LEAN ASSESSMENT (AUDIT)
PLANT CONTROLLERS AND TEAM MEMBERS BEWARE

7/31/2015
WHAT IS LEAN
AN EXERCISE
WHAT IS LEAN

• A tool
• A methodology
• People focused
<table>
<thead>
<tr>
<th>What is LEAN</th>
<th>What LEAN is not</th>
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<tbody>
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PROVIDE EXAMPLES
WHAT IS LEAN

• Lean is the identification, elimination, and reduction of waste or non-value added activity within a process as perceived by the customer.
WHAT IS LEAN

• NOT just a few tools to use
• NOT a group of best practices to copy
• NOT just a bunch of projects to conduct
• NOT experts telling you what to do
• NOT a way to drive layoffs
• NOT just a process improvement methodology
• NOT just for front line staff
• NOT “part of Six Sigma”
• NOT just about speed & Efficiency
• NOT pressuring people to hit certain metrics
• NOT a silver bullet or an easy transformation
CHANGE IMPACT: NUMBERS GAME FOR ORGANIZATION

Lean knowledge & closest to customer

Foundation ≥ Top MGT

Organization employees
THE ASSESSMENT QUESTION

• What is our goal?
• Are we utilizing the 14 principles of LEAN (TPS)?
• Are we reducing waste?
• Are we on the path for continuous improvement?
• Are we improving over prior year(s)?
THE ASSESSMENT QUESTION

THE TOYOTA WAY

CONTINUOUS IMPROVEMENT | RESPECT FOR PEOPLE

FROM ONE MAN’S EXACTING STANDARDS COME THE EVER-PRESENT THREADS THAT DRIVE A WORLDWIDE LEADER IN BUSINESS INNOVATION.
1. Long Term Philosophy
   “base your decision on long-term goals”

2. Continuous flow
   “bring problems to the surface”

3. Use pull system
   “produce only what’s needed”

4. Level workload
   “balance need - heijunka”

5. Quality right first time
   “stop, fix, do it right - jidoka”

6. Create standards
   “ensure continuous improvement”

7. Visualize
   “don’t hide information”

8. TYPES OF MUDA:
   “TIM WOODS”
   1. Transportation:
   2. Inventory:
   3. Motion:
   4. Wait Time:
   5. Over-Processing:
   6. Over-Production:
   7. Defects:
   8. “Separated” From Employee Creativity: Big Waste

9. Grow your own leaders
   “understand, live and teach work”

10. Develop Teams
    “success is based only on teams”

11. Respect Partners
    “help and challenge supplier”

12. Go and See
    “experience the situation”

13. Slow - Fast approach
    Nemawahsi
    “make decision slow, implement fast”

14. learn
    “reflect - measure and improve - kaizen”

THE TOYOTA WAY
Industry Does Not Matter

Quality is Free

Hoshin Kanri:
Long-term meets short-term goals

The Toyota way can be applied to every process

Not why did you fail, but why did the process fail

Use customer input to improve your products and services.

LEAN Principles: Toyota Production System (TPS)

Nemawahsi
“make decision slow, implement fast”

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Liker Assessment: Journey toward Vision; not a metric

Together the 4Ps made up a dynamic, adaptable organization. This assessment, based on the holistic model, will reveal gaps between where you are and where you want to be. We include specific recommendations, and, if desired, training to facilitate your journey. The assessment is against a vision of an excellent learning enterprise. It requires senior management commitment who passionately believe in this vision. We can help crystallize this vision and the steps needed to get there.

Jeffrey K. Liker
Professor, Industrial and Operations Engineering
The University of Michigan
President, Liker Lean Associates
CEO, Liker Leadership Institute

ALFRA Consulting | Desarrollando Talento
WHY DO IT?

COST-BENEFIT EXERCISE
WHY?

