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George Roth

Lean Advancement Initiative and Sloan School of Management, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

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SUSTAINING LEAN TRANSFORMATION THROUGH GROWTH AND POSITIVE ORGANIZATIONAL CHANGE

George Roth
Lean Advancement Initiative and Sloan School of Management, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

When faced with problems and the need for change, most organizations require external efforts to develop solutions, inspire improvements, and initiate and sustain change. The continuous improvement that managers desire, however, is based on the people in their organizations sustaining changes. Positive organizational change provides an alternative to traditional deficit-based change approaches, emphasizing positive affect, individual virtues, and social bonding as a basis for changes. Positive organizational change is, however, considered as distinct and in conflict with traditional change approaches. This article uses findings from case studies of successful lean changes and the literature on positive organizational change, as illustrated by appreciative inquiry method, to develop a new combined, change model. This new positive lean change model emphasizes 2 elements—attending to positive personal and interpersonal outcomes and balancing productivity gains with business growth—to improve performance and sustain change.

Keywords Lean transformation; Organizational learning; Sustainable change; Positive organizational scholarship; Positive change; Continuous change; Deficiency-based change; Appreciative inquiry; Cultural change.

INTRODUCTION

What makes change so desirable that it sustains itself? By definition, change is some break from the current conditions of the status quo. Human systems are predisposed to reaching a “quasi-stationary equilibrium,” what social scientists call a stable homeostasis, or holding onto that status quo (Lewin, 1952; Schein, 1987). In stasis, organizations experience “change
programs” between periods of “stability;” and require “unfreezing” to enable change (Schein, 2002: 35).

A new research literature describes organizational conditions that are initiated and designed to make and sustain changes. These organizational conditions are part of a larger effort established on the basis of the philosophy, values, and practices of positive organizational scholarship. Its implications have the potential to shift the ways that we examine and manage all change (Cameron et al., 2003; Cameron et al., 2004). The origins of positive organizational scholarship are “a response to what some psychologists consider a preoccupation with the negative and pathological in the study of human behavior” and “present a broad vision of the sunnier side of life, where positiveness can be harnessed for noble individual and organizational ends” (Fineman, 2006, p. 270). This framework rests on three core concepts: (a) a focus and concern with flourishing, (b) an emphasis on the development of capabilities, and (c) efforts that are based on developmental and generative organizational dynamics (Dutton and Glynn, 2009). Included in its scholarly focus is researchers’ purposeful selection of organizational phenomena, types of enablers and motivations, and effects of change that they study. This type of change would sustain itself because it is based on desirable conditions that people are attracted to and seek to achieve and maintain.

The positive organizational scholarship literature, however, recommends and requires a starting point for change that is different from what is written about and practiced with lean and enterprise transformation methods. Yet, in my studies of successful lean change cases, I have found that the conditions that sustained lean improvements were remarkably similar to those described in positive organization change initiatives. In these successful lean cases, each organization aimed to make and sustain changes using lean methods, often using these methods to overcome performance deficits. These lean change cases provide insights into interactions between deficit-based, or negative change, and positive change.

The ability to transition from a deficit change, to a positive change would enable organizations to sustain achievements accomplished through lean methods. However, the writing on positive change contends that “positive dynamics will not emerge by simply reversing negative dynamics” (Roberts (2006, p. 296), and that new beginnings are required, because negative states can occur alongside positive states (Dutton and Glynn, 2009). This article finds that positive, self-sustaining change can emerge from change initiatives that began as deficit-based, reactionary efforts, and illustrates this transition from negative to positive change using case study evidence. These case studies are the basis for a proposed combination of methods that create a lean and positive change model.

The flow and contribution of this article is as follows. First, I describe positive organization change, with a particular focus on where it contrasts with traditional change models, which rely on filling a performance gap in
performance rather than leveraging the positive forces inherent in individuals and organizations. Second, I provide a brief history of lean production and how its implementation extends to culture changes and enterprise transformation. Third, I develop a model for positive lean change, starting with the existing literature that connects organizational change and lean principles. A review of this literature shows that there are few cases describing what enables sustained lean changes, and that these changes are neither as predictable or frequent as hoped for. This is where the addition of positive organizational change precepts provide their greatest influence. I use a positive change lens to examine mechanisms that explain the spread of lean principles to the enterprise in the case studies. Last, I use the positive change lens to formulate the article’s main contribution: a prospective change model that combines traditional with positive change methods.

**POSITIVE ORGANIZATIONAL CHANGE**

Examining change models reveals why traditional changes are hard to sustain. Cummings and Worley (2005) distinguished the positive organizational change model as a “significant departure” (p. 26) from Lewin’s (1952) change model. Others scholars have suggested that planned change and learning, the basis for these approaches, might be complete opposites (Weick and Quinn, 1999). Deficit-based change, like Lewin’s model, starts by examining what is wrong and proposes what to do to solve the problem. In comparison, a positive change model starts with a focus on what the organization is doing right, seeks to build on these capabilities, and develops positive expectations to energize and direct new behaviors (Cooperrider and Sekerka, 2003; Cummings and Worley, 2005). Positive-change approaches are contrasted with traditional-change approaches, suggesting a degree of incompatibility.

**Deficit-Based Change**

The recognition that most change approaches are deficit-based might explain the empirical evidence of low success rates in organization change. Researchers have consistently found that between half and two-thirds of organizations struggle and fail to achieve expectations in implementing change and sustaining improvement (Beer and Nohria, 2000; Sterman, 1994). Many change efforts fail to achieve expectations because of the self-limiting nature of traditional, managed change. These approaches (Beckhard and Harris, 1987; Bennis, 1966; Kanter, Stein, and Jick, 1992; Kotter, 1995; Miles, 1997; Nadler and Nadler, 1998; Tichy and Sherman, 1993) view change as a planned effort that is motivated by emphasizing an organization’s shortcomings. Shortcomings generate anxiety, often on the basis of contrasts between

As managers mobilize initiatives around identified gaps, this deficit-based framing creates its own problems. First, the anxiety created rests on threats and does not release the creativity associated with the power of opportunities (Dutton, 1993). Second, as Schein (2002) highlighted in the challenges of unfreezing people’s behavior, “psychological safety” is needed to prevent people and groups from slipping into a psychologically defensive modes when confronted with threatening information (p. 36). Third, organizational defensive routines deny or mask failings and make them undiscussable (Argyris, 1990), limiting the ability to correctly diagnose the performance gap and design actions that address the appropriate problems. Last, as an organization improves, the performance gap closes, which reduces the motivation to fix what created the performance gap (March and Shapira, 1992). Also, the unforeseen problems that surface in implementing changes erode managers’ expectations and motivation (Greve, 1998).

