All-out kaizen

A continuous improvement plan delivers change to the production floor... and dollars to the bottom line  

BY CHRIS ORTIZ
The philosophy of kaizen (continuous improvement) is the starting point and driver for all lean initiatives. Kaizen events are opportunities to make focused changes in the workplace, but they require solid planning and smart implementation. A company kaizen program helps create a foundation for change that will enable a company to sustain process improvements for the life of the company. Many improvement efforts fail to reap financial and cultural rewards due to lack of planning, execution, or accountability in the organization.

Change is rarely easy. As veteran manufacturing people, we think of creative solutions to our issues all the time. We discuss our ideas with our co-workers and line operators, and there is a mutual understanding that things could be better. That part is easy; it’s putting these ideas into place and adjusting to them that is hard. When operators try to make their workstations more organized, some supervisors deem it a waste of time that takes effort away from producing product. Such ill-advised supervision shows operators that their ideas and efforts are not important. More than likely, they won’t attempt to make their work better again, and they’ll never feel they are valuable to the company.

The philosophy of continuous improvement emphasizes the importance of involving employees at every level of the organization. Kaizen is meant to be integrated into normal day-to-day activities with the focus on eliminating waste, creating standardization, and having a clean, organized workplace. Improvements made through kaizen are generally small and subtle; however, their results over time can be large and long-lasting.

Figure 1 is referred to as the Fear of Change Chart because it represents why management is reluctant to allocate time and resources to improve processes. It is an ambiguous chart that tracks the critical business metrics, including productivity, quality, volume, and revenue as examples. Point 1 represents where the company is currently operating. Point 3 is the goal after improvements. In many cases, after an aggressive change in line layout, restructuring of work content, new standards, standards improvements, and 5S, there is a dip in these business metrics. This dip is Point 2. There is a time period when operators and their support staff have to adjust to a new environment and adhere to new standards and rules. This adjustment time will vary depending on the severity of the change, lasting from just a couple of hours to sometimes a couple of weeks.

Top management is afraid of this time period when productivity will fall and quality issues could increase. Daily output may not be achieved and overtime may be necessary to make up the volume. It is important to recognize this possibility, but with proper planning and dedication to achieving that goal, your company can tolerate a period of chaos more easily.

Kaizen is not a fly-by-night idea that goes away when management and engineers are not comfortable adapting to change. A company’s kaizen program can deliver change to the production floor and become a policy for sustaining and continuing future improvements. Complicated? No. Does it require dedication and commitment? Absolutely. To stay competitive, manufacturers have to operate under fundamental policies that enhance change and promote a sense of continuous improvement. Otherwise, the competition will run past them. Here is how to get started.

Establish the champion

A successful kaizen program should have a person whose efforts are completely dedicated to its execution. The employee for this role should not be in top or middle management, but should possess the proper project management and supervision skills needed for kaizen events.

An ideal kaizen champion candidate would be a lean manufacturing engineer who stays away from the daily requirements of management. It is safe to default to an industrial engineer or manufacturing engineer, but someone with solid lean skills and an understanding of 5S, kaizen, and standard work will help drive the program and ensure success during kaizen events.

Optimistic forecast

The U.S. and world economy are looking up, according to 76 percent of the U.S.-based industrial manufacturers surveyed for PricewaterhouseCoopers’ Manufacturing Barometer. The respondents are optimistic about the domestic economy’s prospects for 2006.

“These findings suggest that industrial manufacturers are returning to a more positive business outlook following a debilitating prior quarter that saw two hurricane disasters, business interruptions, and continuation of shockingly high energy prices,” according to Jorge Milo, leader of PricewaterhouseCoopers’ U.S. industrial manufacturing practice.

Fifty-seven percent of the executives surveyed plan to make major new capital investments in 2006, and 61 percent plan to increase their work force in that time.
The governing committee

Another vital element of the kaizen program is establishing a committee of employees to help schedule and watch over the monthly kaizen events. This governing committee is responsible for ensuring the success of the kaizen teams and clearing any obstacles or constraints that would impede improvement efforts. This committee is not responsible for monitoring the day-to-day kaizen activity; they are 100 percent dedicated to the kaizen events themselves. Since the kaizen champion is already in place, the committee meets only once a month. It is the responsibility of the kaizen champion to ensure that the hands-on work during kaizen events is getting done. If there are any issues that need to be resolved from a management perspective, then the kaizen governing committee must resolve them.

Kaizen governing committee members should include the following eight individuals:
- Kaizen champion
- Plant manager
- Production manager
- Engineering manager
- Materials manager
- Quality manager
- Facilities or safety manager
- Human resources manager

Communication boards and newsletters

Your newly appointed kaizen champion should begin by developing the communication system that will deliver kaizen and kaizen event information to all employees. Using communication boards can be very effective. Plants vary in size, so identify areas where information boards can be placed in break rooms, meeting areas, or select a central location in the plant that can be used to communicate upcoming kaizen events. It is best to use a dry erase board because the information will change daily, weekly, and monthly. The board should be used only for kaizen-related information. Do not clutter it with other data.

Creating a dedicated kaizen event communication board demonstrates dedication toward the kaizen program to the production floor. The kaizen champion is responsible for maintaining this board as events are scheduled and completed.

