

County of Ventura
County Executive Office

Welcome to Yellow Belt Lean Six Sigma Training

In partnership with:

California State University
Division Of FINANCE & ADMINISTRATION
CHANNEL ISLANDS

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County Executive Office

Course Objectives

At the end of this course you will be able to:

- Learn how Lean/Six Sigma fits in CI's DFA strategic plan
- Participate in Continuous Process Improvement events
- Apply problem solving tools to improve processes
- Use a common Lean Six Sigma language
- Recognize how the culture of CI is evolving
- Cheat with a clear conscience ("borrow" good ideas)

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County Executive Office

Channel Islands

DATE: March 14, 2013 Resolution Number: 2013-04

TITLE: CapStar Services Program – Short Term Transition Plan: Create a self-supporting program, and identify resource needs for 2013-14

BACKGROUND:
The CapStar service is a funded service to assist consumers, but currently this service is being run by the County of Ventura. The County of Ventura is currently in a position of providing this service. The County of Ventura is currently in a position of providing this service. The County of Ventura is currently in a position of providing this service.

COMMENTS:
The County of Ventura is currently in a position of providing this service. The County of Ventura is currently in a position of providing this service. The County of Ventura is currently in a position of providing this service.

CONCLUSION:
The County of Ventura is currently in a position of providing this service. The County of Ventura is currently in a position of providing this service. The County of Ventura is currently in a position of providing this service.

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Employees

Complaints

- What took so long?
- Can't you go any faster?
- Who dropped the ball?

Process

Solutions

- More employees
- Improved employees
 - Training
 - Multitasking
 - Incentives
 - Accountability
- Customers have to wait
 - "Manage" expectations

Customers

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Customer Becomes the Problem

WWW.CALLCENTERCOMICS.COM

5

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Service Delivery

Employee

Before

After

Process Improvement

Customer

6

System Perspective



Perspective Adds Meaning
Complexity = Specialization = Narrow Perspective / Barriers

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Improving Our Systems

Fundamental truth



- All organizations are the same
- All organizations are collections of systems
- All work is part of a system

Continuous Process Improvement

- Tap our most valuable resource – You
- Culture of action, empowerment, change
- Awareness of your surroundings / Be curious

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Where are you going?

9

Training Environment

- Supplies
 - Sign in sheet, name tents
 - Exercise equipment (Statapult etc.)
- Teams
 - Color coded, pick team names

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Keys to Your Success in this Course

- Have fun
- Active participation in class activities
- Ask questions
- Notice the terminology
- Appreciate the concepts; no memorization
- Get the Sampler; Check out the specials

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Team Agreements

HAVE FUN!!!

- Be on time returning from breaks & Listen fast
- Ask questions anytime – this is a learning experience
- Participate fully in all activities
- Listen to speakers – one speaker at a time
- Parking Lot – 3 knock rule
- Handle outside business on breaks
 - Set electronic devices to stun (silent mode)
 - This is a “iPhone-Free Zone”
- “County bell”




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Getting Acquainted


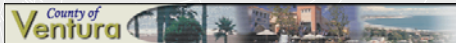
Each table will be asked to answer a question:

- If I had 8 extra hours...
- If I could improve a process...
- If I had to name a pink elephant...
- If I had more resources...

(Take 5 Minutes – Be ready to present at __:__)

Ventura County Mission

To provide public infrastructure, services and support so that all residents have the opportunity to achieve a high quality of life and enjoy the benefits of a healthy economy.

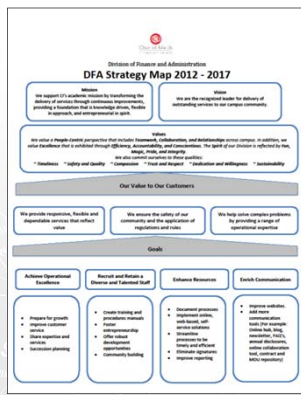



DFA Mission

We support CI's mission by transforming the delivery of services through continuous improvements, providing a foundation that is knowledge driven, flexible in approach, and entrepreneurial in spirit

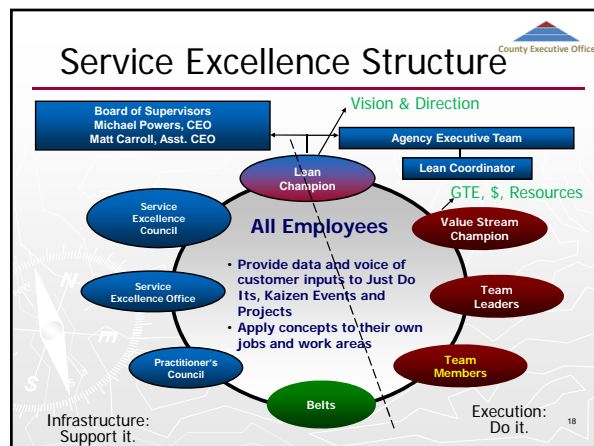


DFA Strategy Map



Achieve Operational Excellence

- Service Excellence
- Continuous Improvement (Ex. Projects generating additional projects)
- Empirically Based Decision-making
 - Observation, Experience
- Measurable results
 - Quality, Consistency, Speed, Cost



CI Deployment

CI's Lean Six Sigma Deployment and Implementation Report
July 1, 2012 thru March 31, 2013

Category	EQ	2Q	3Q	4Q	YTD	Remaining Total from Implementation
Process Improvement						
Cost Reduction						
Quality Improvement						
Customer Satisfaction						
Employee Satisfaction						
Other						
Total						

