

Keystone of Lean Six Sigma: Strong Middle Management

Many companies embarking on Lean efforts find that their organization is too rigid and top-down to support the management principles of Lean and Six Sigma. How to create the needed flexibility? Start by redefining the role of middle managers, transforming them from enforcers to enablers and mentors of front-line workers. Not only does this new role help the organization succeed with its Lean Six Sigma efforts, it also strengthens the leadership pipeline.

Lean Six Sigma efforts are improving operations for firms in a variety of industries. The Lean approach, pioneered by Toyota after World War II, harnesses a set of standard tools and techniques to design, organize, and manage operations, support functions, suppliers, and customers. 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.

Likewise, Six Sigma is both a project management framework as well as set of statistical tools that can be applied to applications with which to solve business problems.

Combining the two creates a powerful set of tools to monitor and validate project progress, while also increasing value and minimizing variation in operations.

There is a major problem in becoming a truly Lean organization, however. In our experience designing and implementing Lean Six Sigma programs, we often encounter a disconnect between different layers of the organization, which typically manifests itself in the behavior of middle management.

This disconnect, and the attendant inability to completely align the company's goals with the customer's needs, may be caused by simple issues such as unqualified personnel or more complex issues such as ambiguous information, internal metrics that drive the wrong behavior, or lack of direction from senior management.

Fortunately, there are proven tools with which to define and fill these gaps, freeing managers to achieve new levels of performance while also developing the future leaders of the firm.

Drawbacks of the Traditional Pyramid

Although most companies aspire to operate with a knowledge-based, empowered work force, their internal organizations often cling to a rigid, top-down hierarchy. In a top-down management pyramid, executives mandate initiatives to middle managers, who then turn this direction into tasks to be carried out by front-line workers (Exhibit 1).

Senior executives are the only significant decision makers in such organizations; front-line workers generally do what they are told. With no sense of power or task ownership, they are not readily able to associate their daily activities with the strategic objectives of the organization, and they have no outlet for their ideas to improve the way in which work is done.

Exhibit 1 The traditional top-down hierarchy

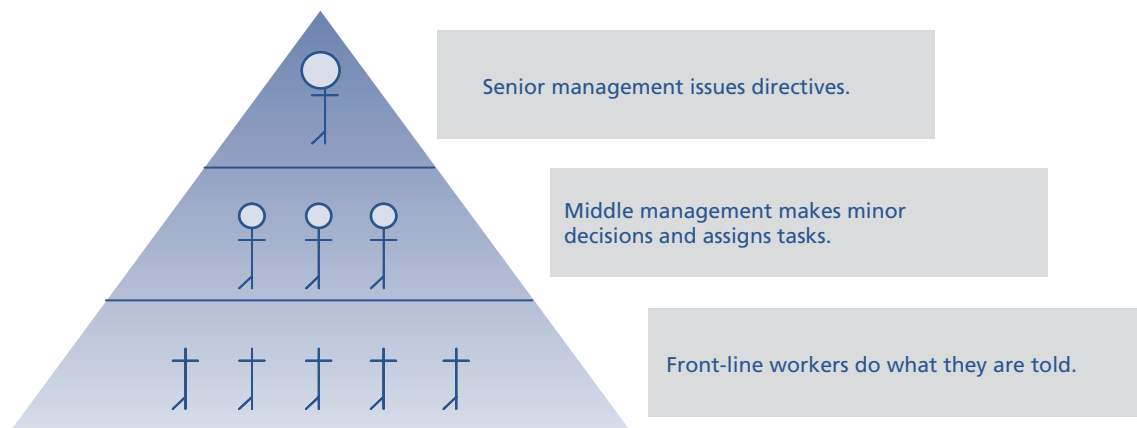
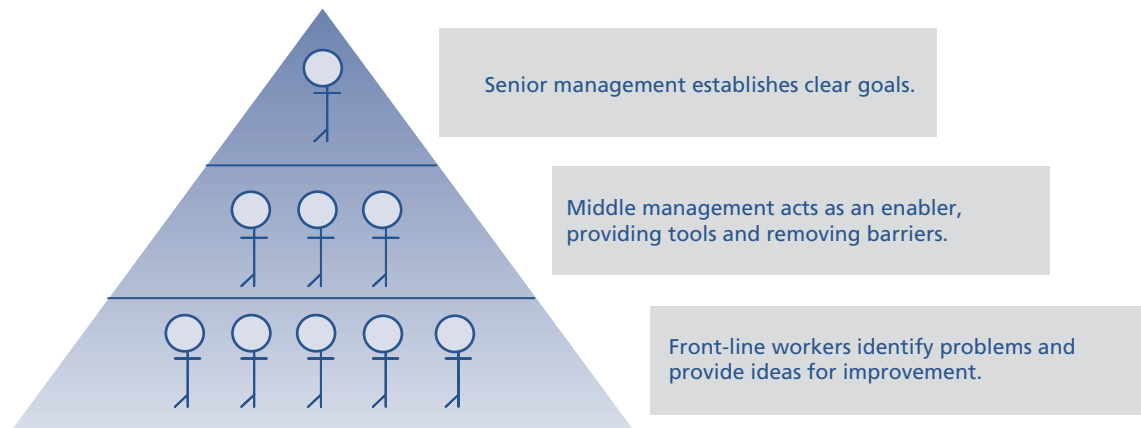


