MBB Lunch Chat/Dialogue, 28 Feb 2014:

Designing, Developing, Deploying "Performance Improvement Programs” in the Context of Corporate Transformations

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Purpose, Objectives, Agenda

**Purpose:** Facilitate a dialogue with you on topics, issues, concerns, challenges, questions you face in your role as a Change and Improvement leader.

**Objectives:**
- Quick get to know me and our Program
- Surface questions you want to chat about;
- Tap into this deck as appropriate
- Create some insights, share points of view with you

**Key Points:**
- MBB’s, in my view, play a major role in transformations and Op Excellence. They were viewed as a strategic hire or development at MDS.
- MBB’s are mentors and role models and NAVY SEALS!
- Learning Efficacy is super critical.
Education and Professional Experience

• The Ohio State University, BSISE, 1973
• Eastman Kodak, Service Systems Engineer, 1973-1975
• The Ohio State University, MSISE and Ph.D., 1978
• Oklahoma State University, Associate Professor, 1978-1984
• Virginia Tech, Full Professor, 1984-1997
• Executive Consultant for/with David Poirier at Loblaws, HBC, Noske Kaeser, Sears Canada (1991-2012)

Areas of Interest

Business Process Reengineering, Large-Scale Organization Transformations, Performance Measurement/Analysis/Improvement, Lean Sigma, Quality and Productivity, Strategic Performance Improvement Planning (strategy and policy deployment), Change Leadership and Management, Management Systems Engineering

Scott Sink rejoined OSU as an Executive in Residence in the Fall of 2007. Scott spent 19 years in academia teaching, writing, consulting and leading Quality and Productivity Centers. He ventured out into the private sector in 2000 and led Business Process Improvement programs at Exchange Solutions (Boston/Toronto) and MDS (Toronto). He successfully launched a best in class Lean Sigma program at MDS (globally) from 2004-2007. Scott served as President of IIE in the early 90’s and has been active with IIE his entire career.
Additional Experience/Data Base—Council on Industrial Engineering 2006 to present
And since 2007 very intensive Experience/Data Base with a variety of very different types of organizations in the Greater Columbus Area.
Integrated Lean and Six Sigma:

The disciplined use of data, facts and ISE principles and methods to improve the effectiveness, quality, efficiency, and productivity of key processes in organizations.
Lean Sigma Foundations

- Operational Definitions
- Data Collection Plan
- Pareto Chart
- Histogram
- Box Plot
- Statistical Sampling
- Measurement System Analysis
- Setup Reduction
- Generic Pull
- Kaizen
- Control Charts
- Process Capability, \( C_p \) & \( C_{pk} \)
- DOE Full & Fractional Factorial
- Conjoint Analysis
- RSM
- Taguchi
- Scorecards
- Pareto Charts
- C&E Matrix
- Fishbone Diagrams
- Brainstorming
- Supply Chain Accelerator Analysis
- Non Value-Added Analysis
- Hypothesis Testing
- Confidence Intervals
- FMEA
- Simple & Multiple Regression
- ANOVA
- Queuing Theory
- Analytical Batch Size
- Brainstorming
- Benchmarking
- Process Improvement Techniques
- Line Balancing
- Process Flow Improvement
- Constraint Identification
- Replenishment Pull
- Sales & Operations Planning
- Poka-Yoke
- FMEA
- Pugh Matrix
- TRIZ
- ‘To-Be’ Process Maps
- Human Factors
- Piloting and Simulation

Your Plans of Study and Process Improvement Preparation

Stat 3450, 3460, 3470; ISE 4120, 5110; ISE 2400, 4500, 3400; ISE 5200, 5300; ISE 3700, 3600; ISE 5810, 5811-12; ISE 2040, 3800, 4900

SELECT/Define

Measure

Analyze

Improve

Control/REALIZE

- Value Stream Map
- Operational Definitions
- DOE Full & Fractional Factorial
- Hypothesis Testing
- ANOVA
- Queuing Theory
- Analytical Batch Size
- Control Charts
- Standard Operating Procedures (SOP’s)
- Training Plan
- Communication Plan
- Control Plan
- Visual Process Control
- Mistake-Proofing
- Process Control Plans
- Project Commissioning
- Project Replication
- Plan-Do-Check-Act Cycle

28.02.2014

Tool Array, based on LSS for Service by Michael George
The way Bloom’s Taxonomy plays out is shown below.

- **Active Practice**
  - Dynamic Complex Open-Ended
  - Structured Close-Ended
  - Structured Simple, Linear Close-Ended

- **Learning Activities**
  - Passive

- **Mastery Level - Bloom's Taxonomy**
  - Knowledge
  - Comprehension
  - Application
  - Analysis
  - Synthesis
  - Evaluation

**ISE 5810 & Core**

**ISE 5811-12 or 4900**
Your course learning resources

Lean Sigma Foundations

MoreSteam University

THE FIFTH DISCIPLINE

Lean Six Sigma & Minitab

Minitab 16

Shareholder Value

Our new release makes analyzing your data easier than ever. Perpetual and introductory versions available for purchase now by students and instructors.

Buy or Rent from $29.99 USD.
Emphasis on them understanding how ILSS fits in the growth of Franchise Value

**POSITIONING STRATEGY**

- Increase Franchise Potential
  - Geographic Coverage / Offerings Provided / Served Segments / Etc.

**RESOURCE ALLOCATION**

- Optimize Relationship Investments
  - (Appropriate / Adequate / Efficient / Effective)
- Value Exchange Management

**EXECUTION**

- Improve Investment Delivery
  - (Flexibility / Cost / Quality)
- Productivity / Quality / Capability & Capacity / Consistency / Efficiency / Global Competitiveness
They have to translate this to their project and it looks like next slide, as example.
Improving pick, pack and ship processes directly relates to the operating margin of the business.

