



National Science Foundation
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How to get the most out of your Kaizen Event

**Overview of a Collaborative Research Project at
Oregon State University and Virginia Tech**

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Overview

- **Background information**
- **Research motivation and goals**
- **Study design**
- **Best Practices Framework**

Background

What are Kaizen Events?

- **Definition:** A focused and structured improvement project, using a dedicated cross-functional team to improve a targeted work area, with specific goals, in an accelerated timeframe.
- **Background:**
 - Introduced by Toyota in 1970s for teaching lean concepts to suppliers
 - Frequently the mechanism used by companies to implement lean manufacturing principles
 - Most often targets manufacturing areas but also applied in support and knowledge work processes
 - Other terms: kaizen blitz event, lean event, rapid improvement workshop (RIW), accelerated improvement workshop (AIW)

Kaizen Event Characteristics

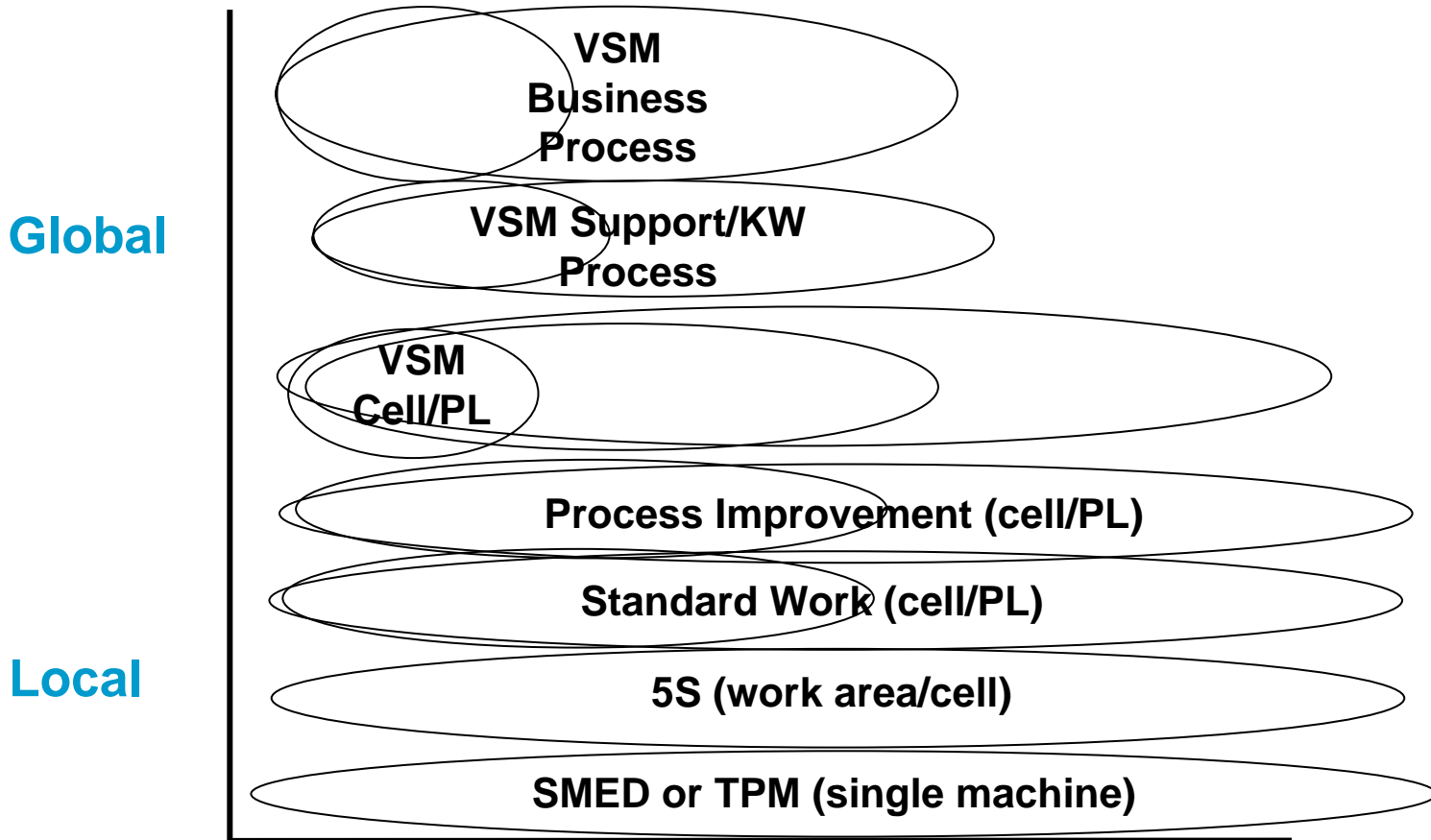
- ***Accelerated timeframe:*** Typically 3-5 days, with dedicated project team for duration of event
- ***Cross-functional composition:*** Typically operators/workers, supervision/management, other functional areas (e.g., engineering, quality, purchasing, accounting, etc.), customers, and/or suppliers
- ***Focused improvement:***
 - Defined “work area” (e.g., machine, cell, production line, process, value stream) – may be a mfg, support/service, or knowledge-work process
 - Typical performance measures targeted: Productivity, Flow time/lead-time, floor space, inventory, set-up/changeover time, production throughput, parts travel, quality (Kosandal & Farris, 2004).
- ***Improvement Approach:*** Structured improvement approach and tools; often develop “low-cost solutions”

