

Improving the Process is Not Process Improvement

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ABSTRACT

Problem solving can be characterized as tactical, individual hero based, ad hoc, mistake/fix oriented, financially and program driven and high cost. In contrast, process improvement is a management philosophy and strategy to dramatically increase value as defined by the customer. Process improvement can be characterized as strategic, team based, systematic, aggressive, continuous, cross functional, customer driven and low cost. This paper discusses the characteristics of the problem solving and process improvement paradigms with emphasis on management's role in the processes.

1.0 INTRODUCTION

Since the early 1980s, many managers have enthusiastically embraced techniques for process improvement that are based on Japanese principles of quality management. Some managers have struggled to Americanize the Japanese approach. Others have simply treated quality like any other fad program (Abrahamson, 1991). Quality has become a basic business requirement for nearly all firms in major U.S. industries, but process improvement has become a key competitive weapon in the drive to reduce costs and satisfy customers, now that downsizing has been shown to have little lasting effect on financial performance (Cascio, Young & Morris, 1997).

Many managers sincerely believe they practice process improvement. Indeed, most managers can recite examples of specific improvements in key processes. Some proudly show learning curves documenting improvement. Some managers quickly relate how a particular problem led to a creative, if not obvious tactical solution, or a radical innovation that resulted in significant productivity gains. But improving processes through problem solving by itself is not systematic process improvement. It is little wonder that many managers have been disappointed by their problem solving approaches to quality management.

Based on in-depth interviews with many executives and managers, we contrast the problem solving paradigm with the emerging systematic, continuous, process improvement paradigm on ten key dimensions. This new paradigm challenges many basic assumptions of traditional management theory (Grant, Shani & Krishnan, 1994). Many managers believe that process improvement cannot be managed systematically in job shops, service organizations, batch production, or union environments. However, systematic improvement usually makes dramatic gains in such organizations because the inherent inefficiencies are so much greater. Finally, we show how the fundamental values of each paradigm result in characteristic managerial behaviors that ultimately help determine corporate culture and effectiveness.

2.0 PROBLEM SOLVING PARADIGM

It is easy for managers to focus on daily operational problems. U.S. managers have been trained in engineering (Holt, 1992) and business schools (Hellreigel & Slocum, 1992) in problem solving, both as a scientific methodology and as a management technique. Problem solving is taught as the primary technique for addressing a range of situations from fighting production fires to stimulating innovation. As a management paradigm for improving processes (see Table I), problem solving can be characterized as tactical, individual hero-based, ad hoc, mistake/fix oriented, financially and program driven and high cost. The ten characteristics of the problem solving paradigm are presented in the following sections.

Table I. Problem solving vs. process Improvement

Dimension	Problem Solving Paradigm	Process Improvement Paradigm
1. Emphasis	Tactical	Strategic
2. People	Individual heroes	Teams
3. Duration	Ad hoc / Sporadic	Systematic / Continuous
4. Focus	Mistakes / Fix	Systemic / Opportunity
5. Goals	Passive / Modest	Aggressive / Stretch
6. Structure	Program	Cross-functional
7. Key stakeholders	Managers / Shareholders	Customers
8. Relative cost	High	Low
9. Key driver	Financial	Mission / Purpose
10. Management role	Administrators/Maintainers	Leader / Change agents

2.1 Tactical

By definition problem solving addresses specific issues in operational efficiency, not overall effectiveness. Because the problem is immediate, problems tend to be defined narrowly, addressing symptoms, not root causes. The resulting solutions are quick fixes that are much more tactical than strategic. Daily, managers get caught up in working on what is urgent, not what is important.

2.2 Individual Heroic Effort

When asked who improves processes, most managers in the problem solving mode will cite key employees who repeatedly have creative solutions that get the organization over an immediate hurdle. Even though a committee, or team, was appointed to work the problem, one person, often outside the team, usually identifies the solution and saves the day for the team. Some organizations eventually formalize these roles as troubleshooters, expeditors or customer service representatives. These employees become formal heroes, further institutionalizing problem solving as a cultural value and corporate strategy.

2.3 Ad hoc/Sporadic

For many managers, problem solving is most useful and necessary when problems occur; so process improvement occurs intermittently. This spasmodic approach to improvement usually assumes that no improvement is needed until a problem occurs. Thus, no urgency or momentum is generated for continuous, relentless improvement as a cornerstone of strategy.