Event tracking

The kaizen tracking worksheet is used by the kaizen governing committee to monitor and track kaizen events. Using a spread-

![FEAR OF CHANGE CHART](image)

Figure 1. This figure represents management’s reluctance to allocate time and resources to improve processes. Point 1 represents the company’s current operational status. Point 2 displays the dip in various business metrics due to aggressive kaizen changes. Point 3 is the future goal after improvements are made.
THE KAIZEN 13

There are 13 categories that must be included on a kaizen tracking worksheet:

1. Kaizen event. This category is used for selecting the area for the next kaizen event. There are certain rules that should be applied when selecting the kaizen event:
   - All kaizen events should be scheduled one month in advance.
   - Kaizen events should be held on the same week of the month every month. This is good practice because after a few kaizen events, the employees start to become accustomed to kaizen events and they know that every fourth week, for example, the company will be conducting an event.
   - Areas chosen for kaizen events must warrant the need. There is always room for improvement. Sometimes it’s necessary to conduct kaizen events in the same area three times in one quarter. However, it is important to select areas in which results of a completed event will improve the business.

2. Team leader. The kaizen champion should lead most kaizen events. If another employee has to be appointed to fill in for a champion who is on vacation or traveling for business, choose that team leader the day that the kaizen event is selected.

3. Team members. The kaizen governing committee should select team members two weeks prior to the event. This is extremely important because all team members must be present for the kaizen event. The committee should be able to find out who will be on vacation, traveling, on sick leave, short-term disability, or may be involved in a project that requires participation. This also allows members to prepare and meet with their managers to make sure their duties are covered during the event. Proper planning helps ensure success for the team because lack of participation will hurt the team during the event.

4. Date and length. Kaizen events should be scheduled four weeks in advance at every kaizen committee meeting. Kaizen events are typically five days in length, but times can vary from two days to four weeks depending on the complexity of the area. When scheduling events, the kaizen governing committee should keep in mind other important initiatives going on in the plant. Once the week and length of the event are selected, stick to the plan. Do not change the date at the last second.

5. Strategic purpose. Each event should be selected based on its contribution to the key business metrics. There are seven business metrics that should be addressed during a kaizen event:
   - Productivity improvement
   - Floor space reduction
   - Station reduction
   - Travel distance reduction
   - Quality
   - Work-in-process reduction
   - Inventory reduction

Through the implementation of 5S, standard work, reducing waste, and visual management, these seven metrics should be affected in a positive way. On rare occasions, floor space and travel distance may increase because a team’s strategic purpose could be to increase volume on a given assembly line even after a successful waste reduction campaign has been done. However, if these seven metrics are improved, a kaizen team will be successful in improving the company’s bottom line.

6. Anticipated results. The kaizen governing committee needs to come up with what the percentage change will be for the seven metrics after the event is complete. This is not an exact science because at this point the results are estimates. The kaizen team simply needs a target to shoot for, and their efforts should be centered on achieving those results. It is safe to be aggressive when estimating these results. The purpose of having kaizen events is to break through obstacles and help the company, so a little challenge is healthy.

7. Planning. Most kaizen events require some initial work at the outset to prepare for the project. Perform a
preliminary analysis of the assembly line. For example, time studies should be completed or close to completion prior to the event. However, there may be other planning items that could arise. Contractors may need to be scheduled to help with construction. The team may require special equipment for the event and reservations and deposits may be needed. The kaizen team could need supplies like tape measures, floor tape, paper, etc. Make sure these items are identified for the appropriate committee member.

8. Estimated cost. One fundamental aspect of kaizen is the belief that improvements can be made with little or no money. However, it is good practice for the kaizen champion or team leader to develop a budget for the kaizen event. Budgets can range from $20 to $5,000. This money may be used for many things or may not be used at all.

9. Actual results. After the kaizen event has been completed and the assembly line operators have had time to adjust to their new surroundings and procedures, document the actual results. Ideally, the actual results should be greater or equal to the estimated results prior to the kaizen event.

There are few occasions in which the team’s efforts fall short of the desired goals. It is important to realize this is not a failure on the part of team; it is just a reality of kaizen events.

10. Action items. Rarely does a kaizen team complete every task during the kaizen event. Minor disruptions to the schedule occur, pushing items further into the week. Besides, the team will more than likely come up with additional improvement ideas that cannot be completed before the end of the event. Each team leader should put together an action list from the event. This is generally called a 30-day mandate. All action items from the event must be complete within 30 days of event completion, which is a legitimate length of time for members to complete unfinished work after returning to their usual responsibilities. It is important to wrap up loose ends to ensure proper closure of the project.

11. Due dates for action items. Although there is a 30-day mandate, many action items do not require much time to finish. During that 30-day window, set dates for completion of the unfinished work. This allows the kaizen governing committee to keep track of where the team is and hold members accountable for not completing their work. There may be instances when a team member is unable to complete action items due to unforeseen circumstances. The committee is responsible for clearing any obstacles for team members and creating new due dates within the 30 days.

12. Responsible. Every team member must be assigned an action item. If there are fewer unfinished items than there are team members, assign two or more people to items. The kaizen event is complete when all action items have been finished as a team. Be sure to assign the action items based on team members’ skills and schedules. Do not expect an operator going back to the assembly line to finish fabrication of a new fixture.

13. Status. It is important to track all the action items to completion. By updating the status of the items at the kaizen committee meeting, everyone will know where everything stands and when the kaizen event is truly complete.

To see an example of a kaizen tracking worksheet, go to www.iienet.org/magazine/apr06/ortizworksheet.

**Conclusion**

Deciding to embark on a fully organized kaizen program is a very bold move, and it is the best way to start a solid continuous improvement program that has lasting results. Success will come only if everyone is committed to the policies, standards, implementations, and training that come from a kaizen program. If there is any sign of doubt, chances for success are low. Top management must create the vision and stay dedicated to its cause.

*This article is adapted from Chris Ortiz’s forthcoming book Kaizen Assembly: Designing, Constructing, and Managing a Lean Assembly Line published by CRC Press.*

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