Exhibit 2 The strategy deployment hierarchy



The task of establishing continuity and ensuring that workers accomplish the strategic objectives defined by senior executives falls to middle managers. But using them in this manner—largely as enforcers rather than enablers—undermines their potential value to the organization.

It also creates unintended problems, notably the proliferation of functional fiefdoms. Each middle manager attempts to create his or her own agenda, priorities, and goals based on individual interpretation of senior management requirements. Some become leaders of *de facto* small companies within the organization, unwittingly competing against each other and seeking to achieve their own localized improvements. This can lead to conflicts of interest, squandering of resources, and even greater disconnection from the strategic objectives of the enterprise.

How to establish a link between the “top floor” and the “shop floor” that isn’t destructive to the organization and actually promotes the Lean agenda? The place to start is redefining the management pyramid.

Power to the Middle

Whether a company wants to promote a Lean Six Sigma system or excel in innovation, a central role for middle managers must be as facili-

tators of flexibility, through development of a “continuous improvement” culture. Middle management’s responsibilities in this regard have three components (we call them “the big three”):

- Setting achievable goals for their staff, rather than courting failure by setting unrealistic goals
- Providing staff with the key tools and skills, whether physical equipment or mental training, to perform their jobs successfully
- Removing barriers that prevent people from having the power and free flow of ideas required to succeed

By working in this simple framework, middle management moves from enforcer to enabler and also links the senior executive suite to the front lines, which ensures that the entire organization is aligned (Exhibit 2).

Strategy Deployment

Companies that have achieved success in this regard, including Toyota, Motorola, General Electric, Bank of America, Merrill Lynch, and DuPont, have turned their middle managers into change leaders by adopting strategy deployment and Lean Six Sigma frameworks.

Strategy deployment is a simple tool that translates key objectives of senior management into an annual plan with discrete steps. It differs from “management by objective,” which aims to have each individual set objectives that specify what and when they will achieve. While defining that end result is important, the process involved in producing the result is just as important. Strategy deployment ensures accountability and discipline while also creating alignment across the organization.

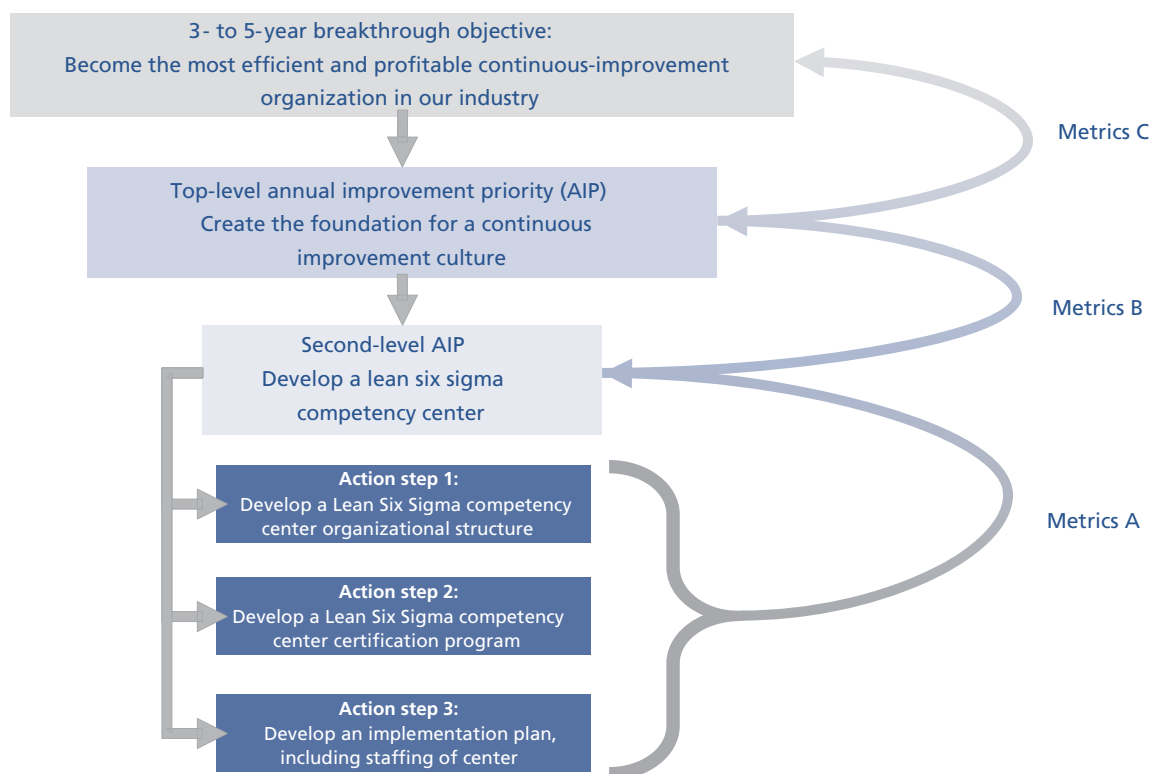
Here’s how strategy deployment works: Senior leadership creates 3- to 5-year breakthrough objectives, which cascade down into annual improvement priorities (AIPs) and then cascade further down into tasks throughout every level of the organization. As these AIPs and tasks become established, managers establish quality, cost, delivery, and safety (QCDS) metrics to track their progress (Exhibit 3).

