Lean Transformations: Learnings, Lessons and Tips

Prepared and Offered through IISE by CISE and the Columbus Mini-Region of IISE

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## Purpose, Objectives, Agenda

**Purpose:** Share Learnings, Lesson, and Tips based on Lean Deployments in Life Sciences, Health Care and Supply Chain and Electronics Manufacturing.

### Objectives:
- Quick intro to the Lunch and Learn Series
- Sharings from the three webinar presenters
- blend in Q&A as appropriate

### Key Points:
- Various ‘ways’ to create ‘franchise value’
- Lean (and SixSigma) as methods for achieving Operational Excellence is our focus
- Deployment is complex and challenging
- Our individual and Collective views on do’s and don’t’s
12:00    IISE Intro
12:05    Scott Sink Kick-off and Case Study 1
12:20    Victoria Jordan
12:35    Walter Garvin
12:50    Scott Close Out
Education and Professional Experience

- Professor 1978-1997 and 2007 to present (Oklahoma State, Va Tech, Ohio State)
- VP BPI 2000-2007 (ESI and MDS)
- Consultant 1978-present in broad range of businesses and industries
- Coached and certified over 250 successful GB and BB Projects
- Program at OSU has create Tangible Benefits in the range of $10M since 2007
Welcome to IISE Columbus Chapter #1 Website

Check out the July Monthly Memo
Council on Industrial & Systems Engineering
Operational Excellence

2004-2007 Planning, Development, and Deployment

Case Study
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 shared 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.

- Initial Value Placed on Diagnostics, $900M. Influenced by of our Rapid (18 mos) deployment of ILSS and creation of that capacity to keep doing it, the final sale price was $1.3B.
I was recruited to lead the Operational Excellence ‘Plank’ in the MDS Enterprise Transformation in 2004 (reported to President of Enterprise Services)

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

• Blended, broad, balanced views and capabilities on types of improvement methods is required.
Our Performance Improvement Efforts should be aimed at aligning to Business Strategies (policy deployment) but clearly in one or more of these three buckets:

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

**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

**OPERATIONAL EXCELLENCE**
- Improve Quality, Efficiency, Productivity, Innovation, Engagement, Quality of Work life, Sustainability:
  - Apply principles and methods of ISE and ILSS
We turned ISE and ILSS on itself by modelling the deployment

Y (sustainable, best-in-class business results) = f(X (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.)
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)

Point of Arrival (2008-2010):
GROW FRANCHISE VALUE
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’

CURRENT STATE

Planning
Political/Positioning
Infrastructure (Leadership Engagement)
Measurement
‘Technology’
Communication
Motivation
Learning

FUTURE STATE
Leadership Alignment & Support Infrastructure was a Critical Early Factor

Engage the ‘Right’ People

Pick the Right Projects

Best in Class Training

Discipline around Methodology

Celebrate Successes to get the ‘fly wheel’ spinning

Program Initialization

BPI Core Team
LeanSigma Architecture and Engineering

Executive Sponsors
CEO & President
LOB 1
LOB 2
LOB 3
LOB 4

CIO
CFO
EVP
Org. Dynamics

LeanSigma Deployment Leaders and Managers

Value Stream Owners/Managers & Process Owners (Champions)

‘Belts’

Core Teams


1) Pick the right belts and 2) surround them with the support requirements they need to be successful.
The First Six Months was Benchmarking, Partnering, Socializing with the Senior Team, Readying to do White Belt Training to the top 250 leaders.

Program Initialization & Infrastructure

Engage the ‘Right’ People

Pick the Right Projects

Best in Class Training

Discipline around Methodology

Celebrate Successes to get the ‘fly wheel’ spinning

Control Documents

EnterpriseTrack:
Program and Project Tracking

E- Handbook:
LeanSigma Policies & Guidance

Source External LeanSigma Expertise (BMG and MoreSteam)

Curriculum Foundation
**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.
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
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.
Key Success Factors—First & Second Year (05-06)

**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!!
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.
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.
Victoria Jordan, PhD, MS, MBA
UT Chancellor’s Health Fellow for Systems Engineering
Executive Director, Strategic Management and Systems Engineering
M D Anderson Cancer Center

- Over 30 years of experience providing management and statistical consulting in manufacturing, service, and healthcare organizations.
- Ph.D. from Auburn University in Industrial and Systems Engineering with an emphasis in applied statistics. M.B.A. from Ohio State University, M.S. in Industrial and Systems Engineering from Auburn University, and B.S. from the University of Kentucky in Statistics, with minors in Computer Science and Mathematics.
- Six Sigma Master Black Belt (certified by ASQ and BMGi)
- Research interests include statistical quality control, Six Sigma, process optimization, mathematical simulation of patient flow, and applied statistics.

- UT Chancellor’s Health Fellow for Systems Engineering, Adjunct Professor in Business at UT McCombs and in Industrial Engineering at the University of Houston
- Co-author of a McGraw-Hill textbook, *Design of Experiments in Quality Engineering*, author of several peer reviewed articles
- Previously served on faculty in Industrial and Systems Engineering at Auburn University and in the Statistics department at Auburn University.
- Sr member of the American Society for Quality, Fellow of the Institute of Industrial and Systems Engineers, member of the American Statistical Association, Society for Health Systems, and INFORMS
DID YOU KNOW...?