Project Title	Project Status	Project Start Date	Project End Date	Project Manager	Project Sponsor	Project Budget	Project Results
1. Risk Assessment (Process)	Completed						
2. Equipment Maintenance (EPC)	In Progress						
3. Customer Service (EPC)	In Progress						
4. Employee Training (EPC)	In Progress						
5. Quality Improvement (EPC)	In Progress						
6. Customer Satisfaction (EPC)	In Progress						
7. Employee Satisfaction (EPC)	In Progress						
8. Other (EPC)	In Progress						
Total							

Page 1

Breathing Life Into Data

- **Discretionary Permit Process** *Resource Management Agency, Fire, Agriculture, Public Works Agency.*
 - Reduces number of separate forms from 31 to 1.
 - Reduces number of pages from 325 to 59.
 - Reduces 872 questions to 110.
 - Reduces duplicated questions from 180 to 0.Green.
- **Blanket Purchase Order** *General Services Agency.* Increased productivity of BPO's from 163 to 1,686, 30 steps to 11 steps. Sustained for 3 years. Staff morale and teamwork "never better".
- **Others**
 - *PWA/GSA.* Heavy Equipment tracking and purchase decisions.
 - *GSA.* Changed billing process to electronic. Eliminated 85,000 paper.
 - *Animal Regulation.* Eliminated annual dog tags. \$35,000 (Why game)
 - *HSA.* Eliminated labels on forms, printed contact information.

Three Gears

The diagram shows three interlocking gears. The top gear is labeled 'Lecture'. The bottom-left gear is labeled 'Kaizen Simulation'. The bottom-right gear is labeled 'Tools Simulation (Exercise)'. Arrows indicate a clockwise flow from Lecture to Kaizen Simulation, then to Tools Simulation, and finally back to Lecture, forming a continuous cycle.

Exercise - Process Simulation Round 1

25 minutes

Example of a Bad Process


A black and white photograph showing three women in nurse uniforms. They are standing in a line, facing each other, and appear to be engaged in a conversation or a task. The image is used as an example of a 'bad process'.

Learning Objectives

The Statapult exercises are designed to give students experience using the methodologies and tools taught in this course.

Round 1: Current State
Round 2: Future State - Flow Improvements


The Statapult is a mechanical device used for process simulation exercises. It consists of a wooden frame with a lever arm and a spring mechanism, designed to launch a projectile.




Simulation Requirements

Lean thinkers hear voices.

- 1. Exercise Requirements**
Make the exercise work correctly and cannot be modified
- 2. Customer Requirements (*Voice of the Customer*)**
How the customer would like the product and/or service to function
- 3. Business Requirements (*Voice of the Business*)**
How your "Company" functions, internal policies
- 4. Statapult Requirements (*Voice of the Process*)**
Constraints or capabilities of the tool used



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Round 1


Current State

This round is intended to give the team experience running the current process. It includes the following three phases:

1. **Baseline**
2. **Shoot**
3. **Calculations**
4. ***Pick your team name***




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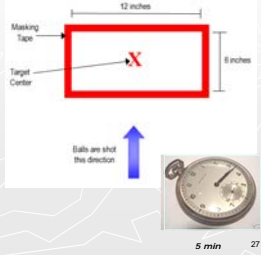


Baseline

In order to run the simulation, you must determine the accuracy and precision of the process in order to set up the target area.


- Position your Statapult in designated area
- Take 20 test shots (164 degrees)
- Mark the landing of each shot with piece of tape
- Use masking tape to mark off target area
- Do not move Statapult during or after shooting






12 inches
6 inches
5 min

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Exercise Requirements Round 1

- Each team member will be assigned a role
- The balls will be marked as a preparation for shooting and for rework
 - Blue dots symbolize inputs needed to complete a job function and are considered to be value added to the process
 - Red dots symbolize the time and effort required to fix a problem
- No permanent markings or modifications can be made to the Statapult or balls




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Customer Requirements Round 1

- All shots must be fired at an angle of 164 degrees
- All shots must land on the floor in a stationary target area +/- 3 inches long and +/- 6 inches wide with respect to the nominal target
- Pass/Fail data must be collected for each shot
- The balls must be sorted based on either Pass or Fail
- The balls must be delivered to customer with no markings (colored dots)
- The customer requires 20 passed balls to be delivered in 5 minutes
- All data must be collected "real time"




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Business Requirements Round 1


- Balls must be transported in batches of 5
- The Statapult must be recalibrated (remove & reattach rubber band) between every shot
- Workers should only be concerned with their assigned jobs
- All shots must originate from the floor
- Must use forms 5O-5LO, RUK-1D-1NG, and 1-T5-L8
- Balls are aligned with blue dot facing up



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Statapult Requirements Round 1

- The Statapult settings and structure cannot be modified
- The Statapult can not be aligned/modified with any tools, devices or aids
- The Statapult can only be handled/touched by the Shooter
- The Statapult must be placed so that the base is horizontal to the floor and in a stationary position



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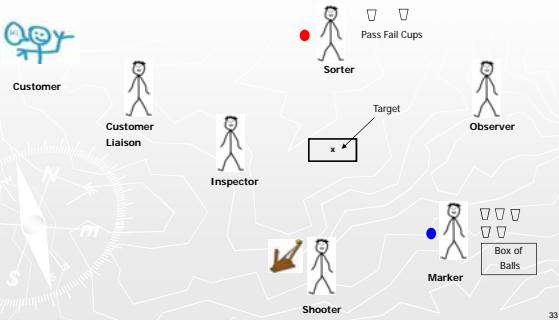
Roles

Marker
Shooter
Inspector
Sorter
Customer Liaison
Observer(s)

Take 5 minutes to review what your role is before the Round 1 shoot

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Round 1 – Layout



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Round 1 Shoot

Are you ready to start?