2.4 Mistake/Fix Oriented

Problems identified by managers are usually related to performance failures. These problems are either from special causes or from common, chronic bottlenecks and inefficiencies. Although the latter are well known to management, nothing is done until symptoms surface in the form of customer complaints, plant shutdowns, cost overruns or poor performance reviews. Then management initiates an effort to fix the most apparent problem. Even if the underlying process is improved, the fix will most likely be a patch and thus reinforce the current system. Some managers can cite improvements in product design or specific tasks that simplify manufacturing and help the organization down the learning curve, but cannot describe any structured approach that facilitated the gain.

2.5 Passive/Modest Goals

As practiced in many organizations, problem solving aims to fix the immediate symptom and restore operations to previous performance, not to improve performance dramatically. With no clear, ambitious goals for process improvement in terms of cycle time, quality, cost or delivery, real improvements in the underlying process tend to be accidental, modest and perhaps temporary until the next breakdown occurs. Some managers keep issuing ambiguous, hollow challenges to the troops while other managers fail to challenge by setting improvement targets too low in the one-five percent range. If goals are set so modestly, short-term attention (i.e., a month) will achieve the target temporarily without real change in the underlying behavior of personnel and operation of the process. This amounts to working harder, not smarter. When next month's goal focuses on a new problem, the operation soon reverts to its old behavior and level of performance.

2.6 Program Structure

In problem solving, management typically announces a new campaign to solve the most recent problem. This program may take the form of new technology ("we need more money"), training ("it's the employees' fault"), austerity initiatives ("it's the competition's fault"), de-layering (it's middle managers' fault") or even process reengineering ("we need more computers to handle all this data!"). Employees quickly become cynical as each new program replaces the most recent failure. With a short life expectancy and no real link to strategy, each new "program" is viewed skeptically by employees.

2.7 Managers and Internal Stakeholders

Problem solving in organizations usually focuses on satisfying top management, on an individual middle manager who must meet a goal or, less likely, on another internal customer for the process. External customers, especially end-users, seldom enter the discussion because the problem is defined in terms of internal stakeholders' requirements. The further down in the organization the manager that is being placated, the greater the probability of a quick fix. When an internal focus is combined with functional autonomy, weak values and poor integration, management has developed fertile conditions for suboptimization.

2.8 High Cost

Problem solving frequently leads to engineering projects that take six-twelve months to generate a solution that then requires major investment and a capital budgeting exercise stretching results over more than a year. Even in normal operations, as each lower level manager uses problem solving in futile attempts to meet conflicting goals, inventory, tooling and paperwork costs mount and further increases cycle times.

2.9 Financially Driven

Problem solving invariably goes hand in hand with a management philosophy grounded in financial performance. In essence, management has confused the organization's purpose with the corporate financial scorecard that single-mindedly focuses on metrics such as gross or net margin, turnover, utilizations or efficiency ratios. Customer satisfaction, cycle time and the rate of process improvement tend to be off the radar screen. Such managers drive the top and bottom lines without understanding the key processes (let alone process improvement) that generate revenues and incur costs. Proposed high cost fixes get delayed in the ensuing capital budgeting process, reinforcing management control and further slowing down improvement. Efforts to initiate process improvement usually get quashed in a chorus of calls for cost/benefit analysis.

2.10 Administrator/Maintainer Managers

Top management behavior is the root cause of all the factors listed above. The executives of a problem-solving organization are usually more interested in a rewarded for maintaining the current paradigm and system than in discovering new ways of doing business, or developing real leaders. Organization change may be significant and on-going in terms of product or market, yet performance declines. Since top management's underlying behaviors have not changed, the organization's systems, processes and employees continue their same inefficient, increasingly obsolete behaviors, across successive fads.

Overall, the above characteristics of problem solving describe a long-established paradigm of management. Employees' operational frustrations often result in individual behaviors that generate some improvement in the process and performance through problem solving. Thus, managers may be able to provide data showing good learning curves on various product/service lines. Although necessary, problem solving by itself is insufficient to improve processes systematically. By default, it ends up being primarily a technical approach, with little structured effort to harness the creativity of employees. For whatever reason and by whatever mechanism, many

practitioners of this entrenched paradigm are learning another, richer paradigm that uses problem solving more appropriately. In the process improvement paradigm, problem solving is just one of many techniques to effect strategic change.