- Why is this assessment (audit) necessary?
- What is the marginal benefit for the cost of implementing the Lean Assessment?
- Doesn’t the organization already perform these tasks within routine operations?
- Can we Inform management which continuous improvement project will succeed based on lean knowledge and where more training is needed?
OVER PROCESSING

• The very nature of the assessment is to question all aspects of the organization

• The organization, has many teams that review the processes of the organization

• Why add more overhead?
OVER PROCESSING

• Lever existing teams
  • External, internal, ISO, SOX, Safety, and other government agencies auditors

• Gain on the synergies of this arrangement

• We should not add more inspection

• Our internal team members
  • Trained in the Lean principles
  • Look for Lean issues as a natural part of their tasks
CONTINUOUS IMPROVEMENT
TEAM MEMBERS

• The Continuous Improvement team members are also a source of information

• True ‘real time’ assessment of the Lean culture of the organization

• This is the main source of Lean information for the organization
CONTINUOUS IMPROVEMENT
TEAM MEMBERS

• By utilizing the Toyota Production System (TPS)
  • Grow the Lean culture through visualizing the organization
  • Grow your own leaders
  • Develop teams
  • Help others across the value chain

• By leveraging the strengths of the Continuous Improvement team members
  • Assessment is unnecessary except for obvious exceptions: audit
  • Addressed under other aspects of management’s monitor and control procedures
IMPLEMENTING CHANGE

• People focus
  • Lean
  • Change management

• How do we convince someone to change?

• Reward vs Force

• Carrot vs Stick
IMPLEMENTING CHANGE

• How do we convince someone to change?

• If organization was on a path toward a Lean journey, no coercion or convincing is necessary

• Lean principles and 7 + 1 Wastes are adopted without question, immediately

• Utilizing such tools as PDCA (Plan-Do-Check-Act)
LEAN IS....
WHAT WE KNOW
LEAN IS

- Inclusion
- Teamwork
- Growing your own leaders

- The Lean Assessment with a scorecard report to management is the opposite
  - Lean performance audit
  - Subjective by nature & scored as a metric

- Lean “under the barrel of a gun”
“In short, lean thinking is lean, because it provides a way to do more and more with less and less—less human effort, less equipment, less time, and less space—while coming closer and closer to providing customers with exactly what they want.”


Anyone can use it anywhere….operations to accounting
WHAT IS LEAN CULTURE?

• Being individually accountable at all levels

• Management existing to support the workforce (i.e., servant-leader mentality)

• Systematically, and continuously, taking out waste or “muda” of every aspect of a company’s operation (across the value chain)

• Challenging the tradition and status quo

• Bringing out the best in all people and allowing teams to develop ideas and implement changes
WHAT IS LEAN CULTURE?

- Asking questions
- Helping and not criticizing
- Problems are good; solve them to improve
- Aiming for perfection, but accept excellence
- To focus on long-term, sustainable changes (as opposed to short-term gains) by making small, incremental changes continuously
- A way of life, never ending journey toward world-class status
WHAT IS LEAN CULTURE?

• “No-blame” environment; a fear-free environment!
• A never-give-up attitude
• True teamwork
• Action oriented and change oriented
• Reflection time (hansei)
• Becoming “fit” or “athletic” or “strong” or “agile” in terms of business and operational performance
KEY TO A LEAN CULTURE: KAIZEN - CONTINUOUS IMPROVEMENT

• What is kaizen?
  • Kaizen means “change for the better” in Japanese. The best English equivalent is “positive improvement.”

• What is kaizen blitz?
  • Kaizen blitz is a concentrated, highly intensive activity designed to make rapid improvements quickly and efficiently.

Kai  Zen

改善  改善
Change  Good
VALIDATE THE LEAN JOURNEY
FROM LIFE CYCLE TO GOALS
VALIDATE THE LEAN JOURNEY

• The Lean Assessment can be accomplished by utilizing existing reports and a few quick lean tools

  • Reports from customers will provide what is going right and wrong with the organization

  • Internal reports will provide the data needed for the analytics to test if Lean practices are being utilized

  • The marginal benefit to justify the cost expenditure for the actual assessment and resources allocated for the assessment is unjustified
LIFE CYCLE OF THE ORGANIZATION

• The life cycle of the organization and its segmented areas, i.e. facilities, can also be a determining factor.

• If implementing change, mature origination might contribute to a difficult Lean transformation.

• Life Cycle and Maturity models are synonymous.

