Six-sigma: Breakthrough Strategy or Management Fad?

55th AQC
May 7, 2001
Charlotte, North Carolina
Sponsored by the Statistics Division
Six-Sigma: Breakthrough Strategy or Management Fad?

Moderator:

• Roger Hoerl - GE

Panelists:

• Steve Bailey – DuPont
• Bob Mitchell – 3M
• Goeff Vining – Virginia Tech.
• Steve Zinkgraf – Sigma Breakthrough Technologies, Inc.®
Six-Sigma: Breakthrough Strategy or Management Fad?

Steve Bailey’s Prepared Comments
Six-Sigma: Breakthrough Strategy or Management Fad?

Bob Mitchell’s Prepared Comments
Breakthrough Strategy?
Breakthrough Strategy?

• No
Breakthrough Strategy?

- No
  - DMAIC methodology built on PDCA
Breakthrough Strategy?

• No
  – DMAIC methodology built on PDCA
Breakthrough Strategy?

• No
  – DMAIC methodology built on PDCA
  – Focus is on:
    • Improved customer satisfaction
    • Defect reduction
    • Cost reduction and cycle time reduction
    • Engage every employee
Breakthrough Strategy?

• Yes
Breakthrough Strategy?

• Yes
  – Top-down driven
Breakthrough Strategy?

• Yes
  – Top-down driven
  – Disciplined, highly structured approach
    • Sequencing of key tools
Breakthrough Strategy?

• Yes
  – Top-down driven
  – Disciplined, highly structured approach
  – Results tied to the Bottom-line
    • Customers feel it
    • Shareholders see it
Breakthrough Strategy?

• Yes
  – Top-down driven
  – Disciplined, highly structured approach
  – Results tied to the Bottom-line
  – Leadership development system
    • Statistical Thinking
    • Project Management
    • Value Creation
What would Deming think?
What might Deming think?

Pro

- Management support
- Process oriented approach
- Statistical Thinking
- Addresses all 14 Points
What would Deming think?

Pro
• Management support
• Process oriented approach
• Statistical Thinking
• Addresses all 14 Points

Con
• Encourages internal competition
Management Fad?
Management Fad?

Certainly could be…
Management Fad?

Certainly could be…

• Is Six Sigma a building block in the foundation, or just another “Float in the parade”? 

Jim Buckman
Co-Director, Juran Center for Leadership in Quality
Management Fad?

Certainly could be…

- Float in a Parade
- Instant Pudding
  - Inconsistent management support and commitment
Management Fad?

Certainly could be…

- Float in a Parade
- Instant Pudding
- Variability in consultant experience and competence
Management Fad?

Certainly could be…

- Float in a Parade
- Instant Pudding
- One size fits all
- Management’s short attention span
Future State?

The Dream is of a World

• Cured of critical maladies
• With abundant, affordable, pollution-free energy
• Processing and reprocessing nature’s materials cleanly and sustainable while
• Creating employable, enjoyable bountiful wealth
• Concurrently diminishing poverty
• Driven by universal literacy, higher scholarship
• Connected by unimaginably comfortable, efficient transportation and every imaginable communication
• Where people more free to choose and free from terrorism cooperate more to share in the dream.

Bob Galvin, Motorola
Management Fad?

The Real Issues:

How will Six Sigma evolve?
Management Fad?

The Real Issues:

How will Six Sigma evolve?

What will replace Six Sigma?
Six-Sigma: Breakthrough Strategy or Management Fad?

Geoff Vining’s Prepared Comments
Breakthrough Strategy?
Breakthrough Strategy?

• No
Breakthrough Strategy?

• No
  – Natural Continuation of Earlier Quality and Productivity Improvement Strategies
Breakthrough Strategy?

• No
  – Natural Continuation of Earlier Quality and Productivity Improvement Strategies
  – Nothing Really New in Terms of the Tools Used
Breakthrough Strategy?

• Yes
Breakthrough Strategy?

• Yes
  – Management Attention
Breakthrough Strategy?

• Yes
  – Management Attention
  – Tie of Results to Bottom-line
Management Fad?
Management Fad?

Of Course!!
Management Fad?

Of Course!!

• Terminology
Management Fad?

Of Course!!

- Terminology
- Instant Pudding
Management Fad?

Of Course!!

- Terminology
- Instant Pudding
- Vast Variability in Competence of Consultants
Management Fad?

Of Course!!

• Terminology
• Instant Pudding
• Vast Variability in Competence of Consultants
• Management’s Attention Span
Management Fad?

The Real Issues:
Management Fad?

The Real Issues:

How will Six-Sigma evolve?
Management Fad?