Business Case is comprised of two parts:
1. Non Value Added Time savings of $75/hour
2. Error Proofing Savings
Greatness is a lot about disciplined people (thought, word, deed)—Jim Collins

Disciplined about what?—Peter Senge

- Systems & Statistical Thinking
- Personal Mastery
- Mental Models
- Building Shared Visions
- Team Learning
Performance = f (…….)

Mindset:
- Willingness
- Intention
- Focus
- Attitude
- Values & Ground Rules

Capability:
- Knowledge/ability
- Skill
- Competence
- Experience
- (IQ) Intelligence

Effort:
- Level of Effort
- Efficiency
- Productivity
- Quality of Effort
- preparedness

Performance:
- Personal outcome (e.g. grade, bonus, raise, assignment quality, etc.)
- Output (deliverables)
- Productivity (output/input)
- Effectiveness (doing right things)
- Results (process capability improved, efficiency up, capacity improved, productivity up, etc.)
- Impact (Profit and Loss statement impacted positively, balance sheet improved, franchise value growth)

Attributes:
- ‘connectivity’
- relationship management
- servant mentality
- listening skills
- commitment to serve higher good
- consciousness
- astuteness
- image, positioning, likeability
- EI (Emotional Intelligence)
Program and Project Management Big Component and Emphasis

- An **event**-driven plan for executing the program

  ![Event Diagram]

- **Not** a calendar based plan
- Becomes a **contractual** document (or Commitment in our case)
The Way the IMP Works!

Event (Sig Accompl.)

Event readiness or completion provides a measure of progress

Supporting Accomplishments

Usually there are multiple supporting accomplishments for each event

Supporting Criteria

Usually there are multiple supporting criteria for each accomplishment

First Flight!

First Flight Readiness Review Complete

SEEK EAGLE Flight Clearance Granted
## Simple Overview of the IMP/IMS Relationship

### SYSTEM XX

**INTEGRATED MASTER PLAN (IMP)**

1. Introduction

**INTEGRATED MASTER SCHEDULE (IMS)**

- EVENT based Plan
- “Contractual” document
- Relatively top level

- TASK & calendar based Schedule
- Level of detail necessary for day-to-day execution

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<table>
<thead>
<tr>
<th>ID</th>
<th>TASK Name</th>
<th>Duration</th>
<th>Start Date</th>
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<tr>
<td>1</td>
<td>A01a Needs Analysis</td>
<td>Complete</td>
<td>56h</td>
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<tr>
<td>2</td>
<td>A.01a01 Assign Project Leader</td>
<td>1d</td>
<td>6/1/94</td>
</tr>
<tr>
<td>3</td>
<td>A.01a02 Needs Analysis</td>
<td>3d</td>
<td>6/2/94</td>
</tr>
<tr>
<td>4</td>
<td>A.01a03 Develop Functional Requirements</td>
<td>1d</td>
<td>6/7/94</td>
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<tr>
<td>5</td>
<td>A.01a04 Present Functional Requirements</td>
<td>1d</td>
<td>6/8/94</td>
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<td>6</td>
<td>A.01a05 Functional Requirements Approval</td>
<td>1d</td>
<td>6/9/94</td>
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<tr>
<td>7</td>
<td>A01b Plan/Organization Complete</td>
<td>32h</td>
<td>6/10/94</td>
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<tr>
<td>8</td>
<td>A01b01 Organize Project Team</td>
<td>1d</td>
<td>6/10/94</td>
</tr>
<tr>
<td>9</td>
<td>A01b02 Complete Team Contacts</td>
<td>1d</td>
<td>6/13/94</td>
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<tr>
<td>10</td>
<td>A01b03 Develop Project Timeline</td>
<td>1d</td>
<td>6/14/94</td>
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<tr>
<td>11</td>
<td>A01b04 Obtain Authorization for Resources</td>
<td>1d</td>
<td>6/15/94</td>
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<tr>
<td>12</td>
<td>A01c Project Plan Complete</td>
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<td>6/16/94</td>
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<tr>
<td>13</td>
<td>A01c01 Develop Project Plan Document</td>
<td>1d</td>
<td>6/16/94</td>
</tr>
<tr>
<td>14</td>
<td>A01c02 Signoff Plan by Project Team</td>
<td>1d</td>
<td>6/17/94</td>
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<tr>
<td>15</td>
<td>A01d Project Plan Approved</td>
<td>16h</td>
<td>6/20/94</td>
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<tr>
<td>16</td>
<td>A.01d01 Present Plan Management</td>
<td>1d</td>
<td>6/20/94</td>
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<tr>
<td>17</td>
<td>A.01d02 Approve the Plan</td>
<td>1d</td>
<td>6/21/94</td>
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<tr>
<td>18</td>
<td>A01e Project Start-up Announcement</td>
<td>8h</td>
<td>6/22/94</td>
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<tr>
<td>19</td>
<td>A01e01 Distribute Approved Plan</td>
<td>1d</td>
<td>6/22/94</td>
</tr>
<tr>
<td>20</td>
<td>A01e02 Issue Site Communication</td>
<td>1d</td>
<td>6/22/94</td>
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An Analytics Component is increasingly an integral element and focus

- Data selection / gathering
  - Find the data you need

- Cleaning
  - Assure the data quality – 2103, 3013, ...

- Integration
  - Assure these data can be joined with those other data

- Storage
  - Make sure the data are stored where you can get at them & use them

- This already looks like a full-time role, and we haven’t even started analyzing anything yet ...

In the craft process, one analyst is responsible for all aspects above
Generally, analyses will be great, but they will have long cycle times
I think some above the line stuff comes first and then it helps you with Measurement Plans and MSA—applying business acumen in particular.

