

So You Want to Get Lean *Kaizen* or *Kaikaku*?

The “lean” model is delivering huge operational improvements in a range of industries. But there are several ways to implement lean tools and techniques, each with its own benefits and drawbacks. Choose carefully before embarking on the lean journey.

With the half-life of business designs growing shorter, improvements to operations can make a huge impact on the return a firm earns on its investment in a particular business design. One of the most effective approaches to operational improvement has been to use “lean” tools and techniques. But there are different ways to implement the lean model, and taking the wrong path can severely disrupt an organization without yielding an appropriate return. In short, managers need to decide: Should they embrace *Kaizen* or *Kaikaku*?

For those new to the lean model, this is a business philosophy pioneered by Toyota after World War II. It harnesses a set of standard tools and techniques to design, organize, and manage operations, support functions, suppliers, and customers. Compared with the traditional system of mass production, the lean model meets or exceeds customer requirements while using less labor, space, capital, and time. Lean techniques cut costs by eliminating waste—those items and process steps the customer doesn’t value. These reductions paradoxically increase quality as production problems become more visible and root causes more easily identified and remedied in simplified work processes.

Lean implementation benefits from a holistic approach that addresses all elements from operational strategy to the shop floor. Some of these steps, such as objective-setting, need to be performed annually to ensure

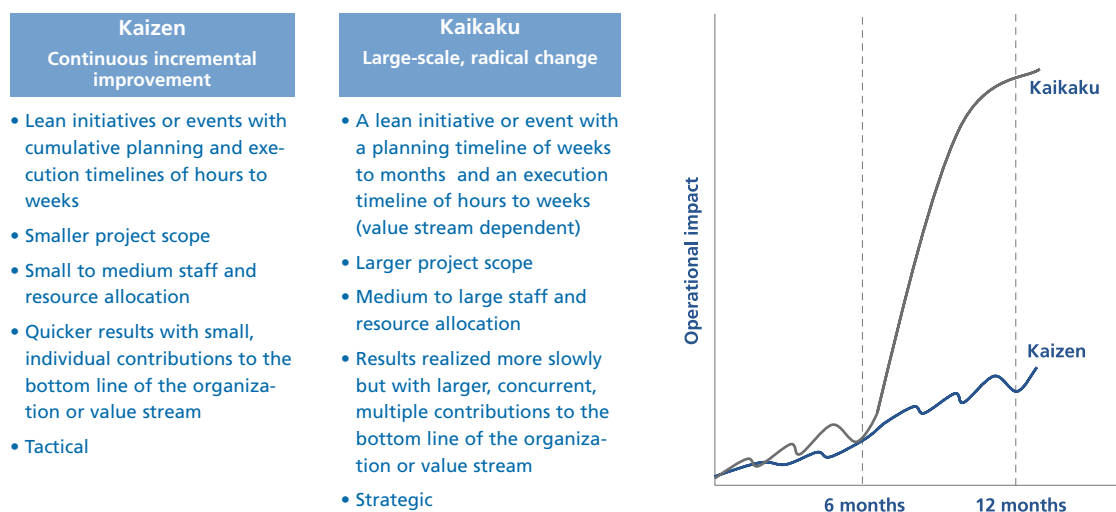
constant calibration. Others are iterative processes that drive waste out of the system and deliver continuous improvement. Still others nurture the lean culture.

While it spread first throughout manufacturing sectors, the lean model has since been taken up by a variety of service companies as well, ranging from utilities to aircraft maintenance to financial services.

Most managers contemplating organization-wide lean methods are aware of only one implementation approach—the *Kaizen* approach popularized by Toyota, Pella, Maytag, and other leading manufacturers. *Kaizen* roughly translates to “continuous incremental improvement.” It is most suitable when applied tactically to a product line, a function, or an entire organization that is relatively mature and stable.

Kaikaku, which translates to “radical improvement or change,” is a more transformational process. It starts with customers’ priorities and links directly to the business strategy. Correct application of *Kaikaku* can help an organization move ahead of competitors by dramatically reducing the time required for major improvements in quality, cost, and delivery. It is suited to companies facing merger and integration issues, intense cost pressures, major new growth opportunities, a turnaround situation, or other cases demanding an enterprise-level transformation (Exhibit 1).

