# LEAN SIX SIGMA A BRIEF OVERVIEW





## **AGENDA**

- 1. What is Lean Six Sigma (LSS)?
- 2. How can LSS be applied to processes?
- 3. Results of LSS at UAA
- 4. Next Steps

# WHATIS LEAN SIX SIGMA?

## **UAA LEAN VISION STATEMENT**

"Release creative and resource potential to maximize value for UAA students, staff, faculty, the institution, alumni, and our community through intense customer focus, seamless operational excellence, and an unrelenting culture of continuous improvement."

## GUIDING PRINCIPLES

IMPROVE THE CUSTOMER EXPERIENCE



REDUCE WASTE



GENERATE UNIQUE VALUE

LEAN

## LEAN SIX SIGNA



## PROCESS IMPROVEMENT

## THE TWO HALVES OF LEAN SIX SIGMA

### **LEAN** is the war against **WASTE**:

Focusing on eliminating elements of an activity that do not add value from the perspective of the customer

#### SIX SIGMA is the war on VARIATION:

Centered on increasing the percentage of time a process completes successfully and accurately and reducing inconsistency, defects/mistakes, and rework.

## WENEED BOTH

## **UNDERSTANDING LEAN**

Lean is a set of principles, concepts and techniques designed for a relentless pursuit in the elimination of waste... giving customers:

- 1. What they want
- 2. When they want it
- 3. At the highest quality
- 4. And the lowest possible cost

LEAN WAS FIRST POPULARIZED BY TOYOTA MOTORS AS THE TOYOTA PRODUCTION SYSTEM (TPS)

### EACH STEP IN A PROCESS IS EITHER

**VALUE ADDED** 

OR

**NON-VALUE ADDED** 

## **MUDA - "THE WASTE"**

Muda-Japanese noun which translates to futility, uselessness, wastefulness.

Consists of elements of an activity that do not add value from the perspective of the customer

**TRANSPORTATION** 

**INVENTORY** 

**MOTION** 

WAITING

OVER-PRODUCTION

**OVER-PROCESSING** 

**DEFECTS** 

WASTE OF INTELLECT & TALENT

## 60

Six Sigma measures variation, not averages.

Customers only care about variation.



Six Sigma measures defects in production or service processing in terms of defects per million occurrences.

- 3 Sigma: 66,800 per million
- 4 Sigma: 6,200 per million
- 5 Sigma: 230 per million
- 6 Sigma: 3.4 per million

## **CUSTOMER CENTRIC**



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# APPLYING LEAN SIX SIGMA

## THE DMAIC METHODOLOGY

#### DEFINE

#### MEASURE

#### ANALYZE

#### IMPROVE

#### CONTROL

- Identify and document the problem
- Identify customer needs
- Formulate a team
- Draft a project charter

- Create baselines
- Collect Data
- Construct Process Flow
- Validate Measurement System

- Examine data by watching the process
- Identify Root Causes
- Prioritize root causes
- Innovate, select, and implement solutions
- Validate the improvement

- Ensure Solution is Sustained
- Create and document a control plan

### **ADOPTING KAIZEN**

- Kaizen (change for better) is an alternative approach to change, based on small, incremental steps adding up over time instead of large projects, or disruptive innovation
- A statistician, Dr. W. E. Deming became consultant to Japanese businesses, bringing with him the concepts that became known as "Kaizen" to decimated post-WWII Japan

#### **EXAMPLE @ UAA**

**Business Problem:** Waiting for signatures to DocuSign envelopes slows down approval processes

Result: Identified waiting for signatures being the result of emails ending up in spam. Force-redirecting DocuSign emails to the inbox resulted in over 10% increase in DocuSign envelope velocity systemwide, or a reduction of 4,340 hours of time spent waiting for signatures—monthly.

## **KAIZEN WORKS**

- Incremental change circumvents challenges associated with radical innovation
  - Fear of failure
  - Assumption of risk
  - Need to retrain
- Incremental change produces visible results more quickly
  - Provides motivation
  - Demonstrates progress
- Incremental change produces a culture of continuous improvement

A journey of a thousand miles begins with the first step.

—Lao Tzu, Chinese Philosopher and founder of Taoism

## **PROJECT CHARTERS**

Developing a project charter creates a shared understanding of the project, describing essential characteristics, while serving as a contract between the project sponsor(s), stakeholders, and the project team.