3.0 PROCESS IMPROVEMENT PARADIGM

In contrast to problem solving, process improvement is a management philosophy and strategy that aims to dramatically increase value as defined by customers (Bounds, Yorks, Adams & Ranney, 1994; Ishikawa, 1985; Schonberger, 1992; Shingo, 1992). As a paradigm, process improvement can be characterized as strategic, team-based, systematic, aggressive, continuous, cross functional, customer driven and low cost. Leaders are change agents to help the organization achieve its mission and purpose through ever improving systems. Before describing each characteristic of the process improvement paradigm, we outline the key tactical approach at the heart of the change in behavior.

One of the basic mechanisms for continuous improvement is a kaizen event (see Figure 1), a focused one to five day team improvement effort with a specific focus determined after an assessment of operations and discussion with management. With an aggressive, yet achievable goal in mind, the facilitator trains a focus group. After several hours of training on techniques, the team goes to the shop floor to improve the process. After observing and sketching the process and work sequence, team members collect cycle and operation times, then compare work content to takt time, the rate at which customers require product to be produced. The team then brainstorms opportunities to improve the process by documenting problems, causes and possible countermeasures. After evaluating all suggestions, the focus group implements changes to the process by iteratively trying various countermeasures. On the last day, the team documents and presents the results and recommendations to management. Beginning the next week, the facilitator helps drive follow through with any additional implementation actions that were not completed during the kaizen. The ten characteristics of the process improvement paradigm are presented in the following sections.

3.1 Strategic

Because the effort to improve processes is customer focused, mission driven, systematic, systemic, aggressive and continuous, it is also strategic. Management plans, organizes and manages the process of process improvement as a key strategy for the organization. Everyone learns that process improvement is key to achieving collective and individual goals. With a new external focus on improving customer value, management works on what is most important, not what is most urgent. In most cases, compressing cycle times in product development, manufacturing, logistics and customer service are soon found to be essential to improving customer value.

3.2 Teams

In the new paradigm, teamwork is both a core value and a strategy. Tapping the creativity of employees is the key to process improvement, and is best achieved through focused small teams that challenge every assumption of the current approach under the guidance of a facilitator. Neither facilitator nor individual team members become heroes; all work together to reach the aggressive goal for improvement. A key driver of systematic process improvement is the amount of training provided to employees, not the presence or number of cross-functional teams. World class organizations have dramatically increased their training capability, with some now averaging as much as 35 days of training per employee per year. Team-based training helps institutionalize both individual and collective learning that soon becomes the key driver for improvement, performance gains and cultural change.

3.3 Systematic/Continuous

The improvement effort is planned and managed like any other function, process, program or department. As a key part of the strategic plan, the champion develops and communicates long-term and annual improvement plans with budgets, staffing plans, goals, and evaluation metrics. Since goals tend to be cross functional, action plans focus on the key integration and waste reduction tasks. Because there is always potential for further gains, even at maximum capacity or efficiency, there is no room for complacency or resting on one's laurels for the latest improvements. Thus, systematic process improvement relentlessly attacks processes, including repetitive kaizens on the same process by different groups. Continuous, the forgotten word in process improvement, means that process improvement activities are both scheduled and regular, part of the implementation plan for fulfilling the mission, compressing time and increasing customer value and satisfaction.

3.4 Systemic

Rather than focusing on specific problems, the continuous improvement effort must focus on rethinking individual processes to maximize the effectiveness of the whole system. This helps avoid suboptimization that usually occurs when problems are solved to meet an individual department or manager goal. Thus, a manager's fundamental responsibility is to improve the system for the common good, rather than meeting personal or departmental targets for his/her own process. No manager can systematically improve processes while fighting special causes in a system statistically out of control; managers must work together to improve the system that is in statistical control by reducing the sources of variation while improving cycle times, quality and responsiveness. The whole organization can be energized by the hundreds of opportunities for improvement, not demoralized and disenfranchised by the overwhelming number of problems they face individually.