Exhibit 1 **Two approaches**



Kaikaku encompasses more activities and addresses systemic waste, whereas Kaizen is more tactical and addresses process waste. Accordingly, Kaikaku requires more planning, as shown in Exhibit 2, though the magnitude of the gains typically justify the additional resources. When executed well, Kaikaku creates a momentum that transforms the entire “value stream” of material, information, people, and actions required to bring a product from concept to launch to delivery, step by step, whereas Kaizen does not necessarily afford that momentum.

While Kaikaku may seem at first blush similar to business process redesign (BPR), there are significant differences. Kaikaku applies lean principles and tools to change a value stream based on the pull of customer demand or customer requirements, whereas BPR tends to start at the beginning of a value stream and push through the system. Moreover, Kaikaku tends to have a cultural component, whereas BPR focuses strictly on operations and the physical infrastructure of the business.

Weighing the Tradeoffs

Deciding which approach to take will depend on a firm’s cultural readiness, technical readiness, and degree of management engagement. Each methodology also has particular challenges.

To succeed with Kaizen, managers must address several issues:

- *Linking islands of excellence.* A Kaizen event can apply to a single work center or even a single machine. Efforts that are small in scope do not address the entire value stream, so there will be sub-optimal areas of the value stream. Linking these islands of excellence is the logical step to create a truly lean value stream or enterprise.
- *Moving quickly up the learning curve.* Because of the narrow scope and short time-frame of Kaizen, organizations may struggle to accept lean methodologies into daily routines. Employees must be able to find personal value in these efforts, which comes

Exhibit 2 Kaikaku proceeds in phases



from understanding not just what to do, but also why to do it.

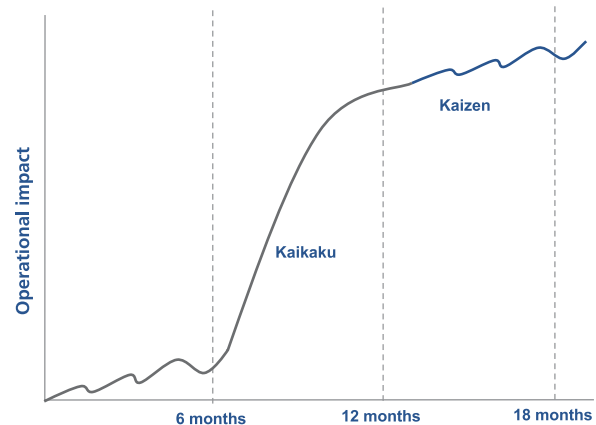
- *Increasing system inventories.* When a firm cannot physically link its islands of excellence, it may rely on inventory buffers. This undercuts the overall effort.
- *Sustaining the effort.* To continually improve by executing a series of events, Kaizen requires an intense discipline and accountability among employees; without that effort, it will be difficult to permanently change systems and structures.

Kaikaku brings different challenges, notably a much greater commitment of time and resources:

- *Ensuring dedicated resources.* Serious organizations permanently dedicate resources to lean efforts, including the engagement of senior managers, because of the major implications for strategy.
- *Committing capital.* “Creativity before capital” is a popular mantra in lean circles, but sometimes a firm must expend capital. Since both the scope of the project and the residual benefits are large with Kaikaku, you can realize high returns on investment or assets in a reasonable period.

For companies that have some experience with the lean model, it is also possible to selectively apply both Kaizen and Kaikaku, as shown conceptually in Exhibit 3. Toyota, for instance, has used both methods successfully. Taichii Ohno, who pioneered the lean model at Toyota, recognized that incremental improvements would not be enough to allow Toyota to compete in the U.S. He applied Kaikaku to make radical, strategic changes, and then moved to Kaizen events for continuous improvement. When introducing a new car line or creating a new factory, Toyota still uses the Kaikaku-like production preparation process (3P); Kaizen events follow to improve individual areas along the value

Exhibit 3 Integrating the two



stream. This integrated approach not only played a central role in Toyota’s steady rise in automotive manufacturing, it also impacted the hundreds of Toyota suppliers and other companies in the West that, with a 10- or 20-year lag, began to rethink and change their manufacturing processes.

