NEWS

Lean Enterprise Division

December 2007 Highlights

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Lean Enterprise Division

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Chair's Message

Dear Lean Enterprise Division members,

The First Lean Conference Is Here!

We are teamed with ASQ Education Offerings and the Six Sigma Forum to offer a joint Lean Six Sigma Conference. It is in Phoenix, AZ, February 10-11, 2008, at the Pointe Hilton Tapatio Cliffs Resort. It is a great opportunity to network and understand the synergy with Six Sigma. There are excellent presentations and presenters on Lean and Six Sigma. We will have a Quality Café Lean Networking Session to discuss areas affecting the divisions. I really would like to see you at our first Lean Enterprise Division-involved conference. If you would like to meet others and network with other Lean practitioners, help us at the Lean Enterprise Division booth. Visit the Web site (http://www.asq.org/conferences/six-sigma) and read more of the newsletter for details.

The subgroups have started analyzing three key areas to keep up with the growth of the division, but we still need volunteers to help in these subgroups:

1. The first subgroup, Voice of the Customer, is designed to understand the needs of the members of the division for the various geographic areas, industries, and disciplines. The subchair for this group is *Frank Murdock*.
2. The second subgroup, Education/Training, is designed to understand the training needs for Lean and determine the best vehicle to provide that Lean training. The subchair for this group is *Robert Damelio*.
3. The third subgroup, Body of Knowledge, is designed to capture the body of knowledge in the field of Lean and to fully understand what is in and what is out of the scope of the BOK for the Lean Enterprise Division. The subchair for this group is *Robert Damelio*.

We are coming up on nominations for the two-year term starting July 1, 2008. We are soliciting and accepting nominations for chair-elect, secretary, and treasurer. Submit your nominations to the nominating committee chair, Tony Manos, at anthony.manos@proferoinc.com. If anyone wants a description for these positions, let me or Tony know.

As always, I thank you for the opportunity to serve you as the chair of this dynamic and growing division. We still could use help with Web site content by building our library with articles, case studies, and tools. If that is something that interests you, others probably will be interested as well. Please submit your articles to me and I will get them posted. Feel free to contact me if you can help in any way or if you have any questions.

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Lean Enterprise Division Nominations

Due by January 31, 2008, to Tony at anthony.manos@proferoinc.com.

Improving Knowledge Work: Lessons Learned

by Robert Damelio

Session D1, 3:30 p.m. – 4:30 p.m., Monday, February 11, 2008

In this article which is a preview of part of my conference presentation, I'll introduce seven principles that will help you improve the flow of knowledge work. All seven are part of an interdependent set; they apply to every workflow (value stream). During the conference session I'll cover what to watch for as well as selected challenges and lessons learned regarding these principles.

7 Principles for Improving Workflow

- Improve flow from the outside in
- Measure what matters to the customer
- Make the end-to-end flow visible
- Identify and remove barriers to flow
- Connect and align value-added work fragments
- Organize around the end-to-end flow
- Manage the flow visually

Improve Flow From the Outside In

Paraphrasing Steven Covey, you want to "begin with the end [of the flow] in mind." What is the item or work product produced by the flow? Who is the customer for that item or work product? Begin with the result you provide to the customer and work backward, or from the outside in. This focuses your improvement effort on changes to the work that customers see or experience. From the customer's perspective, any other work doesn't really matter.

Measure What Matters to the Customer

Often in knowledge-intensive work, there are few measures in place that relate to flow, such as:

- Lead time
- Cycle time
- Value-added time
- Complete and accurate
- First-pass yield or rolled throughput yield
- Throughput volume/time period (related to customer's definition of "on time")

When measures do exist, they tend to be oriented around resource consumption and they are often categorized or grouped into job, function, or project/program budget categories. I recently came across a quote that sums up this situation nicely, "Organizations knowing the cost of everything and the customer value of nothing will not survive[1]."

This principle establishes measures that help focus everyone's work on the same customer-focused targets. It helps answer the question, "How does this work or my portion of the flow contribute to what the customer wants?"

Make the End-to-End Flow Visible

Work begins and ends with the customer, but what happens in between? What is the path that work takes as it progresses from order to delivery? Typically, the flow of work from order to delivery crosses several functions, departments, and roles; it has many handoffs and touch points. Every organization has some version of an order to delivery or order to cash workflow (value stream or "core" cross-functional process). Is the current end-to-end workflow more like an interstate highway, or is it closer to a collection of much shorter roads, each with different speed limits, numbers of lanes, lots of stoplights, and owned by different jurisdictions?