Positive Change

Positive organization scholarship (Cameron, Dutton, and Quinn, 2003) finds that starting assumptions have a significant effect on the attraction to change. The framing of organizational problems influences outcomes, as Weick (1984) wrote, because often “people define these problems in ways that overwhelm their ability to do anything about them” (p. 40). In writing about positive change, Cooperrider and Sekerka (2003) addressed this framing, noting that a “deficiency focus, root cause analysis, remedial action planning, machine metaphors and intervention are all means to fix broken systems” (p. 226). Positive organizational change picks an alternative starting point. By focusing the inquiry on improving relationships among people, positive organizational change enables new communication patterns to emerge in organizations. Shifting from a problem-based focus makes room for a positive conversation in which people develop new visions as the basis for the plans to achieve them. Through the discussion of these visions and plans, a shared and desired future begins to take shape. The questions that managers ask where what they focus their attention sets conditions for sustaining what is accomplished and seeds the efforts for future changes.

Appreciative inquiry is the best know positive change approach (Cooperrider, 2001), which seeks to discover and develop the positive core of organizational life. It does so by asking positive questions and drawing out the human spirit in creating a desirable future (Cooperrider and Sekerka, 2003, p. 227). This approach combines an increasing depth of inquiry with recognition of people’s relatedness to enable new microbehaviors among individuals that move to new overall behaviors in groups and organizations.
Applications of Appreciative Inquiry (Cooperrider, 2001) suggest that positive organizational change—similar to individual, group, or organizational development approaches—progresses through several discrete, sequential, and cumulative stages.

These positive change stages are marked by increasing inclusion and intimacy among people along with shifts in their affect, language, and awareness. Positive organizational change progresses along a positive, upward spiral that begins with inquiry, finds strength through inclusion of people and alternative views, and results in overall activation of people’s energy. This energy activation is infectious; it enables more change by modeling actions consistent with the desired future vision. These ways of acting elevates attention to people and their concerns through inquiry, which activates additional energy and further enables others to participate in these changes. Cooperrider and Sekerka (2003) note, “As people touch each other at their positive core, searching for the best in each other and life’s offerings, the energy leads to self-organizing units... [that] carry out hundreds of projects” (p. 239).

**WHY LEAN CHANGE?**

In the 1980s, studies of U.S. manufacturing found that one of the key issues for improving competitiveness was a better relation between human resources and technological change (Dertouzous, Lester, and Solow, 1989). Traditional North American and European automotive mass production techniques were inferior to those developed by Japanese companies, particularly Toyota. These techniques, described as *lean production*, relied on teams and used flexible automation. Lean factories produced products in volume with enormous variety using half the human effort, the manufacturing space, the investment in tooling, the engineering hours, and in half the new product development time as did mass production companies (Womack, Jones, Roos, and the Massachusetts Institute of Technology, 1990). Since these differences were documented, many researchers and consultants have elaborated on lean production (MacDuffie, 1995; Murman et al., 2002; Liker et al., 1999; Womack and Jones, 1996), including extensive studies of Toyota (Liker, 2004; Liker and Hoseus, 2008; Liker and Meier, 2006, 2007; Morgan and Liker, 2006). Other organizations have aimed to achieve similar improved results using lean methods.

Managers and consultants involved in implementing lean methods frequently use the term *lean transformation* to describe changes needed to gain the benefits associated with lean methods. The term *transformation* suggests a magnitude, wholeness, and depth of change needed in organizations to fully implement and achieve these benefits. The magnitude of change in moving from a traditional mass production organization to a lean enterprise requires a completely new and different logic (MacDuffie, 1995). There are bundles of interrelated and consistent practices associated with each of these
logics (Shah and Ward, 2003), all of which must change. Lean transformation requires these changes to take place at all organization levels, from top managers to frontline workers.

**Role of Culture in Creating Lean Change**

Writings on Toyota and its change processes, as well as on other organizations that have undergone lean transformations, have shown that organizational context is critical to achieving desired outcomes (Liker, 2004; Liker and Hoseus, 2008; Liker and Meier, 2007; Spear, 2009; Spear and Bowen, 1999). Organizational context includes the beliefs, assumptions, and expectations shared by managers and workers, and is where lean methods are implemented. Many elements of these methods are so straightforward and simple that some managers suggest lean is just good common sense. For example, to improve attention to quality, it makes sense to install an andon cord, which allows workers to stop production when a problem arises and fix it before it is passed on. However, installing andon cords does not create the context needed to use them appropriately. Managers must create conditions in which people assume responsibility for quality and take initiative to stop the line. In mass production, people did not stop the line for fear of retribution. Toyota creates this context (Liker, 2004). In a Toyota plant, andon cords are pulled hundreds of times per year. In U.S. automotive plants, workers pull andon cords only a few times per year (A. I. Taylor, 1997).

Creating that context is a challenge in implementing lean methods. Lean tools rely on an empowered workforce, and the use of lean tools can empower the workforce. In studying total quality management programs, Hackman and Wageman (1995) found that managers dilute and redirect quality program ideas when they diverged from the practices to which they were accustomed. Successfully implementing lean methods requires not only understanding these methods but also creating the organizational context that achieves and sustains improvements.

**METHOD**

A search of documented lean change cases found 43 published articles, books, or book chapters. Finding cases that fully described changes over the period that it took for them to be implemented and achieve outcomes winnowed the cases that could be used to analyze change to 12 (see Table 1). These 12 cases were all success accounts and emphasized common change elements: the motivation for adopting lean methods was based on a problem with the organization’s performance. Improvements followed from the use of specific techniques associated with lean, such as just-in-time inventory management or *kaizen* improvement. Workforce issues, however, were discussed to varying extents; some cases included lengthy comments and
## TABLE 1  Lean change case study articles.