[Diagram of Product Life Cycle with stages: Introduction, Growth, Maturity, Decline, showing Revenue and Profit over Time.]
GOALS OF THE ORGANIZATION

- The recorded results in the financial metrics and operating metrics will explain anything the Lean Assessment is looking to obtain
  - Continuous Improvement Project Log

- The additional information can be obtained by other groups in the network of the organization as needed
• Traditional Lean organizations such as Toyota do not implement Lean Assessments
  • Robert H. Simonis, KCE Consulting LLC: 3/9/15

• If the leaders of the Lean Principles do not utilize a Lean Assessment, why are any organizations implementing Lean Assessments?
LEAN MATURITY VS ASSESSMENT
A SIDE-BY-SIDE REVIEW
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<td>OVER TIME</td>
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<td>GRADUAL CHANGE</td>
<td>IMPACT</td>
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<tr>
<td>NEXT BEST FIT</td>
<td>GRADE SCALE</td>
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<tr>
<td>OVERVIEW</td>
<td>SPECIFIC</td>
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LEAN MATURITY

• STEVE JOHNSON’S INNOVATION MODEL

• CAVEMAN EXAMPLE
  • After discovering the club, what is available to the caveman’s next innovation for advancement
LEAN MATURITY

• CAVEMAN EXAMPLE: Lets assume three options

OPTION 1: FIRE

OPTION 2: WHEEL

OPTION 3: ATOMIC BOMB
• Match Lean to Maturity Level
• Do not expect extraordinary change from groups
• Learning curve effect (organization history)
Benefits:

- Identify next step training needed to elevate level
- Identify the Cost of Poor Quality (COPQ) of remaining at current state and not adopting to the next lean improvement
- Hoshin kanri assists with proper business planning (Goals)
- Focus on the organization’s process; not blame the people
- Utilize best standards for next step – baseline planning
- Reflect improvements from Continuous Improvement Project Log to business planning to Hoshin kanri (Goals)
LEAN MATURITY MODEL

How to do it:

- Determine if Toyota Production System (TPS) is being used
- When did we start TPS
- How far along are we with TPS (introduction to Mature)
- What needs improvement in TPS
- What can we expect as next step in TPS
- Continuous Improvement Project Log used to identify and capture savings of programs and resources used
  - Provides a baseline and analytics for additional study and planning
RECOMMENDATIONS FOR IMPROVEMENT

LEAN ASSESSMENT (AUDIT)
RECOMMENDATIONS

- The current structure for the Lean Assessment is not utilizing all the Lean principals, Toyota Production System (TPS) and the 7 wastes + 1

- Lever the foundations of Lean, the knowledge workers, to report and record all instances of waste

- It is the duty of all employees in a Lean organization to report and eliminate waste

- This prevents the issue of non-detection or non-reporting of waste
CONTINUOUS IMPROVEMENT TEAM

• By communicating with each continuous improvement team member we can get a real time assessment of their Lean journey

• Review of each teams Continuous Improvement Project Log (CIPL) for detail on the lean journey and actions taken to indicate progress

• The communication can be monthly to review results of the continuous improvement projects

• By utilizing positive reinforcement, the assessors can reward successful project results by visiting the location to see how this transformation occurred to replicate the results in other locations (Gemba walk)

• Reduce waste by utilizing current processes in place
SYNERGIES OF DEPARTMENT

• If every group from the organization were utilizing their “LEAN EYES” or the Lean principles, the need for added quality steps are unwarranted.

• Standardize reporting from all aspects of the organization will provide the necessary information to satisfy the assessment.

1 + 1 = 3
The Continuous Improvement Project Log (CIPL) is a reporting document that stores all the detail for every Continuous Improvement Project attempted by the organization.

This historical data will provide all the information necessary to prove if the elements of Lean are encouraged and implemented in the organization.