- **Foundational data role**
  - Select and gather data from many sources, preferably through automated extract, transfer, & load (ET&L) process
  - Assure data are cleaned & ready for analysts to use – data quality monitors
  - Assure data are integrated & can be joined with other data – think LEGOs
  - Assure data storage is high reliability & user-friendly – SSAS cubes, databases

- **“Above the line” analyst role**
  - Extract features from data through statistical analyses
  - Apply business acumen to data & analyses – create new knowledge
  - Apply data visualization techniques to aid in telling the right story – as in life, so in business: the best story wins …

- In the current state process, we split data and analytics
- Data are stored in a common place, and are trusted and available

S. Cunningham; Intel Corporation; 2013
So, now that you know me and the program a bit...

- What Questions do you have for me?

- What do you struggle with most?

- What are you learning that you feel is going to make you more capable of contributing more, faster?

- ......
Designing, Developing, Deploying “Performance Improvement Programs” in the Context of Corporate Transformations

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Director, Integrated LeanSigma Certification Program
College of Engineering
Integrated Systems Engineering
Kotter’s Model

The context of the MBB role is often transformations of some type, size, form.

<table>
<thead>
<tr>
<th>EIGHT STEPS TO TRANSFORMING YOUR ORGANIZATION</th>
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<tbody>
<tr>
<td>1 Establishing a Sense of Urgency</td>
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<tr>
<td>2 Forming a Powerful Guiding Coalition</td>
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<tr>
<td>3 Creating a Vision</td>
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<tr>
<td>4 Communicating the Vision</td>
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<tr>
<td>5 Empowering Others to Act on the Vision</td>
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<tr>
<td>6 Planning for and Creating Short-Term Wins</td>
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<tr>
<td>7 Consolidating Improvements and Producing Still More Change</td>
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<tr>
<td>8 Institutionalizing New Approaches</td>
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</table>

- Establishing a Sense of Urgency
  - Examining market and competitive realities
  - Identifying and discussing crises, potential crises, or major opportunities

- Forming a Powerful Guiding Coalition
  - Assembling a group with enough power to lead the change effort
  - Encouraging the group to work together as a team

- Creating a Vision
  - Creating a vision to help direct the change effort
  - Developing strategies for achieving that vision

- Communicating the Vision
  - Using every vehicle possible to communicate the new vision and strategies
  - Teaching new behaviors by the example of the guiding coalition

- Empowering Others to Act on the Vision
  - Getting rid of obstacles to change
  - Changing systems or structures that seriously undermine the vision
  - Encouraging risk taking and nontraditional ideas, activities, and actions

- Planning for and Creating Short-Term Wins
  - Planning for visible performance improvements
  - Creating those improvements
  - Recognizing and rewarding employees involved in the improvements

- Consolidating Improvements and Producing Still More Change
  - Using increased credibility to change systems, structures, and policies that don’t fit the vision
  - Hiring, promoting, and developing employees who can implement the vision
  - Reinvigorating the process with new projects, themes, and change agents

- Institutionalizing New Approaches
  - Articulating the connections between the new behaviors and corporate success
  - Developing the means to ensure leadership development and succession
Operational Excellence
2004-2007 Planning, Development, and Deployment
In 2010, MDS Inc. completed a strategic repositioning which saw the Company divest its MDS Analytical Technologies and MDS Pharma Services businesses. Also in 2010, shareholders of MDS Inc. approved a change of name from MDS Inc. to Nordion Inc. The Company officially changed its name to Nordion Inc. on November 1, 2010.\[4\]
So.....

- What you are going to hear is a case study about the role a Performance Improvement Program played in a larger enterprise transformation.

- It’s neat because it highlights that this type of work does play a role in a larger transformation even though ultimately transformation did not work out the way the founding leaders perhaps envisioned it.

- I think that without the Op Ex Program, the divestiture sales would have been much less than they were. Diagnostics, for example: the CEO told me that he felt we got in excess of 25% more for the business than we would have had the LeanSigma Program not have been part of the way they ran the business.
Key Success Factors—Early out

**KSF #1:** A Leader, John Rogers, CEO, MDS and David Poirier, President of MDS Enterprise Services, who positioned ISE and BPI as a key component in the MDS Transformation in 2003-04.

**KSF #2:** The CEO was replaced in 2005 by a young leader who had seen the benefits from an Op Ex Program driven with Integrated LeanSigma in another Life Sciences organization so sustained support was an important factor.

**KSF #3:** Alignment between the CEO, President, and I around the Vision (intended Future State—3 years out), the current state and the migration strategy and plan.
Operational Excellence 2010 – At a Glance

2005-2006
Start-up & Initial Deployment

2007- 2009
Migrating to Full Potential For Customer Excellence

Sustainable Operational Excellence:

**LeanSigma** is in the DNA of MDS

# of active and productive belts

<table>
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<tr>
<th>2010</th>
<th>~120 fte Belts, 150 projects, $15M Total Benefits</th>
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<tbody>
<tr>
<td>Steady State = TBD</td>
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Performance

- < 40 fte Belts, 60 + projects, $6M Total Benefits
The ‘End Game’ is to Optimize the Lifetime Value of various stakeholders in the system (customers, internal and external; employees; shareholders; the business)

- There is a science and there are explicit methods that can be utilized to do this
- Formalized Performance Improvement Programs (e.g. Op Ex) can have huge impact
- Blended, broad, balanced views and capabilities on types of improvement methods is required.

**End Game for our Performance Improvement Efforts—Growing Enterprise Value**
Our Performance Improvement Efforts should be aimed at aligning to Business Strategies (policy deployment) but clearly in one or more of these three buckets:

1. **POSITIONING STRATEGY**
   - Improve Positioning via...
     - Geographic Coverage / Offerings Provided / Served Segments / Branding/ Imaging, etc.