- Houston's Texas Medical Center is home to 49 world-class member institutions.
- The Houston region employs more than 222,000 life science and health care professionals.
- The Cancer Prevention and Research Institute of the Texas Oversight Committee will award an estimated $300 million in grants each year over the next 10 years, to expedite innovation in cancer research, attract and expand cancer prevention and treatment research capabilities.
MD Anderson: Quick Look

- **Created:** 1941
- **First patient:** 1944 (more than 900,000 patients treated overall)
- **Employees:** 21,000
- **Faculty:** > 1700
- **Surgery hours:** 69,987
- **Pathology / Lab Med procedures:** 12,334,917
- **Diagnostic imaging procedures:** 530,590
- **Average number of operating beds:** 665
- **Outpatient visits:** 1,440,684
- **Research grants:** No. 1 in grants awarded and total grant dollars by the National Cancer Institute
- **Active clinical research protocols:** 1,197 (more than 9400 patient registrants)

Based on FY 15 data
Training and Implementation Strategy

- Start in areas where there is interest and leadership buy-in
- Train the trainer to increase spread and sustainability
- Integrate Lean and Six Sigma into clinical Safety and Effectiveness course
- Link projects to institution goals
Lean Training Courses

• Clinical Safety & Effectiveness Course
  – 7-Day course for clinicians and administrative staff to work on a process improvement project
  – “Applying Lean Concepts to Healthcare Processes”
    - Introductory level (1-Day)

• Departmental/Project Team Training
  – “Applying Lean Concepts to Healthcare Processes”
    - Introductory level (1-Day, Team members)
  – “Applying Lean Concepts to Healthcare Processes”
    - Intermediate level (2-Day, Team leads)
  – “Lean Instructor and Facilitator”
    - Advanced level (4-Day, Trainer/Facilitator)
Introductory Level Course

• 8-hour interactive course
• For individuals who will serve as team members of lean projects
• Basic understanding and applications of lean tools through lectures and activities
Intermediate Level Course

- 16-hour interactive course
- For individuals who will serve as leaders of lean projects
- Deeper understanding and applications of lean tools through lectures and activities
- Tools to overcome common challenges in leading a project
- Measuring an improvement
Instructor and Facilitator Course

• 4-day interactive course
• For individuals who will train, lead and facilitate Lean initiatives in their respective areas
• Course includes:
  • General training guidelines
  • In depth how to train lean
  • Lean project start up
  • Measuring Improvement
  • Team Facilitation
Number of Employees Trained

- 858 participants of Clinical Safety & Effectiveness Course (1-Day course)
- 439 participants in 1-Day Department specific courses
- 269 participants in 2-Day Department specific courses
- 7 participants in 4-Day Department specific courses

1,573 employees trained in Lean Concepts
Departments Trained

• Various Outpatient Centers
• Facilities Management
• Information Systems/Technology
• Pharmacy
• Inpatient Nursing
• Diagnostic Imaging
• Emergency Center
• Areas in Perioperative
• Supply Chain Management
• Outside MD Anderson - Tyler
Pharmacy Go Lean Initiatives

Aim:
To expand the culture of lean throughout the division of pharmacy
To implement quick fix and improvement in pharmacy

• Trained 60 employees in 1-Day course
• Trained 15 of managers in 2-Day course
• Assigned teams facilitated by OPI engineers to implement small improvement projects by applying lean tools
• One-month implementation
Pharmacy Go Lean - Results

- 67.5% reduction in chemotherapy waste leading to $578,640 estimated annual savings
- Partial vial waste decreased by 31.3%
- Time to find partial vials decreased by 82.5%
- Reduced documentation and pricing of trays/carts/kits time by 65% leading to 104 hours saving per year
- 40% improvement in average process time for telephone/electronic prescription, leading to an estimated savings of $25,000 per year
Other Lean Projects - Results

- 90% reduction in patient walking distance in Leukemia
- 79% reduction in the number of patients leaving the IM center without a scheduled next visit
- 50% reduction in wait time in the IM center from patient signs in to patient leaves center
- 24 hours lead time reduction 3.1 hours/day labor reduction in surgical supply replenishment process
- Change over time and cost reduction to reconfigure labs for the next research workflow - Facilities
Other Lean Projects - Results

- 37% reduction in time from Lobby to Triage in the Emergency Center
- 39% reduction in lab turnaround times for Inpatients – Lab Medicine
- 28% reduction in lab turnaround times for Outpatients – Lab Medicine
- Percentage of patients seen by appointment time increased from 6% to 40% and patients seen within 30 min of appointment time increased from 31% to 64%

DI CT Mays
Lessons Learned

- Align efforts with strategic direction/goals of the institution
- Determine the key performance metrics, KPIs for the institution
- Prioritize with the projects that align with the key metrics
- Understand what data is available and understand how to obtain the data
- Create dashboards to display the key metrics
- Start with some quick wins that are impactful if possible to build reputation and gain momentum
- Prepare and have available presentations, one-pager that explain your services and benefit to the institution
Education/Training

- Assess the training needs of the institution in regards to process improvement knowledge
- Leverage online resources and make them available – simple quality tools, standard forms, etc.
- Use mechanisms that equip and empower staff to make decisions and continuously improve (i.e. training programs such as lean, six sigma, train the trainer)
Create a standard project tool kit (i.e., Charter, compact, roles & responsibilities, etc.)