<table>
<thead>
<tr>
<th>Company name</th>
<th>Application (reference)</th>
<th>Summary</th>
<th>Case study time frame</th>
<th>Evidence of positive change outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden State Tanning</td>
<td>Plant case on leather automobile seats (Traynor, 2004)</td>
<td>Had fallen several months behind in production; first U.S. supplier taught lean by Toyota engineers</td>
<td>4 years (1992–1995)</td>
<td>Low</td>
</tr>
<tr>
<td>Delphi Saginaw</td>
<td>Plant-level case on automobile steering columns (Woolson &amp; Huser, 2004)</td>
<td>Plant produced only for General Motors, but because of quality and cost problems, General Motors was considering finding another supplier</td>
<td>7 years (1991–1997)</td>
<td>Low</td>
</tr>
<tr>
<td>Donnelly (Grand Haven)</td>
<td>Plant-level case on automobile mirrors (Liker &amp; Allman, 2004)</td>
<td>Plant was launched to serve Honda, but subsequent delivery, cost, and quality issues threatened Honda’s business</td>
<td>2 years (1996–1997)</td>
<td>Low</td>
</tr>
<tr>
<td>Freundenberg NOK Company</td>
<td>Multiplant case on automotive rubber and plastic parts (Day, 2004; Womack &amp; Jones, 1996)</td>
<td>Business was barely profitable and lean was seen as the way to become more profitable</td>
<td>5 years (1992–1996)</td>
<td>Low</td>
</tr>
<tr>
<td>Western Geophysical</td>
<td>One production line producing underwater cables (McGovern &amp; Andrews, 2004)</td>
<td>Cables produced by Western Geophysical then used by Western Geophysical service crews; poor quality and lead times were hampering the success of service crews</td>
<td>5 years (1991–1995)</td>
<td>Low</td>
</tr>
<tr>
<td>Cedar Works Company</td>
<td>(Two plant) case on bird houses and animal feeders (Constantino, 2004)</td>
<td>Experiencing exponential growth, the small company could not keep up with demand</td>
<td>5 years (1993–1997)</td>
<td>Medium</td>
</tr>
<tr>
<td>Lantech</td>
<td>Plant-level case on pallet wrapping machines (Womack &amp; Jones, 1996)</td>
<td>The key patent of this founder-led company had just expired, and the company faced competition for the first time</td>
<td>4 years (1991–1994)</td>
<td>Low</td>
</tr>
<tr>
<td>Wiremold</td>
<td>Main company plant producing wire management systems (Emiliani, 2003; Womack &amp; Jones, 1996)</td>
<td>Rising costs struck the once-profitable company; Art Byrne, who had previously learned lean from Japanese experts, took over</td>
<td>6 years (1991–1996)</td>
<td>Medium</td>
</tr>
<tr>
<td>Pratt &amp; Whitney</td>
<td>Plant-level case on aircraft engine production (Womack &amp; Jones, 1996)</td>
<td>Competition with General Electric and Rolls Royce was heightening; fell behind in engine market for single-aisle commercial jets</td>
<td>5 years (1991–1995)</td>
<td>Low</td>
</tr>
<tr>
<td>United Electric Controls</td>
<td>Plant-level case on control and sensor production (Ryckebusch, 1996)</td>
<td>Long lead times and high costs led to a record loss in 1987; a new vice president of manufacturing, Bruce Hamilton, was appointed</td>
<td>10 years (1987–1996)</td>
<td>Medium</td>
</tr>
<tr>
<td>Gelman Sciences</td>
<td>Plant-level case on microfilter production (Zayko, Hancock, &amp; Broughman, 2004)</td>
<td>Did not want to fall behind the competition as US auto manufacturers had; adopted lean to become more generally competitive</td>
<td>5 years (1993–1997)</td>
<td>Low</td>
</tr>
<tr>
<td>Porsche</td>
<td>Assembly plant case (Womack &amp; Jones, 1996)</td>
<td>The strengthened Deutschmark led to decreased sales to its largest market—North America; sales plummeted</td>
<td>6 years (1992–1997)</td>
<td>Low</td>
</tr>
</tbody>
</table>
other cases had none. Outcomes were impressive in magnitude but limited in time and scope. For example, a typical result was the reduction in the total distance a product traveled through a company’s plant. Other operational measures, such as productivity, cost, and lead time, were considered but generally limited to the bounds of a particular department or production lines. In short, these published cases did not provide the information needed for an analysis of the change factors associated with the use of lean methods (Pettigrew, Woodman, and Cameron, 2001).

The review of these 12 cases, however, provides two particularly noteworthy points. First, cases did not focus on the organizational context before, during, and after the organizational change. Authors wrote about the use of lean tools and techniques and the way in which resistance to change was overcome and of course the quantifiable (albeit short-term) outcomes. However, what was unclear was the decision-making process to adopt lean, the way that the workforce impacted lean, and the extent the change provided long-term benefit. W. A. Taylor and Wright (2003) and Treville (2006) have argued that it is hard to understand the change findings without examining the processes and context in which they are implemented.

Second, there is no evidence of positive change in any of these writings. The case studies described manager decisions and performance outcomes but do not consider or include managers’ orientation toward change or statements about goals, such as efforts to maintain employee satisfaction, enthusiasm, or commitment. I contend that it is more than a simple omission that authors have not included this information. Lean emphasizes a set of problem-solving tools and system for organizational learning (Adler, Goldoftas, and Levine, 1997). These cases are retrospective, and managers provide rational accounts of their activities (Meyer and Rowan, 1977). The lack of information on positive (or negative) employee outcomes reflects the instrumental, methodologically oriented stance of the authors who write about lean changes and the managers who promote them. The limited publications required identifying new cases for this study.

**Sample**

I sought case study sites with a focus on the question, “What makes lean change successful?” The goal was to identify factors that contributed to success, not only in better financial and operational terms, but also in terms of organizations’ abilities to sustain people’s engagement and continue its improvement activities. The ability to sustain the use of lean methods requires enthusiasm in the employee population and at multiple managerial levels. I sought cases on the basis of evidence of (a) enhanced performance and (b) sustained change. Enhanced performance is most evident when starting from poor to mediocre organizational performance—in terms of cost, speed, quality, on-time delivery, and safety—and reaching good or excellent,
by its industry standards, performance levels. Enhanced performance had to be lasting, or accompanied by continued and new initiatives, which was called sustained change. Sustained change also included a shift in people’s attitude and change in the organizational culture; the workforce would use lean tools as a part of an ongoing commitment continuous improvement.

Five organizations, from private industry and government that met these criteria were studied—Rockwell Collins, Warner Robins Air Logistics Center, Raytheon Missile Systems, Ariens, and Letterkenny Army Depot. Four of the five cases are in the aerospace and defense industry. Lean manufacturing was introduced into this industry in the late 1980s and early 1990s. The aerospace industry, for reasons related to its products, product volumes, production methods, and industry structure, was expected to require adaptation from the lean methods identified and developed in the automotive industries. At each location, a broad range of people involved in, associated with, and affected by the lean programs were interviewed. Operational and financial performance data and, where available, employee survey data, were gathered and analyzed. Qualitative and quantitative data were used to write the case studies (e.g., Yin, 2003) describing the lean programs and assessing organizational changes. These case studies are drawn upon to make and illustrate propositions for linkages (Goodman, 2000) among lean programs, learning and growth opportunities, enhanced organizational performance, and sustained lean activities. Table 2 provides a list of the five case studies along with the time frame, summary of changes, and assessments of improvement results, enhanced performance and its sustainability, positive change, and growth opportunities.