The Real Issues:

How will Six-Sigma evolve?

What will replace Six-Sigma?
Six-Sigma: Breakthrough Strategy or Management Fad?

Steve Zinkgraf’s Prepared Comments
Sigma Breakthrough Technologies, Inc.®
Purpose of Today’s Presentation

• Case Studies
• Six Sigma and Growth
• Six Sigma Process
• Six Sigma Deployment
• Six Sigma Expectations
A Tale of Two Companies

• Company A:
  – End of Year 1: $400,000+ per Black Belt Savings

• Company B:
  – End of Year 1: $65,000- per Black Belt Savings
Balancing Long and Short-Term

“You can’t grow long-term if you can’t eat short-term. Anyone can manage short. Anyone can manage long. Balancing these two things is what management is.”

Jack Welch, CEO
General Electric
Business Week 6/8/98
Case Study 1: Electronics Company

- $1.5 Billion Revenue
- Launched June, 1998
  - Stock had bottomed out
  - Negative profit margins
- First Year: $50 Million savings
  - Cost of Deployment: $1.4 Million
  - 75 BBs; 25 Supplier BBs; 125 GBs
  - 50 Champions
- Today: Well over $100M saved
  - 400 BBs/GBs trained
  - Over $400M cash in the bank
- Executive VP, Six Sigma
  - Six Sigma: “It’s about results”
  - “It is not a program for wimps. It takes staying power and follow-through.”
  - “It’s the best people development tool we have ever deployed”
Case Study 2: Automotive Supplier

- $6.5 Billion Revenue
- Launched Executive Training September, 1999
  - Difficult market with severe emphasis on price reduction
- First Year: $20 Million savings
  - Cost of deployment $3.5 Million
  - 101 BBs; 125 GBs
    - 56 BB and 1 GB projects completed in 2000
    - 100+ Champions
- Today: 2001
  - Deploying DFSS
  - Starting internalization of training and consulting
- VP, Quality
  - “SBTI showed us how to systematically launch a strategic initiative.”
  - “My Six Sigma communication plan is to train 100 BBs and get $100 M.”
Case Study 3: Korean Electronic Company

- $5.5 Billion Revenue
- Launched January 2000
  - Changing market (from picture tubes to flat screen displays)
  - Extreme drops in product pricing
- First Year: $21 Million savings; Revenue increase of over $500M
  - Cost of deployment $3.3 Million
  - 175 BBs
    - 70 projects completed before 4th quarter of 2000
    - 130 Champions
- Today: 2001: Budgeted additional $80M benefit from 2000 projects
  - Fully internalized program
  - Exploring Six Sigma in Technology launch
Case Study 4: Company X

- $6 Billion Revenue
- Launched January 1998
  - Top supplier in market
  - Losing market share to price competition
- First 2 Years: $16 Million savings
  - Cost of deployment $1.7 Million
    - 150 BBs
    - 50 Supplier BBs
    - 60 Champions
- Today: 2001: Internalized program
  - No ownership at business level
  - Majority of BBs report to corporate quality function
Growth Model

Horizon One: Extend and defend core businesses

Horizon Two: Build emerging businesses

Six Sigma also Applies Here

Horizon Three: Create viable options

Profit

Time (Years)
The New View of Six Sigma

<table>
<thead>
<tr>
<th>Identify Value</th>
<th>Provide Value</th>
<th>Communicate the Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Customer Segmentation</td>
<td>- Product Development</td>
<td>- Sales Force</td>
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- Market Selection
- Value Proposition

- Product Development
- Service Development
- Pricing
- Sourcing / Making
- Distribute / Service

- Sales Force
- Sales Promotion
- Advertising

Marketing with Six Sigma
Supply Chain – Sourcing – Purchasing for Six Sigma
Technology Development
Design for Six Sigma
Six Sigma for Services
Six Sigma for Operations

Focused on Growth
Six Sigma Process in Your Business

- **Setting** clear expectations
  - Aggressive goals – $15 million in income for each $Billion in Revenue
  - Bottom line financials

- **Measuring** progress
  - Operational metrics
  - Quantitative and objective

- **Managing** for results
  - Disciplined project selection
  - Rigorous and continuous reviews
  - Reward and recognition for business results
  - Intense communication program

Infrastructure to insure program longevity
A Simple Approach to Deployment

**Process Input:**
Strategic and Annual Business Goals and Targets

- Select the Right Projects
- Select and Train the Right People
- Develop and Implement Improvement Plans
- Manage for Excellence in Operations
- Sustain the Gains

**Process Output:**
Make the Numbers

- Ensure the Right Leadership and Ownership
- Develop a training plan
- Dedicate time for training and application
- Ensure the right support resources are available