- Announce company *name*
- Statapult layout is ready
- Target area is taped off
- Roles are assigned
- Role instructions have been distributed

**** (Leave Statapult in place when finished)**

The simulation will start simultaneously for all teams!




30 min

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Calculations – Round 1

1. Customer Order (*How do you know what they want?*) _____ (1)
The amount of balls successfully delivered to the customer
2. Total Balls Fired (*Effort-Quality*) _____ (2)
The total amount of balls fired for the exercise
3. Total Failures (*Do customers care?*) _____ (3)
The total amount of failures called by the inspector
4. Time to First Delivery (*Do customers care?*) VOP _____ (4)
The time to make the first delivery to the customer
5. Total Lead Time (seconds) (*Expected response*) _____ (5)
Total time to complete the customer order
6. WIP (Work In Progress) _____ (6)
The total amount of balls left at each work area
7. Yield _____ (7)
Customer Order(1)/Total Balls Fired(2)



What do these metrics tell us?

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Exercise: What Went Wrong?

- What went wrong with the process?
- No solutions allowed yet; only problems *

*** At the end: ID which was the biggest problem of all**

10 min

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Module 2

Introduction to:

Continuous Process Improvement Methodology (CPI)

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Module 2 Objectives


At the end of this module you will be able to:


- List and define 3 CPI methodologies
 - Lean
 - Six Sigma
 - Theory of Constraints (TOC)
- List and explain the "Five (5) Principles of Lean"
- Identify the five (5) Phases of Six Sigma

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What is "Lean Six Sigma"?

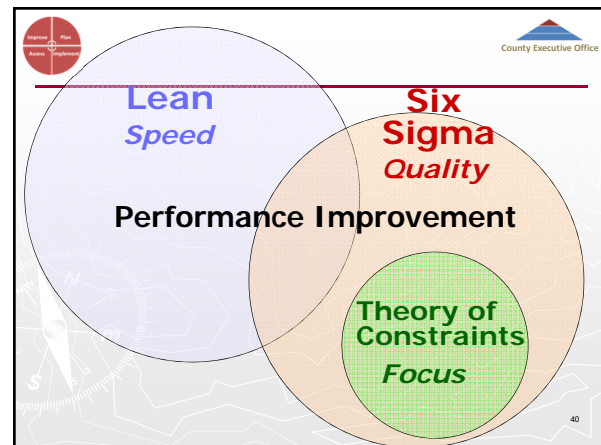
- A. A college sorority
- B. A diet aid
- C. A war on WASTE and VARIATION in business processes





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Lean Six Sigma is . . .

Making common sense common practice

- A Combination of two schools of thought:
 - "Lean" - eliminating waste to reduce cycle times;
 - "Six Sigma" - reducing variation to ensure a standard, quality output;
- A set of methodologies characterized by:
 - customer satisfaction
 - a culture of continuous improvement
 - the search for root causes
 - and comprehensive employee involvement

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Origin of Lean


- Japan – post WWII – struggling economy
- Edwards Deming – Quality guru
- Brought **radical** ideas not yet implemented in America
 - Acceptable quality level. **cost/quality not a trade off**
 - Daily incremental improvement (everyone involved). **Don't seek perfection...yet (80/20).**
 - Focus – **Don't improve work**, eliminate waste
 - **Find colors exercise**

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Lean Basics

Lean Is . . .

A War on WASTE!



Example: Firemen and Pit Crews

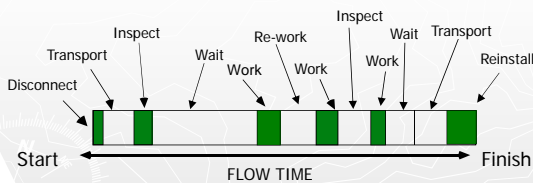
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Examples of Wastes

- Time spent dealing with complaints
- Redundant capture of information
- Information not accurate
- Time spent looking for information, equipment, people
- Excess supplies stored in multiple locations
- Limited storage space – not properly used
- Variations –
 - Low process yields, low quality, shift changes,
 - Information/equip unavailability

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Traditional Process Improvement vs. Lean



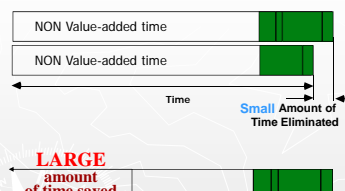
Start → FLOW TIME → Finish

Legend:
 = Value Added Time
 = Non-Value-Added Time (WASTE)

Value-Added time is only a very small percentage of the total Time

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Traditional Process Improvement vs. Lean



Traditional Focus

- Improve Value-Added work steps
- i.e. Better tools, machines, instructions
- Result: **Small** time savings

Lean Focus

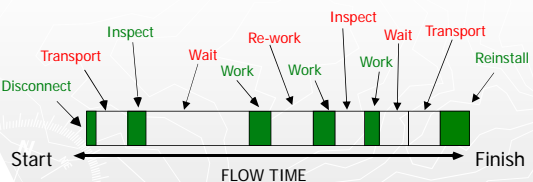
- Reduce or eliminate NVA/waste
- Result: **LARGE** time savings

Time savings have a **direct** impact on

- Cost
- Capacity
- Schedule
- Flexibility
- Resources
- Etc.

