

# Kaizen Implementation



ARC Management Systems  
Unit 4, IDA Industrial Estate  
Purcellsinch  
Kilkenny  
Ireland

[www.arcmanagementsystems.com](http://www.arcmanagementsystems.com)

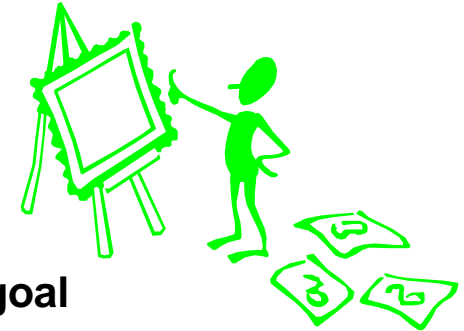
[info@arcmanagementsystems.com](mailto:info@arcmanagementsystems.com)

## What is a Kaizen Event?

**A Kaizen event is a focused effort used to “make a leap” A multi-functional team is formed and for a 3-5 day period they focus on resolving a problem.**

It is characterized by the following:

- **A short burst of intense activity & effort (3 to 5 days only)**
- **Biased toward action over analysis**
- **Focused on improving the value stream and achieving flow**
- **Driven to resolving a specific problem or achieving a specific goal**
- **Focused on a specific area or process (either plant or office)**
- **Managed with daily reviews of progress**
- **Aimed at achieving specific improvements in a short time**
- **Managed to resolution**



**A kaizen is driven to two imperatives: - Solving Problems  
- Eliminating waste (Muda)**


During a kaizen event the team will:

Identify problems & areas of waste

Ask Why?, Why?, Why?, Why?, Why?, Why?