2. **VALUE EXCHANGE OPTIMIZATION**
   - Managing the Exchange of Value With Stakeholders
     - Altering the Give/Get, Responding to unmet and unfulfilled needs, QFD, Innovation, Rebalancing Segment Investment

3. **OPERATIONAL EXCELLENCE**
   - Improve Quality, Efficiency, Productivity, Innovation, Engagement, Quality of Work life, Sustainability
     - Apply principles and methods of ISE and ILSS
ISE + the ‘right’ performance improvement strategy and methods will push ‘levers’ in the EVM and then drive enterprise value growth (every project should map this out)

Enterprise Value Map
Practical paths to increase shareholder value
I was recruited to lead the Operational Excellence ‘Plank’ in the MDS Enterprise Transformation in 2004 (reported to President of Enterprise Services)

<table>
<thead>
<tr>
<th>Process</th>
<th>Outcomes</th>
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</table>
| **Business Performance Reviews** | • Weekly EMT teleconferences  
• Monthly business reviews  
• Disciplined annual plans  
| • Action oriented decision making  
• Tighter accountability  
• Customer responsive |
| **Talent Management** | • Biannual talent reviews  
• New executive compensation plan  
| • Better understanding of “A” performers; enriched career path  
• Expansion of variable compensation opportunity  
• Alignment of shareholder and management incentives |
| **Customer/Competition/Capital** | • Business unit/Corporate strategy  
• Detailed industry analysis  
• Customer value led process  
| • Longer range growth agenda  
• Focused R&D investments  
• Capital matched to growth |
| **Operational Excellence** | • Lean Sigma Roadmaps and Toolkit  
• Compliance Programs (EHS, Quality, etc.)  
• LeanSigma Practitioner Development  
• Balanced Improvement Portfolios  
| • Standard approach across the Enterprise  
• Building global quality competitiveness, productivity improvement, process and cost efficiency, compliance and assurance  
• Simplify processes  
• Customer responsive |
The Equation for Success (Possibilities and Drivers)

\[ Y \ (\text{sustainable, best-in-class business results}) = f(\ X \ (\text{key driver variables})) \]

- 2-3% of Total Enterprise Revenues in Hard Benefits Annually
- > $125,000 in Hard Benefits / Project
- Right Size the process improvement and business process improvement specialist pool over time to build capacity to support the required level of improvement in our business plans and objectives.
- 40% of our employees actively engaged in improvement of what we do and how we do it at any given moment in time

X1: Leadership & Management Alignment and Commitment
X2: Pick the right ‘belts’
X3: Best-in-class training and development
X4: Pick the right projects
X5: Skillful, disciplined, sustainable execution of LeanSigma Methodology;
X6: Celebrate successes and use them as a catalyst for even more success
X7-n......(e.g. infrastructure, communication front, etc.)
Key Success Factors—Early out

**KSF #4:** Employing BMGi to help us *get the design right.* They saved us a year probably by ensuring we got first things first.
- eHandbook
- Roles and Accountabilities
- Deployment launch learnings
- White Belt Design and execution assistance early out
- Picking right projects advice

**KSF #5:** Deciding to purchase an *Enterprise Program Management System* (Enterprise Track)
- tactical investment that paid off strategic dividends for us as we evolved

**KSF #6:** The development of an *Enterprise Design, Development, Deployment Team (DDT).*
- Senior Leaders/Manager from each of 12 units, my counterpart in the units—Deployment Leaders
The First Six Months was Benchmarking, Partnering, Socializing with the Senior Team, Readying to do White Belt Training to the top 250 leaders

- Engage the ‘Right’ People
- Pick the Right Projects
- Best in Class Training
- Discipline around Methodology
- Celebrate Successes to get the ‘fly wheel’ spinning

Lean Sigma Foundations

Program Initialization & Infrastructure

Control Documents

EnterpriseTrack:
Program and Project Tracking

E- Handbook:
LeanSigma Policies & Guidance

Source External LeanSigma Expertise (BMG and MoreSteam)

Curriculum Foundation
Leadership Alignment & Support Infrastructure was a Critical Early Factor

1) Pick the right belts and 2) surround them with the support requirements they need to be successful.

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Key Success Factors—Early out

**KSF #7:** The Infrastructure strategy being thought through and endorsed by the top 12 leaders to include the development of Value Stream Owners. I had a sense that VSO’s would be a critical role for success and discovered later just how important that was.

**KSF #8:** The early and rapid execution of White Belt Training Sessions for the top teams (12 teams roughly top 20 from each team = top 240) of every unit in MDS followed closely thereafter by another Strategy Session with the CEO and his top team. Then very closely after that another round of WB sessions in every unit resulting in a rapid blitz of socializing and alignment of Principles, Strategies, Plans. Within 6 months we had totally positioned the entire organization for what was to follow.
Basics of the White Belt Sessions—2 full days with the top team in each of the 12 units.

- a review of the MDS and Unit Strategic Plans
- a review of the Op Ex Program
- an overview of Lean and SixSigma
- a 6 hour Lean Physical Simulation, hands-on, experiential.
- time to reflect on implications from learnings and insights from the simulation to their situation
- then a planning session for the unit—DONE in 12 months, Current State. Gaps and strategy to close gaps. Value Stream Mapping, high level, and pick initial projects.
Managing the Fronts over time

**THE STRATEGY AND APPROACH**

- **Program Initialization**
  - Engage the ‘Right’ People
- **Pick the Right Projects**
- **Best in Class Training**
- **Discipline around Methodology**
- **Celebrate Successes to get the ‘fly wheel’ spinning**

**Point of Departure (2004):**
- Isolated Process Improvement Initiatives
- Inconsistency in method and approach
- Low penetration across the business
- Not sustainable (starts and stops)

**CURRENT STATE**

**Point of Arrival (2008-2010):**
- Best-in-class LeanSigma Program with Sustainable Productivity and Impact:
  - 2% (of Revenue) in Annual Benefits
  - Critical mass of seasoned and skilled belts
  - Way of doing business
  - ‘Good kind of tired’

**FUTURE STATE**
KSF #9: Allowing Project Selection to emerge naturally in the first year for the process improvement specialists in training. Often was voice of employee driving—eliminate paint points.