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Lean Process Improvement



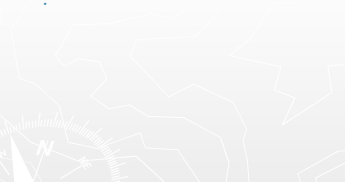
Start → FLOW TIME → Finish

Legend:
 = Value Added Time
 = Non-Value-Added Time (WASTE)

Value-Added time is only a very small percentage of the total Time

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Cycle of Lean Principles




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What is "Six Sigma"?

Reduces variation in a process to achieve near perfect quality.

6σ

1st Time Quality
99.99966% or 3.4 PPM
Focuses on Operational Excellence



Six Sigma is a **data-driven approach** aimed at the near-elimination of defects from every process and transaction.

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Why "Six Sigma"?

Hey, 99% is good enough right?

99%	99.99966% (6 Sigma)
20,000 lost postal mail items per hour	7 lost postal mail items per hour
15 minutes of unsafe drinking water per day	1 unsafe minute every seven months
2 long/short landings per day at a major airport	1 long/short landing every five years
5,000 incorrect surgical operations per week	1.7 incorrect operations per week
84 hours of lost electricity per year	1 hour without electricity every 34 years
240,000 wrong prescriptions per year	68 wrong prescriptions per year

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Sources of Variability

- Information unavailability
- Equipment & tools unavailability
- Poor planning that results in rushed work
- Low process yields (Defects)
- Material condition not as expected
- Unique/custom products
- Change notices, holds, customer changes
- Vacations, illness = absent staff
- Many, many more... (obstacles to consistent outcomes)



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Cycle of Six Sigma Discipline



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It's Scientific!

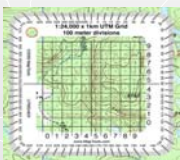

$$Y = f(x_1, x_2, \dots, x_n)$$



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Process Improvement Filter

1. $Y = f(x_1, x_2, \dots)$
2. Define Y (Charter)
3. Identify the X's (tribal knowledge)
4. Identify the red X's (tribal knowledge) (Vital Few)
5. Validate the red X's (Gemba/data)
6. Analysis
7. Solution

Don't accelerate the excavation until you are sure you're digging in the right place.





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Theory of Constraints

Constraints and Barriers

A constraint is anything in an organization that limits it from moving forward or achieving its goal



"The slowest vehicle in a convoy sets the pace"

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Checking In

1. Lean is a war on _____.
2. Six Sigma reduces _____.
3. Lean Six Sigma engages and empowers _____ to make process changes.
4. The Theory of Constraints strives to eliminate _____.

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What other comments or questions do you have?



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Module 3

Team Members
Roles and Responsibilities



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Module 3 Objectives

At the end of this module you will be able to:

- Describe a Lean Thinker
- Describe & articulate your role as a Team Member
- Have an appreciation for the impact of culture on change

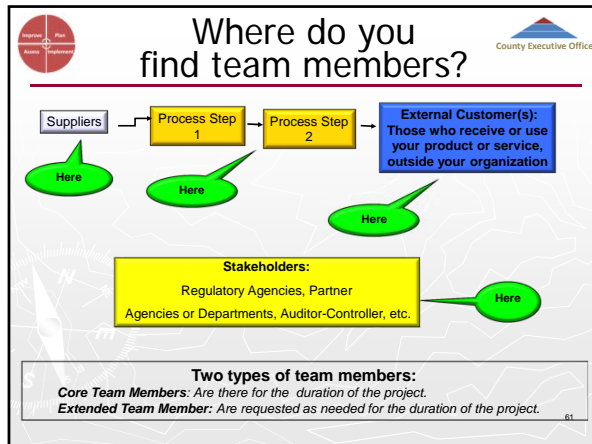
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Lean Thinkers

- It's not about tools – don't throw tools at a problem (Tools do not have solutions, people do)
- Turn the "mental corner" together (Use L6S lens)
- Filter the problem and problem solving through Cycle of 5 Lean Principles and Cycle of Six Sigma Discipline
- Your experience + Lean Six Sigma tools = solutions

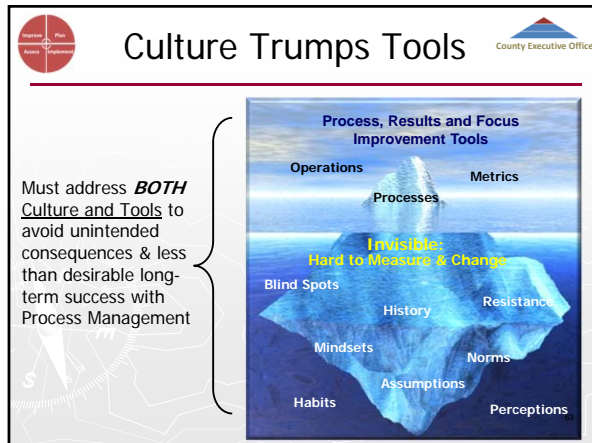
If all the same thinking still exists, little by little you will return to your prior state!

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Team Members

- Represent your area
- Communicate back to your group
- Participate fully
- Think, think, think
- Participate in implementation planning
- Be a conduit for change
- Be personally accountable – own it!