Kaikaku in Practice

For a sense of what Kaikaku looks like in practice, consider the case of an aviation maintenance, repair, and overhaul (MRO) provider. Because of increased fleet usage and a desire to keep current and overflow work in-house that was being done by a supplier, this MRO firm faced a large productivity challenge that could not be addressed through incremental improvement. The firm decided to use Kaikaku to catalyze the lean transformation, and it accomplished the project in phases:

1. Diagnostic, planning, and lean design. The team defined several value streams that deliver the product groups, then undertook extensive data collection and analysis to characterize the state of each product group value stream. Where possible, the team defined areas of flow and designed operational layouts that could meet the customer demand rate. Operating capacities, demand, and staffing levels were determined through mixed model calculations. Where different products with different work content run through the same

facility at once, mixed model calculations force some semblance of predictability.

Also during this phase, a cross-functional team initiated a communication and training program for key people within the organization. Training included production simulations, which helped to promote discussion and lower resistance to the new methods.

2. Lean implementation. This phase involved major physical changes to the MRO shop. The plant had been laid out as functional process centers—all products were routed through disassembly, then through cleaning, and so on through the various process steps. As a result, lead times were quite long and large amounts of work in progress would pile up between processes.

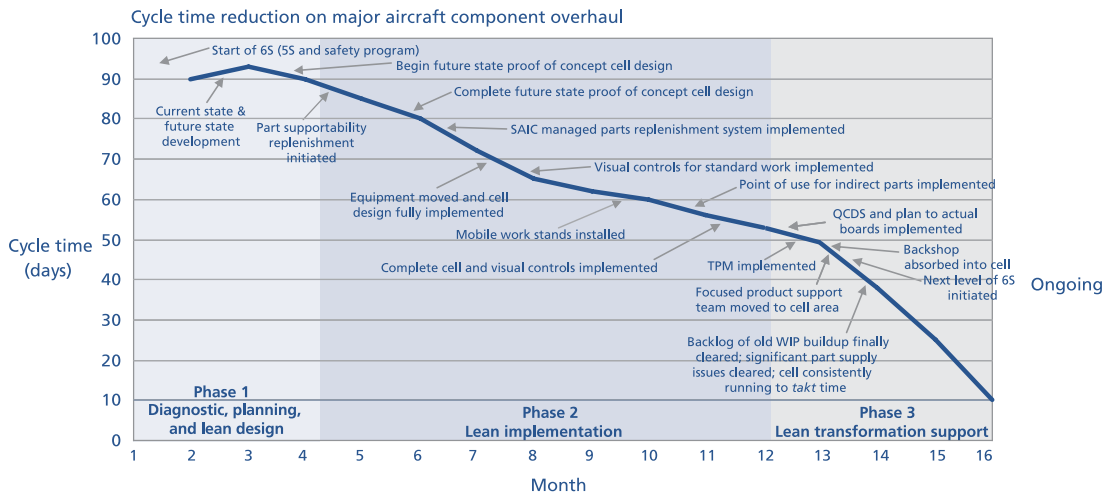
The team changed that layout to group products that previously were spread throughout the plant into logical families, with each family

worked on by one dedicated team “cell.” All of the inventory required for that product family was located at the cell. These changes dramatically reduced the amount of work in progress.

To avoid production interruption, physical moves were made on nights and weekends. Next, the cells were linked by material distribution and visual management systems, which place in plain view all the tools, parts, activities, and indicators of performance, so that the status of the system can be understood at a glance by everyone involved. Standard work combinations were determined by working with the hourly associates.

Once physical changes began, despite prior training, some employees started to resist changing how they do their jobs. Their concerns were further addressed through targeted education, participation, and joint problem-solving.