Typical Kaizen Event Phases

- *Preliminary data collection and analysis*
- **Kick-off**
- **Training**
- **Documentation and analysis of current state**
- **Identification of opportunities for improvement (design future state)**
- *Implementation and evaluation of changes*
- **Development of action plan for follow-up**
- **Report out to sponsors/stakeholders**

During
kaizen
event

Example Types and Scope of Kaizen Events



Analysis/
Documentation

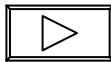
Design/ Planned
Improvement

Implementation

Research Motivation and Goals

Why Study Kaizen Events?

- Increasing numbers of companies are using Kaizen events to improve performance and implement lean concepts & principles
- Many companies have reported significant improvements, even orders of magnitude, but others seem to have more limited success
- Success of events also appears to vary within companies
- Many organizations appear to have difficulty sustaining event results in the longer-term

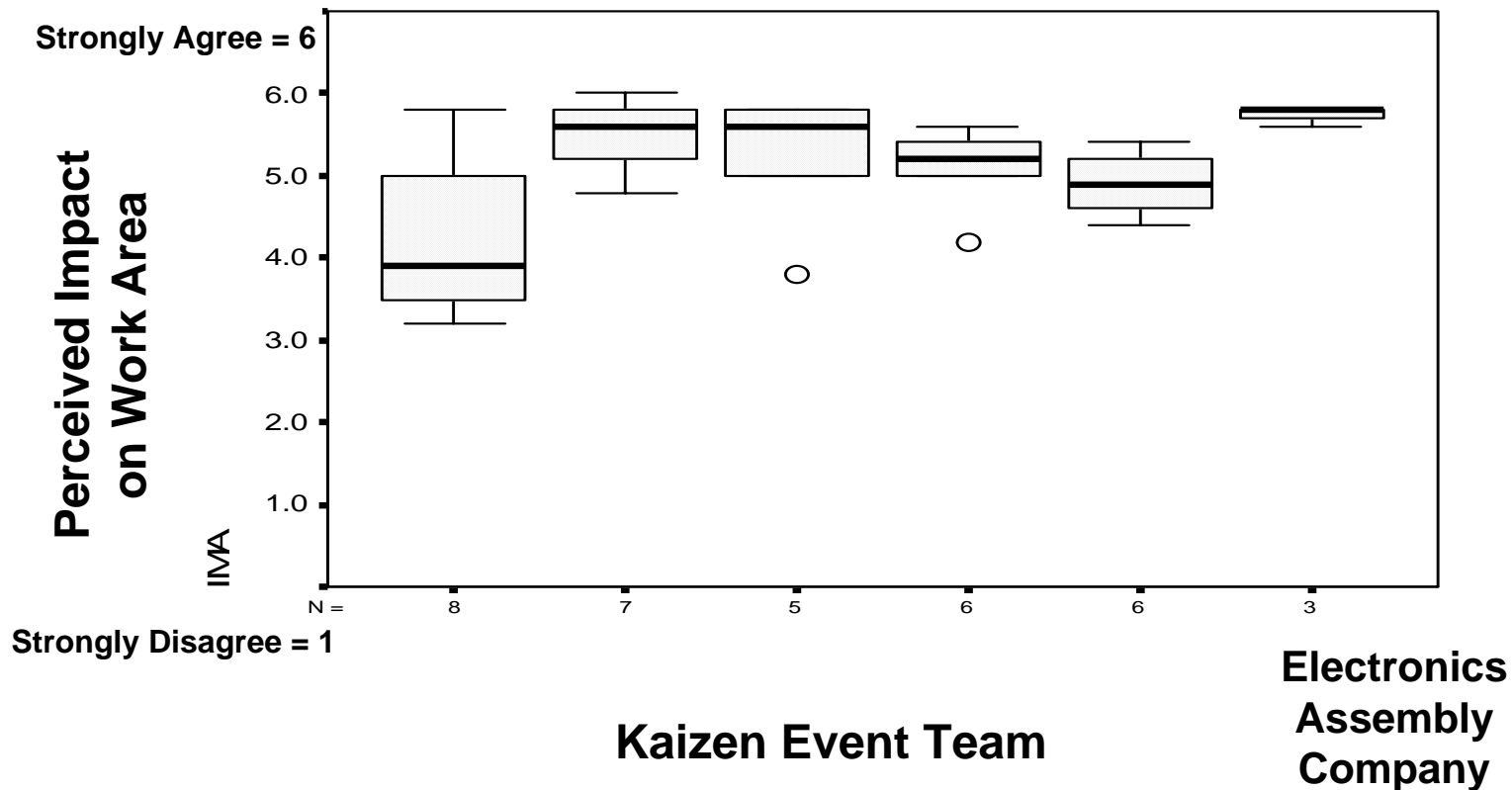


Varying Results Across Kaizen Events in a Single Company

1. Differences in Success of Meeting Goals

2. Differences in Perceived Results

3. Differences in Process Results: % Time in Implementation & Experimentation ranged from 35-78%



Aims of Three-Year NSF Study on Kaizen Events

- Understand why some events are more effective than others
 - study multiple events across multiple organizations
- Investigate “technical system” outcomes (initial and over time) by documenting objective results achieved
- Investigate “social system” outcomes including employee knowledge, skills, and attitudes about continuous improvement (initial and over time)
 - For example: Do Kaizen events create a culture of continuous improvement and build employee capabilities for CI?
 - Using survey questionnaires (6-point scale, strongly agree to strongly disagree)
- Test research model with KE design variables, context variables, and outcome variables
- Use findings to identify ways to improve how organizations design, conduct, and support Kaizen events

Study Design

Participants

- **Diverse manufacturers**
 - Products
 - Geography
 - Private and public
 - Unions and nonunion
 - Size
 - Multiple industrial sectors represented