- Taking a very broad view of ‘improvement’ to include DfLSS, DMAIC, Kaizen’s, A3, Continuous Improvement (e.g. quick wins, PDSA, etc.)
- Not forcing strategy and policy deployment, top down, too early, allowing this to be bottom up. The CEO referred to is as Controlled or Organized revolution from bottom up.
  - “Our strategy in year 1 was to bubble up the talent and the projects, leave a lot of local control and direction, get people using the tools, pick projects that people are ‘jazzed’ about”
  - “I suspect that our portfolio is focused on process pain points right now and light in areas that actually touch the customer and we have to focus on beefing up this dimension of the portfolio”

KSF #10: Picking the right candidates and optimizing the training.

- Picking the right people was a serious decision, not taken lightly. Like a company would pick someone for an Executive MBA.
- We started with a traditional ‘death by powerpoint’, standard belt training program but decisively and rapidly killed that in favor of a Blended Training Program with MoreSteam. One of our best decisions!!
Lean Sigma Foundations

Innovation & Design for Lean Sigma

Sigma

Lean

Continuous Improvement

Breakthrough

"Fruit on the Ground" — Logic & Common Sense — Kaizen’s
That Core teams work on

"Low Hanging Fruit" — Lean Workout and Kaizen Blitz events

"Bulk of the Fruit" — DMAIC
(Statistically based problem solving)

"Sweetest Fruit" — Innovation and DFLS

"Fruit on the Ground"
Logic & Common Sense — Kaizen’s
That Core teams work on
Corporate Transformation and Operational Excellence

1—Jump Curves—Transformation, Re-engineering, Accelerated Innovation (Tech Arc’s), acquisitions, new market entry, breakthroughs, DfILSS

2—Focused Steep Curves—DMAIC, DfILSS, Big Kaizen Blitze’s

3—Synergy from lot’s of little curves—Continuous Improvement, Kaizen Blitzes, PDSA,
Sustainable Operations Excellence—The integration of CI, Op Ex, DMAIC and DfLSS
Lean Sigma Foundations WorkOuts or Value Stream Mapping Workshops help to build a Continuous Improvement Blueprint. Business Strategies are context for picking right projects then the BPI team picks right method.

- **Reduce Costs**
  - $$$$ Reduce Costs
  - Nike 2
  - DMAIC 1
  - Kaizen 1

- **Improve Service**
  - $$$$ Improve Service
  - DMAIC 2
  - Nike 1
  - DMAIC 3

- **Increase Revenue**
  - $$$$ Increase Revenue
  - Kaizen 2
  - DMAIC 1

Program Initialization ➔ Engage the ‘Right’ People ➔ Pick the Right Projects ➔ Best in Class Training ➔ Discipline around Methodology ➔ Celebrate Successes to get the ‘fly wheel’ spinning.

Initial Workout/Kaizen Event (WOKE)
1. Belt candidates are identified as a normal outgrowth of an organization's performance management and development process;
2. Belt candidates are ‘assessed’ using a set of 11 dimensions by 2-3 people and companies are beginning to use profile instruments also.
3. The Deployment Manager or a Unit BB will compile the results and convene a short meeting to determine the qualifications of the candidate for the program.
4. Successful candidates will then be scheduled into the next available GB or BB training class.
5. Progress and Performance reviews of candidates during the certification process are part of the ‘discipline around the methodology’ portion of the overall program.
The 11 Dimensions

1. Passion for Improvement, (personally, professionally and organizationally), Operational Excellence, LeanSigma –

2. Intellect, Analytical and Technical Skills for this type of work:


4. Business Process knowledge, Content Knowledge –

5. Ability to spend required time –

6. Customer Focus and Creation of Franchise Value orientation

7. Respected by the Organization

8. Training, Coaching, Communication Skills

9. Leadership Values, Core Competencies, Skills

10. Ability to catalyze and cause change through influence

11. Business Acumen, Functional competencies
**Profile for Thinking Style** – Learning index, Verbal Skill, Verbal Reasoning, Numerical Ability, and Numeric Reasoning.

**Profile for Behavioral Traits** – Energy Level, Assertiveness, Sociability, Manageability, Attitude, Decisiveness, Accommodating, Independence, and Objective Judgment.

**Profile for Interests** – Enterprising, Financial/Administrative, People Service, Creative, Technical, and Mechanical.

**The Total Person** – Additional information regarding the belt and the significance of his/her scores.

**Coaching Comments** – Ideas for your consideration when coaching the Belt.

28.02.2014
The Darker shading represents the Job Match Pattern for the role of Baseline LSSigma Profile - Green Level. The larger box indicates this individual's score.

**Profile for Thinking Style**

- **Learning Index** – An index of expected learning, reasoning and problem solving potential.
- **Verbal Skill** – A measure of verbal skill through vocabulary.
- **Verbal Reasoning** – Using words as a basis in reasoning and problem solving.
- **Numerical Ability** – A measure of numeric calculation ability.
- **Numeric Reasoning** – Using numbers as a basis in reasoning and problem solving.

**Profile for Behavioral Traits**

- **Energy Level** – Tendency to display endurance and capacity for a fast pace.
- **Assertiveness** – Tendency to take charge of people and situations. Leads more than follows.
- **Sociability** – Tendency to be outgoing, people-oriented and participate with others.
- **Manageability** – Tendency to follow policies, accept external controls and supervision and work within the rules.
- **Attitude** – Tendency to have a positive attitude regarding people and outcomes.