Quick tests is to prove the correlation between the results of the Continuous Improvement Project Log and the financial statements.
AVOID ADDING WASTE

• Unless for compliance or government agencies requirements, Lean professional need to avoid adding unnecessary quality steps or over processing of the Lean mythology
EXAMPLE OF LEAN MATURITY MODELS

THREE VIEWS ON IMPLEMENTATION
LEAN MATURITY MODEL: LIST

LIST FORMAT
**LEAN MATURITY MODEL: LIST**

### Company XXX

**Goal:** Level X by XX/XX/XX  
**Updated:** 7/30/2015

<table>
<thead>
<tr>
<th>Key Elements</th>
<th>Level 1 description</th>
<th>Level 2 description</th>
<th>Level 3 description</th>
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<th>Level 5 description</th>
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<tbody>
<tr>
<td><strong>Leadership &amp; Culture</strong></td>
<td></td>
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<tr>
<td>Vision Deployment</td>
<td>Company vision is an artifact of the Board, the Annual Report, and other formal communications; not readily visible or known by employees.</td>
<td>Organization mission, vision, values, guiding principles, core beliefs, etc. are consistent and visible on internal and external documents as appropriate.</td>
<td>Employees actively participate in aligning and defining their work as it relates to organization mission, vision, value and goals. Employees can cite and interpret vision as it applies to their work.</td>
<td>Leading organizations have regular employee input at all levels and have project, departmental, business unit, and enterprise vision deployment well aligned, updated, and universal; regularly refreshed and evidenced by actions.</td>
<td>Organization benchmarks vision, mission, values, and deployment in a balanced scorecard of goals and activities that can be measured with key performance indicators and critical success factors with continual progress in place.</td>
</tr>
<tr>
<td>Administrative processes</td>
<td>Administrative improvement efforts are not tied to Lean Enterprise. Improvements are driven by functional leader.</td>
<td>Some isolated Lean tools are being used in the administrative areas. No to little gains are recorded.</td>
<td>Administrative teams are utilizing lean tools. Gains are clearly communicated to MGMT during report-outs.</td>
<td>Administrative areas view CI as a priority. Teams are formed as the solution to identified problems.</td>
<td>The administrative functions have a Kaizen culture and CI activities are used everyday. Everyone is trained in lean.</td>
</tr>
<tr>
<td>Continual Improvement Activities</td>
<td>No mechanism or time for individual involvement in process improvement.</td>
<td>Mechanism for change has been put in place and all individuals have some experience of the CI process.</td>
<td>CI happens routinely with 90% of employees actively engaged in making improvements to their own and other areas.</td>
<td>Improvements and teams are set up and run to a conclusion without man agent initiation or intervention.</td>
<td>When problems are identified, a CI team will be formed to resolve it without need for external prompting.</td>
</tr>
<tr>
<td>Empowered Work Teams</td>
<td>None to mention; maybe no teams.</td>
<td>Little to mention; some teams.</td>
<td>Team environment used for problem solving.</td>
<td>Team environment used for problem solving, planning, development.</td>
<td>Team environment used for problem solving, planning, development, and metrics.</td>
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</table>
**Lean Maturity Model: List**

### Company XXX

**Lean Assessment**

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<tr>
<td>Basic Company</td>
<td>Average companies</td>
<td>Our best competitors</td>
<td>Beat in Class companies</td>
<td>Ideal state</td>
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#### Leadership & Culture