- **Organizations have used Kaizen events for a least one year**
- **Kaizen Events considered a tool for achieving the strategic objectives of the company**
- **At least one event per month is held**

Participating Companies

	Company A	Company B	Company C	Company D	Company E	Company F
Generic Description	Specialty equipment manufacturer	Steel component manufacturer	Manufacturer of large transportation equipment	Secondary wood product manufacturer (3 plants participating)	Electronic motor manufacturer	Manufacturer of large transportation equipment
Number of Employees	950	3500	153,000	4,200	700 37,000 world wide	18,000 (in participating facility)
Year Started Kaizen Events	2000	1995	mid 1990's	1992 – 1998	2000	1998
# Kaizen Events per Year	100	3-4+	Peak was 1200 per year	17-31	60-80	100
% of Organization that has Experienced Events	100%	20%	Factory floor – 100%, rest of organization, 70-75%	100%	100% in one plant, 75% in other	85%
Major processes targeted	All areas of organization	Manufacturing, Order Entry, Accounts Receivable, Distribution in Warehouses, Vendors, Engineering Product Development	Manufacturing, engineering, Human Resources, Finance	Operations	Operations, sales/marketing, customer service/technical support, product design/redesign, production planning/inventory control, process design/redesign	Engineering (and related activities)
% of non-manufacturing vs. manufacturing events	Not Sure	5 to 1 (in favor of manufacturing)	70% manufacturing, 30% non-manufacturing	Nearly 100% in manufacturing	75% in manufacturing	70% in non-manufacturing

Data Collection Mechanisms

- Each organization evaluated longitudinally
- Multiple data collection methods employed
 - Self-administered surveys
 - Interviews
 - Electronically submitted documents
 - Technical results assessment
- Secure website used to facilitate organizations uploading and downloading reports and files

Data Collected for Each Kaizen Event

- **Team Activities Log – high level description of the team’s activities (logged by the team)**
- **Two survey questionnaires completed by all Kaizen event team members: Kickoff Survey and Report-Out Survey**
- **Event Information Sheet completed by the Kaizen event facilitator**
- **Team report-out file**
- **Kaizen event announcement**