Exhibit 4 Kaikaku in aircraft maintenance



Bottom line impact

	Beginning of project	Current	% change
Standard labor	247 hours	151 hours	-39%
Footprint	2,011 sq. ft.	634 sq. ft.	-68%
WIP	46 units	7 units	-85%
Overhaul cycle time	95 days	9 days	-91%
Units produced	27 per quarter	105 per quarter	74%

3. Lean transformation support. To support the physical changes, the MRO firm redefined its organizational structure by creating focused product teams that could help align support personnel. These teams of salaried employees moved their desks onto the shop floor in order to interact more immediately and effectively with the production group. Supervisors and line managers went through training that helped improve their management skills in the new environment. QCDS (quality, cost, delivery, and safety) boards and 5S systems (workplace systems conducive to visual control) measured staff performance and instilled

more discipline throughout the process.

By deploying a rigorous Kaikaku approach, this MRO provider was able to achieve a sustained 39% labor productivity improvement, a reduction in work-in-process inventory by 85%, a 91% reduction in overhaul lead time, and a 68% reduction in floor space used with a 74% improvement in throughput (Exhibit 4). Kaikaku was the right choice in this case because it brought more process discipline and integration to the firm.

Companies in other industries as well have used Kaikaku with great success. For instance, one precision manufacturing firm tackled an

Kaikaku Addresses Construction Problems at a Utility

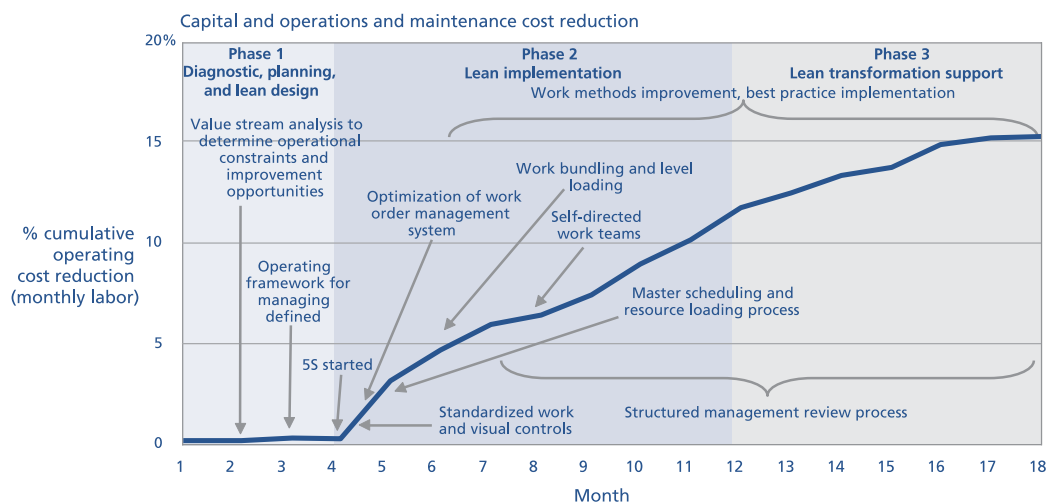
A major electric utility needed to reduce operating and maintenance (O&M) costs and lead time associated with construction projects. In particular, the company aimed to improve O&M direct and indirect labor productivity, reduce overtime and contractor utilization, and shorten the lead time for preparation of construction project work packages.

Oliver Wyman started the project by characterizing current processes in sales, technical services, engineering, distribution, and service. The team also measured work streams relative to industry benchmarks in the areas of engineering, planning, and scheduling. What we found were crew productivity levels of less than 40% and lead times greater than 50 days for the preparation construction project work packages.

Oliver Wyman redesigned the process, including new work standards and a master schedule and capacity loading model that would improve the use of support resources and distribution and service crews. Many of the recommendations aimed to streamline the hand-offs between sales, engineering, technical services, and field operations and maintenance personnel. The utility also installed a structured management review process with scorecard to ensure that the initial effort would be sustained over time.

