Six Sigma Red Belt :

A Professional Development Proposal for the Baltimore Section

A Dinner Presentation

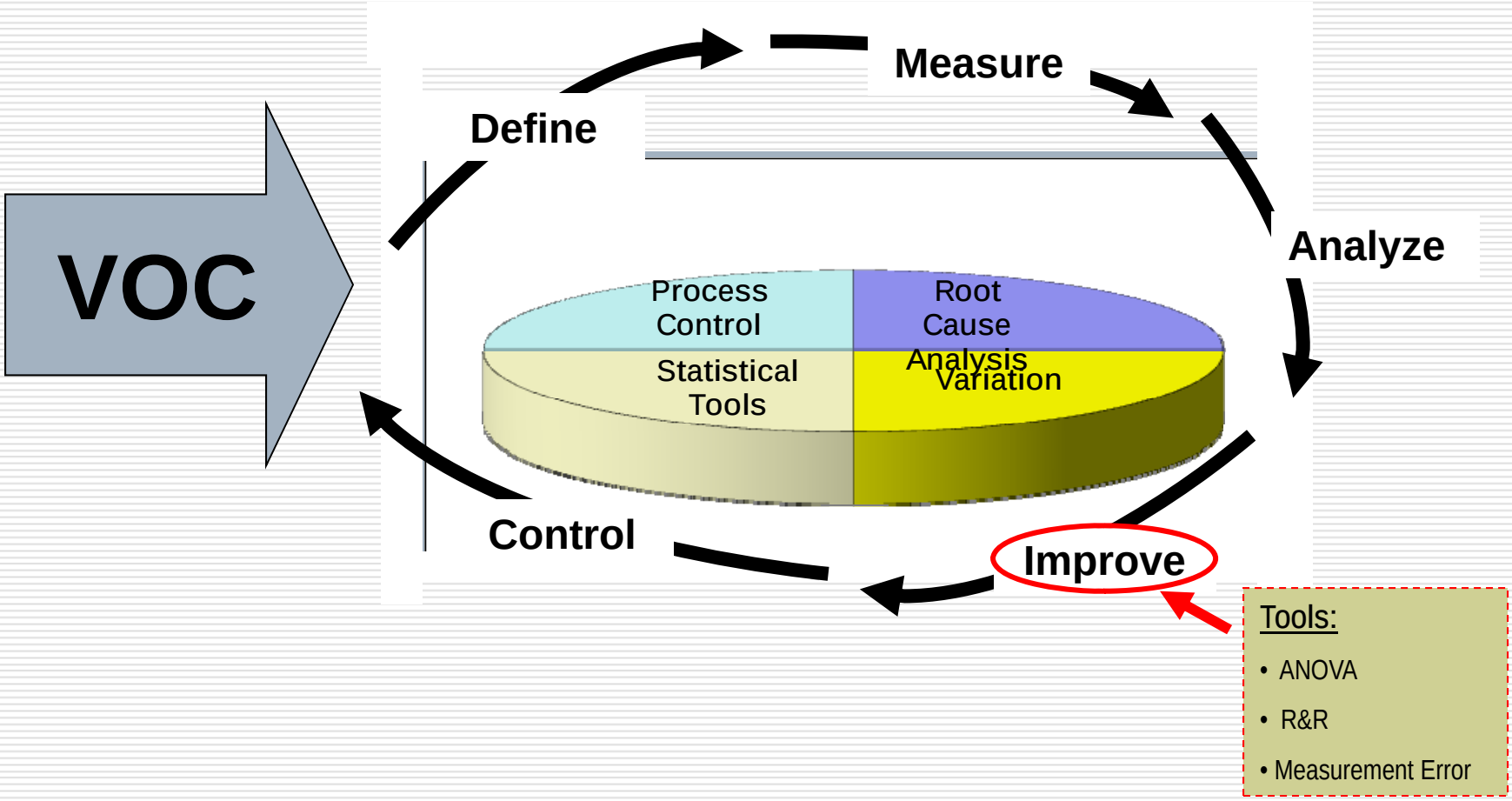
Prepared for ASQ Section 0502

12 October 2010

Overview of Lean Six Sigma –Red Belt

- Purpose:
  - Provide overview of the Six Sigma discipline for business, process and product improvement,
    - using real-world examples to illustrate tools, and
    - examples of the quantitative/statistical methods and scope of breakthrough improvements achievable using LSS.
- Expected Outcome:
  - Fluency in the language of LSS, basic planning tools and quantitative measures used during project execution.
  - Students should be able to pass the Exam require-ment for award of SSGB by ASQ.