Most organizations have yet to make this end-to-end workflow visible or explicit. So instead of a high capacity, throughput-focused interstate, what they have is a set of

1 From Stephen Parry, Head of Strategy and Change, Fujitsu Services

dispersed, disconnected, resource-consuming, work "fragments" hidden by the jobs and structural parts that make up the business. These fragments are embedded within the jobs; the jobs are clustered into like groups (finance, engineering, sales, manufacturing, etc.) of resources so the flow of work is not yet viewed, measured, or managed as a coherent whole.

I believe it is helpful to know how the part of work you are seeking to improve relates to or impacts the primary interstate that is the essence of your business before you attempt to improve it or reduce its cost. Likewise, you can provide great value to your customer and achieve strong benefits for your organization when you make this interstate a well-known, well-understood, highly visible, organizational landmark.

This principle helps you establish the boundaries of the workflow, both end-to-end and between the fragments that comprise the end-to-end flow. It helps you surface all the fragments associated with a specific work product regardless of the job, department, technical specialty, or functional discipline in which they reside. Once the fragments are visible, you can determine whether you are working on some portion of the primary interstate, something that connects directly to this interstate, or something that does neither. This helps you decide whether a work fragment is value-added or nonvalue-added.

Identify and Remove Barriers to Flow

As part of this principle, you first learn to recognize the various forms of waste present in the way work is done currently. Then, more important, you discover the cause(s) of that waste. Finally, you develop counter measures that eliminate or reduce the impact of each cause and make adjustments to the factors that hinder flow, such as IT, training, job design, goals, measures, priorities, policies and rules, etc., as an integrated set.

Recognizing Waste in Knowledge-Intensive Work

Category of Waste	Definition	Knowledge-Intensive Work Example
Overproducing	More or sooner than is really needed right now by the customer	Purchasing anything before it is needed
Inventory	Any form of batch processing or work in process	Work held in in-boxes, storage of office supplies, partially completed tasks or documents, files, online or electronic storage
Waiting	Delays	Time spent pending review or approval. Time watching logon, screen refresh, or retrieval or manipulation of information
Extra Processing	Time spent doing unnecessary steps	Rekeying or reformatting data, extra copies or unneeded reports, multiple drafts or versions of presentations, briefings, budgets, plans, etc.
Correction	Any form of defects or rework	Missing (incomplete) or incorrect data or information
Excess Motion	Movement of people	Retrieving anything essential to the task at hand that is "out of reach," such as data, information, files, centralized in-boxes, bookshelves, office supplies, instructions, printers, fax or copy machines
Transportation	Movement of work between locations, offices, floors, buildings, systems, and people	E-mail attachments, documents, or files routed for multiple approvals or reviews; expertise or information needed is dispersed rather than co-located or aggregated
Underutilized People	Failure to tap into or fully engage skills and potential	Insistence on scripted response to unique situations, limited decision authority, pair of hands vs. partnership

ASQ

2008 Lean Six Sigma Conference
February 11 – 12, 2008 • Phoenix, Arizona
Sustainable Growth Through Lean Six Sigma

How Organizations Learn: Investigate, Identify, Institutionalize

Patrick L. Townsend and Joan E. Gebhardt

Organizations learn effectively by following a three-step cycle: investigating the situation; identifying failures and successes; and institutionalizing the lessons so that they become "the way things are done." This book examines this 3-I learning cycle as it is used in the United States Army. Prominent companies such as General Electric, Motorola, Harley-Davidson, and Amoco have taken advantage of the Army's experiences as they've moved through this cycle, reinventing themselves as learning organizations. These companies and more have gleaned valuable lessons from the Army's After-Action Reviews (AARs) and Center for Army Lessons Learned (CALLs).

Parallels are drawn between the Army's experience and the quality movement. Among the similarities are the idea that everything can be improved and the emphasis on integrating working and learning, with each supporting the other.

The concepts of AARs and CALLs, like many quality tools, are relatively straightforward and easy to understand. Nonetheless, they require dedication and perseverance to implement fully and sustain. As with all quality concepts and tools, though, the results easily justify the effort!