28.02.2014
Quick overview of how we evolved our training

1. We started with ‘off the shelf’ LeanSigma (more six sigma) training from BMGi. They led the first wave.
2. I sat in on all five sessions. Five sessions spread over 20+ weeks, projects concurrent.
3. My sense was that it was death by powerpoint (or now it would be death by ‘flash’ e-learning) and not effective or efficient.
4. I benchmarked rapidly and found Moresteam’s Blended Training Model and quickly made the transition. Have been doing that since 2005, for 8 years now.
5. Continue to benchmark at Moresteam’s Annual Blended Training Conference held at OSU or Notre Dame.

28.02.2014
We utilized Blended Training and Concurrent Study/Learn-Do model.

Blended Training Model

Concurrent Certification Project
Traditional Training Models

Traditional model (Train-Do) of in-class training followed by work on the DMAIC project

Enhanced Training Model

E-Learning / Self Paced learning modules with reduction to practice workshops built in while belt works on a DMAIC project

Program Flow Approach

This process may be repeated several times

Core-and-Spoke Approach

On-site Labs
Web-based courseware
Mentors
Web Portals
pages
Classroom instruction

28.02.2014
Lean Sigma Foundations

Your Final Tollgate should occur about here

Class 3B Planned Blended Training Schedule (LS Knowledge/Skill Acquisition)

- Training Day Session 1 & 2: Define
  - 2/15/2007
- 2/28/2007 Training Day Session 3: Define
- 3/13/2007 Training Day Session 5: Measure II
- 4/12/2007 P&P #2
- 5/16/2007 P&P #3
- 6/1/2007
- 3/26/2007 P&P #1
- 4/1/2007
- 5/1/2007
- 6/1/2007
- 7/1/2007
- 8/1/2007
- 9/1/2007
- 10/1/2007
- 11/1/2007
- 12/1/2007
- 1/1/2008
- 2/1/2008
- 2/15/2008

- RTP Week 1 (Reduction to Practice)
  - Lean Simulation
  - SPC Simulation
  - Process Capability Simulation
  - Value Stream Mapping Simulation
  - D-M-A Roadmap Project Workshops
  - Graphical & Statistical Analysis (student data)
  - Intro to Inferential Statistics
  - Homework
  - Science Fair (Project Round Robins)
  - Other 4 Discipline Exercises
  - Teach Learn Exercise
  - “Fishbowl” P&P with previous classes

- RTP Week 2 (Reduction to Practice)
  - DOE (MAIC) Simulation
  - Future State Mapping & Solution Elements
  - Flow – Little’s Law
  - Case Study -Future State
  - A-I/C-I-R Roadmap Project Workshops
  - Reinforce & Practice- Inferential Statistics
  - Homework
  - Science Fair Presentations & Rating
  - Project Round Robins
  - Other 4 Discipline Exercises
  - “Fishbowl” P&P with previous classes
  - Case Studies – MDS Belts

- Kickoff Wave 2b
  - 2/15/2007

- Training Day Session 6: Analyze 1

- Training Day Session 7: Analyze II
  - 5/16/2007

- Training Day Session 8: Improve
  - 5/17/2007

- Training Day Session 9: Control
  - 5/18/2007

- Training Day Session 10: RTP Week 1 (Reduction to Practice)
  - 6/15/2007 Complete 4 hr Exam

- Training Day Session 11: Analyze III (DOE)
  - 4/1/2007

- Training Day Session 12: Improve
  - 7/12/2007

- Training Day Session 13: Control
  - 8/9/2007

- Training Day Session 14: RTP Week 2 (Reduction to Practice)
  - 9/13/2007

- Training Day Session 15: Control
  - 10/18/2007

- RTP Week 1 (Reduction to Practice)
  - P&P #10

- RTP Week 2 (Reduction to Practice)
  - P&P #10
Key Success Factors—First & Second Year (05-06)

**KSF #11:** Rapid Deployment of Training and Execution on Impactful Projects. Keep all the training relevant and focused on end game!!

**KSF #12:** slowly but surely align project selection to overall Business Strategy, needs, objectives. In short practice Hoshin Kanri asap!! Get the units to be rationally, consciously be building their project portfolios (picking projects) based on how they can contribute to growing franchise value.

**KSF #13:** sustain a rolling five year plan so that people are always looking up and out with respect to the impact the program is intending to have on the business.
We’ll have 86 Belts active in training by September and our plans call for 70 more GB’s and 22 BB’s in 2007.
## Mid-Year Assessments (self-assessments from Deployment Leaders)

<table>
<thead>
<tr>
<th></th>
<th>Diag.</th>
<th>Sciex</th>
<th>Pharma</th>
<th>Nordion</th>
<th>IT</th>
<th>Finance</th>
<th>HR</th>
<th>SCM/ REF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Overall Deployment Progress &amp; Performance?</td>
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<tr>
<td>2: Picking the right belts</td>
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<tr>
<td>3: Picking the right projects</td>
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<td>4: Training</td>
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<tr>
<td>5: Coaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>6: Belt Productivity</td>
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<td></td>
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<tr>
<td>7: Success, impact to date</td>
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<tr>
<td>8: Program ROI (benefit to burden)</td>
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</table>
The 86 belts in 2006 are driving 100+ projects with Benefits-in-process in excess of $6M

Our initial 2007 Plan calls for more than doubling the number of projects and benefits
## Operational Excellence ’07 Planning and Budgeting

