



Kaizen-Teian Improvement Systems Module 10.1

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Presentation for:
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These materials were developed as part of MIT's ESD.60 course on "Lean/Six Sigma Systems." In some cases, the materials were produced by the lead instructor, Joel Cutcher-Gershenfeld, and in some cases by student teams working with LFM alumnae. Where the materials were developed by student teams, additional inputs from the faculty and from the technical instructor, Chris Musso, are reflected in some of the text or in an appendix.

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Overview

- Learning Objectives
 - Understand the concept of Kaizen-Teian
 - Distinguish between Kaizen-Teian and business process reengineering
 - Discuss examples of Kaizen-Teian implementation
 - Understand how to apply key elements of successful Kaizen-Teian implementations
- Session Design (20-30 min.)
 - **Part I:** *Introduction and Learning Objectives (1-2 min.)*
 - **Part II:** *Key Concept or Principle Defined and Explained (3-5 min.)*
 - **Part III:** *Exercise or Activity Based on Field Data that Illustrates the Concept or Principle (7-10 min.)*
 - **Part IV:** *Common "Disconnects," Relevant Measures of Success, and Potential Action Assignment(s) to Apply Lessons Learned (7-10 min.)*
 - **Part V:** *Evaluation and Concluding Comments (2-3 min.)*



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Understand how to apply key elements of successful implementations of Kaizen-Teian

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What is Kaizen-Teian?

- 改善 (Kaizen): improvement
- 提案 (Teian): proposal
- Characteristics of Kaizen-Teian:
 - Gradual and continuous accumulation of small improvements
 - Focus on team of collaborators (vs. team of experts/consultants), engage the entire workforce
 - Promote a maintained progress (vs. lack of continuity)
 - Implement incremental improvements in small steps (vs. big leaps)
 - Is a building block of a typical lean organization. (The other building block is identifying waste in operations.)
 - Typical setting: a small team of 8-20 people from all levels and functions/departments of the organization identifying, analyzing, and implementing a project in a matter of 4-5 days.



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Kaizen-Teian vs. Business Process Reengineering

Kaizen-Teian ("Improvement Proposal")	Business Process Reengineering
<ul style="list-style-type: none"> • Incremental, long-term improvement process driven by workforce • Empowers workers who are closer to the process and build unity in organization • Benefit from the insight of those closest to the process • Not as disruptive • Workforce may only achieve "local optimum" but not "global optimum" • Process being improved might be inherently "flawed" • Difficult to engage everyone in the organization 	<ul style="list-style-type: none"> • Big change: enabling element to get on the next "S" curve • Lead by example: management is willing to change • See the entire system: avoid negative outcome of seemingly unrelated local improvements that are in fact related • Drastic changes are not easy • "Push" system: not necessarily customers-focused and may undermine organizational identity • May results in layoffs that might "chill" participation



Adapted from ESD.60 Systems Change Debate Results on 6/14/2004

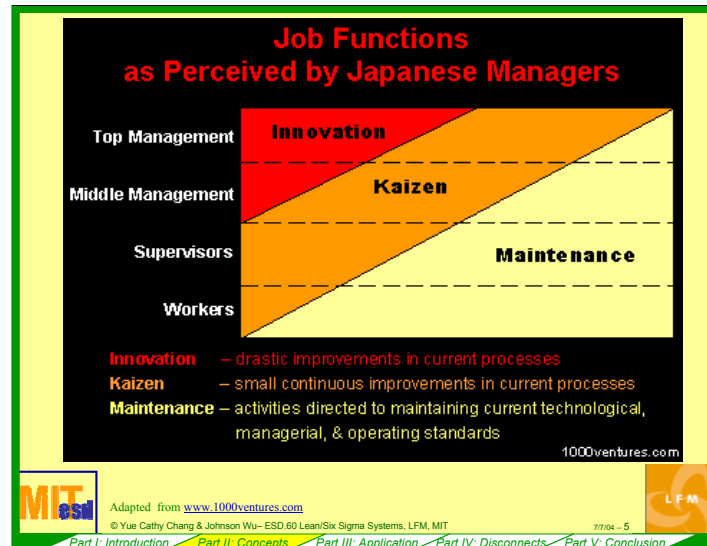
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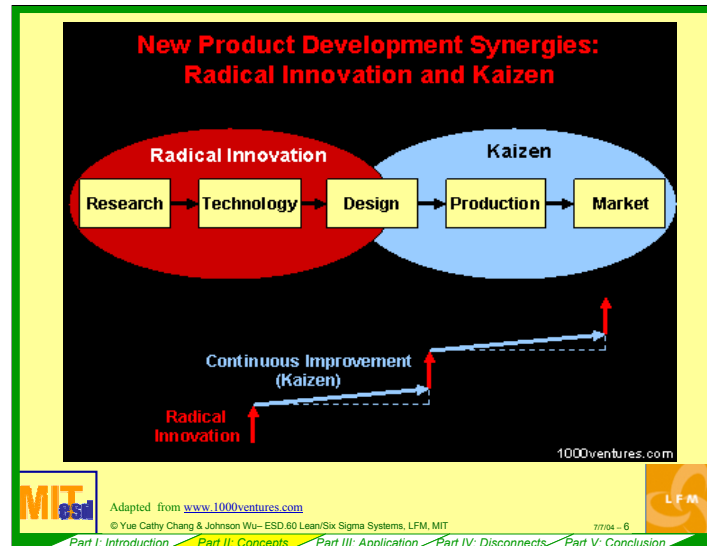