<table>
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<tr>
<th>Voice of the Customer</th>
<th>Change Planning</th>
<th>Employee Recognition Program</th>
<th>Leadership &amp; Culture</th>
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<tr>
<td>Customer satisfaction and input is measured as a lagging indicator in terms of sales volume, complaints, and unsolicited input</td>
<td>Changes are often initiated on &quot;need to know basis&quot; with little cascade; success ratio of change implantation is low</td>
<td>None to mention; maybe no program</td>
<td>Leadership changes are abrupt and unannounced; Vision and goals of leadership are not clear; cultural ability does not align with stated expectations and aspirations</td>
</tr>
<tr>
<td>Customers are surveyed on basic elements of satisfaction, mostly via a rating vs. action-oriented ranking against service levels</td>
<td>Change is rolled out with a sponsor, change plan, and supporting events toward a defined timetable. Sponsor role is not formally defined</td>
<td>Little to mention; some type of program</td>
<td>Leadership is consistent; its collective agenda in roughly articulated and occasionally actionable in teams, projects, and individual assignments</td>
</tr>
<tr>
<td>Customer Service levels are established; compliance, monitoring and control of performance based on scores, and quarterly reviews are evident</td>
<td>Sponsorship, goal clarity, role clarity, business case, and milestone achievements are well communicated and negative change elements are addressed in change mitigation plan</td>
<td>Program used for positive reinforcement</td>
<td>Leadership has cultural change elements are component parts and standalone strategic priorities; projects are initiated and tracked against leadership development and cultural outcomes</td>
</tr>
<tr>
<td>Quality Function Deployment (QFD) is in place and occurring regularly via interviews and focus groups around service</td>
<td>Proactive change planning includes employee and wide stakeholder input; buy-in and awareness levels are tracked; sponsor and other key advocates actively engaged in change management efforts to ensure timely uptake and implementation</td>
<td>Program used for positive reinforcement, recruit non-turnover employees</td>
<td>Succession planning, acceleration pools, training, and experiential assignments are in place to support leadership and cultural objectives</td>
</tr>
<tr>
<td>Customer is active in coordinating improvement opportunities across broad spectrum (e.g., pricing, volume, product, technology, service), Products are Design for Six Sigma (DFSS) compliant</td>
<td>Change management architecture (denial, resistance, exploration, commitment tracking) is a component of large projects; teams are supported by organizational change management leadership (e.g., HR function); tracking of change is a component part of all status discussions</td>
<td>Program used for positive reinforcement, recruit non-turnover employees, organization HR strategy for acquiring appropriate skills</td>
<td>Career paths have cultural and leadership rubrics that enforce appropriate training, experience, performance, and developmental goals</td>
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<td><strong>Leadership &amp; Culture</strong></td>
<td>Communication is infrequent, not consistently delivered in timely, accurate, frequent, or convenient format</td>
<td>Communication is frequent and planned, but still not regularly achieving timely, accurate, or convenient format for key stakeholders</td>
<td>Centralized and decentralized communication planning, tracking, and improving is a regular part of the organization culture; effective communication channels achieve one-way connection</td>
<td>Frequent, friendly, accurate, and timely communication occurs in two-way fashion through a variety of communication media</td>
<td>Communication channels are key to stakeholders worklife; content aids work performance (e.g., training and knowledge), lifestyle (e.g., volunteerism, community events), and the building of multiple “committes” of highly engaged participants</td>
</tr>
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<td><strong>Training</strong></td>
<td>Training events are based on employee availability and HR capacity; training rollout is not aligned with training needs requirements and is evaluation of training does not measure skill transfer</td>
<td>Training has pre- and post-test measures, has some basis in training needs analysis; is largely classroom based</td>
<td>Training is based on solicited analysis of business needs which are translated into classroom and non-classroom events; return on investment is tracked through business case and charter</td>
<td>A clear curriculum plan is in place at all levels including rotational assignments, experiential learning, e-learning, and at-level/next-level development</td>
<td>Supervisor, HR rep, and employee have quarterly communication regarding career, general development, performance development objectives in a variety of training venues</td>
</tr>
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<td><strong>Supplier Alignment and Development</strong></td>
<td>The supplier relationship is limited to purchasing, receiving inspection and price negotiations.</td>
<td>Some communication has started with key suppliers. Samples are shared to validate incoming quality.</td>
<td>A “Supplier Score Card” is used to evaluate the supplier’s performance.</td>
<td>Key suppliers are trained in lean basics. Customer and Supplier are working together in CI activities.</td>
<td>Suppliers are viewed as an extension of the site. Waste elimination gains are shared.</td>
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**Lean Assessment**