Over the subsequent 18 months, this Kaikaku effort yielded a 15% improvement in crew labor productivity, a 37% reduction in work order package processing lead time, and a cycle time reduction of 40%. ❖

Exhibit A streamlined process



organization-wide supply chain challenge by using Kaikaku. Over the course of 18 months, the firm was able to reduce the number of plants by one-third and customer lead time by half, and it increased the number of units per shift by half.

At an electric and gas utility, the distribution, service, and engineering functions were consistently rated in the lowest quartile of the utility’s peer group. Kaikaku methods help lay the roadmap to 15% overall cost

reductions and a 40% reduction in overall work order process cycle time.

Kaikaku may initially feel like the safe choice for many managers. Yet Kaikaku may in fact be the better choice in situations that demand a major transformation. And in some cases, Kaikaku leading Kaizen will lead to the greatest improvements in quality, cost, and delivery—moving beyond the incremental to make a noticeable impact on the bottom line.❖

Improving Performance at a Fashion Eyewear Manufacturer

In 2002, a U.S. eyewear manufacturer was operating well below its peers along such dimensions as cycle time, productivity, and cost. Oliver Wyman helped the firm apply the Kaikaku approach to determine the current configuration of work and provide reconfiguration options that would improve performance across the board.

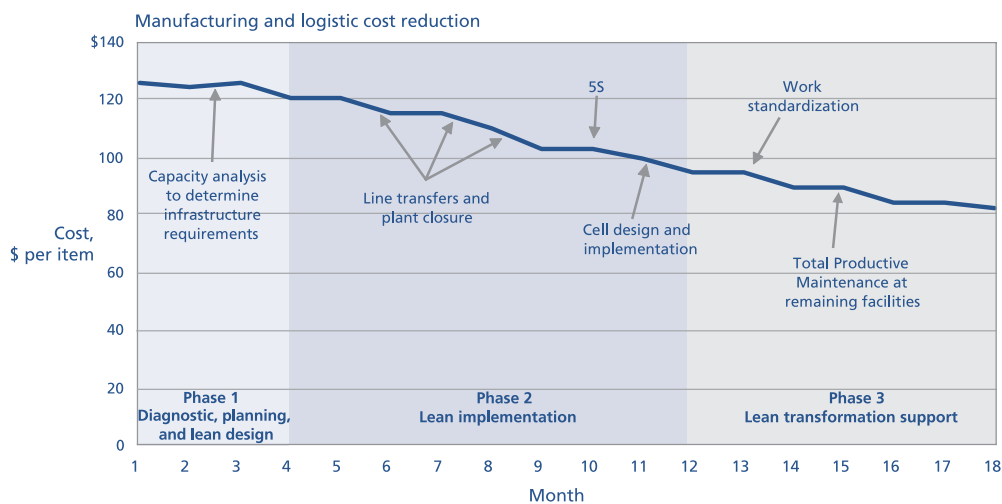
The project proceeded along these steps:

- Assess and characterize the current state configuration of work, policies, assets, and organizational structure by mapping the value stream of representative parts
- Develop recommendations to reconfigure work in ways that dramatically reduce the amount of assets and labor required

- Quantify facility requirements for each reconfiguration option from a lean design standpoint
- Simulate the benefits associated with each option
- Transfer knowledge and application of lean principles to employees
- Sustain the efforts by implementing quality, cost, delivery and safety metrics to ensure that all employees, from production floor through senior management, work to the same strategic objectives

The Kaikaku approach delivered strong operating results, including a 23% reduction in overall costs, a 33% to 70% reduction in cycle time depending on product family, and a 30% reduction in headcount and facility space.❖

Exhibit Costs look better at the eyewear plant



Oliver Wyman

Oliver Wyman's Aviation, Aerospace, and Defense practice helps passenger and cargo carriers, OEM and parts manufacturers, aerospace/defense firms, and MRO and other service providers develop value growth strategies, improve operations, and maximize organizational effectiveness. Oliver Wyman has completed hundreds of engagements for aviation, aerospace, and defense industry clients in the past five years alone and has consulted to nearly three-quarters of the Fortune 500 firms in these sectors. Oliver Wyman serves these firms worldwide with consultants in the Americas, Europe, Asia, and the Middle East.

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