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4-Stage Implementation of Kaizen at Algonquin Automotive

- **Stage 1: Kaizen Kick-off**
 - Highly visible, formal, structured implementation 1 year -18 months
 - Kaizen events inspired by Toyota: 1-3 days when the lines are stopped
 - Each meeting was carefully documented, and follow-up meetings were held.
 - Full of energy: all improvements were encouraged by management.
- **Stage 2: Kaizen Attenuated**
 - Effort "collapsed under its own weight", causing kaizen to receive lower priority
 - Workers focused on getting production out of the door. Taking an hour out of work was viewed as infeasible.
- **Stage 3: Quiet Resurrection**
 - Individuals in various departments started kaizen efforts on an ad-hoc basis
 - Non-coordinated, scattered efforts across the organization
- **Stage 4: Kaizen Returns**
 - Both the organization and depts recognize individuals' kaizen efforts
 - Standardized kaizen documentation and performance measurements
 - More focused on direct groups; little inter-departmental communication



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•Stage 1: Push

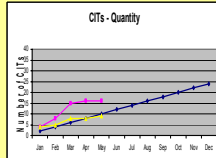
•Stage 2: Push force weakens, Toyota's kaizen consulting group disassembled. Energy level and focus of the organization, especially management and supervision, weakens.

•Stage 3: Pull

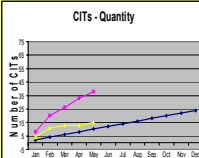
•Stage 4: Balance of Pull and Push

Measurements: # of Ideas vs. Value Generated

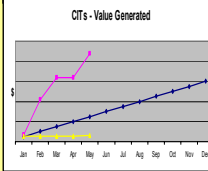
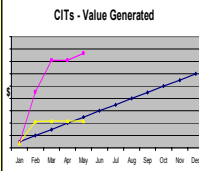
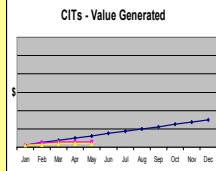
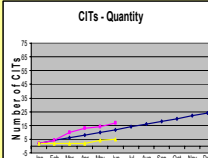
Site 1:



Site 2:



Site 3:



— Goal — Expected — Realized



Gap between expected value and realized value reflects the timing delay of kaizen proposal implementation



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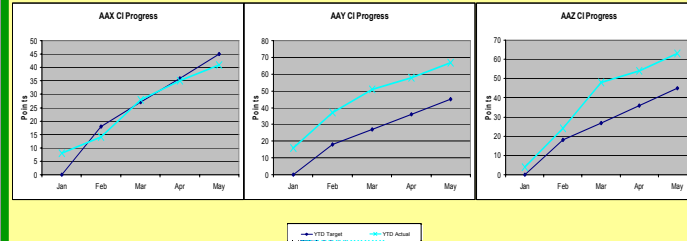
Kaizen Measurements: Idea Initiations vs. Implementation

- Each idea initiated: 1 point
- Each idea successfully implemented: 2 points

Site 1:

Site 2:

Site 3:



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Common Disconnects/Roadblocks in Kaizen Implementation

- **Technical Factors**
 - Little visible technical impediment on kaizen.
 - Measurement metrics for kaizen efforts.
- **Social Factors**
 - Overly formalizing the kaizen process will collapse the improvement program.
 - Competition between departments on kaizen can be both positive and negative.
 - Negative workers-management friction will impede the kaizen process.
 - Lack of management commitment to kaizen can impede the improvement program.

The constraint is not technology, it's governance.

--Thomas Homer-Dixon



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The quote by Thomas Homer-Dixon is from the “Lean Production Simplified” textbook.

Concluding Comments

- Kaizen-Teian emphasizes "Just Do It!"
- Kaizen-Teian is a building block of a typical lean organization.
- Kaizen-Teian is a gradual and continuous accumulation of small improvements and focuses on a team of collaborators .
- Kaizen-Teian treats every variance from target as a problem to be solved and everyone in the organization as a responsible contributor.
- Standardization and measurements are the keys to successful Kaizen-Teian efforts.

