Turning Data into Dollars: Using Minitab to Drive Sales

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What We’ll Cover

• Buckman's LSS Journey
• Field Statistics Program
• Examples
• What's Next
Buckman - Who Are We?

• Specialty chemical manufacturer
• Target industries
  o Pulp and Paper
  o Water Treatment
  o Leather
• Corporate headquarters in Memphis, TN
Global Operations

- Asia Pacific
- China
- Central America
- Europe
- Middle East
- North America
- South Africa
- Southern Cone

- Operating in over 90 countries
- 1,600 associates world-wide
- 700 sales, technical support or sales management roles
History of CI Program

1. Q1 2008 - Q4 2009 - VSI Project
2. Q1 2010 - CIWG structure defined
3. Q2 2010 - Deployed basic CI project training to all operating companies
4. Q1 2011 - Managers began asking for additional training on analysis and CI tools
5. Q3 2011 - Lean Six Sigma was selected for next phase of CI program
6. Q2 2012 - LSS Global launch

1.87 point increase in % Operating Profit = $11.7 M increase in annual OP*

* based on average of 2010 - 2015 sales
A "Lean" approach to Lean Six Sigma

Needs analysis identified organizational skill gaps

- Basic tools for all associates
- CI Project Leadership
- Increase data analysis skills

Team formed to develop training program

- Licensed different curriculum
- Engaged LSS consultant for guidance

Statistical toolset was decoupled from DMAIC framework

- Lean Waste Training
  All Associates
- Yellow Belt Training
  CI Project Leaders
- Practical Field Statistics
  Sales Associates
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Technical Sales - "Trusted Advisors"

- Customer Intimate strategy*
- Highly trained technical advisors to our customers
- To be successful, sales associates must have in-depth knowledge of customer's systems
- One customer will often have many programs to support
- Data analysis is critical for effectively managing each of the four main stages of the selling process

*The Discipline of Market Leaders, by Michael Treacy and Fred Wiersema
Training Class Structure

- 3 day class
- 8 - 12 students and 2 trainers
- Concurrent user version of Minitab
- Quality Trainer access
- Students bring their own datasets
- Interactive "Coin Throwing" exercise
  - Generates data for analysis and homework
  - Allows for the immediate application of tools

![Graph showing the throwing line with in-spec and out-of-spec distances: 260 cm, 250 cm, 240 cm, 230 cm, 220 cm, 210 cm, 200 cm, 190 cm, 180 cm, 170 cm, 160 cm, 150 cm, 140 cm, 130 cm, 120 cm, 110 cm, 100 cm, 90 cm, 80 cm, 70 cm, 60 cm, 50 cm, 40 cm, 30 cm, 20 cm, 10 cm, 0 cm. Each distance is marked as either in-spec or out-of-spec.]
Course Outline - Day 1

Introduction
- Class expectations
- An overview of Minitab

Data Analysis Principles
- Data types & analysis structure
- Descriptive statistics & graphing

Voice of the Process
- Common vs. special cause
- Control charts for trials & programs

Voice of the Customer
- Customer requirements vs. VOP
- Process capability studies
Course Outline - Day 2

Day 1 Review
- Review coin throw homework
- Other lessons learned

Sample Size
- Confidence intervals - rolling die
- Running a 2 Sample T-Test
- Other hypothesis tests
- Power of the test & sample size

Scientific Thinking
- Confidence intervals - rolling die
- Running a 2 Sample T-Test

Data Relationships
- Correlation and scatter plots
- Single variable regression
- Other hypothesis tests
- Power of the test & sample size
Course Outline - Day 3

Dynamic Systems
- What influences the system?
- Our applications in the system - CMTs

Multiple Variable Regression
General Linear Model (ANOVA)

Course Summary
- Their next steps and getting help
- Expectations review

Day 2 Review
- Review coin throw homework
- Other lessons learned

Next Level Tools
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Building System Knowledge

- Sales associate generates graphs of critical measures from a customer’s process
- Graphs indicate other factors are impacting key response measures
- Investigation identifies the additional factors impacting the variable
Running Successful Trials

- Sales associate runs a trial to increase production output of a process (lb/day)
- I-Chart & Interval Plot help visualize trial impact
- 2 sample T-test used to estimate trial impact

Difference = \( \mu (\text{Prod Lb/Day - B}) - \mu (\text{Prod Lb/Day - A}) \)

Estimate for difference: 1,823
95% CI for difference: (1,156, 2,490)
T-Test of difference = 0 (vs \( \neq \)): P-Value = 0.000
Managing Ongoing Programs

• Water treatment associate demonstrates different variation from automated vs. manual blow down controllers

• Customer installed controllers on other 2 units

Staged Control Chart and a Test for Equal Variances used to demonstrate reduced variation
Problem Solving

- Defoamer usage had increased and program effectiveness was being questioned
- Analysis indicated a process shift had occurred which was investigated further
- The shift was correlated to a process change made in another area
- A 2 Sample T-test was used to estimate the difference before & after the change
- Customer validated the impact with additional tests
- The defoamer effectiveness was no longer questioned and the business was maintained
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What's Next?

• Re-enforce use of tools on a broader scale with champions

• Work with customers on joint training efforts

• Sales Acceleration Workshops
  o Running trials to obtain new business
  o Effective program management to prevent attrition

• Advanced analysis classes (Sales, Tech. Support and R&D)

• Report automation with Minitab scripts

• Linking statistics with our customer data system (OnSite®)
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