Change is Uncomfortable


- Fold Arms Exercise
- ABC Exercise (2 volunteers)

- Change is difficult
- Need to develop a culture of change
- Look out for CAVE dwellers


What other comments or questions do you have?

Module 4

Integrating the Toolsets Using DMAIC Approach




Module 4 Objectives




At the end of this module you will be able to:

- Recognize tools used in the Lean process
- Describe the **Define Phase** and its purpose
- List parts of a Charter
- Participate a SIPOC (Suppliers-Inputs-Process-Outputs-Customer) Diagram

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Lean Toolkit



- Value Stream Mapping
- 5S, and Visual Workplace
- Work Standardization
- Cellular Work Processing
- Push and Pull System
- Setup Reduction
- Error Proofing (poke yoke)

Project teams decide which tools to apply to their problem.

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Just Do It




- Not every idea needs a team (Kaizen)
 - Do you already know what needs to be done?
- Manager/supervisor or approves




- Do It!
- Report it!

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Process for Process Improvement - DMAIC




D
E
F
I
N
E

- Objectives
 - Identify and/or validate the improvement Opportunity.
 - Develop the business processes, define the critical customer requirements.
 - Identify what adds value to the process from both the business, process and customer perspective (Voice Of the Business/Customer/ Process; VOC, VOB, VOP).

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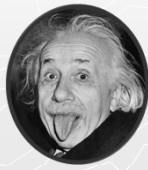
Process for Process Improvement - DMAIC




D
E
F
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E

- If I had one hour to save the world, I would spend 59 minutes defining the problem and 1 minute finding solutions.


- Albert Einstein



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Process for Process Improvement - DMAIC



D
E
F
I
N
E

- Tools
 - Charters
 - SIPOC Map



PROJECT CHARTER

Business Impact

- Why should we do this? What is the benefit?
- What is the quantified value of the project (\$\$\$)?
- How does this project align with the business strategy?

Opportunity or Problem Statement

- What "pain" are we or our customers experiencing?
- What is wrong or not working?
- Why do we think we can generate the value proposition described in the Business Case?

Goal Statement

- Specifically, what are we going to do and deliver?
- What are our improvement objectives and targets?
- How will success be measured? What specific parameters will be measured? Define Y = f(x)

Project Scope

- What are the boundaries of the initiative (start and end range of the process)?
- What authority do we have?
- What is not within scope?

Project Plan

- When are we going to complete the work?
- What are the major milestones?

Team Selection

- Who are the team members?
- What is their role?
- How much of their time will be dedicated to the project?

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Process for Process Improvement - DMAIC

DEFINE

- Good Charter opportunity / problem statements should provide the following information:
 - What is the problem or opportunity for improvement (**what**)?
 - Where is the problem? Is it in your workplace or someone else's (**where**)?
 - How long has it been happening (**when**)?
 - What is the extent of the problem (**extent**)?
 - How large is the impact of the problem (**impact**)?

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Process for Process Improvement - DMAIC

DEFINE

- Example of a bad opportunity or problem statement:

"It takes too long to process a material order form and wrong parts are ordered."
- Example of a better opportunity or problem statement:

The material ordering process for ACME Company - West takes in excess of 30 days. The problem has existed for the past year. 85% of the orders require rework due to wrong parts. This has resulted in the postponement of 60 projects in the last 6 months.

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DEFINE

Review the Charter carefully.

Be sure to understand the **scope**.

Focus effort toward the **goals** and **deliverables**.

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SIPOC

$Y = f(x)$

- SUPPLIERS
- INPUTS
- PROCESS
- OUTPUTS
- CUSTOMER

Team will be hunting for **Red "X's"** – Sources of Variance

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SIPOC

Y?

Suppliers	Inputs	Process	Outputs	Customers
	X	X	Y	
			Y	
		X	Y	

Houseplants/Firehose (S, C); Looking for the 20% that have 80% of impact

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SIPOC - Exercise

Exercise – SIPOC for the Simulation

10 minutes

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What other comments or questions do you have?



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Module 5

Integrating the Toolsets Using DMAIC Approach

MEASURE

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Process for Process Improvement - DMAIC

MEASURE

Objectives

- Identify critical measurements that are necessary to meet customer requirements and develop a method of collecting data to measure process performance.
 - What measurements matter?
 - How will you collect the data?
- Understand the data calculations and establish a baseline for the process being measured.
 - Current state

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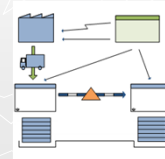
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Process for Process Improvement - DMAIC

MEASURE

Tools

- Value Stream Mapping / Process Mapping



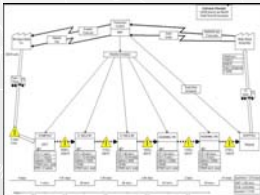

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Process for Process Improvement - DMAIC

Value Stream Mapping

Products & Customers
Process steps / Measurements
Current State = ID Focus Areas, Kaizens...
Future State = Lean, Synchronize to Demand

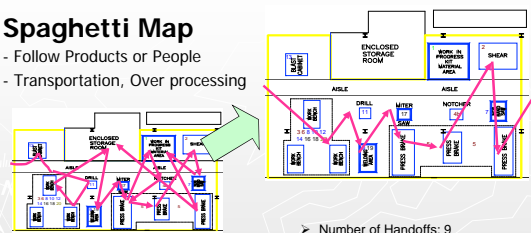
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Process for Process Improvement - DMAIC