Longitudinal Data

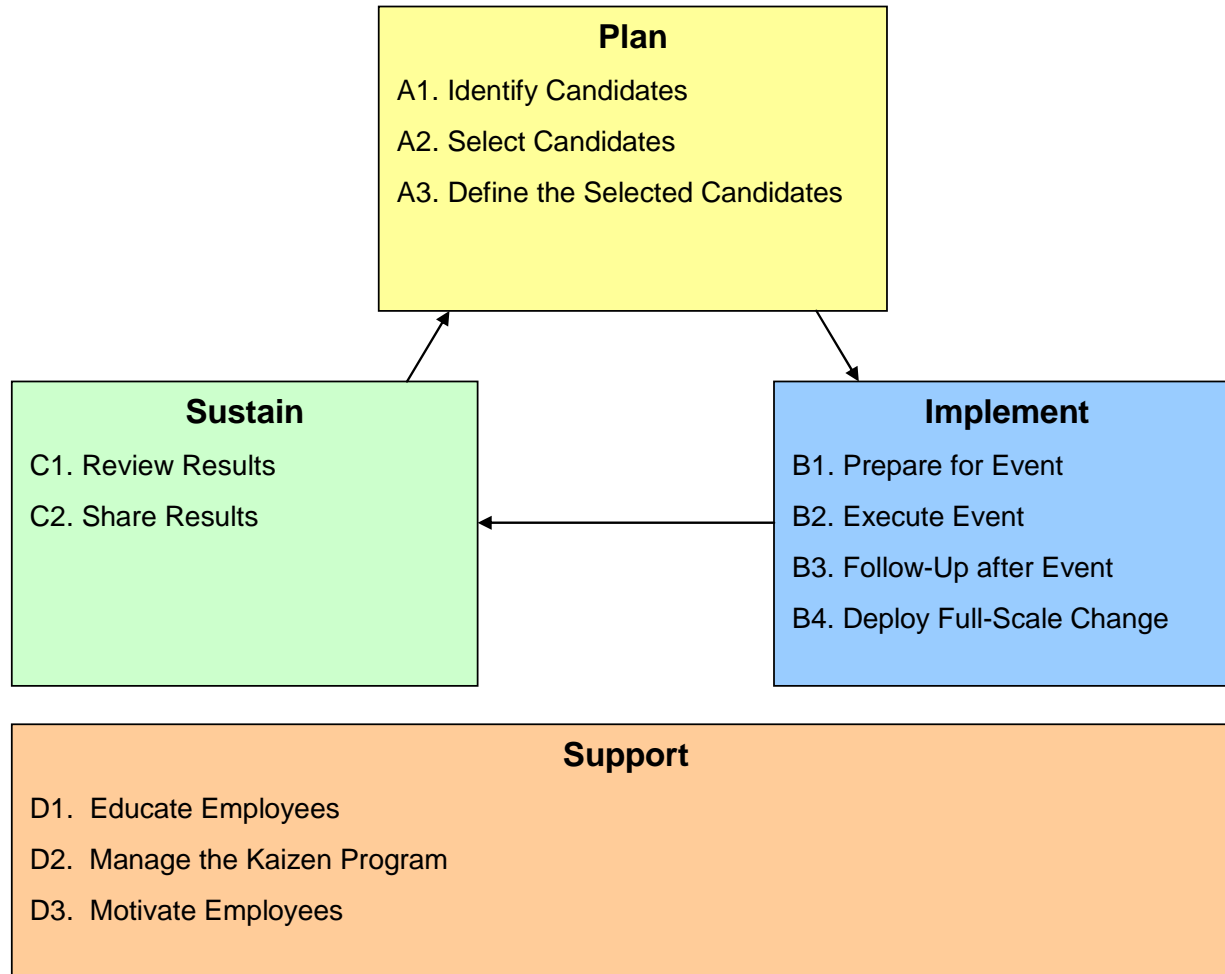
- **Post-Event Information Sheet completed by the Kaizen event facilitator**
- **Work Area Survey questionnaire completed by all employees in the target work area**

Benefits for Participating Companies

- Compare impact on business performance across events and over time
- Measure longitudinal impact on employee knowledge, skills and attitudes
- Pinpoint strengths and areas for improvement
- Compare the design and effectiveness Kaizen events to other companies
- Design better events by manipulating key design variables