## SIX ELEMENTS OF EFFECTIVE CHARTERS

- 1. Explains a vibrant business case
- 2. Problem statement
- 3. Project scope
- 4. Goals and objectives
- 5. Realistic milestones
- 6. Defined roles and responsibilities

#### **GOALS & METRICS CLEAR**

Primary Metric: "Labor hours spent per student" Balancing Metric: "Total labor hours" Goal: "...decrease labor hours...by 80%"

#### TEAM ROLES

✓ Defined team members, champion, project managers, SMEs, process owner

#### Problem Statement:

For over 5 years, UAA Office of Student Financial Assistance has spent 18.21 hours processing each UA Foundation General Scholarship student award. This is compared to the 0.28 hours spent per each student financial aid award. Reducing the hours spent processing each general scholarship award can save up to \$70,000 in value annually and can potentially add value to students' overall experience.

#### Project Objective (on the Primary Metric):

To decrease the amount of labor hours spent processing each UAA Foundation General Scholarship Application and Selection by 80% as measured by a swim lane process diagram.

#### Primary Metric, Balancing Metric(s):

**Primary Metric (CTQ):** Amount of labor hours spent per student towards the UAA Foundation General Scholarship Application and Selection Process.

**Balancing Metric(s):** Amount of applications, total labor hours, staffing

#### **Business Case/Financial Impact:**

[Total Amount of Labor Hours - ((Total Amount of Labor Hours) / (Amount of Students' Awarded))] = Total Hours Spent Processing Per Award

2423/133 = 18.21 hrs/award \* \$32 per/hour = \$582.72 per/award

582.72\*133 = \$77501.76 \* .8 = **\$62,001.41** in potential value

#### Project Scope/Boundaries:

This project will include evaluating the current or real real scholarships and map a repeatable (universal) future state process to offer timely a streamlined process and new student scholarship award letters by April 15. The project team will also identify roadblocks to process improvement and benchmark peer institutions. The project team will provide a report to the project sponsor that includes project results and a recommended course of action by April 15, 2016.

r: Bruce

Cnampion: Eric

Process Start: Following UAA Green Belt Training, January 2016 Process Stop: Following next AY analysis/control of improved process Out of scope: More employees

#### Important Dates:

Project Start January 13, 2016
Define Tollgate February 12, 2016
Measure Tollgate March 25, 2016
Analyze Tollgate April 1, 2016
Final improvement recommendations April 15, 2016
Improve Tollgate TBD
Control Tollgate TBD

#### Customer Impact:

- Increase the available labor hours to add value to the student's experience
- Potential increase in the amount of students that enroll in UAA
- Potential increase in student's total credit hour enrollment

Team Champion: Eric Pedersen

Project Managers: Logan Smith, Carol Forner

SMEs: Carrie Burford, Amber Huling, Wolfgang Olsssen, Liz Winfree

Financial Analyst: Cathy Ewing Blackbelt: Logan Smith Process Owner: Sonya Stein

Sponsor approval Signature:

Date:





### UAA ITCC Workflow Changing Course Instructors

This documents the process for the University of Alaska Information Technology Services Call Center (ITCC) to change the instructor(s) for a Blackboard course.

#### Introduction

This document identifies the process for the University of Alaska Information Technology Services Call Center (ITCC) to change the instructor(s) for a Blackboard course. Users added to the course with the Instructor role can modify the course content. Users removed from the course will no longer be able to modify or view it.

#### Major Stakeholders:

- IT Services Team Leadership
- IT Services Management
- Departmental/MAU Leadership
- Vendor(s)
- Timothy Shull (ITCC Technician) Information Technology Services (Anchorage)
- Mark Weisman (Team Lead) Information Technology Services (Anchorage)

#### Systems Necessary:

- IT Services Central Computing
- Blackboard®™ or System admin logon

#### Supporting Information

- 3. Creating an ITSM Incident Procedure
- 4. Creating an ITSM Assignment Procedure

#### Defined Workflow

- A user with the Instructor role in a Blackboard®™ course can add other users to the course and change their role to Instructor.
- 2. To add a user to a course follow the procedure in UAA IT Workflow Blackboard Enroll User.
- If an instructor must be removed from a course, the account is usually disabled instead of removed to avoid deleting changes the user has made to the course.
- To remove a user from a course follow the procedure in UAA IT Workflow Blackboard Remove User from Course.
- To disable a user in a course, follow the procedure in UAA IT Workflow Blackboard Disable User in Course.