80 pages. ISBN 978-0-87389-727-3. 6 x 9. Softcover. 2007.

Item: H1319
Member Price: $16.80
List/Forum/Division Price: $29.40

For more books, go to www.asq.org and click "Books & Publications" along the left column.

Factors That May Cause Waste or Impede Flow of Knowledge-Intensive Work

Workflow Properties

- Boundaries
- Pattern
- Sequence
- Complexity
- Work practices or mechanisms
- Handoffs
- Triggers
- Inputs
- Activities
- Outputs
- Prioritization of work
- Scheduling of work
- Part/Whole alignment
- Capacity vs. demand patterns and drivers for that work
- Synchronization

Physical Layout

- Layout
- Distance
- Workplace design
- Ambient conditions
- Everything in its place and a place for everything at a glance to do the flow
- Required resources located at point of use
- Visual management of flow

Job/Work Design

- Learning what constitutes standard work
- Adequate resources
- Role clarity
- Task clarity
- Task interference
- Criteria for what constitutes excellent quality at the source
- Incentives/Consequences
- Feedback
- Guidance
- Coaching
- Goals
- Measures

Information Technology

- Ease of Use
- Shares data
- Brings shared data to point of use
- Timely
- Supports decisions
- Flexible

Policies and Rules

- Written, unwritten
- Formal, informal
- Business rules
- Assumptions
- Folklore
- Regulations
- Legal or statutory

Connect and Align Value-Added Work Fragments

Generally speaking, the more fragments involved as work progresses from order to delivery, the greater the complexity, cost, and lead time of your business. Workflow "nirvana" would be that the end-to-end flow that becomes your interstate is composed only of the fewest number of 100 percent value-added work fragments, each of the right size, performed in a synchronized sequence that consumes the least amount of resources in order to provide just what the customer wants, when they want it. This does not happen overnight. It took about 40 years to create the U.S. Interstate Highway System. Toyota has been working for more than 50 years on its Toyota Production System.

In my experience, the jobs that make up knowledge work have not been consciously defined or designed around their desired contribution to an end-to-end flow as an organizing principle.

Typically, it takes a set of jobs from multiple functions to accomplish the tasks associated with producing a given item in knowledge-intensive work. Each job is made up of tasks, some of which turn out to be valued-added and some which are nonvalue-added when viewed in the context of the appropriate workflow to which they belong. Very often a single knowledge worker's job is made up of tasks that support (are a subset of) several different workflows or value streams.

As part of applying this principle you sort the (now visible) work fragments you identified earlier into value-added versus nonvalue-added, and then group the value-added fragments into logical subsets and sequences that may match current job definitions or department responsibilities. Simply put, you design the work so that it is "flow centric."

Organize Around the End-to-End Flow

This principle makes the part/whole relationships throughout the end-to-end flow the central context for organizing work, resources, and accountability. There are two aspects:

1. Overall flow (horizontal integration and management)

Who (what role and individual) is accountable for the end-to-end flow? Typically a new role of value stream manager or process owner is needed. This role is the customer's advocate and sees to it that the customer's definition of value is used to set the end of flow performance targets. Then, this role seeks to coordinate and align the moving parts of the organization throughout the flow to adjust goals, measures, jobs, resources, etc., so that all are focused on meeting the customer's performance targets.

2. Within and between each portion of the flow (synchronization)
   - Physical or virtual layout of work and work performers to emphasize flow
   - Workload balancing
   - Sequence of work
   - Scheduling and prioritization
   - Cross-training

Manage the Flow Visually

Ideally, you want everyone within the flow to be able to self-monitor whether the rate, quality, and quantity of their work is optimized to meet the end of flow performance targets. You also want everyone to be able to distinguish between normal and abnormal operations quickly (real-time feedback) so that defective work is not sent downstream and help can be dispatched when and where it is needed to get things back to normal right away.

This principle typically makes timely information on status, progress, problems, and performance results visible to everyone within the flow as part of their daily work.

It helps focus attention not only on maintaining the rhythm of regular flow operation, but also on establishing explicitly defined contingencies (i.e., a fast, known, and certain response) for removing barriers to flow when they occur.

Questions or Comments

I look forward to seeing you at the conference. If you can't make it, or have questions or comments that you'd like me to address, contact me at rwdamelio@gmail.com.

