mimic the flow of the benefits orientation for new employees and a tabbed system was set up to highlight the major components of the orientation: forms required for submission, health insurance, dental/vision, retirement, and policies.

## Involvement Numbers to Date

Employee Type	Total
Faculty	14
AFSCME Union	85
UAW Union	110
POA Union	2
Non-Union Staff	324
Students	46
Guests	16
Temporary Staff	3
<b>Total Employees</b>	<b>535</b>
<b>Total Involved</b>	<b>600</b>