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<tr>
<td>Ergonomics / Job Safety</td>
<td>Zero or little metrics but not safety focus; issue recurring</td>
<td>Some metrics but not safety focus; issue recurring</td>
<td>Full metrics tracking issues, full problem resolution; Some issues but non-quick resolution</td>
<td>Full metrics tracking issues, full problem resolution; Some issues without major loss but quick resolution</td>
</tr>
<tr>
<td>Defect reduction</td>
<td>No defect tracking exists.</td>
<td>Defect tracking exists primarily at corporate level. Example: total returns divided by total shipped.</td>
<td>Defects are tracked at the department level. Basic analysis with some improvements.</td>
<td>Defects are tracked at the lowest level. Basic analysis with some improvements.</td>
</tr>
<tr>
<td>Replenishment Systems</td>
<td>None to mention</td>
<td>Little focus on environment</td>
<td>Green environment focus in mission, vision, and metrics</td>
<td>Active management toward Green environment focus in mission, vision, and metrics</td>
</tr>
<tr>
<td>Flow System / Kanban</td>
<td>No flow exist from order release to shipping. Process has back &amp; forth steps.</td>
<td>Some processes have flow maps or spaghetti diagrams and can show some improvements from the tool.</td>
<td>All key processes have been streamlined utilizing flow tools. WIP caps have been implemented.</td>
<td>All processes have been streamlined utilizing flow tools. Backflows are measured and reduced through CIs.</td>
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<td>Pull System / Kanban</td>
<td>Orders are placed and work orders are released to manufacturing.</td>
<td>Some finished goods are produced based on &quot;Best Guess&quot;. Kanban cards are utilized for supplies.</td>
<td>At least 1.5% of active part numbers are in a Supermarket. Kanban cards are used in manufacturing.</td>
<td>At least 3.0% of active part numbers are in a Supermarket.</td>
<td>All items that meet supermarket criteria are in a supermarket.</td>
<td>Complete</td>
<td></td>
</tr>
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<td>Total Productive Maintenance (TPM)</td>
<td>No maintenance program exists. Equipment is repaired at breakdown.</td>
<td>Some equipment has PM checks. Uptime increases cannot be attributed to PM checks.</td>
<td>PM is designed. Major processes have checks. Thought has gone into daily, weekly and monthly checks.</td>
<td>All equipment has PM checks. PM time is tracked. Spare part program on major equipment.</td>
<td>Evidence of productivity improvement through PM. Kanban system on spare parts.</td>
<td>Partial complete</td>
<td></td>
</tr>
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<td>Change Over</td>
<td>Some knowledge exists concerning set-up times but nothing is documented.</td>
<td>Set-up time is measured on key equipment through runtime or downtime.</td>
<td>Set-up time is measured correctly (Corp forms) on key equipment with analysis leading to improvements.</td>
<td>Changes are made to the equipment or process to allow for faster changeover.</td>
<td>Set-up reduction is part of the culture. Weekly analysis of data is reviewed by the team.</td>
<td>Goal</td>
<td></td>
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#### Evidence of productivity improvement through PM. Kanban system on spare parts.

#### Evidence of productivity improvement through PM. Kanban system on spare parts.
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<td>Basic Company</td>
<td>Work space is not organized.</td>
<td>Work space is organized and clean. 6S has not been implemented.</td>
<td>Level 3 on the 6S audit.</td>
<td>Exceeded basic level 3 with work place design and process design.</td>
</tr>
<tr>
<td>Average companies</td>
<td>Work instructions exists throughout the site. They are primarily driven by a quality certification.</td>
<td>Some processes have been mapped utilizing Lean tools. Standard work exists on those processes.</td>
<td>Most administrative and warehouse processes have standard work.</td>
<td>All processes utilizes standard work.</td>
</tr>
<tr>
<td>Our best competitors</td>
<td>Processes have evolved over time. No visual representation of value-add stages.</td>
<td>Some processes have flow maps or spaghetti diagrams and can show some improvements from the tool.</td>
<td>Current State &amp; Future Maps have been created and are used to drive some improvements.</td>
<td>Each department has generated a Current / Future State Map. The maps are traversed at least once per year.</td>
</tr>
<tr>
<td>Best in Class companies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ideal state</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Lean Tools

**6S - Work Place Organization**
- Work space is not organized.
- Work space is organized and clean. 6S has not been implemented.
- Level 3 on the 6S audit.
- Exceeded basic level 3 with work place design and process design.
- 6S is part of the culture. The audit is only used to communicate the numeric value.