#### Desired Outcome

Instructors can be added or removed from a Blackboard®™ course

#### Potential Threats to Completion

Technicians may be unable to log into Blackboard®™. The server may be experiencing a slowdown or outage. Information can be lost if it is not backed up.

#### Organizational Escalation

- Tier 3 ITCC Information Technology Services (Anchorage)
- System Engineering Messaging/Directory Information Technology Services (Anchorage)
- 3. Mark Weisman (Team Lead) Information Technology Services (Anchorage)

#### Estimated Time to Completion

It should take 2 minutes to create the incident in FrontRange® IT Service Management™

#### DEFINED PROCEDURE



PROCESS MAPPED

ESTABLISHED OUTCOMES

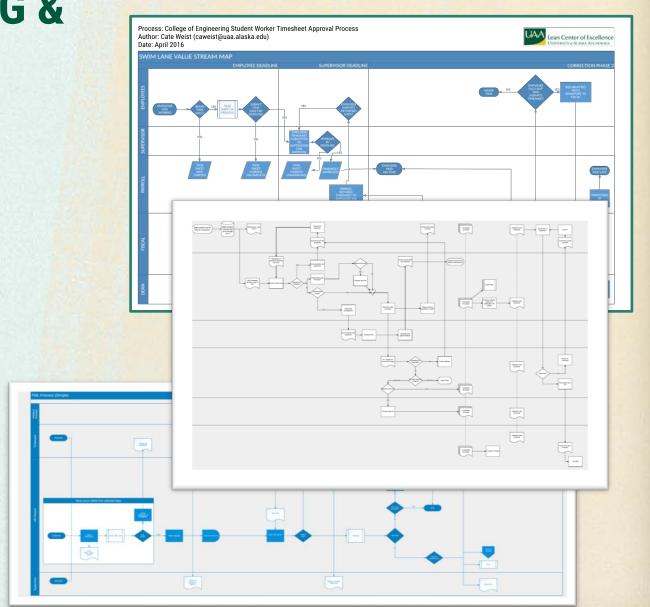
COMPLETION TIME BENCHMARKED

## STANDARDIZING & DOCUMENTING PROCEDURES

By documenting the current best practice, standard work forms the baseline for continuous improvement. As the standard is improved, the new standard becomes the baseline for further improvements, and so on. Improving standard work is a neverending process.

## BUSINESS PROCESS MAPPING & VALUE STREAM MAPPING

- Uses a systems perspective
- Focuses on customer requirements
- Helps reach agreements on changes
- Links work and information flow
- Documents delivery and quality performance
- Allows process redesign to meet specific objectives
- Helps increase understanding of how a process works, while exposing waste and problems with flow



## STRIVING FOR CULTURE CHANGE

Common Language and Tools

Improvements
Best Done by
Employees

Freedom to Experiment and fail

Management Facilitates vs. Directs

Engagement in Process Improvement

Employee and Team Recognition

**Executives Clear Roadblocks** 

Commitment to Communication and Transparency

## LEAN SIX SIGMA BELT LEVELS

#### WHITE BELT

- 6-7 hour course that provides basic understanding and awareness of tools
- Does not lead projects, but will participate in project teams

#### YELLOW BELT\*

- \*The Yellow Belt is not currently offered by UAA
- 2-3 day course that provides a moderate understanding of concepts and tools
- May lead small projects, but mostly helps support teams

#### **GREEN BELT**

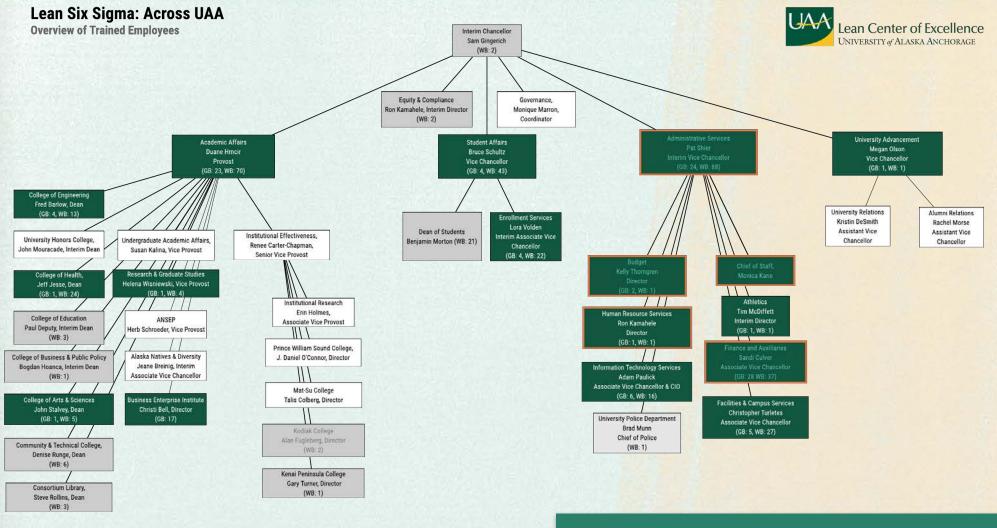
- 5-7 day intensive or semester-long academic course with completion of at least one project
- Facilitates improvement projects and serves as a project mentor
- Is expected to train teams of White Belts and assist in the training of Green Belts
- Considered a part-time job