Spaghetti Map

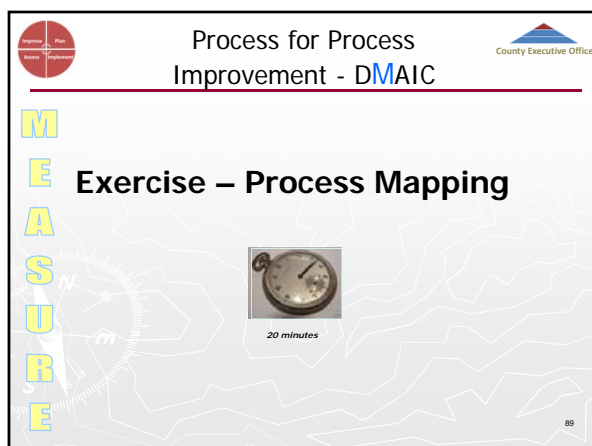
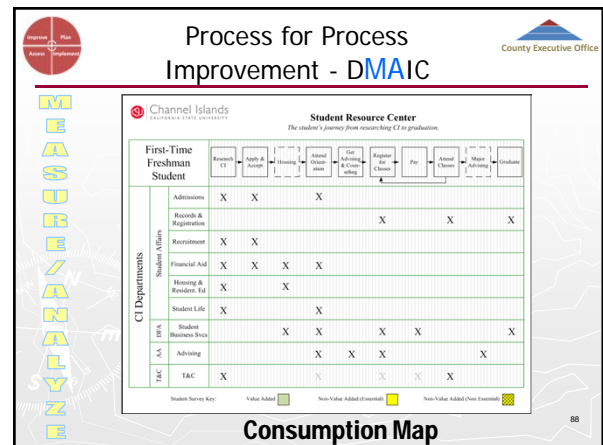
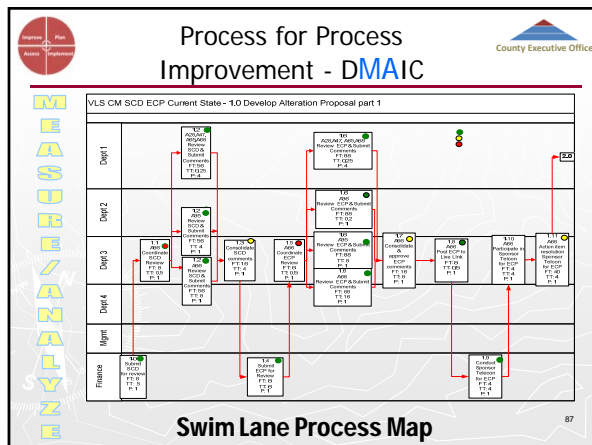
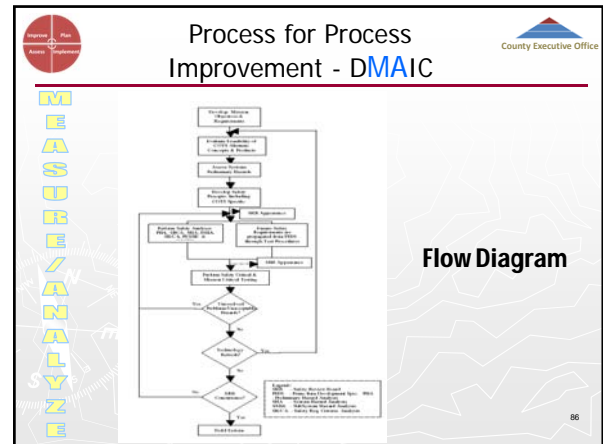
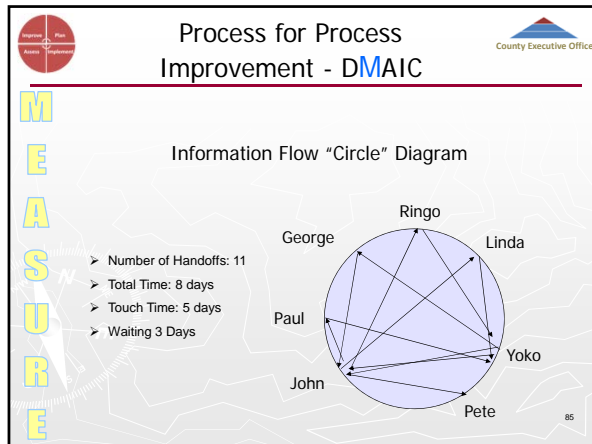
- Follow Products or People
- Transportation, Over processing



- Number of Handoffs: 18
- Total Time: 45 days
- Touch Time: 5 days
- Waiting 40 Days
- Distance traveled: 5000 feet

- Number of Handoffs: 9
- Total Time: 8 days
- Touch Time: 5 days
- Waiting 2 Days
- Distance traveled: 1000 feet

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Module 6

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ANALYZE

Integrating the Toolsets Using DMAIC Approach



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Process for Process Improvement - DMAIC

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ANALYZE

➤ Objectives

- Identify and validate the root cause(s) that assure the elimination of waste, variation, and constraints.
- Identify, validate and prioritize all root causes.
- Determine the true sources of variation and potential failure modes that can lead to customer dissatisfaction.