Post-Mortem of a Failed Lean Project

by Connie Tolman

Company Overview

This is a true story that takes place in a startup Class 3 medical device company during a three-month period. Even after working in the industry for more than 20 years, I was shocked by the way things turned out.

The product we were dealing with received approval for sales in Europe and was selling to nine countries with revenue approaching $1 million. Clinical trials in the United States have begun. There are 12 people in the clean room, one supervisor, and a trainer. They are all very well trained people from a similar industry, and most of them have worked together before. The product has been around for about two years.

The Players

Manufacturing Engineering Team

Manufacturing engineers at this company don't want to be associated with production. They treat members of production like children, they don't tell them what is going on, and they give them harsh instructions with harsh penalties if they aren't followed.

From the Lean Enterprise Discussion Board

Would you like to learn the opinions of other Lean Enterprise Division members on the pros and cons of Lean and Six Sigma methodologies and how they work (or don't work) toward overall quality improvement? If you would, we have a discussion to engage you.

Would you like to share a great story or article? The Lean Enterprise Discussion Board is the place.

Do you have a problem that might be resolved with some input from your fellow Lean Enterprise members? Post your question on the Lean Enterprise Discussion Board.

The following are some topics posted on the discussion board during the last few months:

- Supply chain
- Simple 5S forms
- 5S number game
- Lean in new process/product development
- 5S program color standards

To contribute to the discussions above, or to start your own discussion, you can enter the discussion board through your "My ASQ" page on www.asq.org or by going directly to the Lean Enterprise Web site at www.asq.org/le and clicking on "Discussion Board" along the left column.

Either path requires that you logon using your ASQ membership number. The discussion board is open to all ASQ members. If you don't know your password, there is a help link, or you may call ASQ at 800-248-1946 for help.

Have Fun!

Please Note: If you click the "Remember Me" box before logging on, you won't have to sign on each time.

Post-Mortem of a Failed Lean Project cont. from p. 5

The attitude of the support people is more adversarial and I have heard more than once, "You are being too nice to them. You have to be harsh with them. You have to tell them what to do, not listen to them."

Senior Manufacturing Engineer

Bob is the senior manufacturing engineer and the ring leader. He has repeatedly tried to undermine the authority of the new boss, Mark. Bob has a tattoo on his arm that says *Chaos ex Ordo* which means "Out of order comes chaos." This is in direct opposition to the standard military and law enforcement Latin motto *Ordo ab Chao* "Out of chaos comes order."

Manufacturing Engineer Technician

Jeremy is an assistant who came up through the ranks, who verifies new equipment, writes work instructions, and is very helpful with the line.

Part-time College Student

Sally, the biomedical engineering student, comes in once a week with enthusiasm, fresh thinking, and is a counselor to the women who work in production. She doesn't see these women as lesser people; she sees them as her equals. They cry, have problems, and work in the same place.

The Boss—Director of Operations

Mark is easygoing and soft spoken, whistles and sings in the hallways, wears brightly colored T-shirts, brings his darling little girl to work with him, and has the phone ringing all the time from home. He disappears occasionally, and I found his hiding place in the maintenance bathroom where he talks on the phone.

He is an industrial engineer by profession and is from Puerto Rico. He worked for a very large company in Puerto Rico with thousands of employees and a fully-developed, one-piece flow system that has a complete team to implement Lean values.

Through this process Mark will change from an easygoing, whistling manager to a head-cutting tyrant because he cannot control his troops.

Mark's goal is to submit for some kind of award, such as:

- Shigeo Shingo (Toyota engineer)
- Material flow association
- Lean group of ASQ

The Boss's Boss—VP of R&D

Joe wears shorts, brings his dog and little girl to work, sits in a glass-walled office with the blinds shut, spends most of his time in the field, and listens to the radio in his office while working on the computer. He started as a manufacturing engineer at the same company as most of the people in the department. Everyone refers to him as the boss and the one who makes the decisions. He acts like one of the boys but wants to be in charge.

Production Assemblers

Production assemblers crave order and instructions so they can do their job correctly. They know the importance of doing it right. The whole company revolves around them. They are the direct labor without which none of us would have our jobs.

Start of Lean Process

Mark and I write a charter but it never gets presented to the management team and it never gets signed.