The QCDS metrics must also flow back up, building on one another such that the enterprise-level metrics demonstrate significant improvement. Creating and aligning the metrics at all levels of the organization is, therefore, critical to making sure that the right behaviors occur for the right reasons.

The strategy deployment process prioritizes tasks the organization will accomplish – separating the significant few from the trivial many and instilling the discipline to focus on those important few opportunities. In the later execution phase, this helps managers to properly allocate resources.

Consequently, middle managers should be involved in the process of creating both the AIPs, the tasks, and the deployment plan itself. Such involvement empowers the middle management ranks and represents the transition from enforcer to enabler. Their involvement throughout the

Exhibit 3 The mechanics of strategy deployment (illustrative)



Common Lean Six Sigma Terms

Common cause variation: Variation where the root cause is known or easily understood without advanced statistical analysis. For example, if different workers perform the same task in significantly different amounts of time, one obvious root cause would be lack of standard work, training, and best practices.

Non-common cause variation: Variation where the root cause is not readily evident and in which statistical analysis (e.g., DOE or ANOVA) must be performed to determine the root cause of the responsible independent variables. For example, a manufacturing defect may require quantitative analysis to determine which combination of variables are significant.

Takt time: Available time divided by customer demand. This produces a value in units of time per good or service. If takt time is five minutes, a value stream or cell should produce a good or service every five minutes.

Value stream: All the actions, both value-added and non-value-added, required to bring a product or service from raw material through to the customer.

Value stream velocity: The rate at which a good or service travels through the value stream. Although companies look to maximize value stream velocity, it does have a top limit, takt time. If a value stream produces faster than takt time, it is said to be overproducing, which is one of eight key forms of waste. The goal is to maximize value stream velocity such that goods or services are produced to takt time.

Lean and Six Sigma make such a powerful combination because Lean maximizes value stream velocity and Six Sigma minimizes value stream variation. Without the combination, companies might fall into the trap of increasing value stream velocity alone; in that case, the quality of the end product may degrade because the firm produces more flawed product per unit of time.

strategy deployment process helps to ensure that the entire organization is pointed in the right direction and knows what to do and how to do it.

Lean Six Sigma

Lean is an approach that provides a framework for analyzing and changing business processes. The underlying premise is that waste equals non-value-added activity, which means unnecessary cost and lower profits. Within this framework, middle management should be responsible for identifying and eliminating waste within their portions of the value stream. Lean creates the opportunity for middle managers to concentrate on the big three responsibilities noted earlier; without Lean, these three responsibilities would be added to the agenda rather than being adopted as an alternate way of doing business.