"No single program solves all the operational problems in a manufacturing environment."

Scott Roodvoets, LFM '91



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Food For Thought

“Characterizing kaizen as simply “continuous improvement” trivializes the concept and portrays it as cautious and lacking in imagination... More typically, the implementation of kaizen reflects a radical commitment to an entire way of operating that requires floor-to-ceiling change in management, work, manager-worker relationships, discipline, decision making, and the organization of knowledge, that transforms an organization into a federation of problem solvers.”

-- Peter Keen, Chairman of Keen Innovations



Adapted from www.peterkeen.com

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Appendix: Instructor's Comments and Class Discussion

- Supporting IT infrastructure is important for tracking suggestions and delivering metrics
- Re-engineering often punctuates successful kaizen programs, because incremental learning can “max out” the existing system
- Dollar values are not always the best metric for kaizen
 - 80% of suggested improvements at one auto parts factory were “intangibles”—but were important in their own right and they were necessary to build suggestion-making capability
- PDCA should be done on all suggestions—but from the bottom up.



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Appendix: Instructor's Guide

Slide	Time	Topic	Additional Talking Points
1-2	1-2 min	Introduction, overview and learning objectives	<ul style="list-style-type: none">Identify overall themes (four points) – don't just read from the slide.
3	1-2 min	Key Concepts	<ul style="list-style-type: none">define Kaizen and explain its characteristics. Kaizen is derived from two Japanese words: change, better. Teian is also derived from two Japanese words: raise, issue/proposal
4	2-3 min	Exercises/Activities	<ul style="list-style-type: none">ask audience about Kaizen vs. reengineering and show results from debate (6/14/04).
5-6	1-2 min	Job function perception and new product dev. Synergies	<ul style="list-style-type: none">show that Kaizen is owned by all layers of an organization; explain Kaizen is more present from design to market.
7	2-3 min	Kaizen at Algonquin Auto	<ul style="list-style-type: none">discuss the four stages of implementation: 1) push; 2) push force weakens, Toyota's Kaizen consulting group disassembled; energy level and focus of the organization, especially management and supervision weakens; 3) pull 4)Balance of Pull and Push.



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Appendix: Instructor's Guide

Slide	Time	Topic	Additional Talking Points
8	2-3 min	Kaizen measurements at Algonquin (if time allows, also discuss kaizen implementation / measurement at Nipponenso plant and/or NUMMI plant on the next slide)	<ul style="list-style-type: none"> compare the goal/expected/realized curves of three Algonquin sites; point out that the goals were set at the beginning of the year, and expected and realized values are determined monthly. Explain that the gap between expected and realized values reflects the timing delay of Kaizen proposal implementation. Note ideas seem to generate only small or no profits at the beginning of the project.
9	2-3 min	Measurements (continued)	<ul style="list-style-type: none"> briefly explain the point system in the measurement, and point out that YTD is effective Jan-May only.
10	2-3 min	Disconnects	<ul style="list-style-type: none"> focus on social factors and explain that many technical factors are results of social factors. Tell story about union challenges to kaizen effort — union sent letters to the homes of members telling them that they would lose their jobs if they cooperated with kaizen (which is seen as a way of reducing head count).
11	1-2 min	Concluding comments	<ul style="list-style-type: none"> take home messages. Emphasize that kaizen is not the remedy for all operational issues.
12	0 min	Food for thought	<ul style="list-style-type: none"> display only, and answer any questions

Appendix: Instructor's Guide

8b	2-3 min	•Nippondenso plant in Battle Creek, MI.	<ul style="list-style-type: none">• 700 people at the plant: implementing 7000 improvement suggestions per year.• calculated both dollar returns and "intangibles", in which dollar returns were not calculable• 80% of suggestions were intangibles—why? Important to build capability; each time people made a suggestion, they learned how to make better improvement suggestions. Soon the people who suggested intangibles suggested tangibles. <ul style="list-style-type: none">• 7000 seems too high to implement. Do they all go through PDCA? Yes, but through distributed leadership. Not top-down. <ul style="list-style-type: none">• 95% of ideas were implemented.
8c	1-2 min	NUMMI plant	<ul style="list-style-type: none">•NUMMI plant: 10,000 suggestions per year with 4,000 workers for the last 20 years.• At the end of 4 years, Nippondenso had made so many improvements that it had "maxed out" the existing system, and a re-engineering (with new equipment) was implemented. This works well with NUMMI's product cycle (~4 years). This is also consistent with the graph on slide 6.



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