Figure out ways to fix the problem or eliminate the waste

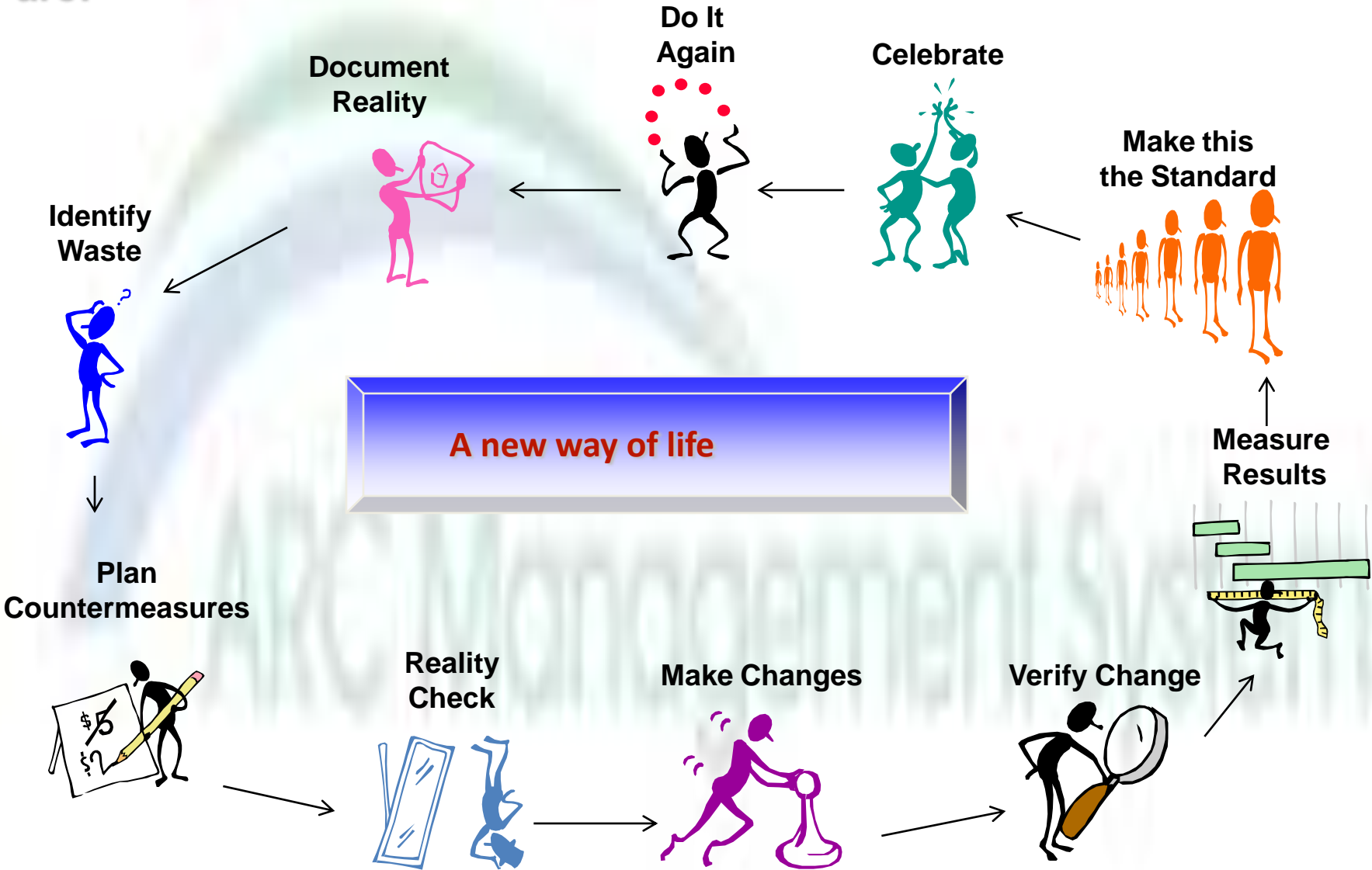
Implement solutions

- 
1. Take Apart
  2. Think about
  3. Make new

**Kaizen**

# What is a Kaizen Event? Continued

The Standard Work elements of a Kaizen event are:



## Pre Kaizen Event Steps

**Pre Kaizen Event steps are performed so that the Kaizen is as effective and waste free as possible.**

**There are 4 basic steps:**

**1) Describe the opportunity**

- Linked to one or more Company Goals

**2) Form & Train the Team**

- Every team member must be chosen for a purpose
- Every team member must go through pre-event training

**3) Set Goals / Collect baseline data**

- Link impact on goals to specific events
- Calculate TAKT time

**4) Leader Responsibilities**

- Checklists
- Review the Team's objectives with the plant Safety Manager to ensure any safety issues are addressed



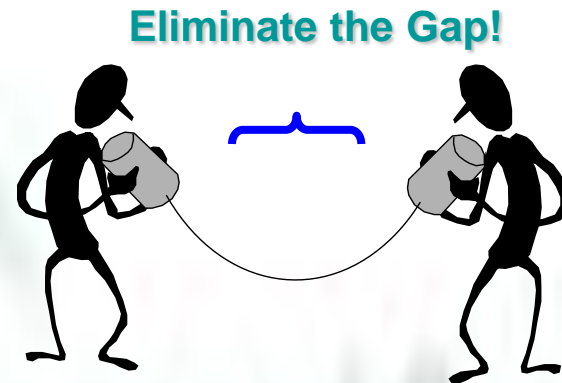
## Pre Kaizen Event Steps

### Describe the Opportunity:

An opportunity is the launching pad for a kaizen. An opportunity is defined as a discrepancy between our customer's expectations and our current processes.

There is always an opportunity because there is always room for improvement. Typical opportunities include:

- Reduce excessive lead times
- Improving delivery performance
- Reducing excessive inventories
- Eliminating machine failures
- Eliminating scrap
- Eliminating process bottlenecks
- Improving Capacity



*Events should be selected based on Company Goals. Beginning with the “Super A’s”, a Value Stream map should be completed for each “Super A”. Processes that support the highest number of Super A’s should be the subject of the plant’s first improvements. The plant should work through the Value Stream map until all processes that impact the “Super A” have been realigned to meet customer expectations. Then move onto the other processes. The requirement is to be able to build a week’s requirements every week for the “Super A’s”*

## Pre Kaizen Event Steps

### Form & Train the Team:



#### **Lean Master**

The plant Lean Office is responsible for determining when a kaizen event is required and for assembling a Kaizen event team. A kaizen team size should be based on what makes sense based on the area being kaizened. It is typically 5-8 people. Teams become ineffective when there are more than 8 members. Every team member should be chosen for a specific reason.

