

LEAN and ERP

A Marriage Made In Hellven

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Introductions...

- Curtis Roberts, CPIM
 - APICS Instructor
 - Varied Experience in Operations
 - Business Systems Consultant
 - Generally tolerated most of the time

What I hear

- ERP is old thinking. We're going lean!
- MRP and JIT can't work together
- We don't need ERP. We use Kanbans.
- The president just told me I have a week to implement lean manufacturing. What do I do?

Agenda

- Why do we bother, when it hurts so much?
- History and definition of Lean
- History and definition of ERP
- ERP and Lean
- Lean Tools and ERP
- Discussion, wrap-up, and perhaps a good old-fashioned lynching!

Why do we do it?

- Why implement ERP?
- Why implement Lean?
- Why are we in business?

The best advice I have...

- Don't treat a management method as though were a religion!
- Skepticism and common sense will carry you through

History of Lean

- Henry Ford
- TPS
- The Machine That Changed the World
- The Lean brand

Define Lean

“Lean” is an attitude, a company-wide, relentless pursuit to identify and eliminate non-value-added activities throughout the supply chain. It depends very much on the idea of “Value” – that is, something for which a customer will happily pay.

5 Principles of Lean (From "Lean Thinking")

- Specify the value desired by the customer
- Identify the value stream for each product providing that value and challenge all of the wasted steps (generally nine out of ten) currently necessary to provide it
- Make the product flow continuously through the remaining, value-added steps

5 Principles continued

- Introduce pull between all steps where continuous flow is possible
- Manage toward perfection so that the number of steps and the amount of time and information needed to serve the customer continually falls

Value Stream Activities

- Value-added activities
- Non-value-added activities
- Non-value-added but necessary activities

Lean Tools

- a collection of techniques designed to help implement and sustain Lean operations.
- "Lean Tools" does NOT equal "Lean"

History of ERP (Enterprise Resource Planning)

- 1960's – IM&C
- 1970's – MRP
- 1980's – MRP II
- 1990's on - ERP

ERP Definition

- ERP is a type of Management Information System – a computer system, not a philosophy
- System definition
 - Goal
 - Components
 - Boundaries

ERP System Goal

- improve and streamline business processes, which typically requires reengineering of current business processes

ERP System Components

- Software
- Business Processes
- Users
- Hardware

ERP System Boundary

- usually smaller than the boundary of the organization that implements the ERP system
- many systems are now being designed to share information beyond the company walls throughout the supply chain

The harsh reality...

- The tax collector is suspicious
- Your company **MUST** provide audited income statements
- Many things – including inventory – dictate what your operating profit will be

Lean and ERP – What Conflict?

- Lean wants us to streamline our business processes
- ERP wants us to automate our streamlined business processes
- No inherent conflict
- Conflict may come if company functional areas are not in sync

Here's some conflict!

- Lean principle #4: "Introduce pull between all steps where continuous flow is possible"
- MRP: batches being produced or purchased to a fixed schedule, whether or not they are needed by the next step

But...

- MRP is NOT equal to ERP
- If I am driving screws, I don't throw out my whole toolbox just because it contains a hammer!

Lean Consulting website (italics mine)

"Lean is NOT just about inventory management. In fact, in many ways it is *in direct opposition to many ERP philosophies* focused on managing large quantities of components or parts in sufficient quantity *to support supply-side manufacturing schedules*"

Traditional MRP in Lean ?!

- 3 situations for possible use:
 - Long lead time, very high value items
 - Planning beyond the kanban horizon
 - Engineer To Order (ETO) environments

Lean Tools

- 5S
- Kanban
- Standardized Work Instructions (SWI)
- Single Minute Exchange of Die (SMED)
- Re-Order Point (2-bin) replenishment
- Lean Office
- Kaizen
- Poka-yoke (Mistake Proofing)
- Value Stream Mapping

ERP and 5S

- 5S
 - Sort
 - Straighten
 - Shine
 - Standardize
 - Sustain
- ERP?

ERP and Kanban

- A method of pulling material through the supply chain, where you replace only what has been consumed.
- Does Kanban equal Lean?
- Kanban requires standard bills of material, low variety of items
- ERP automates inventory tracking by Backflushing

ERP and SWI (Standardized Work Instructions)

- Specific instructions that allow processes to be completed in a consistent, timely, and repeatable manner
- Documented processes
- Where do you store them?

ERP and SMED (Single Minute Exchange of Die)

- A formal program designed to reduce change-over time. Reduced change-over time allows smaller batches, which reduces throughput times, which reduces WIP, which allows smoother flow...
- ERP schedule "what if"

ERP and ROP (reorder point – no VMI)

- Reorder point can be visually cued, manually managed
- ERP ROP with automated PO generation

ERP and Lean Office

- Streamline information flow to reduce total cycle time, concentrating on the administrative functions
- ERP and Lean Office – BINGO!
- Sales order cycle:
 - 42% of time for order and credit processing
 - 8% of time manufacturing and shipping
 - 50% of time awaiting payment

ERP and Poka-yoke (Mistake Proofing)

- From “poka” (mistakes) and “yokeru” (to avoid)
- Aims to eliminate the possibility of defects at the source by making it impossible to perform a task incorrectly.
- ERP workflow tools and field level validation

ERP and Value Stream Mapping

- A structured process to chart out the flow of both materials and information through the operation, in order to identify activities that are value added, non-value added, and non-value added but necessary
- Should be the first step of the journey, but is often the last
- Output of the process dictates how our ERP system should be set up to support the Lean Enterprise!

Summary

- We change the way we work because we have to
- MRP does not equal ERP
- Kanban does not equal Lean
- ERP works to support Lean provided the company as a whole supports Lean
- Value Stream Mapping is the key to setting up your ERP to support Lean

So...

- Questions?
- Discussions?
- Screams of outrage?

Thank You, and Goodnight