**MDS Franchise Value Growth:**
Customer Excellence, People Excellence, Business Excellence

### MDS Operational Excellence *(LeanSigma)* 2007 Objectives

<table>
<thead>
<tr>
<th>Direct Benefits</th>
<th>Unit Capability Development Objectives</th>
<th>Employee Pull, Pain Points</th>
<th>Other Benefits (EHS, QWL)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$15M</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pharma</strong></td>
<td><strong>Pharma</strong></td>
<td><strong>Pharma</strong></td>
<td><strong>Pharma</strong></td>
</tr>
<tr>
<td>~$6M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nordion</strong></td>
<td><strong>Nordion</strong></td>
<td><strong>Nordion</strong></td>
<td><strong>Nordion</strong></td>
</tr>
<tr>
<td>TBD</td>
<td></td>
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</tr>
<tr>
<td><strong>Sciex</strong></td>
<td><strong>Sciex</strong></td>
<td><strong>Sciex</strong></td>
<td><strong>Sciex</strong></td>
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<tr>
<td>TBD</td>
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<tr>
<td><strong>FIN</strong></td>
<td><strong>FIN</strong></td>
<td><strong>FIN</strong></td>
<td><strong>FIN</strong></td>
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<tr>
<td>TBD</td>
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<td></td>
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</tr>
<tr>
<td><strong>SCM/REF</strong></td>
<td><strong>SCM/REF</strong></td>
<td><strong>SCM/REF</strong></td>
<td><strong>SCM/REF</strong></td>
</tr>
<tr>
<td>$.8M</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pharma**

**Nordion**

**Sciex**

**IT**

**HR**

**FIN**

**SCM/REF**
## Portfolio Strategy Evolution for Pharma

### Hard Benefits (Net)
- 25 = >$125k
- 20 = $100
- 15 = $75
- 10 = $50
- 5 = $25
- 0 = $0

### Direct/Positive Impact (e.g. DRIVER) to Unit 2006/07 Objectives (Indirect, Productivity, Capability and Capacity Development):
- 25 = Must Do, critical to the accomplishment of one or more key UO
- 15 = Important to do, will have significant impact
- 5 = Important but not urgent, could be deferred

### Sustainable Motivation to Fix the Process:
- 25 = Intentionality is high, entropy not an issue, employees ‘jazzed’ about this
- 15 = there are key sponsors and drivers for this, interest is high in critical to success areas
- 5 = There is sponsorship but entropy could be an issue to contend with

### Other Benefits (QWL, EHS)
- 25 = these factors alone make this a ‘must do’
- 15 = one or more of these factors make this a potentially important component of my VS portfolio
- 5 = one or more of these factors clearly supports the case for this being in my portfolio

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>60%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>($1.4M)</td>
<td>($6M)</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>25%</td>
<td>30%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>50%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
</tr>
</tbody>
</table>

More projects that have direct and positive impact on customer experience and on the numerator of the profitability equation.
## Forecasting Pharma Services LeanSigma Benefits

<table>
<thead>
<tr>
<th>Value Stream</th>
<th>Current 2007 Project Run Rate (25 projects)</th>
<th>1% of Revenue ($6M)</th>
<th>Variance</th>
<th>1.5% of Rev ($9M)</th>
<th>2% of Revenue ($12M)</th>
<th># 2006 additional belts</th>
<th># add’l 2007 belts</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSA</td>
<td>$660</td>
<td>$660</td>
<td>$990</td>
<td>$1,320</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharma</td>
<td>$660</td>
<td>$660</td>
<td>$990</td>
<td>$1,320</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECR</td>
<td>$492</td>
<td>$1,380</td>
<td>$888</td>
<td>$2,070</td>
<td>$2,760</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAS</td>
<td>$233</td>
<td>$960</td>
<td>$727</td>
<td>$1,440</td>
<td>$1,920</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GCL</td>
<td>$525</td>
<td>$960</td>
<td>$435</td>
<td>$1,440</td>
<td>$1,920</td>
<td></td>
<td></td>
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<tr>
<td>GCD</td>
<td>$190</td>
<td>$1,380</td>
<td>$1,190</td>
<td>$2,070</td>
<td>$2,760</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$1,440</td>
<td>$6,000</td>
<td>$4,560</td>
<td>$9,000</td>
<td>$12,000</td>
<td>23</td>
<td>40</td>
</tr>
</tbody>
</table>
ISE + the ‘right’ performance improvement strategy and methods will push ‘levers’ in the EVM and then drive enterprise value growth (every project should map this out).
## Directional 5 year plan

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Hard/Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td>$6M/</td>
<td>$10M/</td>
<td>$20M/</td>
<td>$30M/</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>$10M</strong></td>
<td>$16M</td>
<td>$30M</td>
<td>$45M</td>
<td></td>
<td></td>
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<tr>
<td><strong>Gross</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td>$1B</td>
<td>$1B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Benefit/</strong></td>
<td>.6%</td>
<td>1.6%</td>
<td>2%</td>
<td>2.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Investment</strong></td>
<td>~$3M</td>
<td>~$6M</td>
<td>~$7M</td>
<td>~$7M</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Benefit/</strong></td>
<td>&lt;1:1</td>
<td>2:1 (3:1)</td>
<td>3:1</td>
<td>6:1</td>
<td>6:1</td>
<td>6:1</td>
<td>6:1</td>
</tr>
<tr>
<td><strong>Investment</strong></td>
<td>(2:1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Belts: M/SBB</strong></td>
<td>3 (1:4)</td>
<td>4 (1:8)</td>
<td>5 (1:7)</td>
<td>6 (1:10)</td>
<td>1:10</td>
<td>1:10</td>
<td>1:10</td>
</tr>
<tr>
<td><strong>BB</strong></td>
<td>BB</td>
<td>BB</td>
<td>BB</td>
<td>BB</td>
<td>BB</td>
<td>BB</td>
<td>BB</td>
</tr>
<tr>
<td><strong>FT Belts</strong></td>
<td>12 (.2%)</td>
<td>24 (.4%)</td>
<td>40 (1%)</td>
<td>60 (1%)</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td><strong>PT Belts</strong></td>
<td>51 (.9%)</td>
<td>130 (2.5%)</td>
<td>220 (4%)</td>
<td>300 (6%)</td>
<td>350 (7%)</td>
<td>500 (10%)</td>
<td>10%</td>
</tr>
</tbody>
</table>

*Note: For PT Belts, the percentages are based on the total revenue.*
Key Success Factors—First & Second Year (05-06)

KSF #14—Develop that culture of discipline that Jim Collin’s speaks about starting with the ISE’s/Belts/PI specialists. Work on all five disciplines from Senge, Fifth Discipline.