#### **The Lean Master is also responsible for:**

- Ensuring that the kaizen event goals support the company goals
- Confirming that the event area is confined to a specific area or product
- Confirming that the event has measurable goals
- Coordinating with the leadership of other departments when the product passes through their area
- Creating high level process maps to help define the event objectives, scope and time limits
- Preparing and giving event training
- Providing standard logistic items (kaizen tool boxes)
- Scheduling the team, break out areas, and presentation rooms
- Informing the plant and shop floor as far in advance as possible
- Working with the plant safety coordinator to ensure environmental, health, & safety issues in the event area are addressed

#### **The Event Consultant**

The Kaizen Events will be directed by the Plant Lean Masters, the Plant Managers , and supported by the Lean Core Team.

## Pre Kaizen Event Steps

### Form & Train the Team:

#### Event Leaders

Events are lead by a team leader and a co-leader. The leader and co-leader should have proven leadership skills including good communications and people skills. They should also be experienced in the kaizen process. Leaders must be able to relate to direct labor as well as senior management. Leaders cannot be intimidated by senior management as senior management may be team members. A leader must be a stickler for detail, show initiative, and be tenacious in completing an event effectively, correctly and on time. Leaders also must empower, coach and facilitate the team in determining what and how things will be done; not dictating the what and how.



#### Co- Leaders

The co-leader brings “up the rear”. The co-leader tells the leader what's needed and supports the leader in answering questions on the team’s progress



## Pre Kaizen Event Steps Form & Train the Team:



### Team Members:

Team composition is also critical to the success of the event. Everyone must be chosen for a purpose and should reflect the following:

- **“A Different Set of Eyes”**
- **Product Engineers**
- **Someone currently assigned to the process**
- **Maintenance Coordinator**
- **Materials**
- **Influential or informal leaders salaried, hourly, union etc.**
- **Safety Coordinator**
- **Internal & External Suppliers**
- **Effective problem solvers**

***Be ware of selecting members who are entrenched in batch or MRP mentality, if they are not willing to change they will be a drain on the team.***

## Pre Kaizen Event Steps



### Set Goals:

Background information must be collected to set the goals. This information includes:

- Space
- Inventory
- Productivity
- Cycle Times
- 5-S's
- Customer Service
- Lead Time
- Scrap Rates
- Takt Times
- Safety/Ergonomics - Loss
- Visual Measurements
- Current Standard Work

Once the background information is gathered, an area profile is completed by the Lean Master or the team leader.

The objectives for an event must be clearly defined, must be measurable and must support the achievement of **Company** goals.

The relationship between **Company Goals, Event objectives and Lean is** as follows :

*Company sets goals, the event objectives measure where we stand in achieving those goals and Lean provides the tools which when implemented will improve the measured results thus supporting the achievement of our goals.*

### Pre Event Check List

- **Compile pre kaizen information (TAKT, routings, machines, etc..)**
- **Work with Lean Master to establish team roster**
- **Work with Lean Master to distribute training material and baseline data**
- **Lean Master conducts pre training for new team members**
- **Lean Master notifies involved work areas**
- **Lean Master & Team Leader set event objectives tied to goals**
- **Leader prepares Day 1 task list**
- **Leader prepares opening presentation**
- **Lean Master & Leader identify “home base”**
- **Lean Master puts kaizen tool boxes together**

## Kaizen Event Check List



- **Leader picks up tool box**
- **Leader establishes working hours & breaks**
- **Leader reviews baseline with team and gives daily assignments**
- **Leader coordinates equipment moves w/ maintenance**
- **Leader prepares daily presentation and assignments for final presentations**
- **Returns a complete set of paperwork to Lean Master the day of the final presentation**
- **Leader returns tool box Lean Master ensures Kaizen Feedback forms are returned**

# Kaizen Tool Box Inventory

Each *team* will need a plastic bin large enough to contain the following:

- 1 small stapler
- 1 box of staples
- 12 pencils
- 1 package of 8 transparency markers
- 1 box of transparencies (to be used for overhead presentations)
- 1 box of paper clips
- 2 pads yellow post-it notes
- 2 pads blue post-it notes
- 1 roll of scotch tape
- 1 glue stick
- 1 pair of scissors
- 1 roll of duct tape
- 1 roll of masking tape
- 1 bottle of white out
- 1 screwdriver with multiple tips
- 1 utility knife
- 1 tape measure
- 1 large black marker
- 1 large red marker
- 2 black pens
- 1 eraser
- 1 ruler
- 1 mechanical pencil
- 1 red pen
- 1 hi-lighter