**Standardized Work**
- There some work instructions for certain processes. Training is not linked to documentation.
- Work instructions exists throughout the site. They are primarily driven by a quality certification.
- Some processes have been mapped utilizing Lean tools. Standard work exists on those processes.
- Most administrative and warehouse processes have standard work.
- All processes utilizes standard work.

**Value Stream Mapping**
- Processes have evolved over time. No visual representation of value-add stages.
- Some processes have flow maps or spaghetti diagrams and can show some improvements from the tool.
- Current State & Future Maps have been created and are used to drive some improvements.
- Current to future transition loop has been traversed at least once per year.
- Each department has generated a Current / Future State Map. The maps are traversed at twice per year.
### LEAN MATURITY MODEL: LIST

#### Company XXX

**Lean Assessment**

<table>
<thead>
<tr>
<th>Goal: Level X by XX/XX/XX</th>
<th>Complete</th>
<th>Partial complete</th>
<th>Goal</th>
<th>Updated: 7/30/2015</th>
</tr>
</thead>
</table>

#### Key Elements

<table>
<thead>
<tr>
<th>Level 1 description</th>
<th>Level 2 description</th>
<th>Level 3 description</th>
<th>Level 4 description</th>
<th>Level 5 description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Company</td>
<td>Average companies</td>
<td>Our best competitors</td>
<td>Best in Class companies</td>
<td>Ideal state</td>
</tr>
</tbody>
</table>

#### Lean Tools

<table>
<thead>
<tr>
<th>Visual Management / Workplace</th>
<th>Design for 6 Sigma</th>
<th>Visual Performance Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no Visual Display Boards showing the work group's status, measurements, improvement projects, etc.</td>
<td>Product development and enhancements as well as equipment, process, and technology changes are made with limited involvement of internal and external communities</td>
<td>Weak planning or no planning with minimal monitor &amp; control feature</td>
</tr>
<tr>
<td>The VDBs are posted but not used to drive action, improvements are random and inconclusive.</td>
<td>Timelines are clear for product lifecycle management, process reviews, and design upgrades; input is solicited from customers using standard survey and focus groups; iterations are frequent both for FMEA and enhancement</td>
<td>Some basic planning and monitor &amp; control feature</td>
</tr>
<tr>
<td>VDBs are comprehensive and up-to-date. Team members use the boards to communicate to MGMT.</td>
<td>Formal use of customer data collection methods is frequent for innovation and product development work; Quality tools focus discussions on Basic, Desired, and “wow” factors</td>
<td>Some type of Hoshin Kanri, Balance Scorecard, full tracking of performance and problem resolution, but not all incorporated</td>
</tr>
<tr>
<td>There are VDBs in every work cell. Work cell performance is communicated upwardly.</td>
<td>Voice of Customer (VOC), Quality Function Deployment (QFD), and Ethnography Six Sigma tools are used to identify product characteristics with significant lead time so that design is not impeded by production deadlines</td>
<td>Hoshin Kanri, Balance Scorecard, full tracking of performance and problem resolution</td>
</tr>
<tr>
<td>Visual Display Boards is the mechanism for improvements.</td>
<td>Innovation and open-ended customer value mapping occurs to widen useability, lifecycle, serviceability, and other performance aspects; new products and variations are brought to market quickly and frequently</td>
<td>Hoshin Kanri, Balance Scorecard, full tracking of performance and problem resolution</td>
</tr>
</tbody>
</table>
LEAN MATURITY MODEL: TPS BALANCE SCORECARD

UTILIZING THE TOYOTA PRODUCTION SYSTEM (TPS)
LEAN MATURITY MODEL: TPS BALANCE SCORECARD

• Using Toyota Production System (TPS) and 7 waste +1 as the gage

• Develop a Balance Scorecard
  • Based on the Kaplan/Norton strategy into action method
  • Using organization’s Vison, Mission, Goals (Hoshin Kanri)
  • Color code the maturity level
    • Blue: World Class – Ideal state
    • Green: Above industry baseline
    • Yellow: At or near industry baseline
    • Red: Below industry baseline
LEAN MATURITY MODEL: TPS BALANCE SCORECARD