- Program and Project Management and Tracking
- Weekly Progress and Performance updates
- High quality, hands on coaching.
- ‘Navy Seal’ metaphor was used at MDS

KSF #15—Right balance between creative tension, frustration, outside comfort zones, and celebration.
Lean Sigma Foundations
Program Initialization
Engage the ‘Right’ People
Pick the Right Projects
Best in Class Training
Discipline around Methodology
Celebrate Successes to get the ‘fly wheel’ spinning

• We used Enterprise Track, Instantis, at MDS
• I use MoreSteam’s TRACtion at OSU
• they essentially are ‘light’ EDMS.
• I use weekly P&P updates and A3 templates as a way to keep people’s feet to fire, especially during training and certification cycle.
- We held semi-annual top 200 Leadership Summits.
  - one of the agenda items was a ‘bake off’ of the best of best projects from the units. Deployment Leaders and VSO’s nominated them.
  - the teams presented and then the top 200 voted and ranked. Top 3 teams received ‘options’ (reasonably significant) as well as other ‘awards and rewards’ and lots of publicity in intranet.

- As the Enterprise Deployment Leader, I think one of my biggest challenges was managing motivation over time from the individual level up to the Organization Level. Sort of the Jack Welch point about this all being about Energy Management. I see that here at OSU too.
2007 Strategy and Policy Guidance
(Stephen DeFalco)

- October will be our 1-year anniversary, I’m generally pleased with progress and performance on the deployment
- LS is becoming engrained in the vocabulary of a critical mass of leaders and managers, we’ve got some good traction
- Our strategy in year 1 was to bubble up the talent and the projects, leave a lot of local control and direction, get people using the tools, pick projects that people are ‘jazzed’ about
- You have to do a couple of these projects to really get a sense of the potential and possibilities, expectations will grow as people get some under their belt, they will up the ante on their expectations for ‘size of prize’ to 30-70% improvements
- Where do you want to take this in 2007?
  - I want to add in a little top-down expectation setting that will build demand for LS skills in the 2007 Operations Plans
  - We want to break out of our ‘price-recovery’ habits as the way to sustain profitability and stress productivity improvement
  - I want people to get out of the habit of seeing this as cost-reduction, we’re growing in most of our business areas so the issue is productivity improvement to a large extent, I don’t think people generally understand this about LS.
  - There will be numerical goals in 2007 for the program, how we come up with these will vary from unit to unit
• We need to be willing and able to individually and collectively ensure we have the right people sitting around this table and I expect Scott to play an active role in that process.

• I’m holding BPI accountable for quality assurance on our Black Belts, in particular, they must be actively involved in the selection and placement of all Black Belts. Scott will be participating in the PDProcess for these people.

• The Deployment Leader and Manager role has worked well for us during start-up and we need to step-it-up in terms of pipeline and portfolio management the rest of this year and in 2007.

• VSO role is a mixed bag for me. It’s worked very well in some areas but in some areas we’ve got the wrong person or the wrong level in that seat on the bus.
  – I’m once again expecting Scott to help me address this recurring issue and I will work with my staff to resolve.

• Never miss an opportunity to talk about successes at any and all ‘all hands or town hall’ type meetings!!
  – Use the standard presentation format we have developed for these type of presentations (Scott has the template), and focus on demystifying this a bit with pictures and real examples.

• We are under messaging the productivity improvement focus and the global competitiveness component of LeanSigma.
I suspect that our portfolio is focused on process pain points right now and light in areas that actually touch the customer and we have to focus on beefing up this dimension of the portfolio.

The strategy of doing a quality job on this first round of projects, finishing that job, and easing into more and more Workouts makes sense for 2007.

Key Issue I see is the fact that not only do we have process variation across the business we have it within the businesses. If we fix a process in one area of the business and there are the same processes somewhere else in the business and don’t standardize, then we are going to be inefficient. This process variation is the source of a lot of our IT inefficiency, e.g. different user requirements driven by different ways of doing the same thing.

The thing you probably are all experiencing and learning about picking the right projects is that first you have to descope them by 50% and then you can selectively add scope back in. If you don’t descope in the Define stage you’ll pay for it downstream in the process.
Full Potential Performance Strategy is aimed at effectively and efficiently migrating towards the far back right corner of the Performance Cube.

Customer Solution Design / Delivery

Process Improvement Capability Maturity

BPI Focus

Cross-Enterprise Integration
Interfaced Strategies
Stove-pipe BU's & Functions

5.0 Optimized
4.0 Managed
3.0 Defined/Specified
2.0 Practices
1.0 Adhoc

Products / Functions
Superior Value Chain Performance
Constituent Value Exchange (Lifetime Value of Customer)

Objective Function

Constituents are: Employees, Customers, Shareholders, Suppliers, etc.
Full Potential Performance

BPI Contributions to MDS Pursuit of Full Potential Performance

Measurement & Evaluation to Support Improvement:
Fact/Data Based Decision-Making

System & Process Improvement
(e.g. Business Process Reengineering/Improvement)

Change Leadership & Management:
Full Potential Condition of Mind

Information & Technology Enablement
to Provoke Timely & Effective Decisions and Actions

EDMS & EA Integration initiative

MDS and ES
P&D, Dx & ITBU, EDMS & EA

Planning System:
Strategy and Policy
Implementation and Deployment;
Organizational Alignment/Effectiveness

Focused Improvement:
Consistency of Methods,
Standards of Excellence,
Assessments, Benchmarking

Program & Project Management Discipline
(Benefits Realization)

CBS Ben. Realization & Pervasive

Dx, Ps, Nr, ES

Pervasive

Constituency Value Exchange Management