Best Practices Framework

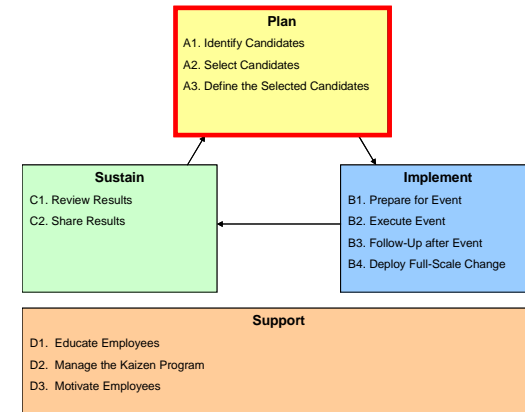
Best Practices Framework



Practices Related to Planning Events

A1. Identify Candidates

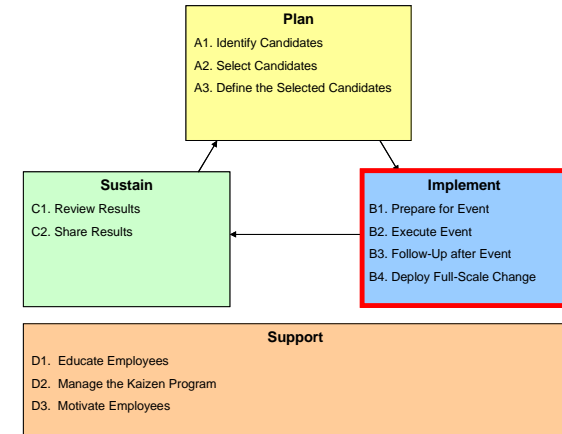
- **Derive Candidates from Strategic Direction**
 - Candidates defined from organization's strategy map and/or strategic objectives.
- **Perform Analysis to Define Candidates**
 - Use Value Stream Maps to define candidates (organization-level or lower).
 - Use performance review results from organizational scorecard to define needs for targeted improvement.
- **Respond to Emerging Problems**
 - Use structured approach to funnel internally-defined problems (e.g., noted process problems defined by process owners or process participants, etc.) to define candidate events.



Practices Related to Implementing Events

B1. Prepare

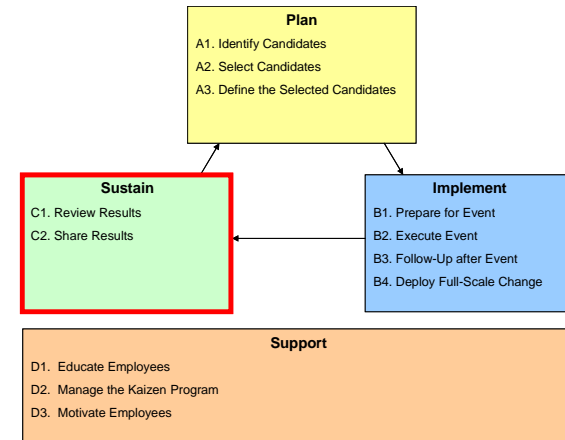
- **Prepare for the Event**
 - **Collection of Data**
 - **Collect process flowcharts, Value Stream Maps or other process descriptions prior to the event.**
 - **Gather information from previous events or improvement projects, and/or external sources (e.g., benchmarking or standards).**
 - **Use standard checklists to plan and obtain materials and other resources.**
 - **Arrange for “on call” resources (e.g., maintenance, other support functions, sponsor), who will or may need to support the event (to hook-up equipment, etc.) but are not directly included on the team.**



Practices Related to Sustaining Events

C2. Share

- **Standardize Best Practices**
 - Share report-out files electronically throughout the higher-level organization in order to more widely disseminate the event changes and results – this increases the possibility that other sites can adopt what has been done in events completed.
- **Share Lessons Learned**
 - Have team members share lessons learned with all other work area/process employees.

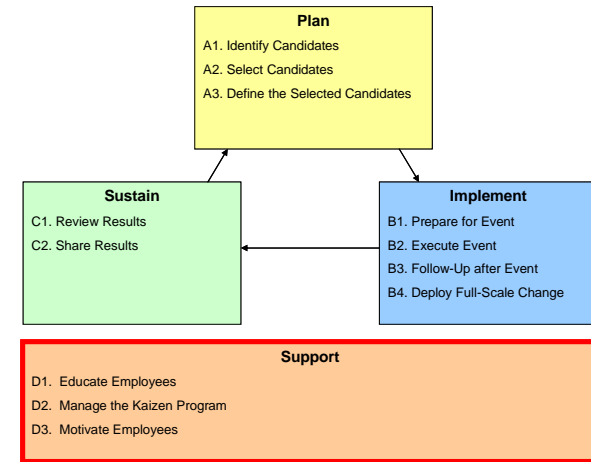


Practices Related to Supporting Events

D3. Motivate

- **Set Expectations**

- Include participation in Kaizen events and/or use of related tools following Kaizen events (e.g., Standard Work audit cards, daily 5S) in formal job descriptions.
- Include participation in Kaizen events in individual performance expectations for managers, such as the requirement of participating in 1 event per year at Company C.
- Set organization/facility-wide expectations for Kaizen events such as:
 - Expected number of events per month.
 - Setting expectations for the specific goals within each Kaizen event (such as 2 poka-yoke devices per event, 2 safety/ergonomic improvements per event, etc.).



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