Approach to the Course

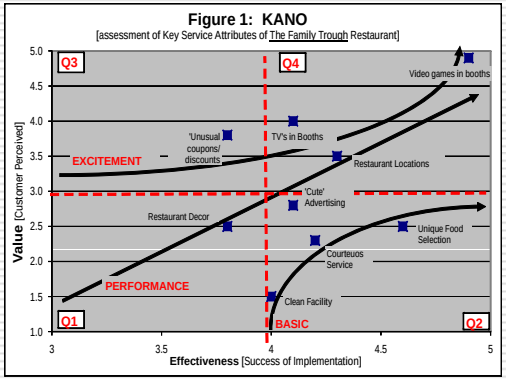


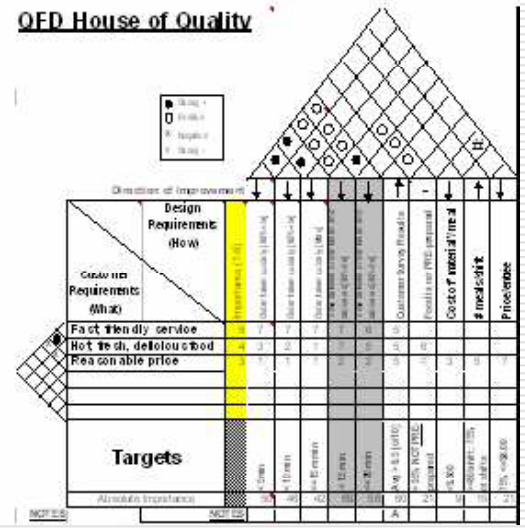
The “Basics”

- VOC
- Statistics
- Understanding Variation
- Root Cause Analysis
- Process Control & Capability

Voice of the Customer [VOC]

- Media for feedback and collection of ‘wants’
- KANO and other mapping tools
- House of Quality
- Other phases of Quality Function Deployment





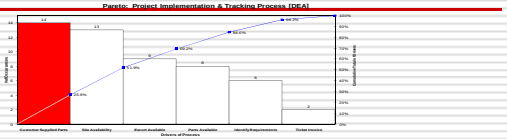
Statistics

- Sampling
- Probability Distribution Functions
- Inferential statistics/ hypothesis testing
- Measurement

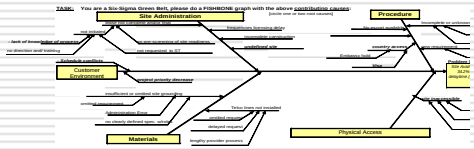
Understanding Variation

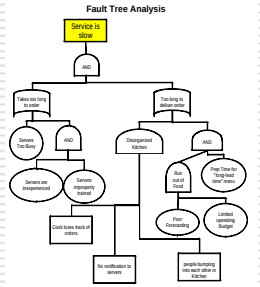
- What six sigma means in statistical context
- Measurement
- Repeatability and reproducibility
- Analysis of variance

Root Cause Analysis

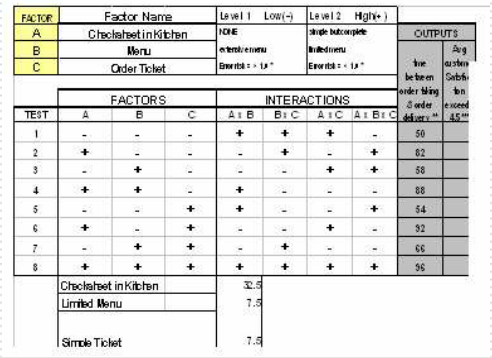


- Simple methods
  - Pareto, Ishakawa diagrams [fishbone]
  - F.A.S.T diagrams
  - Fault Tree Analysis [FTA]
  - Failure Modes and Effects Analysis [FMEA]





