



**KAIZEN**

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Kaizen literally means to break apart or separate for the better.

Kai      Zen

改      善

The word itself has been “Kaizened” to change for the better.



Kaizen is a system that involves every employee - from upper management to the cleaning crew. Everyone is encouraged to come up with small improvement suggestions on a regular basis.

This is not a once a month or once a year activity. It is continuous. At Japanese companies, such as Toyota and Canon, a total of 60 to 70 suggestions per employee per year are written down, shared and implemented.



In most cases these are not ideas for major changes. Kaizen is based on making little changes on a regular basis: always improving productivity, safety and effectiveness while reducing waste.

Suggestions are not limited to a specific area such as production or marketing. Kaizen is based on making changes anywhere that improvements can be made.

-Western philosophy may be summarized as, "if it ain't broke, don't fix it."

-The Kaizen philosophy is to "do it better, make it better, improve it even if it isn't broken, because if we don't, we can't compete with those who do."



Kaizen in Japan is a system of improvement that includes both home and business life. Kaizen even includes social activities. It is a concept that is applied in every aspect of a person's life.

In business Kaizen encompasses many of the components of Japanese businesses that have been seen as a part of their success. Quality circles, automation, suggestion systems, just-in-time delivery, Kanban and 5S are all included within the Kaizen system of running a business.



Kaizen is often referred to as a Lean Manufacturing tool. It is really a Japanese cultural philosophy. In a business context, it is a continuous improvement system that uses many available tools or techniques. These include but are not limited to:

Six Sigma

Kanban

SMED

DMAIC/DMADV

QFD

5S

TPM

Poka-Yoke

TOPS

5 Whys

VSM

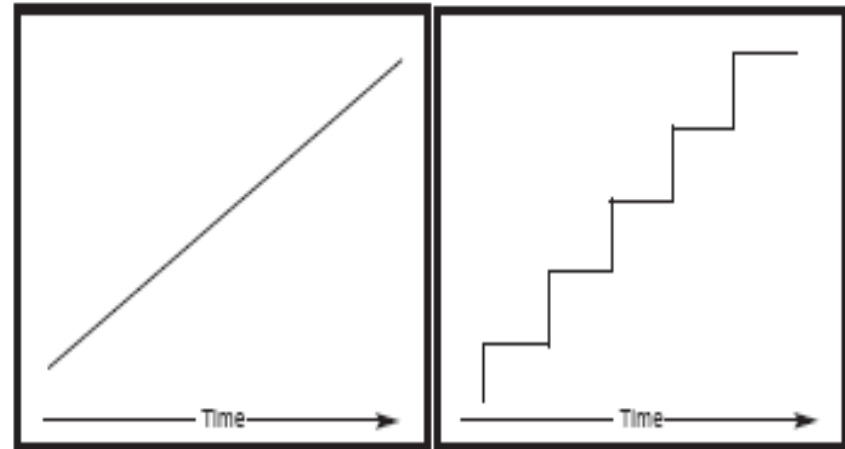
DOE

ANOVA

SPC

FMEA

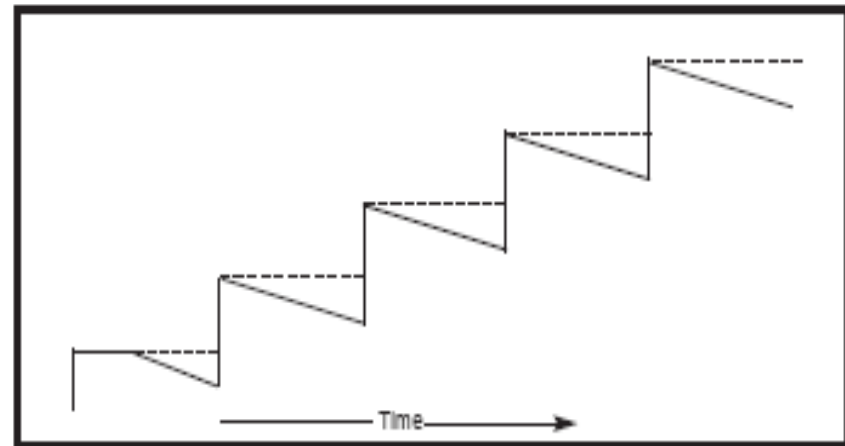
Kaizen creates a constant slope while innovation creates a staircase effect.



Ideal Pattern for Kaizen

Ideal Pattern for Innovation

Once a new system has been installed as a result of innovation, it will often deteriorate unless Kaizen is utilized to maintain and improve it.



Actual Pattern for Innovation without maintenance



There are different types of Kaizen's. Long term Kaizen's or Kaizen Projects are a type of Kaizen at the macro level. They tend to last weeks or months. Six sigma projects would fit in this category.