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Process for Process Improvement - DMAIC

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ANALYZE

Analysis: Determining Root Cause

- Root cause analysis is where the *real* cause of the problem is uncovered.
- A root cause, if corrected would prevent a recurrence of the problem.
- Problem-solving without root cause analysis, results in managing a symptom of the problem. (ex Aspirin for a headache)
- One technique is asking "Why" 5 times. By asking why, you can peel away the layers of symptoms that lead to the root cause of a problem.

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Process for Process Improvement - DMAIC

County Executive Office


ANALYZE

Analysis: Determining Root Cause

Problem: The Lincoln Memorial is deteriorating at a high rate.

1. Why: We wash this memorial more than the others.
2. Why: Bird droppings make it unsanitary for tourists.
3. Why: Birds eat the Spiders that gather in masse.
4. Why: Spiders gather to eat the flying midges that swarm.
5. Why: Midges swarm around the bright, warm lights that are turned on at dusk.

Answer: Delay turning on the lights for one hour.



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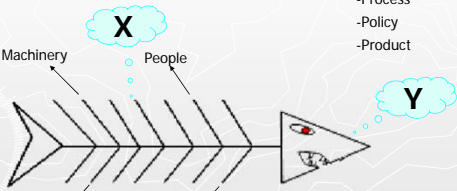
Process for Process Improvement - DMAIC

County Executive Office

ANALYZE

Cause and Effect Analysis aka Fishbone Diagram

Office Setting:
-People
-Process
-Policy
-Product



Example Next Slide

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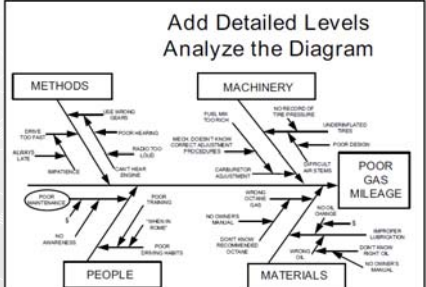
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County Executive Office

ANALYZE

Fishbone Diagram Sample

Add Detailed Levels
Analyze the Diagram



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Knowledge Work	8- Wastes	Product Work
Work not meeting requirements. Missing information. Rework.	Defects	Scrap, rework, lost capacity due to mistakes, inaccurate SOP's.
Too many reports, reviews, approvals. Batching paperwork.	Overproduction	Running equipment to keep equipment and people busy.
Waiting for meetings to start. Information, paperwork and approvals.	Waiting	Waiting for equipment, people or process to cycle, waiting for materials and tools.
Over or under staffing, talents not utilized, work load not balanced.	Non utilization of people/talent	Over or under staffing, talents not utilized, work load not balanced.
Paper- based data vs. electronic transfers. Routing of unnecessary approvals/processing.	Transportation	Long travel distances, unplanned premium postal.
Excessive backlog of work to be processed. Too much paper to be handled, processed or filed.	Inventory	Making what we can instead of what customers need. High obsolescence and write offs.
Walking to deliver paperwork, poor ergonomics, chasing information.	Motion	Repetitive/unnecessary movement caused by poor ergonomic design.
Unnecessary steps. Too many handoffs, lack of SOP's.	Extra or Over Processing	Incapable equipment and processes. Equipment with unbalanced flow.

What examples can you think of?


Process for Process Improvement - DMAIC

Exercise – Identify 8 Wastes

Review List of Statapult Process Problems

1. Waste or Variation?
2. Which Type of Waste?

1. Overproduction
2. Waiting
3. Defects
4. Transportation
5. Overprocessing
6. Inventory
7. Motion
8. Underutilize People



10 minutes

Process for Process Improvement - DMAIC

Value-Added and Non-Value-Added work

- Value-added is defined as adding value to the product or service in the eyes of the customer
- Non-value-added is work in the process that the customer is not willing to pay for if they had a choice (waste)

Value-Added Activities

- An activity that transforms or shapes material or information
- Customer wants it
- Done right the first time (no rework)

Non Value-Added Activities

- Activities that consume resources but create no value in the eyes of the customer
- Pure waste
- If you can't get rid of the activity, it - "E"

Non Value-Added – Essential Activities


- Activities causing no value to be created but which cannot be eliminated based on current state of technology or thinking
- Required (regulatory, customer mandate, legal)
- Necessary (due to non-robustness of process, currently required; current risk tolerance)

Waste is... Any action, process or product that adds cost (uses resources), without adding value as perceived by our customer.

Process for Process Improvement - DMAIC

Exercise – Current Process Analysis

- **Value Added** (to customer)
- **Non-Value Added** (to customer)
- **Non-Value Added (Essential)** (determine during Future State Mapping)



20 minutes


See next slide for reminder of customer requirements.

Customer Requirements – Review –


- All shots must be fired at an angle of 164 degrees
- All shots must land on the floor in a stationary target area +/- 3 inches long and +/- 6 inches wide with respect to the nominal target
- Pass/Fail data must be collected for each shot
- The balls must be sorted based on either Pass or Fail
- The balls must be delivered to customer with no markings (colored dots)
- The customer requires 20 passed balls to be delivered in 5 minutes
- All data must be collected "real time"

What other comments or questions do you have?



Module 7




I
M
P
R
O
V
E


Integrating the Toolsets Using DMAIC Approach

- Define, Measure, and Analyze before Improve stage.
- What is the problem, what are the red X's, validate the red X's.
- Don't accelerate the excavation until you are sure you're looking in the right place.