#### **BLACK BELT**

- Two weeks to over a year with substantial project management experience required
- Leads and implements 3-4 complex projects per year
- Trains, mentors and develops Green Belts

- Considered a full-time job
- Master Black Belts are internal consultants that facilitate and are familiar with all tools

# LEAN SIX SIGMA RESULTS



#### NOTES

White Belt within Administrative Area (#)

Green Belt within Administrative Area (#)

Individual is
White Belt

Individual is part of Lean Center of Excellence/Steering Committee or Working Team

## LEAN SIX SIGMA IS A GROWING PART OF OUR CULTURE

## **PROJECT EXAMPLES**

END-TO-END ELECTRONIC EMPLOYEE REIMBURSEMENT

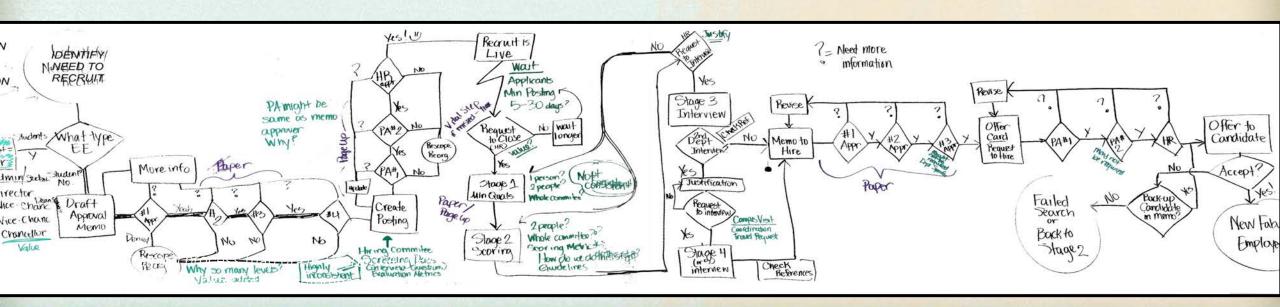
ONBASE-BANNER INTEGRATION

ELECTRONIC FORM PROCESSING

REDUCING TIME-TO-APPROVAL FOR DEPARTMENT-SPECIFIC TRAVEL PROCEDURES

REDUCING PROCESS TIME FOR SCHOLARSHIP APPLICATIONS REDESIGNING
CLASSROOM AV
SUPPORT PROCESS FOR
AFTER-HOURS
FAILURES

CONSOLIDATING
DUPLICATE PURCHASES
OF SOFTWARE
LICENSES



## BY THE NUMBERS

\$1.13M

VALUE RECAPTURED

330

EMPLOYEES TRAINED

70+
PROJECTS

\$493.95K

STAFF TIME SAVED



# LEAN SIX SIGMA NEXT STEPS

## **OPPORTUNITIES**

- 1. Take advantage of free training open to all University of Alaska employees; training is also offered via interactive distance delivery to community campuses and employees from Statewide, UAF, and UAS
- 2. Select processes for Kaizen rapid improvement workshops
- 3. Receive free process improvement consultations from the Lean Center of Excellence

Next White Belt Training: **December 14, 2017**Register at <u>link.leanhighered.org/next</u>

EMPLOYEE TRAINING



ESTABLISH LEAN LAUNCHES



RAPID IMPROVEMENT WORKSHOPS



CREATE A LEAN
COMMUNITY OF
PRACTICE

## LEAN CULTURE

## QUESTIONS

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MORE INFORMATION AVAILABLE AT UAA.LEANHIGHERED.ORG