Jishuken are Kaizen projects that are conducted by a workgroup or a self-directed team. They focus on one topic such as productivity improvement, and typically last 3 months or so. This could be done by a workgroup but would most likely involve people who are not workgroup members also. A Kaizen Breakthrough can be part of a jishuken activity.



A Kaizen Breakthrough, Event or Blitz is a term used for running a one-time special event, normally 3-5 days long, to drastically make changes in a process. It is really a Kaikaku - a radical change while Kaizen means small incremental changes.

The origin of a Kaizen Breakthrough can be traced to the Shingijutsu Consulting Group founded by a group of Toyota engineers in the late 1980's. They were responsible for extending Lean principles to Toyota suppliers. These engineers worked for Taiichi Ohno the originator of the Toyota Production System (TPS).



The first Kaizen events conducted in the United States were called “three days and a night” due to the long hours required. The Shingijutsu Sensei's (masters) were contracted on a per week basis. Some of the lean consulting firms today have ties to the Shingijutsu Consulting Group.

Kaizen Breakthrough at Toyota Motor Corporation (TMC) is experienced daily. Toyota has done an outstanding job of implementing the Toyota Production System, a system that is intolerant to waste in all its forms.



Kaizen Inspires people to create solutions to issues that are crucial to improving their environment. These solutions are team based not management based.

Why do people often behave differently during a Kaizen Breakthrough experience? Many become infected with a desire to seek & destroy waste. We have heard of Kaizen team members that were up all night thinking of solution to problems they uncovered.



The common elements of a Kaizen Breakthrough are:

1: A cross-functional team

2: The emphasis on quick action

3: Improvement focused on the gemba (actual work place)

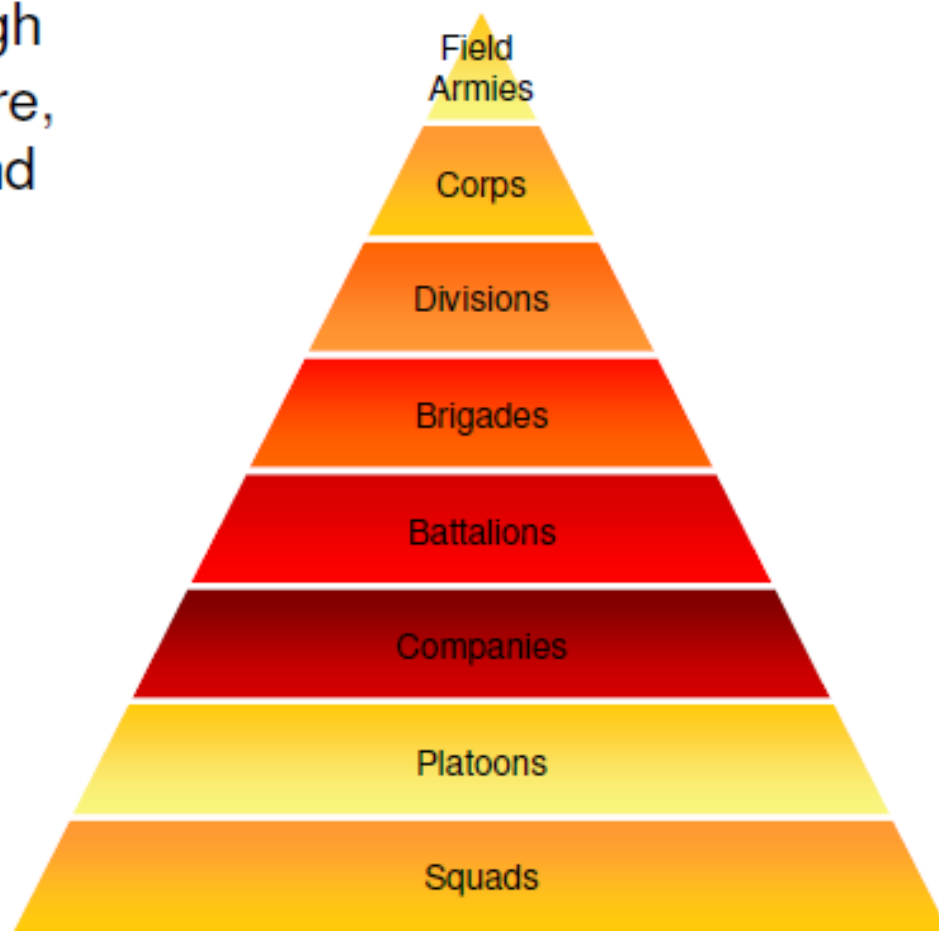
4: Decisions are made based on facts through direct process observation



**QC Circles** are small groups of individuals who do similar work (workgroups) who meet on a regular basis to discuss and analyze problems, consider solutions, and test them in their daily work. The kaizen focus originates from, but is not limited to Quality Control (QC). These are perpetual teams, though the membership changes as workers transfer in and out of the area.