There are limitations that arise in focusing a study only on successful cases (Vedder, 1992). These cases identify factors relevant to success but identify or test whether these factors are absent in unsuccessful cases. These findings should therefore be considered as propositions for further exploration. What this article reports is a set of propositions that link positive organizational and conventional lean change in proposing a positive and sustainable lean change process. These propositions, determined on the basis of general patterns found in each of the five case studies, are illustrated with details from one of those cases.

**TOWARD A POSITIVE LEAN CHANGE MODEL**

This section presents what the conventional approach to lean change. The conventional lean change approach is a typical baseline, found in interviews and published case descriptions (e.g., companies described in Table 1 and the other 43 articles mentioned previously), and is representative of how most companies approach change. Two additional factors beyond the conventional lean change approach were found in the successful cases: (a) positive personal and interpersonal outcomes and (b) seeking business growth.
### TABLE 2 Lean change case studies.

<table>
<thead>
<tr>
<th>Company and site location</th>
<th>Case study time frame</th>
<th>Summary</th>
<th>Local lean improvement</th>
<th>Enhanced performance and sustained change</th>
<th>Positive personal and interpersonal outcomes</th>
<th>Seeking growth opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rockwell Collins; Cedar Rapids, Iowa (Roth &amp; Labedz, 2006)</td>
<td>1998 to 2005</td>
<td>Responding to cost pressures from large customer, this company began with lean efforts that grew into a multifaceted improvement program under the lean umbrella, reaching to all aspects of business; from 2001 productivity, revenue, profit, and safety all improved.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Warner Robins Air Logistics Center; Warner Robins, Georgia (Barrett &amp; Fraile, 2005; Dickman, 2005; Roth, 2005b)</td>
<td>1999 to 2004</td>
<td>After an unsuccessful lean pilot in an avionics repair shop, a very successful lean initiative in the F-15 wing shop spread to other areas, and 300–500 lean events occurred annually across the industrial complex</td>
<td>Yes</td>
<td>Mostly(^2)</td>
<td>Mostly(^2)</td>
<td>Some(^1)</td>
</tr>
<tr>
<td>Raytheon Missile Systems; Tucson, Arizona (Hemmann, 2005; Roth, 2005a)</td>
<td>1999 to 2004</td>
<td>Moving business from Texas to Arizona, restarting production line on low volumes, and seeking lower cost basis, then building on successful lean techniques developed on the tube-launched, optically-tracked, wireless-guided (TOW) missile program to meet steep demand brought on by active war time requirements and later building on these capabilities to win against competition from a new entrant.</td>
<td>Yes</td>
<td>Mostly(^2)</td>
<td>Yes</td>
<td>Some(^1)</td>
</tr>
<tr>
<td>Ariens; Brillion, Wisconsin (Hartwell &amp; Roth, 2006)</td>
<td>1999 to 2005</td>
<td>Lean efforts used to recover from past overproduction and reduce inventory levels; applied to prevent spindle cell production outsourcing to China, from 1999 productivity, revenue, profit, and safety all improved.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Letterkenny Army Depot; Chambersburg, Pennsylvania (Harvey &amp; Labedz, 2006; Labedz &amp; Harvey, 2006)</td>
<td>2002 to 2006</td>
<td>Lean improvement in Patriot Launcher lead to customer savings checks, investment in facilities, and new contracts for generator and high-mobility multipurpose wheeled vehicle repair and upgrades; depot avoids closure (from the Defense Base Realignment and Closure) as it adds personnel and takes new contracts.</td>
<td>Yes</td>
<td>Yes</td>
<td>Mostly(^2)</td>
<td>Yes</td>
</tr>
</tbody>
</table>
These factors, based on patterns found in the five lean change case studies, provide basis for a lean change model. In the sections that follow, each factor is illustrated with one case example (although each factor was found in all the case studies). This lean change model is compared with positive organizational change approaches, providing insights for positive and lean change.

**CONVENTIONAL LEAN CHANGE: LEAN METHODS AND LOCAL IMPROVEMENTS**

All of the five organizations studied used lean and related improvement methods to make local changes. Local changes affect that one work area and often do not produce bottom-line results because other work areas do not leverage these improvements. For example, when one area works faster, its outcomes sit as work-in-process inventory because that next area does not operate differently.

Most uses of lean methods seem to reliably and consistently lead to local improvements. The linkage between success at local levels and improvements at organizational levels, however, was neither reliable nor consistent. Managers who were the proponents of these changes often held expectations that local improvements would diffuse to other areas and create, in time, overall results. In the successful lean change cases, there were additional factors needed to diffuse the lean methods across units to achieve overall results. These factors included the use of tangible, visual indications of change provided by using lean methods providing feedback the helped direct change toward desirable results, which include outcomes valued by customers, managers and employees (Hartwell and Roth, 2010). The concepts in the conventional lean change model are shown as linked boxes in Figure 1. In this conventional model, lean methods leads to local improvements, and then there is a time delay before the sustaining of these changes contribute better overall organizational performance.

**Introducing Lean Methods**

In all five of these cases, managers described similar approaches when they were initiating lean efforts. Many of these cases started changes as pilot projects or experiments using lean methods in specific work groups.

**FIGURE 1** The Conventional Lean Change Process.
These efforts included the well-documented lean tools: improved workplace order—that is, 5S (sort, set in place, shine, standardize, and sustain events) and rapid process improvement events or *kaizen* (Imai, 1986) activities. Subsequent improvements included alterations in task sequencing, material movement, machine positioning and utilization, and a reduction of work-in-process inventory and non-value-adding operations. After initial achievements, new teams were formed to undertake additional efforts, drawing upon the repertoire of lean methods (such as waste identification and elimination, setup time reduction, visual controls, structured problem solving, and value stream mapping).

Leaders were initially often newly hired personnel with lean experience, and later, after training and involvement, managers from the units that had led team efforts. When supportive and personally involved managers combined with knowledgeable lean consultants, facilitators and other enthusiastic personnel, these improvement teams seemed to readily achieve local improvements. The Warner Robins example that follows (Roth, 2005) illustrates going from a pilot effort to many lean initiatives.