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Process for Process Improvement - DMAIC




I
M
P
R
O
V
E

Objectives


- Identify potential solutions
- Question/Validate requirements
- Question non-value added steps
- Map out "TO BE" process
- Develop an implementation Plan
- Pilot solution
- Consider 5 S
- Add error proofing




➤ Build a process that can produce consistent results. Don't rely on Dan!



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5-S (Workplace Org)




I
M
P
R
O
V
E

5S is a technique that results in a well-organized workplace complete with visual controls and order. It's an environment that has "a place for everything and everything in its place, when you need it".

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Elements of a 5S Program



I
M
P
R
O
V
E

Sort

Remove from the workplace all items that are not needed for current operation.

Set in Order/Straighten

Arranging needed items so that they are readily accessible and labeled so that anyone can find them or put them away.

Shine

The key purpose is to keep everything in top condition so that when someone needs to use something, it is ready to be used




Standardize

The standard should be easily understood and easy to communicate (i.e. visual controls).


Sustain

Implementing solutions to address the root causes of work area organization issues. All employees must be properly trained and use visual management techniques


What is most difficult?

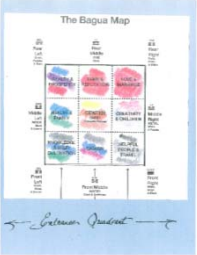
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The 7th S




I
M
P
R
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V
E




➤ Manifesting intent through thoughtful placement of objects/furniture

107



Prosperity Corner




I
M
P
R
O
V
E

Before...



After...



108

Knowledge/Self Education & Family & Health

Before




After




109

Intentional Placement

Love & Marriage Area - Before




Love & Marriage Area - After




110

Serendipity & Children & Creativity

Before



Before



111

Serendipity & Children & Creativity



112

Types of Error Proofing

Create **quality at the source** through error proofing
(This is called = Poka Yoke)

➤ Types of error proofing


- Make it impossible to create error
- Make it harder to create error
- Make it obvious the error has occurred

Examples:

Minivan – Gas tank/sliding door

- Beeping when leave keys in car
- Trunk latch/remote lock

Others: USB, Color coding, Edits, Checklists (Pilot, gas cap, Dr?)




Poor Quality = Waste (Defects, rework, scrap)

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Process for Process Improvement - DMAIC

Exercise – Simulation Round 2



45 minutes


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Learning Objectives


The Statapult exercises are designed to give students experience using the methodologies and tools taught in this course.

Round 2: Future State - Flow Improvements/Variation Reduction






115




Round 2

Flow Improvements/Variation Reduction

This round is intended to give the team experience with specific flow changes & reducing variation to improve quality and yield.




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Exercise Requirements

Round 2




- Team members do not have to perform the same roles as in Round 1
- No permanent markings or modifications can be made to the Statapult or balls

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Customer Requirements

Round 2




- All shots must be fired at an angle of 164 degrees
- All shots must land on the floor in the target
- Pass/Fail data must be collected for each shot
- The balls must be sorted based on either Pass or Fail
- The customer requires 20 passed balls to be delivered in 5 minutes
- All data must be collected "real time"

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Requirements – Round 2




Business Requirements


- None

Statapult Requirements


- The Statapult must be placed so that the base is on the floor and in a stationary position



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Future State Map Exercise



Based on the new requirements and your team's value analysis of the Current State Map, design the new process layout for the next Statapult round. Consider the following:

1. **Strategies to reduce variation**
 - Address list of items causing variation
2. **Strategies to reduce waste**
 - Create Future State Map
 - Eliminate steps / improve flow
 - New roles/responsibilities
 - Listen to voice of the customer
 - ****Only keep value added and essential steps****



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Round 2 Shoot

Are you ready to start?

- The Future State Map is ready
- Statapult layout is ready



The simulation will start simultaneously for all teams!



15 minutes 121


What other comments or questions do you have?




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Module 8

Integrating the Toolsets Using DMAIC Approach





123

Process for Process Improvement - DMAIC

- Objectives
 - Solution implementation
 - Establish control plan (*Metrics: Avg/Std Dev; oven/bucket*)
 - Verify improvements (*Monitor targets*)
 - Verify long term capability
 - Transition project to process owner



"What gets measured gets managed"

124

Process for Process Improvement - DMAIC

- Tools
 - Control Charts
 - Standard Operating Procedures
 - Process Control Plan
 - Communication Plan
 - Mistake Proofing
 - Team Feedback Session
- No Control Plan?
 - Like Shooting an arrow in the sky and expecting it to stick. Gravity!


125

Process for Process Improvement - DMAIC

- Maintaining Process Improvements
 - A Control Plan's primary intent is to create a structured approach to control the process.
 - Control plans assure well thought-out reactions are in place if an out of control condition occurs.
 - They provide a method for documentation and communication of control methods.
 - Entropy- It just isn't what it used to be

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Celebrate!






- Team certificates
- Publicize results
- Brag!

Process for Process Improvement – DMAIC-V

DMAIC-V

- V-Validate
 - Improvements/Savings will be validated six months to one year after completion of your CPI project to insure improvements are realized and sustained.
- Tools
 - Metrics Collection System
 - Audits





What other comments or questions do you have?





Push to Change

“..you’ll have trouble creating a *new* culture if you insist on doing it in the ways that are consistent with the *old* one.”



Now What?




Division Of
**FINANCE &
 ADMINISTRATION**
 CHANNEL
 ISLANDS

Be an advocate – tell your co-workers!

Get involved!

- Get Green Belt training
- Initiate a project
 - Contact Pamela Abbott-Mouchou x2098



Seven Deadly Words