Each team *member* will need:

- 1 clipboard
- 1 stopwatch
- 1 calculator

Other items you'll need to have on-hand:

- A flipchart for each Kaizen area and one for the presentation room
- 1 or 2 overhead projectors
- 1 VCR and television

Document the Current Process. We need to understand how processes are performed today.

### Documentation Includes:

- Calculate TAKT Time
- Kaizen Event Area Profile
- Target Sheet
- Time Observation \*
- Standard Worksheet
- Standard Work Combination Sheet \*
- Spaghetti Chart
- TAKT / Actual Bar Chart
- Layout
- 5S & Safety Audit

## Document Reality



**\* One for each operator**

*Take the time to validate the baseline information and understand what is happening in the area.*

# Kaizen Event Steps

## Calculating TAKT Time

### TAKT Time (TT)

$$TT = \frac{\text{Daily Time Available}}{\text{Daily Volume (*)}}$$

\* Customer Demand

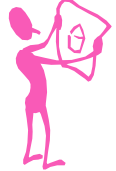
### Document Reality

Example:

**Quarterly Volume** = 79,725 Units

This is how the machine is paced.

**Daily Volume** = 79,725 units/61 days = 1307 Units /Day



Calculating Time Available:

Time Operator is not available:

- 17 min. wash-up time
- 10 min. area clean-up
- 15 min. breaks

- 25 min lunch

67 min of unavailable time

**Time available** = (8hr x 60 min/hr) = 480 min - 67 min  
= 413 min x 60 sec/min = 24,780 sec  
= 24,780 x 7mach run in a day  
= 173,460 sec

### Things to consider when calculating TAKT time:

- Define what you will base TAKT time on. Plating may be a rack not a part.
- Backlogs and the time required to eliminate
- Non-Kaizen work running in the area
- Things that may reduce the time available
  - 5S & TPM
  - Breaks & lunches
  - Wash-up & area clean-up times
- Track Cycle Time time on a performance chart

**TAKT Time = 173,460 sec/1307 units per day**

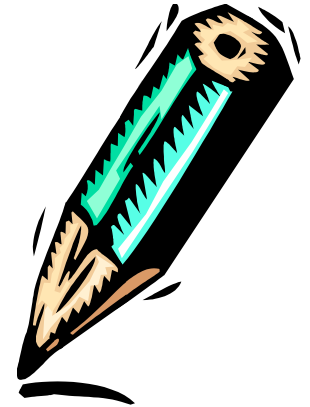
**TAKT Time = 132.72 sec**

### Define area to Kaizen:

- This is established prior to the Kaizen.
- All this information needs to be verified during the Kaizen.

### Fill out target sheet: \_\_\_\_\_

- First defining Base and Goals.
- Track actual results each day.
- Don't forget to validate the base.



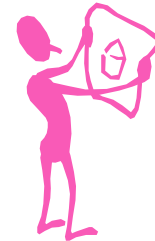
### Document the area:

- Position of machines
- Flow of the operators (draw on red)
- Flow of the material(draw in blue)
- Identify safety issues
- Identify quality issues

### Time Observation of all Operators:

- Review tasks normal and abnormal
- Document tasks on sheet & review
- Continuos timing of task 5 - 14 times.
- Component time Total should be best repeatable total cycle time.

### Document Reality

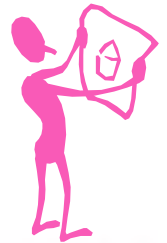


*Take observation worksheet and plot on Combination worksheet:*

- **Differentiate Man work, Machine time, and walking.**
- **Chart graphically using the three types of lines.**

Note: Time observation sheet tasks can be consolidated.