**Warner Robins Air Logistics Center Mantech Pilot**

In May of 1999, the Air Force Research Laboratory, through its Manufacturing Technology (Mantech) program, supported pilot lean projects at its maintenance, repair and overhaul depot. A shop manager, impressed with the lean concepts, an initial pilot project, gained support for a second pilot effort in the F-15 Wing Repair shop. The F-15 Wing Repair shop was notoriously behind schedule. “Tail teams” assigned to fighters removed the wings, and sent them to this shop for testing and structural repair. The teams later reinstalled the repaired wings on the fighter from which they had been removed. The F-15 Wing Repair shop had a supportive leader. Consultants teaching lean concepts working with Wing Repair groups soon yielded considerable improvements. As throughput improved over 40%, inventory decreased, and repaired wings could be installed on planes more quickly. The improvements in the work environment were inspiring, and adjacent shops requested lean projects for their areas (Roth, 2005).

**Creating Local Improvements**

The logic in lean thinking is to focus on material and information flow to improve value delivered to customers while eliminating operations that are unnecessary and thus wasteful (Womack and Jones, 1996). These kinds of efforts identify changes within workgroups, or cells, and through the data they collect, point to additional possible changes across workgroups. The activities associated with producing a product, and the path along which these activities take place, can be thought of and described as a value stream (Rother and Shook, 1999). By examining that value stream, how it operates
and contributes to what customers’ value in the end product, improvement opportunities are identified that cross different workgroups. Promoting continuous improvement events brings people together and enables them to make and revisit changes in their own and other workgroups. The lean experts I interviewed stated that four to five improvement cycles within work areas were enough to achieve good lean (efficient operating) levels. Each improvement iteration is expected to produce 20–30% gains across a broad range of operational measures. The following is an example from Raytheon’s Paveway Missile Program (Hemann, 2005) that illustrates the cumulative changes:

**Raytheon Paveway Program**

Two years after Raytheon acquired its defense businesses in 1997, it moved the Paveway program from Texas Instruments’ Malcolm Baldridge award-winning facility in Sherman, Texas, to a new Tucson, Arizona, missile plant. Paveway production remained over cost and behind schedule after three production line moves within the Tucson facility. In 2000, a new operations manager focused on production and cost goals using lean methods. Workers involved in lean initiatives reorganized the line into cells, improved material flow, and emphasized safety and the elimination of repetitive strain injuries. As changes benefited workers and improved production, trust improved and first and second shift teams competed in their submission of new cell layout suggestions. These changes resulted in additional cost and delivery time improvements as well as reductions in travel distance and the need for shop floor space. These space savings made it possible to move process engineers’ offices next to the production line on the shop floor and later improvements created the space to establish a parts supermarket next to the cells to support higher production rates (wartime demand increased monthly rates from 200 to 600 and then 1600). Additional improvements included: just-in-time deliveries with suppliers—truck trailers containing parts stayed at loading docks with parts being withdrawn as needed, installation of rollers for faster material flow between workstations and cells, cross training of workers in three different roles enabled better balancing of workload, resizing of parts containers to fit production schedules, repackaging of parts, moving from parts kitting to point-of-use packaging, re-using those parts packages with suppliers, and improving and shortening test processes and burn-in times (see Hemann, 2005; Roth, 2005b).

Improvement outcomes from using lean methods are summarized for the five case studies in Table 3. Over the course of time, and what started as local improvements translate into broader cross-workgroup, site, or organizational outcomes, including measurable, bottom-line benefits. What are local gains in one area often point to needed changes in other work areas. If
TABLE 3 Local improvements created by use of lean methods.

<table>
<thead>
<tr>
<th>Case study/local setting</th>
<th>Local improvement summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rockwell Collins Document Services Area</td>
<td>Improvement in on-time delivery (23%) and productivity (40%), along with reductions in inventory (60%), floor space (53%), work-in-process (55%), and cycle time (74%)</td>
</tr>
<tr>
<td>Warner Robins Air Logistics Center F-15 Wing Shop</td>
<td>60% improvements in output, 80% decrease in flow days, 72% decrease in work-in-process inventories, and 100% on-time deliveries since 2003</td>
</tr>
<tr>
<td>Raytheon Paveway Missile Production Line</td>
<td>Following reorganization into cells and installation of a “supermarket” inventory system, improved cycle time and reduced product travel distance from 2.5 to 0.4 miles</td>
</tr>
<tr>
<td>Ariens Gear Case Assembly</td>
<td>Improved from 18 people producing 100 units per month to 4 people producing 500 units per month</td>
</tr>
<tr>
<td>Letterkenny Army Depot Patriot Missile Launcher</td>
<td>2 value stream analyses and 39 improvement events reduce shop floor travel distances for subassemblies, components, and parts processing to create a 47% savings in travel distance and 20% saving (1.2 acres) in building space</td>
</tr>
</tbody>
</table>

relocating equipment and parsing tasks differently among group members in one work area results in better operations, those gains are often not used until changes take place in other areas. Sustaining lean activities is crucial because of the time required for improvement activities to diffuse and ultimately produce bottom-line performance gains. Sustaining improvements creates the resources, not only time and materials savings, but also the knowledgeable and committed people needed to initiate and carry out additional changes.

**Sustained Change Activities and Enhanced Organizational Performance**

The improvement activities and results of the five cases are summarized in Table 4. Each of these organizations achieved substantial gains, beyond what they achieved in the past or what similar organizations in their industries achieved during that period. People at all levels in these organizations, from top leaders to frontline employees, attributed what was accomplished to their lean and change initiatives. They had used lean methods, adopted its philosophies and ways of thinking and operating, to make and sustain the changes that produced these results.

**CONVENTIONAL LEAN IMPROVEMENT IS NECESSARY BUT INSUFFICIENT**

Enhanced organizational performance and sustained improvement activities do not always follow from local lean improvements (Turesky and Connell, 2010). Local gains can only create organizational benefits only when interdependent units work together to integrate gains. To produce these gains, lean methods rely on the continual and ongoing refinement.
TABLE 4 Illustrations of enhanced organizational performance.