- Sophisticated tools
  - Regression
  - Multivariate analysis
  - Statistical Design of Experiments



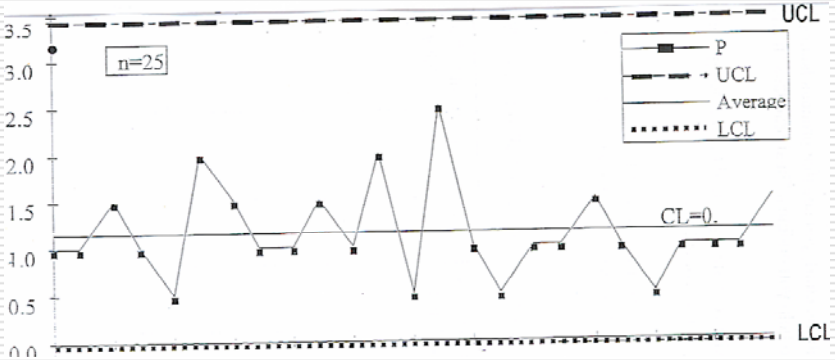
FACTOR	Factor Name	Level 1 Low(-)	Level 2 High(+)
A	Checksheet in Kitchen	NONE	simple but complete
B	Menu	external menu	limited menu
C	Order Ticket	Error bits = < 1 p *	Error bits = < 1 p *

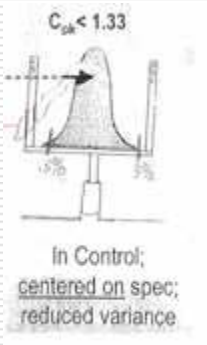
TEST	FACTORS A	B	C	INTERACTIONS A x B	B x C	A x C	A x B x C	OUTPUTS time between order taking & order delivery **	Avg custom Satisfa tion exceed 45***
1	-	-	-	+	+	+	-	50	
2	+	-	-	-	+	-	+	62	
3	-	+	-	-	-	+	+	58	
4	+	+	-	+	-	-	-	88	
5	-	-	+	+	-	-	+	54	
6	+	-	+	-	-	+	-	92	
7	-	+	+	-	+	-	-	66	
8	+	+	+	+	+	+	+	96	

Checksheet in Kitchen	32.5
Limited Menu	7.5
Simple Ticket	7.5

Process Control and Capability

- Control charts
  - Types
  - How to construct
  - Uses
  - Practical exercises
- Process capability
  - Measures
  - How to react to process change
  - Defining guarantees





DMAIC

- Details of the tools and techniques will be introduced through this continuous process improvement methodology
  - Define
  - Measure
  - Analyze
  - Improve
  - Control

Other Topics

- Other Six Sigma methodologies [with examples]
  - DMADV, DMADDD, Design for Six-Sigma
- Overview of Lean philosophy and tools
- OPTIONAL:
  - Do a ‘term project’
  - If enough interest is generated and students are willing to put in the extra time
  - Could be related to improving Baltimore section management processes ?!?

Other Details

- Text to be used:
  - *Certified Six Sigma Green Belt Primer* by QCI [$100 for both text and sample exam with answers]
- Teaching methodology:
  - Advanced readings supplemented by lecture [with real-world experience of practitioners emphasized & in-house practical exercises]
  - May provide a workbook with facts in it [for project & exam]
- Estimate 30 hours of in-class time;
  - broken down between 2 hr evening sessions and
  - 1 to 3 half day Saturday sessions
  - [with student input into exact class schedules]
- CEUs from local college ?

Requirements (to Execute this program)

- Confirmed interest on the part of at least 30 members [see the survey forms on your tables]
- At least 15 committed students
- [from local section] approval and support
  - ✓ arranging facility, collecting course fees, coordination with Milwaukee and local college, if required]
  - ✓ Support from ASQ corporate
- ✓ Support from members in teaching their areas of expertise

Questions

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