• Develop a risk priority number (RPN) similar to the Failure Modes Effect Analysis (FMEA) for the color code
  • This Lean Priority Number (LPN) will be used to identify where the team should focus first to improve the organization’s Lean journey

• Calculate Cost of Poor Quality (COPQ)
  • Estimate the value of not achieving “Blue” level
  • Focus Management on miss opportunities
LEAN MATURITY MODEL: TPS BALANCE SCORECARD

• Develop a Balance Scorecard – example:
  • Typical questions to determine level of TPS / 7waste +1 involvement
    • 0: Not started
    • 1-2: At least one department with knowledge of lean
    • 3-4: At least one department utilizing lean
    • 5-6: Entire organization with knowledge of lean, some projects
    • 7-8: Entire organization with knowledge of lean, multiple projects
    • 9-10: Entire organization implementing projects and realizing success

• Color code values of the maturity level
  • Blue: 9.00 – 10.00
  • Green: 6.50 – 8.99
  • Yellow: 3.0 – 6.49
  • Red: 0 – 2.99
LEAN MATURITY MODEL: TPS BALANCE SCORECARD

Finance  Customer  Operations

Learning & Growth  Lean Organization  7 Wastes +1
LEAN MATURITY MODEL: TPS BALANCE SCORECARD

Lean Organization

- Hoshin Kanri
- Continuous Flow
- Pull System
- Heijunka – Level Workload
- Jidoka – Quality Right the First Time
- Create Standards
- Visualize
- Keep it Simple
- Grow your own Leaders
- Develop Teams
- Respect Partners
- Gemba – Go & See
- Nemawahsi – Slow – Fast
- Kaizen – Learn & Reflect

7/31/2015
LEAN MATURITY MODEL: TPS BALANCE SCORECARD

7 Wastes +1

- Transportation
- Inventory
- Motion
- Wait Time
- Over-Processing
- Over-Producing
- Defect
- Resources / Safety
LEAN MATURITY MODEL: TPS LEAN VIEWPOINT

VISUALIZE A LEAN ORGANIZATION
LEAN MATURITY MODEL: TPS LEAN VIEWPOINT

LEAN CULTURE - "THE TOYOTA WAY" - Jeffrey Liker

#1 Purpose is to generate value for customers, society & economy
#1 Long-term Growth Philosophy
#14 Kaizen (Reflection)
#12 Genchi Genbutsu (Go and See)
#4 Heijunka (Level Workload)
#2 Create continuous flow process to bring problems to the surface
#6 Standardized Tasks
#7 Visual Control
#3 Pull
#8 Use only reliable tested technology

#14 Hansei: Relentless Reflection
#10 Develop People
#9 Grow Leaders

"Dream of Perfection"

CC: Agilix 2011

7/31/2015 62
LEAN MATURITY MODEL:
TPS LEAN VIEWPOINT
LEAN MATURITY MODEL: TPS LEAN VIEWPOINT

• Match Lean activities with company’s vision by utilizing the visual Word Cloud

• A different way to understand the organization’s Lean journey
SUMMARY

LEAN ASSESSMENT (AUDIT)
SUMMARY

• Lean is a journey not a destination

• The Lean Assessment with a report back to management for performance review is not what Lean is designed to accomplish

• To establish the Lean culture, Lean professionals need to adopt a proactive focus / view of inclusion to integrate the Lean philosophy throughout the organization
  • Maturity model: List or TPS Balance Scorecard
THE STORY OF BEN FRANKIN & THE OPERA

WHAT IS YOUR STANDARD MR. FRANKLIN?
WHAT IS YOUR OPERA?

• In the 1700’s, to distinguished oneself as a person of intelligence, high society, and sophistication was to attend the opera

• This was an European standard, was it global?
Taking the cue from the image and the text provided:

“'I call this my opera’, as Ben Franklin, ambassador to France, played chess at the Café de la Régence to promote the American democratic republic government.

Thus, Ben Franklin’s response to the standard of “sophistication” was different than the European aristocrats (economic substitute)
• So, what do you call as your OPERA?

• What is your Lean standard for assessing an organization?

• I hope this presentation will assist you with a different way of viewing an existing standard in assessment.