3.5 Aggressive Goals

Many managers assume that a system is near capacity with no room for improvement. But employee creativity can remove the upper limits on potential improvements. Instead of fixing the problem, process improvement assumes that major gains are possible (some would say certain!) with focused creativity. Goals must be set to force all involved to rethink how the operation can be redesigned for radical, permanent change. Such complete rethinking of the way work is done is usually accomplished only if a Big Hairy Audacious Goal (BHAG) quickly takes participants out of tweaking mode. Typical BHAGs include a 20% gain in productivity, or 50% reduction in inventory or setup times. Although counter to Deming's principles, stretch objectives can be very effective in energizing and focusing teams.

3.6 Cross-Functional

Since many non-value-added activities grow out of obsolete, bureaucratic transactions between departments/functions, process improvement is usually organized around teams that include all stakeholders in the process. Outsiders are frequently included on focus groups simply for objective, creative eyes on the process. This cross functional inclusiveness in the new paradigm is perhaps the single

most important factor in restoring the balance between specialization and integration, the respective strength and weakness of any hierarchical structure. Cross functional structures are also more effective than matrix structures that retain the program focus of the old paradigm. Managers, as just another member of the focus group, can quickly demonstrate their new reliance on employees.

3.7 Customer Driven

Since the customer defines value, all processes must be viewed fundamentally from the customer's view as to whether value is being added. Process improvement, then, focuses on increasing the real and perceived value to the customer by reducing waste in all processes in the system. Indeed, process improvement provides a basic vehicle for individual employees to find meaning in their work as they strive to better serve customers. Many managers now send employees to customers' plants to experience first hand the market's changing requirements for better value.

3.8 Low Cost

Process improvement attacks first those barriers to performance gains that will yield the greatest impact in terms of time compression and customer responsiveness for the least cost. Management and focus groups prioritize potential improvements, then focus first on what can be implemented immediately at very low cost. Capital investments often prove unnecessary or non-economic after much lower cost improvements have been implemented.

3.9 Mission/Purpose

It has taken U.S. managers far too long to realize that employees are not motivated best by corporate financial goals (even though financial compensation remains the dominant extrinsic motivation). Instead, managers are now coming to realize that work must first of all be meaningful in terms of helping some target group of customers, and that management and the organization must keep a higher purpose at the forefront of daily operations. New paradigm leaders focus on the relative value created for end-use consumers and the contribution to quality of life for all.

3.10 Change Agents

Rather than administrators, process improvement demands that people throughout the organization become leaders. The key people include a champion at the top of the local organization chart, and full-time facilitator(s) dedicated to growth and to organizing, teaching and leading teams through follow-through. Focused on improving the total system, a competent, respected facilitator leads the daily attacks on business-as-usual. As the champion for change, the leader must cause everyone to rethink why and how they do business, convey a sense of urgency, initiate the new paradigm through training and constantly helping the facilitator follow through with implementation. Individual teams also enable new leaders to emerge from the operating level and from staff positions.

Overall, the above characteristics of process improvement describe the emerging paradigm of management. Employees' operational frustrations and creativity are stimulated and channeled in the organized, focused improvement activity. After the kaizen event, employees provide the data showing actual gains that improve customer value. While this new paradigm makes full use of an even broader array of technical tools, it is fundamentally a behaviorally driven approach with its systematic structure for harnessing the collective learning of employees. Used in an integrated, structured fashion with minimal capital investment, process improvement is not only necessary, but, when leveraged with effective information and marketing technologies, often sufficient to meet the organization's strategic goals.

4.0 WHEN TO USE PROBLEM SOLVING AND PROCESS IMPROVEMENT

Process improvement is almost universally appropriate, but especially when changing strategy. For example, process improvement has been demonstrated widely in moving from a focused factory to lean manufacturing, or when switching from build-to-stock to demand-based production scheduling. According to *Industry Week* (Sheridan, 1997), the Baldrige Awards and other references, process improvement has achieved dramatic results in a wide variety of organizations including not-for-profit public and private organizations; union, non-union and employee-owned organizations; publicly traded and closely held firms; service organizations and high tech and low tech organizations.

In difficult situations, real change can take more than a year to yield dramatic, bottom-line financial results. Process improvement can maximize gains when combined with other grand strategies. For example, process improvement can complement a turnaround strategy to realign an obsolete organization with its evolving competitive environment. In markets and industries competing on ever-shorter product life cycles and rapid technology development, process improvement can develop significant, sustainable, competitive advantages. When growth is based on rapid acquisitions, process improvement can be used to improve the acquisition process, the performance of acquired firms and the integration of acquisitions into the parent firm. In each of these special situations, leaders play the key role in driving process improvement as the underlying paradigm.