**Kaizen Suggestions** are the small and local. They are most often ideas you can implement yourself. As a rule, in an effective suggestion system the team leader or supervisor will review and approve (or provide coaching to improve the suggestion) within the same day that it is submitted.

As you move down through the organizational structure, the planning strategies and decision making become much more specific and narrower in focus. The planning process also evolves from primarily strategic to almost purely tactical.





The 2 unique challenges of a Kaizen Breakthrough for project teams are elements 3 and 4.

3: Improvement focused on the gemba (actual work place)

4: Decisions are made based on facts through direct process observation.



## Challenge with element #3: **The Project Gemba.**

It's important that the scope be well-defined and actionable within the 5-day (for example) duration of the kaizen event. The important thing is to define the *project gemba* which are the places where actual work gets done and where improvement is meaningful.

The scope of a Kaizen event should not encompass an entire project or an entire value stream, but by nature the entire project may be considered the gemba. That is the challenge.



Challenge with element #4: **Direct Process**

**Observation.** As we have defined them, Kaizen Projects take longer than a day. This can be a challenge for Kaizen Breakthrough teams.

In Kaizen, you have to go to where the work is done (genchi or gemba) and observe the facts with the gembutsu (actual elements of the process). At the gemba, you need to observe the actual work being done to get the facts of the current situation.



You need to be able to observe the process, identify the waste, make improvements, observe the results, measure the impact, and document the new process and remaining action items. *All in one week.* The risk of not doing this is that your changes to one observed part of the project may have unintended consequences on another part of the work of the project.

In manufacturing terms this would be like observing only one section of an assembly line and doing kaizen to it, without understanding the effect this will have on the next process immediately downstream.



So unless you have a very large team, or a very short project, this can be difficult to do and you will need to limit your scope or run multiple kaizen events to enable genchi gembutsu for a kaizen breakthrough.

To have a kaizen event on an entire project may be possible if the project is a very short one. It may also be possible a similar project is in progress and you can observe this in a stage-by-stage fashion and use this to design a new method for a similar project.

There has been a lot written about how to manage kaizen events in a step by step fashion. The way to conduct a kaizen breakthrough for project teams would not be any different from how you do kaizen in any other type of work environment. There are three basic phases:

The main aspects of **kaizen preparation phase** involve:

- setting targets and defining a scope
- selecting the team members by following guidelines to make sure you have a good cross functional mix
- coordinating resources to make sure the process can be observed and that supporting data is available
- and communicating with stakeholders.

The **Kaizen week phase** is when you come together as a team to observe, redesign and test new methods and applying various Lean tools to get rid of waste.

1. Go to the gemba where each member of the project team does the actual work
2. Identify waste and categorize them by the \*7 types to make sure you understand them
3. Write this down on a Kaizen report
4. Identify the root causes
5. Apply countermeasures
6. Test results
7. Standardize new method
8. Repeat

| The 7 Wastes         | Some Related Questions  |
|----------------------|---|
| 1. Waiting           | Can some tasks be done in parallel Rather than in series?   |
| 2. Transportation    | Can the process be configured to move product to the next operations (rather than have people do the moving)? |
| 3. Processing Itself | Can some tasks be combined or eliminated?   |
| 4. Motion            | What aids, such as fixtures, new equipment, or special tools, could speed up the process?                     |
| 5. Poor “Quality”    | Where can error-proofing be used to eliminate or reduce errors or rework?                                     |
| 6. Inventory         | Is a supermarket needed just-in-case or can we operate without it?  |
| 7. Overproduction    | Can the operation produce to order rather than  |

To set standards in the case of a project team whose work is not as easy to fit into a process with a set time, you may revisit the promises you made and renew them as "standards" for the work you are responsible for.

**Kaizen follow-up phase** which includes continuing to monitor the new process until it is stable, completing action items required to implement all Kaizen ideas, and handing over the day to day sustaining and continuous improvement of the target process to the area managers.

## Seeing Waste During a Kaizen Breakthrough

Project team members may not be used to thinking in terms of waste and value in their individual work, their workgroup, and work stream so an emphasis on understanding the 7 types of waste in the project setting is essential. Examples of wastes within the work of a project team include:

**Overproduction** due to unclear requirements from the upstream process

**Waiting** time for information from another project team member before work can be completed

**Inventory** of projects or project tasks that are in process

**Motion** of switching from one multi-task activity to another

**Defects** and rework loops

**Transportation** and the delays and loss of information caused by hand-offs

## **Advantages of Kaizen Breakthrough for Project Teams**

Experience has shown that during a Kaizen Breakthrough, a team gets more improvement done in 5 days with 8 people than you can with the same people putting in the same 50 hours extended over 2 months, as they would in a project.