<table>
<thead>
<tr>
<th>Case study/setting</th>
<th>Examples and observations of enhanced organizational performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rockwell Collins</td>
<td>From 2002 to 2005, net sales and net income grew at compound annual rates of 11.4% and 18.8%, respectively, whereas inventory turns (sales/inventory) increased by one third, and return on sales more than doubled. In February 2007, Rockwell Collins had met or exceeded analysts’ earnings expectations for 16 straight quarters.</td>
</tr>
<tr>
<td>Warner Robins Air Logistics Center</td>
<td>Decreased late days 69% (C-5 example), increased on-time delivery 72% (C-5 example), and reduced functional test flow days 75% (C-141 example). Warner Robins won Public Sector Shingo Prizes for C5 and F15 areas in 2006.</td>
</tr>
<tr>
<td>Raytheon Paveway Missile Systems</td>
<td>Ramped up production from 200 to 1,600 per month while reducing costs, and improving quality and on-time delivery. In winning a 2004 Shingo Prize award, which assesses the use of lean concepts for its improvements were 38% improvement in delivery, 91% success in complex flight tests, 95% first-pass yields on highly technical products, improved customer satisfaction, 29% inventory turns improvement, safety and environmental improvements and saving $223 million in 3 years through waste elimination.</td>
</tr>
<tr>
<td>Ariens</td>
<td>Increased productivity of more than 200%, improved inventory turns more than 300%, halved safety incidents, increased sales more than 200%, and improved profits tenfold. Ariens closed one building as it consolidated its operations while growing its business, enabling it to manufacture products in the United States.</td>
</tr>
<tr>
<td>Letterkenny Army Depot</td>
<td>Reduced total travel 47%, cut its budget 26%, avoided $20 million in new construction, and gained 312% paint shop productivity improvements for its Patriot missile launcher program. The depot won new contracts for high-mobility multipurpose wheeled vehicles, power generators, cranes, and mobile biohazard shelters. Revenues grew from $123.3 million in 2002 to $456 million in 2006. In its 2006 Public Sector Shingo Prize award, its new business efforts lead to 52% workload increases and 27% personnel increases.</td>
</tr>
</tbody>
</table>

of work processes. Gains are achieved when these efforts are diffused and result in additional changes in other units. The often practiced approach of managers mandating the use of lean tools has its limitations, in that making changes that are sustained depends upon people’s engagement and commitment (Walton, 1985).

**Realizing Positive Personal and Interpersonal Outcomes Sustains Lean Change**

In the case studies examined, the element of lean tools that makes work and information about work processes visible created organizational conditions that helped to sustain and diffuse lean. When lean methods were introduced into work units, people from those units participated in events where they learned and applied these methods. Working as a team using lean methods, the people in events collected information, shared that information with others in their unit, reflected upon and analyzed work processes,
developed insights for how they might improve, and, on the basis of those insights, implemented changes. These activities promoted individual and organizational learning as teams addressed problems and learning from their efforts. These teams not only solved problems but also changed the organization’s culture. They created a learning context that enables individuals to be active and purposeful in making changes, pursuing positive personal outcomes and organizational improvements. These behaviors are what people studying organizations call “agentic work behaviors” (Bandura, 2001; Spreitzer, Sutcliffe, Dutton, Sonenshein, and Grant, 2005).

Lean methods and associated change are diffused as people in organizations accrue positive personal outcome and develop new relationships with one another. With lean projects under way and changes being made, people can examine their own and others’ thinking, or mental models. This inquiry enables people to surface and test the assumptions that underpin organization’s culture, or how people collectively make sense of the world around them and how they operate. An inquiry into thinking, mental models, and cultural assumptions enables an organization’s people to develop positive meaning. Positive meaning can lead people to “reappraise an event as an opportunity for growth rather than a loss” (Davis, Nolen-Hoeksema, and Larsen, 1998, p. 563).

As just described, lean changes can be positively interpreted as a way for people to be more engaged and valued at work. Lean changes can also be implemented in ways that people interpret negatively. Negative interpretations arise, for example, when managers unilaterally cut costs and seek, without explanation or acceptance, to extract more effort from workers. When people who are resistant or ambivalent to changes are given opportunities to make sense of changes, these efforts can create the positive meaning that shifts their understanding and attitude. The process of inquiry that creates positive meaning also helps individuals not directly involved interpret changes and improvement activities as opportunities for their own growth. At Ariens Company (Hartwell and Roth, 2006), the organization benefited because people experienced lean changes as an opportunity for individual growth and organizational improvement. The illustration from Ariens that follows shows that enthusiastic and committed people spread their energy and enthusiasm to others.

**Ariens Company**

When the lean program started in 2000, Ariens internal surveys showed that the workforce exhibited only limited interest, enthusiasm, and commitment to lean initiatives. Once lean improvements took hold however, financial successes followed. The change in workers’ attitudes was evident in company surveys. Before 2003, more workers disagreed with or were uncertain about the statement that lean efforts made Ariens strong. However, after 2003,
sentiment had shifted and most workers agreed that lean was a benefit to the company.

The difference? Lean provided for job enrichment, as demonstrated by Ariens’ lean interns. Ariens’ lean intern program was developed for promising workers. Based on their participation in regular lean events, supervisors nominated people. Managers, because they attend lean briefings on ongoing events, have exposure to these workers and accept them as part of the program. The internship is a six-month full-time program. Up to eight interns are part of a program cohort, and they spend time in lean events, follow-up activities, and training. Once they have completed the program, they return to their manufacturing positions.

We heard interns talk about how learning lean tools changed their perspective. For example, one intern talked about how her training in lean affected her often seeing waste, even when she was shopping at the store. It also taught her that she could do something about it, and her efforts would make for a better place to work. What this provided was a workplace where “you can stay and grow. . . that’s the real opportunity at Ariens, rather than going someplace else [to work]” (Hartwell and Roth 2006, 2010).

Managers set conditions in the local work context. They often identified individuals that were particularly enthusiastic in initial activities and asked them to lead new efforts. It is important to note that although managers cannot mandate enthusiasm or commitment, they can effectively stifle it. Managers can allay fear that comes with change. In all of the successful and sustained lean change cases, these managers promised that there would be no job losses caused by gains from these improvements. Although fewer people were needed because of increased worker productivity, staffing reductions undermines people’s willingness to learn and change (Cascio, 2002). As with total quality management, “driving fear out” (Deming, 1986) is essential to gaining and maintaining the workforce commitments to implementing change (p. 59).

What I have described as positive meaning, or positive personal and interpersonal outcomes is similar to the concept of thriving in the positive organizational scholarship literature (Spreitzer et al., 2005). In the five lean change cases, there were numerous examples of people learning new methods, being engaged in improving their work environment, and experiencing significant gains in energy levels, engagement, and connection with colleagues. These outcomes included (a) increased personal security, (b) increased satisfaction, and (c) recognition, fringe benefits, and financial rewards. Thriving is the “joint sense of vitality and learning, which communicates a sense of progress or forward movement in one’s self-development (Spreitzer et al., 2005, p. 538). Thriving becomes a means for organizational change when there is a shift from deficit-motivated to positive organizational change.
As shown in Figure 2, agentic work behavior and positive personal and interpersonal outcomes are intermediate concepts linking local lean improvements to enhanced organizational performance and sustained lean change. These attributes of positive organization change in the lean change cases created interest and involvement of people in other units that enables changes to be sustained and diffused, and produce organizational results. People wanted to be engaged in lean events to experience positive personal and interpersonal outcomes they saw in others. As other people got involved and sought these benefits, they helped the organization sustain and spread its lean approach. Managers, recognizing the importance of personal outcomes, promoted a context that enabled these activities to continue.