Problem solving may still be an appropriate response under certain circumstances. For example, when a valued customer demands immediate action to meet an unusual need, management and employees must respond. Even if processes are in control, the organization may lack the flexibility or capacity to meet the immediate need. Management must solve the problem and then immediately follow up to determine if a process improvement team is needed to attack the underlying cause. However, problem solving must not be used as the first response in every unusual situation, or management and employees will revert to business-as-usual problem solving.

Finally, in the process improvement paradigm, problem solving remains in the manager's toolbox. But problem solving as a generic approach is much more effective when employees are given specific tools and techniques for changing the way work is done. Such tools essentially equip employees, both mentally and technically, to use problem solving more effectively. The Seven Basic Quality Tools can be leveraged with real time, team training on preventing mistakes via poka yoke, eliminating the eight wastes (*muda*), asking "Why" five times on each opportunity, striving for one piece flow through cells with a visual factory, minimizing downtime via single minute exchange of dies (SMED), total productive maintenance (TPM), kanbans and work balancing.

5.0 CHANGING FROM PROBLEM SOLVING TO PROCESS IMPROVEMENT

In most organizations, especially those that have recently downsized, the primary excuse for not practicing process improvement is (according to one manufacturing executive) "*finding the time to quit running beside the bicycle and hop on.*" There are at least five key elements to making the transition from problem solving to process improvement. All these key elements are primarily behavioral rather than high cost technical fixes and are:

1) Develop and communicate the vision. The top manager must become a champion for change. The first task is developing a new view of what is possible and desirable for the organization to become over the long-term. An inspiring, motivating outcome must be presented in terms that give employees a larger purpose in life than making widgets to collect a weekly paycheck. The champion must communicate and demonstrate that management now respects and supports individuals.

2) Change the strategy and performance measures. The champion must lead the implementation of the vision by developing and implementing a customer-value strategy with a new set of appropriate performance measures emphasizing significantly better customer responsiveness via shorter cycle times. Switching to (or adding) non-financial, customer-value-based metrics may be the most difficult behavioral change for management.

3) Train employees on goal-setting, team-building, tools, metrics, language and process. To implement a time- and customer-value-based strategy, the champion must train key employees, facilitators and middle managers on setting aggressive goals, working as a team, and developing new tools and metrics for time compression. Changing the language of the organization may substitute for and emphasize key words that reinforce the new paradigm. The change in paradigm occurs, not with training on specific tools that enable employees to contribute to improvement, but in the new customer-focused behaviors of management and employees that yield results and refocus the culture.

4) Dedicate resources. The champion must dedicate talent to the change process by appointing a full-time facilitator(s) and then protecting this individual(s) from the usual problem solving behavior. Facilitators must be technically competent, good communicators and teachers, respected by employees and focused on change, the antithesis of a yes-man. Together, the champion and facilitators can reorganize employees in cells to tap collective, group intelligence and maximize the benefits of peer pressure. The champion must also enable the facilitator to quickly procure the parts, tools, fixtures, etc. needed by the focus groups to make improvements. For those changes that take more time or capital to implement, the champion must also find the resources for improvements that meet strategic criteria.

5) Recognize and reward team accomplishments. Finally, the champion must change his symbolic and substantive behaviors that tell and show employees what is important. To emphasize process improvement, the champion can focus attention on what employees are doing differently to experiment with change. The champion must recognize successes, help all to treat failures as learning experiences and publicly reward any and all process gains at all levels of the organization. Part of the cultural change will involve refocusing recognition and rewards on teams rather than individuals.

6.0 CONCLUSIONS

To be more competitive globally, managers must learn to use problem solving as one tool in a new systematic management approach that focuses on systemic, continuous, customer-focused process improvement. A structured problem solving process, focused on uncovering and implementing countermeasures for the root cause of a problem, is indeed a valuable and effective weapon against "fire-fighting." But superficial problem solving and its more sophisticated cousins differ from process improvement in both paradigm and effectiveness. Leaders learn how to get beyond fire fighting to focus on system redesign and process improvement. The fundamental assumptions behind the new paradigm are so different that management behaviors must change to complete the paradigm shift. The change process must start at and be lead by top management with new behaviors focused less on technical roles and more on coaching and facilitating roles. As evidenced by *Industry Week's* growing annual list of world-class manufacturing operations (Sheridan, 1997), the managers who have been able to learn new behaviors and change paradigms is encouraging. Leaders can be made, not just born.