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- Processes
  - Measure
  - Analyze
  - Improve
  - Control
- Designs
  - Concept
  - Design
  - Optimize
  - Commercialize

- Stay focused
- Frequently review progress and remove barriers
- Check real business impact
- Continuously communicate progress
- Link to performance management and R&R

- Implement effective control plans
- Conduct regular training focused on the process
- Review the system effectiveness quarterly
- Continually identify and launch new projects
The Right **People**

- **Champions** – political leaders of the program
- **Master Black Belts** – technical leaders
- **Black Belts** – *strategic resources (eating long-term)*
- **Green Belts** – *tactical resources (eating short term)*

Critical mass of paradigm shifters
Premise for Six Sigma Methods

Sources of variation can be
  – Identified
  – Quantified and prioritized
  – Eliminated by control or prevention
The Nature of Variation

• Not all variation is bad
  – New products, new features, new services
• All variation degrades performance
• Variation buffers
  – Inventory
  – Time
  – Capacity
• SBTI’s Six Sigma focuses on
  – Variation due to process
  – Variation due to flow
We meet the customer's requirement 90% of the time – is this acceptable?

Actual delivery over a 20 day period

Expected long-term performance

Customer requires delivery in less than 12 days

We meet the customer's requirement 90% of the time – is this acceptable?
Dissecting Process Capability

Defects
Inadequate Product or Process Design
Inadequate Process Capability
Inadequate Measurement Systems
Supplier Variation
Inadequate Product or Process Design

Process Capability

LSL
USL
Defects
Deployment Approach

• Establish business case first
  – Projects identified that link to strategy and P&L

• Let the business case drive the training plan, not quota’s

• Good planning up front yields big results from the training
### A Generic Deployment Approach

<table>
<thead>
<tr>
<th>Month</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>–2</td>
<td>Comprehensive pre-assessment</td>
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<tr>
<td>–2</td>
<td>SBTI Project Manager Selected</td>
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<tr>
<td>1</td>
<td>Executive Workshop</td>
</tr>
<tr>
<td>1</td>
<td>Financial Group Workshop</td>
</tr>
<tr>
<td>1&amp;2</td>
<td>Business Team Workshops</td>
</tr>
<tr>
<td>2&amp;3</td>
<td>Perform business assessments</td>
</tr>
<tr>
<td>3&amp;4</td>
<td>Initial breakthrough project list</td>
</tr>
<tr>
<td>3&amp;4</td>
<td>Select Champions</td>
</tr>
<tr>
<td>4</td>
<td>Champion Workshop</td>
</tr>
<tr>
<td>4</td>
<td>Finalize Projects and Goals</td>
</tr>
<tr>
<td>4</td>
<td>Black Belt Training Wave #1</td>
</tr>
<tr>
<td>4-9</td>
<td>Site Leadership Training</td>
</tr>
</tbody>
</table>

**Business Case**

Deploy the program

"Fast Launch to Gain Real $ Results Within Eight Months"
Example of a Six Sigma Deployment Plan

Assessments and Leadership workshops

Black Belts
- Operations
- Product Development
- Services

Green Belts
- Operations
- Product Development
- Services

Intense Leadership Focus

Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4
J        | A        | M        | J
F        | M        | J        | A
M        | J        | S        | N
J        | A        | S        | O

2-4 Day Workshops

Wave 1
Wave 2
Wave 3
Wave 4
Wave 5
Wave 6
Wave 7
Wave 8
Wave 9

Develop Business Case
Six Sigma Goals

• Aggressive but reasonable Six Sigma Goal
  – Average $250k per Black Belt project
  – $15 Million in pre-tax income per $Billion in revenue within 12 months after the first wave of Black Belts
  – Requires approximately 4 projects per $Million in goal in well defined Projects
Program Summary

• Six Sigma is *business focused*

• Six Sigma generates *measurable financial results*

• Six Sigma brings your *strategy to reality*
Questions from Statistics
Division Members
Questions from Statistics
Division Members

1. Can we believe the financial results claimed by Six Sigma, and if so, why are they so huge?
2. Since most of the Six Sigma tools are “old” tools, isn’t Six Sigma just a repackaging of TQM?
3. Will Six Sigma be a forgotten buzzword in 10 years?
Questions from Statistics
Division Members

4. Is there a general consensus on the definition of a Black Belt, and if so, what is it?
Questions from Statistics
Division Members

5. What role should academia play in the Six Sigma game?
Questions from Statistics
Division Members

6. What would Deming be saying about Six Sigma if he were still alive?
Questions from the Floor