Decisions are made in real-time based on observed facts and new methods are tried during a Kaizen Breakthrough, taking the place of many useless meetings that are conducted away from the gemba in a typical project.



The cross-functional team aspect of a Kaizen Breakthrough allows you to look at things from a new perspective rather than just your own specialist perspective or role within the project, which can be powerful in a project team environment where these functions are working together already.

A Kaizen Breakthrough complements project teams well because projects team typically lack speed and a bias for action, while Kaizen Breakthroughs can fail due to a lack of follow up and structure, which the project management can provide.



Kaizen Breakthroughs are a good way to give a "boost" to a traditional project by rapidly accomplishing some core section of work as a team in a short period of time while improving communication and clarifying customer-supplier requirements.

In the long view all organizations are temporary. Project teams are created with a termination date in mind. A kaizen team is by nature temporary, forming to solve problems, set standards and to disband typically after a week.

Temporary organizations such as these need to learn to be effective quickly within their short lifespan. Learning and applying the principles that make kaizen teams successful can help make temporary organizations such as project teams more effective also.



## **Getting Started With Kaizen**

For most American companies Kaizen involves a significant change in the corporate culture. This is key. The attitudes of employees - from top management down to new hires will need to change.

Kaizen needs to become something all employees do because they want to, and because they know it is good for them and the company.

It can not be something employees do because management dictates that it be done. That means that if management isn't ready to lead by example, Kaizen will not get off the ground.



Employee training and communication is important. Combined with that, direct involvement by the management is critical. For example, a manager spending a week on the shop floor working with employees to help and encourage them to develop suggestions will help.

That manager should also ensure employees see their suggestions acted on immediately. Suggestions should not be implemented next month or next week, but today. In some cases, a suggestion submitted in the morning can be implemented that afternoon, or sooner.

Keep employees informed about what happens with their suggestions. Don't have suggestions disappear into a management "black hole."



To get Kaizen started it can be helpful to bring in outside experts. They can work in your facility identifying problems that those close to the work may not see. This serves as a "seed" allowing employees to see how Kaizen works and to experience the benefits of Kaizen.

A significant obstacle to Kaizen in many corporations is that problems are seen as negatives. We don't like problems. Someone who is associated with a problem is likely to be negatively impacted (a lower raise, missed promotion, or even fired). In Kaizen, problems are opportunities to improve. With Kaizen we want to find, report, and fix problems. *Kaizen encourages and rewards the identification of problems by all employees.*



To encourage the submission of suggestions, a part of each supervisor's evaluation should be based on the number of suggestions submitted by those they supervise. Don't evaluate employees on the number of suggestions they submit, *evaluate your supervisors and managers and how well they are doing at getting those who work for them to actively participate in Kaizen.*

Managers should develop methods to help create suggestions and increase the number of suggestions. For example, set up teams of five to 12 people to evaluate work areas, processes, quality, productivity, and equipment availability/reliability. The team then makes suggestions for improvements, and they may even implement those improvements.



- Train employees in using Kaizen tools such as 5S, Kanban, and Line Balancing.
- Keep in mind that Kaizen is about action. Taking action to generate suggestions, and taking action to implement those suggestions immediately.
- Kaizen is focused on making small improvements on a continuous basis.
- What Are The Benefits Resulting From Kaizen?
- Kaizen involves every employee in making change--in most cases small, incremental changes. It focuses on:
  - identifying problems at their source
  - solving them at their source
  - changing standards to ensure the problem stays solved



It's not unusual for Kaizen to result in 25 to 30 suggestions per employee, per year, and to have over 90% of those implemented. For example, Toyota is well-known as one of the leaders in using Kaizen. In 1999 at one U.S. plant, 7,000 Toyota employees submitted over 75,000 suggestions, of which 99% were implemented.

These continual small improvements add up to major benefits. They result in improved productivity, improved quality, better safety, faster delivery, lower costs, and greater customer satisfaction. On top of these benefits to the company, employees working in Kaizen-based companies generally find work to be easier and more enjoyable--resulting in higher employee moral and job satisfaction, and lower turn-over.



With every employee looking for ways to make improvements, you can expect results such as:

- Kaizen Reduces Waste in areas such as inventory, waiting times, transportation, worker motion, employee skills, over production, excess quality and in processes.

- Kaizen Improves space utilization, product quality, use of capital, communications, production capacity and employee retention.



Kaizen provides immediate results. Instead of focusing on large, capital intensive improvements, Kaizen focuses on creative investments that continually solve large numbers of small problems.

Large, capital projects and major changes will still be needed, and Kaizen will also improve the capital projects process, *but the real power of Kaizen is in the on-going process of continually making small improvements that improve processes and reduce waste.*