**Seeking Growth Opportunities**

Managers’ promises to avoid layoffs or make job cuts are necessary but not sufficient to instill thriving. Thriving is driven by seeking positive outcomes, not just avoiding negative consequences. An inevitable result of an organization’s productivity improvements is that fewer employees are needed to do the same work. Well-intentioned managers, despite their promises, often face pressures that cause them to renege upon earlier promises. For example, Sterman, Repenning, and Kofman (1997) described how the implementation of total quality management created excess capacity at Analog Devices. That excess capacity created financial stress and layoff pressures that undermined the total quality management efforts and eventually worsened the company’s financial performance. These authors found an apparent paradox where process improvements lead to increased production efficiency but not necessarily to operating cost reductions.

The organizations described in the successful lean change case all sought opportunities for business growth. Business growth is the top line revenue that comes from selling more, from introducing new products, and finding new customers. Managers explained it clearly to me—without additional revenue, the ability to realize productivity gains and reduce labor cost can only
come from personnel reductions. Organizations can only maintain stable employment and realized financial gain through productivity improvements when they grow their business.

For a commercial company, managers have multiple options for growth. For government growth is difficult, and many have said it is not possible. Leaders at Letterkenny Army Depot (Harvey and Labedz, 2006; Labedz and Harvey, 2006) addressed the growth challenge in an innovative way. Regulations imposed upon government limit these organizations’ growth opportunities. A government installation such as Letterkenny Army Depot has a budget allocation that it uses to calculate rates for its services. If there are any savings, they are subtracted from future budget allocations to lower rates in subsequent years. The financial goal for a depot is to have neither savings nor surplus, and it does so by adjusting its service rates. However, to have savings from lean improvements, Letterkenny’s leaders needed to employ and allocate workers’ labor costs to other services.

**Letterkenny Army Depot**

With the United States Congress seeking military savings, actions such as Base Realignment and Closure (BRAC) threatens to shutter entire facilities. Such was the case at Letterkenny Army Depot in 2002. When Colonel Guinn took over this command, he was asked by General Kern to use lean methods to make productivity gains. The lean methods applied to Patriot missile launcher recapitalization services improved delivery time by two-and-a-half months and generated $1M in savings. These improvements created a revenue surplus and schedule variance which Colonel Guinn addressed by championing a financing innovation that returned savings in the form of checks that went directly back to contracting units. Although outside of government policies, Guinn explained his actions with, “No one was ever thrown in jail for giving the government money.”

The contracting units often used these funds to send more work to Letterkenny. Based on its reputation for coming in under cost, the depot has won new contracts for repairing large generators, 7.5-ton cranes, High Mobility Multipurpose Wheeled Vehicles (HMMWVs or “humvees”), and mobile kitchen trailers. All of these contracts required worker skills similar to those developed in repairing Patriot launchers and were made possible by the competitive service rates achieved through lean improvements (Harvey and Labedz, 2006; Labedz and Harvey, 2006).

Pursuing growth provides multiple benefits. First, it enables leaders to sustain the local context conducive to agentic work behavior and preserve people’s positive attitudes. Second, revenue growth took full advantage of the increased production capabilities that resulted from improvements. Third,
TABLE 5 Business growth with lean improvements.

<table>
<thead>
<tr>
<th>Case study/local setting</th>
<th>Growth summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rockwell Collins</td>
<td>After having to make cutbacks shortly after September 11, 2001, relied on lean methods to expand its production by increasing workers’ productivity. It subsequently developed a business acquisition strategy and improved product development processes enabling the company to win important contracts for new products and business.</td>
</tr>
<tr>
<td>Warner Robins Air Logistics Center</td>
<td>Lean methods diffused to “back shops,” administration, and C-130, C-141, C-17, and C-5 depot maintenance activities producing productivity, throughput, and on-time delivery improvements that were linked to addressing increased demand from wartime activities.</td>
</tr>
<tr>
<td>Raytheon Missile Systems</td>
<td>Initial lean improvements were the basis for better and efficient operations that were then needed to rapidly scale up production to meet wartime demand. Lean efforts later led to cost improvements needed to win back a supplemental build contract that a new competitor had previously won.</td>
</tr>
<tr>
<td>Ariens</td>
<td>Productivity improvements enabled cost reduction to sell a line of profitable products through Home Depot and increase production volumes. Subsequent foreign acquisitions opened new markets.</td>
</tr>
<tr>
<td>Letterkenny Army Depot</td>
<td>Customer refund checks enabled customer Army units to accelerate planned equipment refurbishments. Sought and won new contracts to refurbish high-mobility multipurpose wheeled vehicles, power generators, light cranes, and mobile biohazard shelters.</td>
</tr>
</tbody>
</table>

growth provided a positive vision of the organization’s future, which then becomes something to aspire and be attracted to. People related heedfully to understanding how their work contributed to the organization’s success (Spreitzer et al., 2005). Growth created a winning atmosphere and people felt rewarded when the organization developed new opportunities. Publicity in newsletters, industry magazines, and local papers reported gains and linked them with lean initiatives. The cases involving public companies included their lean program, its savings, and business results in their annual and quarterly reports. Table 5 provides business growth examples.

Growth was necessary for fostering and protecting a virtuous cycle that enabled lean improvements and changes to be sustained and diffused. Seeking growth opportunities, as shown in Figure 3, directly contributed to enhanced organizational performance and continued lean change activities. Growth made it possible for organizations to absorb and apply the capacity of workers that was when improvements reduced waste and made people more productive.

A POSITIVE LEAN CHANGE MODEL

The examination of the five successful lean case studies has provided two additional factors to be added to a conventional lean change model.
First, positive personal and interpersonal outcomes were added as needed links in sustaining change activities and enhancing performance. Second, organizations need to seek growth opportunities to preserve and promote positive outcomes. Without growth, it would be difficult to thrive and utilize the benefits of local improvements and achieve organizational gains.