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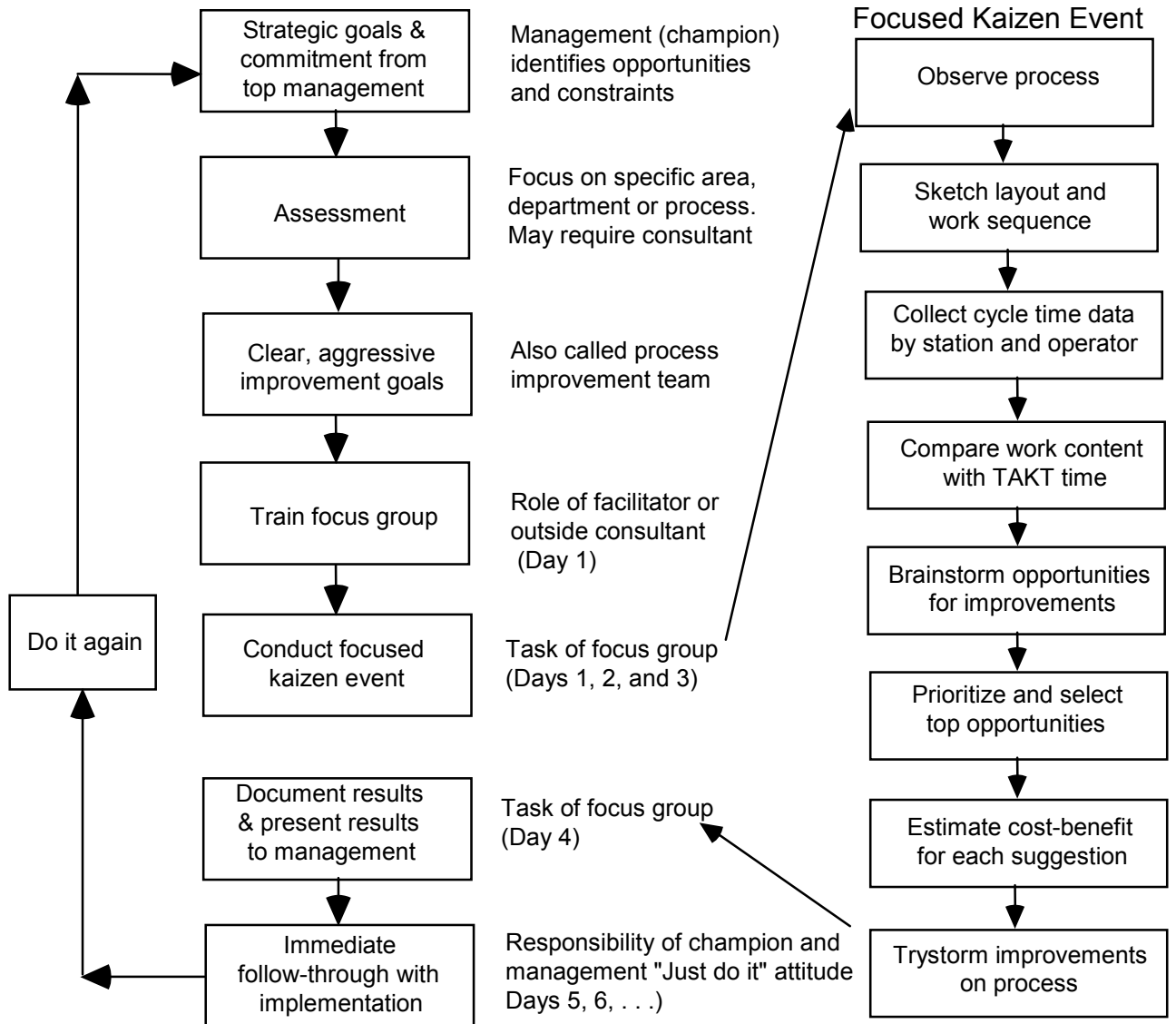


Figure 1. Continuous Improvement Process Model