Sally has been working on time standards for the past two months. It is my job to provide guidance and direction to the project. After a few weeks on the job, Mark says we should do a value stream map using the book *Learning to See: Value-Stream Mapping to Add Value and Eliminate Muda* by Mike Rother and John Shook.

I am very excited because I also feel that this is a great way to get a handle on what is going on and provide the road map for improvement. We give high fives all around and Sally says

Post-Mortem of a Failed Lean Project *cont. from p. 6*

she has learned more in two months working here than in her five years at college. We are stoked and excited about making progress!

After the map is done, we display it in a prominent place— it is double taped on the yellow stucco enamel wall. We look at it, point to it, and in the end we come up with some priorities.

We had kaizen meetings with production, R&D, and support engineers. We come up with the list of things to improve and divide it into three categories: Must have, low-hanging fruit, and high-hanging fruit. We prioritize and make a schedule.

We talk about the plans and the goals and how we will reach them. We need to be able to build 400 units of the product a month by the end of the year.

Once the map is on the wall, the engineers start to gravitate to it. They are interested to see where the bottlenecks are. They want to have guidance on what to tackle first. Also, as they are changing processes, I am keeping track of the changes by taping a paper with the new flow on top, so we can see the historical process and how it has changed.

My hope is that the map will be used as a focal point not only for process improvements but also for the development team to track its projects. I see it as the place where anyone can see what is going on with the product.

The map looks like it will work in the way that I had hoped. Let's see what happens next.

First Signs of Failure

The first indication of trouble is with a small detail, but the devil is in the details. There are two things stated in the book I think are important as you begin creating the map. First, you should create it in pencil so that it is a living document (you are erasing and writing and doing things on the fly). Second, you should work the process backward so that you don't put your expectations into the map.

In this case, Mark demanded that the map be done using stencils from Visio so it was being done in the computer without any spontaneity. He thought working backward was ludicrous.

Also, he demanded that the improvement process start at the beginning of the process, taking one station at a time. Mark is not open to discovery of the Lean process. Instead of letting the map show him what the sequence of improvement should be, he forced the change by going through each station one at a time.

What he doesn't realize is that this product is not stable and this is not a full-rate production product that is made in Puerto Rico. It is a startup product that has barely made it past R&D.

Sally has come up with some creative solutions and tools but the manufacturing engineers are resisting it, no matter how small a change.

My mistake is that I listen to Mark and take his side. The engineers want to listen to the map and do what it is telling them—attack the process with the worst yield or the longest throughput.

Beginning of the End
- No support from top management
- Product not frozen and so not ready for this process
- The boss is more concerned with presentations and fluff than content and the work of discovery
- There is an additional language barrier in the team

Conclusion

Soon after that staff meeting, the map was torn off the wall and nobody mentioned it again. There was no guidance or direction. After three months of working on the value stream map and organizing the team, the project was dead. Now the focus turned to fire fighting and blaming. It was over and dead except for lessons learned for the next time around.

By the way, I got fired from that company for not performing up to expectations.

Post-Mortem of a Failed Lean Project

Post-Mortem of a Failed Lean Project—Main Reasons for Failure

- No clear guideline of what is needed
- Jumping ahead instead of taking it one step at a time
- Nobody in charge—tail wagging the dog
- There was no standard language, so no communication—Mark and his support speak Spanish, and the rest of us spoke English
- Chaos out of order; no leadership from Mark regarding what to work on; product not frozen and so not ready for this process; process is not known
- Mark was more concerned with presentations and fluff than content and the work of discovery
- Production workers and their input was not respected; engineers had arrogant attitudes
- Lack of creative imagination; tools and fixtures that were invented were rejected immediately and discarded as soon as Sally left the company when her assignment was over

Note From the Editor

One of the articles in this issue deals with a project that was unsuccessful. Ideally we want our projects to be successful and we strive for just that. We don't want to plan for failure, only success. That may be true for most things in our lives. Then again, all of us have suffered a setback in one way or another. While I think it is wonderful to hear and read about success stories, I will not be the first or last to say that it is just as important to look at the failures. I hope you find this article valuable. Also, please be sure to look at the information in regard to the Lean Six Sigma Conference that will be taking place in 2008. I hope many of you will be able to attend!

Happy Holidays,

Wendy Gomez

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