**Document  
Reality**



- **Document Cycle Times of each Operator**
- **Bar chart on graph**
- **Plot TAKT time as a red horizontal line**
- **Review operations compared to TAKT**
- **Begin to consolidate operations based on TAKT**
- **Must stay below TAKT**

# Kaizen Event Steps



## Kaizen Action List

- Needs to be filled out during event
- Serves as to-do list
- Accomplishments sheet
- Who is responsible
- When is the action item due

# Kaizen Event Steps

## Waste

**Waste - Those elements of production that do not increase the value of a product, but only increase cost.**

## Identify Waste



**Note:** Once you have completed your observations, revisit the scope of the project and ensure it captures the flow of the product/process and can be completed within the Kaizen event

- Focus on the things that can be done within the event
- Bias for action vs. planning and analysis
- Think within the boundaries of the Power Lean process
  - Single Piece Flow
  - Minimum Inventory
  - At TAKT Time
  - Pull production vs. Push production
- Low cost solutions, creativity before money
- Right sized resources
- Maximum Waste Elimination

## Plan Countermeasures



### Attack items that impact

- Process Flow
- Material Flow
- Information Flow

## Kaizen Event Steps

### Reality Check

- The Plant Power Lean Master reviews the countermeasures and the to-do list and ensures:
  - Proper Direction
  - Countermeasures are the proper lean solutions
- If necessary, course corrections are made.
- The consultant approves the plan.



### Make Changes

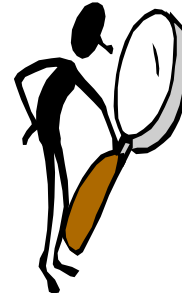


- Bias for action, **Just Do It!!**
- Pre-event planning for possible event “moves” may be needed to prepare support services.
- **Do not** dictate how things will be done. Ask team members, build coalition.
- Hold progress meeting each day; morning, afternoon, or end of day.
- Keep Kaizen Newspaper updated.

### Verify Change

- Redo observations
- Results Achieved?
- If not, go back and make additional changes
- Re-verify with additional observations
- Take action that is needed to complete verification within the event time frame

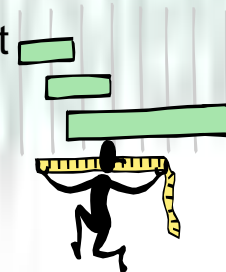
### Verify Change



### Measure Results

- Document the results against the event objectives using the target sheet
- Did the waste get eliminated?
- Will the improvements contribute to the annual Goals:

### Measure Results



# Improvement Idea

The improvement idea form is used to document ideas and improvements that the team has to help a cell meet its goals and service its customers.



The top left box is used to describe the problem: “ Setup tools are stored 1/2 mile from the actual setup, this causes 15 minutes of walking”

The top right box is used to describe what was done: “Stores a complete set of setup tools at the machine to eliminate the 15 minutes of walking”

The bottom left box is used to pictorially draw the before: 15 minutes of walk time!



The bottom right box is used to pictorially draw the after: No Walk Time!



The Improvement Idea form is a great tool to document changes and results.

## Kaizen Event Steps

- Establish visual controls to insure progress is maintained.
- Make controls visible and understandable to the casual observer.
- Visibly post open actions and leave them up until they have been completed.
- The facilitator is responsible to help establish control, counsel on the event closure.
- Establish a visual display board in each area.
- The results must be repeatable and sustainable.

**Make this  
the Standard**



# Celebration



## Post Event Follow-up



After the event, the focus should be placed on ensuring that the improvements continue.

### This is done by:

- 1) Survey the event participants to determine where the event needs improvement. (A sample survey form is included in the blank form section). You can tie receiving the survey back to a team prize such as a Kaizen t-shirt or a free lunch.
- 2) Local Management following up on open kaizen action items - **aggressively**. Establish post event ownership team and leave them in place until open items are closed.
- 3) Developing a “Cell Information Control Center” which will provide an easy way to immediately determine if progress is continuing. See next page.
- 4) As part of the monthly plant reporting package, each plant must report on the progress of every kaizen that was performed (regardless of if it was an internal event or one using outside consultants).
  - **The reporting will include an “Kaizen Event Summary” (example included in this section) which documents the major results achieved in the event compared to the results from the last week**
  - **Open Kaizen Newspaper Items**
- 5) Random reviews will be performed by local management and the Lean Core Team. The reviews consist of floor walkthroughs and plant assessments