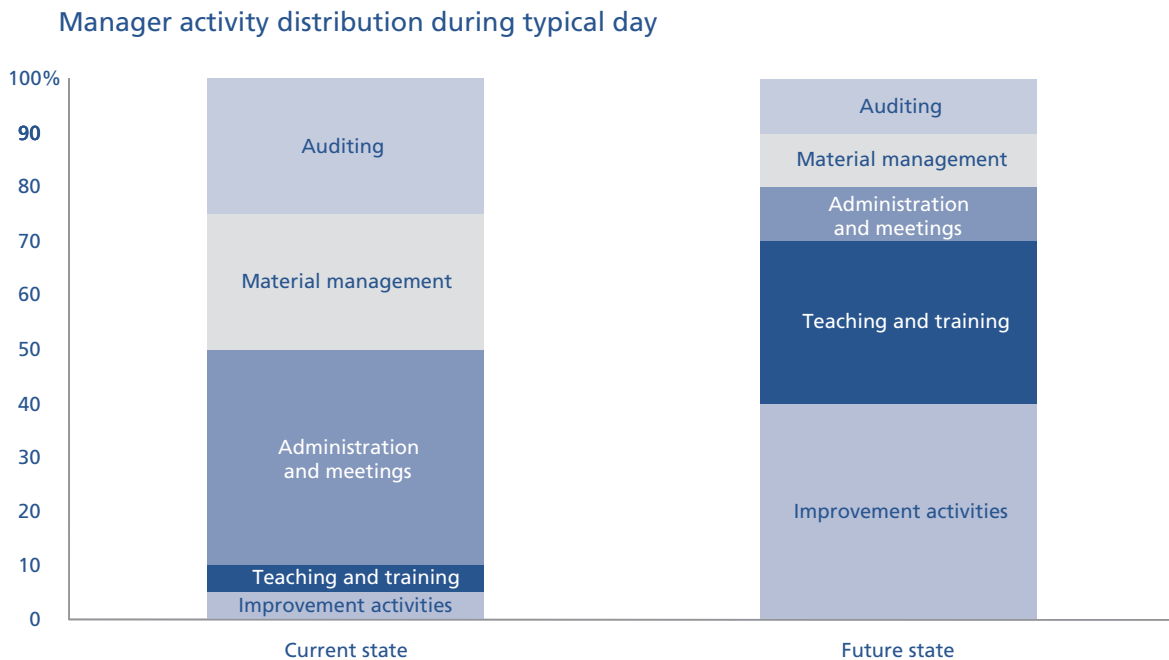
Like Lean, Six Sigma represents a framework with which to solve problems and develop business opportunities. Six Sigma can be represented in two categories, the statistical application side and

the pure problem-solving framework side. The statistical application side encompasses tools such as design of experiments (DOE) and analysis of variance (ANOVA) in order to optimize processes with non-common cause variation. This provides middle management with a quantitative, data-driven approach to decision making that raises the predictability of results.

The framework side of Six Sigma, represented by DMAIC (Define, Measure, Analyze, Improve, and Control) and DMADV (Define, Measure, Analyze, Design, and Verify), provides a structured methodology to help solve existing problems, realize future opportunities, and manage projects. It provides middle management with a stage and gate process that instills discipline and control into project management through stringent input and output requirements.

The Six Sigma framework thus can help manage the completion of tasks within the strategy deployment effort. It cuts waste by reducing

Exhibit 4 How managers' activities change



common cause variation and increasing value stream velocity, then applies statistical tools where appropriate to address non-common cause variation (see sidebar, “Common Lean Six Sigma Terms.”)

The Payoff in Leadership

Developing middle management through the adoption of strategy deployment and Lean Six Sigma can yield large benefits. Once they become skilled in Lean and Six Sigma, middle managers can shed low-value-added responsibilities and focus on those that align with the strategic objectives of the organization (Exhibit 4). And they can raise the productivity and effectiveness of front-line staff by allocating more time to improving processes and training or mentoring their direct reports, which promotes knowledge transfer and strengthens the Lean culture.

An additional benefit of putting middle managers at the heart of a Lean Six Sigma system is the development of leadership skills in their ranks, improving the pool of future senior executives. Merrill Lynch started its Lean and Six Sigma program to reduce

costs through process improvements, and a senior Merrill Lynch executive says, referring to trained middle managers: “What we started five months ago with these Black Belts was the best leadership development course we have had.”

Other companies, including Textron, Alliant Energy, Westinghouse Nuclear, Countrywide, CIGNA, Starwood Hotels & Resorts, and New York Presbyterian Hospital have embarked on Lean Six Sigma transformational programs to reap the benefits of cost savings and improved customer focus from process improvements, and in the course of those efforts also developed a stronger middle management.

Senior executives at these firms came to realize that the realignment of the organization and the new prioritization of tasks will increase the effectiveness of middle management. They have been willing to make the necessary investment in middle management and give them (and the front line) the power, the systems, and the structures necessary to allow the organization to be successful. ❖

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