What led managers to seek growth opportunities? Although successful lean initiatives may take on positive organizational change characteristics, these lean cases did not start with these positive organizational change premises. Leaders adopted lean approaches to address other challenges—future competitive cost pressures, projected declines in revenues, excessive inventories, and threats of closure. These organizations used lean tools and implemented changes to address immediate problems. It was the use of lean methods and local change successes that encouraged agentic work behavior that, through other people getting involved, further diffused lean changes. A virtuous cycle developed that promoted lean methods and enabled organizational benefits while supporting agentic work behavior.

Continuous improvement studies find that managers and scholars pay insufficient attention to the organizational context and change processes associated with these methods (DeTreville and Antonakis, 2006; Spear and Bowen, 1999; W. A. Taylor and Wright, 2003). The lean change model that was initially proposed requires a positively-oriented organizational context, as shown in Figure 4. This organizational context creates opportunities for introducing lean methods in other units, enables the sustainment and diffusion of changes by promoting agentic work behavior and positive personal and interpersonal outcomes, and seeks growth opportunities. The enhanced performance outcomes and sustained changes provide the outcome and feedback needed to further contribute to that positively oriented organizational context. The connection between organizational outcomes and organizational context creates a virtuous, reinforcing feedback cycle that sustains and diffuses positive lean change at local and organizational levels.


**DISCUSSION**

**The Relation Between Positive Organizational Change and Lean Change**

This paper began by reviewing literature that suggested the basis for positive organizational change and the typical deficit-motivated lean change are different, if not opposite, approaches. In examining the successful lean change cases, it seems that efforts that were initiated to improve negative situations and became motivated by positive outcomes over time. Typical of deficit-based organization change efforts, leaders began with an instrumental purpose in using lean methods. These leaders promoted lean in efforts to achieve the results they desired and others had achieved.

Under some conditions, organizations, their managers, and workers seemingly stumbled upon a positive approach to change. Although managers initiated lean in response to performance pressures or on a reactive basis, once organizational improvements began and they recognized these changes, the organizations’ context them to pursue new opportunities, and a positive orientation became the basis for further changes. In approaching change positively, these organizations identified and built on what they were doing well (implementing lean) and developed positive expectations about change that energized people’s behavior (seeking personal growth and vitality, and seeking business growth, was part of what continued the use of lean methods).

A positive lean change process differs from a typical positive organizational change approach such as Appreciative Inquiry, which begins with a
positive orientation to change whereas the positive lean change process develops a positive orientation only after changes were under way. Although deficit-based changes are often contrasted with emergent, positively oriented change such as Appreciative Inquiry, over time these demarcations were not as distinct. For practitioners, these lean change findings show that it is possible to shift to a positive organizational change approach from what began as a traditional deficit-based approach. It was not necessary to subscribe to positive organizational change principles at the outset of changes; but they did develop and were needed to sustain lean changes. For academics studying change and developing theory, these findings suggest that changes initially categorized as traditional efforts might in fact shift toward a desirable characteristic positive, upward spiral of positive organizational change that sustains itself (Walter and Bruch, 2008).

Sustaining and Diffusing Lean Change

There are two important points in the diffusion of lean changes. First, this diffusion can be planned and spontaneous. It was planned when managers chose pilot projects and established programs for educating their workforce. After a pilot project, managers in other areas began implementing lean in their own areas and progress in each area was usually assessed periodically at leadership meetings. It was spontaneous when individuals associated positive meaning with lean and saw lean as an opportunity for engagement and learning. For individuals who had been formally involved with lean, commitment increased. Individuals who had not formally been involved with lean began to see it in a more favorable light and, when they later became involved in lean initiatives, they were more likely to embrace it.

Second, multiple levels of analysis are important for understanding lean changes throughout the organization. Lean changes were easily diffused when people engaged and learned through activities. When people discussed their experiences and developed positive meaning, that process helped diffuse these activities. This information traveled through organizational networks and informal mechanisms affecting the opinions of individuals (McGrath and Krackhardt, 2003; Rogers, 1995; Tenkasi and Chesmore, 2003). The diffusion of lean methods to new groups, particularly when the groups are organizationally independent (e.g., they have different leaders, report to different divisions, or are units in different firms), is often results from seeing accomplishments of groups that adopted lean methods. Group members carry learn methods, which result in new ways of thinking, to other parts of the organization and influence the action and thinking of others. As one or more influential individuals in the next unit become enthusiastic about lean they begin to initiate efforts within their workgroup.
CONCLUSIONS

Examining what has been proposed as different change processes finds linkages and overlap that suggest successful and sustained lean change also rests on a learning-based, positive change process. Lean methods provide analytical capabilities and tools to measure, capture, assess, and propose workplace and process improvements. Positive organizational change approaches initiate change on the basis of a focus on positive deviance and desired outcomes. The successful lean change show the commonalities with positive organizational change processes. Organizations began by introducing lean and creating local improvements in response to performance shortcomings. Lean methods created a context for individuals to act agentically, taking advantage of associated activities to get engaged, learn, and find enjoyment. In the process, the positive attitudes created among people fueled further use of lean methods. A virtuous cycle sustained and diffused lean efforts through and across these organizations. The success that followed was attributed to lean methods and positive personal outcomes. Leaders expanded their strategic orientation and were involved in maintaining positive personal and interpersonal outcomes. Business growth became part of the organizational-level virtuous cycle in which successes influenced the organizational context that, in turn, motivated further lean efforts and achieved greater organizational successes.

Limitations and Directions for Further Research

The propositions developed in this article were based on a small and selectively chosen sample that requires further testing. Two forms of follow-on research would be beneficial. First, a broader survey of lean change initiatives could test claims that positive organizational change provides a mechanism for enhanced performance and sustained improvement. This survey should go beyond successful change cases and include situations where expected results were not achieved. Second, managers promoting lean methods could use the concept of seeking growth opportunities in their strategic orientation to improvement efforts. Explicit attention to positive organizational change is expected to sustain lean activities and organizational performance.

The understanding of positive organizational change would benefit from the use of methods associated with lean, which make work processes visible to larger groups. Positive organizational change efforts should be examined in terms of the role of business growth orientation. On the basis of lean case data, growth is proposed as necessary to sustaining positive organizational change. This proposition would benefit from further examination and testing in positive change efforts in lean and continuous improvement as well as other settings.
Neither the case studies analyzed nor the lean literature reviewed had made an explicit connection among lean methods, lean changes, growth opportunities, and positive organizational change. These two literatures—lean (and other continuous improvement initiatives) and positive organizational change—could be more closely connected not only in practice but also in studies that develop and test change theories. Not only could lean methods be more effective if built upon positive organizational change principles, but positive organizational change practices would be strengthened by seeking growth opportunities and incorporating elements found in successful lean change cases.

REFERENCES