Ensure all stakeholders (such as sponsor) are present at initial meetings

Ensure regular communication with stakeholders

Agree on project scope with stakeholders up front

Define clear roles and responsibilities of all involved

Work with customer on developing high level project plan/timeline early

Develop a structure for monitoring project progress

Identify action items with responsibility and deadlines

Understand the engineer’s role during implementation and afterwards (sustainment)

Make sure team members are congratulated/recognized at project completion
Walter Garvin Profile:

Vice President for Lean Six Sigma, Jabil Inc since 2009
- Grew Jabil’s Lean program to over 20,000 Lean practitioners and over 300,000 projects.
- Jabil’s Lean program has received recognition from the Shingo Institute, IIE, Industry Week and most recently by Manufacturing Tech Insights as a Top 10 Lean Manufacturing Solutions Provider for 2016. Received IISE Fellow Award 2016.

Clemson University
Bachelor of Science

University of Florida
Masters in Industrial & Systems Engineering
Master of Business Administration

Walt’s 36 year career has spanned work in Electronics, Plastics, Stamping, Textiles and Die Casting in the Automotive, Medical and High Tech industries. His diligent work has led to advancements to Industrial Engineering across the globe, which includes 3 overseas assignments to advance Industrial Engineering in Italy, Poland and China.
Jabil: 50 Years of Change

- Founded in Michigan, 1966
- World’s Third Largest Electronic Manufacturing Services Provider
- 37 Million Square Feet of Manufacturing Space
- 100 Sites on Five Continents
- Tenured Management Team
- 180,000 Dedicated Employees
Global Operations Enable Localized Manufacturing

**ASIA – 27M Square Feet**
- China
- India
- Indonesia
- Israel
- Japan
- Malaysia
- Singapore
- Taiwan
- Vietnam

**AMERICAS – 7M Square Feet**
- Canada
- Brazil
- Mexico
- United States

**EMEA – 3M Square Feet**
- Austria
- Belgium
- Finland
- France
- Germany
- Hungary
- Italy
- Ireland
- Netherlands
- Poland
- Russia
- Scotland
- South Africa
- Spain
- Ukraine
Goal of Lean Deployment

Flexible and motivated team members continuously solving problems and pursuing process improvements to increase value to the customer.
Must Haves for your Lean Program

- Make it an enterprise initiative
- Visible commitment of the leadership team
- Communicate, show results and continuously improve
- Educate, empower and involve employees
- Recognize and celebrate successes
Jabil’s Lean Mission

To be a company where everyone is a problem solver focused on delivering value to our customers.
Jabil Transformation Approach

**Purpose**

Customers' expectations are made explicit to align efforts and to solve the problems that matter the most.

**People**

Make everyone capable and responsible to transform their own processes using the 5 steps.

**Customer**

Use the 5 steps to eliminate waste, variation and overburden and thus provide more value to our customers.

**Problem Solving**

At each iteration of the 5 steps, we identify opportunities for improvement and use PDCA and DMAIC to solve them.
2005: The Era of the Seven Steps

1. Enterprise Evaluation
   - Standardization Assessment
   - Operation Drivers and Metrics
   - Gap analysis & Plan creation

2. System Streamlining
   - Plant Appearance
   - Visual Management
   - Value Stream and Process Mapping

3. Improve Flow
   - Setup Reduction
   - Asset Optimization
   - Layout Improvement

4. Improve Quality
   - Root Cause Analysis
   - Preventive Measures
   - Detection Techniques

5. Pull Systems
   - Supply chain integration
   - Material replenishment

6. Automated systems
   - IT solutions
   - Data Mgmt

7. Perfection
   - Continual Improvement
2008: Establishment

- Lean Director hired
- Deployment Structure
- Site Lean Councils
- Global Lean Council
- Bronze Certification
- Operations Managers become Black Belts
Silver Certification
Value Stream Transformation

Transactional Processes
Supply Chain and IT

Model Site Transformation
Deeper & Focused Effort

2011: Cultural Transformation
Results: Projects by Year

Projects

Start of the lean initiative
Results: Hard Savings by Year

Start of the lean initiative
How to Succeed: Lessons Learned

- Top Management’s Support
  - “Burning Platform” as to why we need a continuous improvement program

- Organizational Alignment
  - Develop key metrics + Lean Maturity Assessment
  - Establish Lean councils

- Infrastructure
  - Coach to show how to succeed

- Deploy at All Levels of the Company
  - Develop one source of truth - Lean Portal
  - Tailored education for workforce
  - Rewards and recognition