



Applying Lean Six Sigma Principles in Retail Stores

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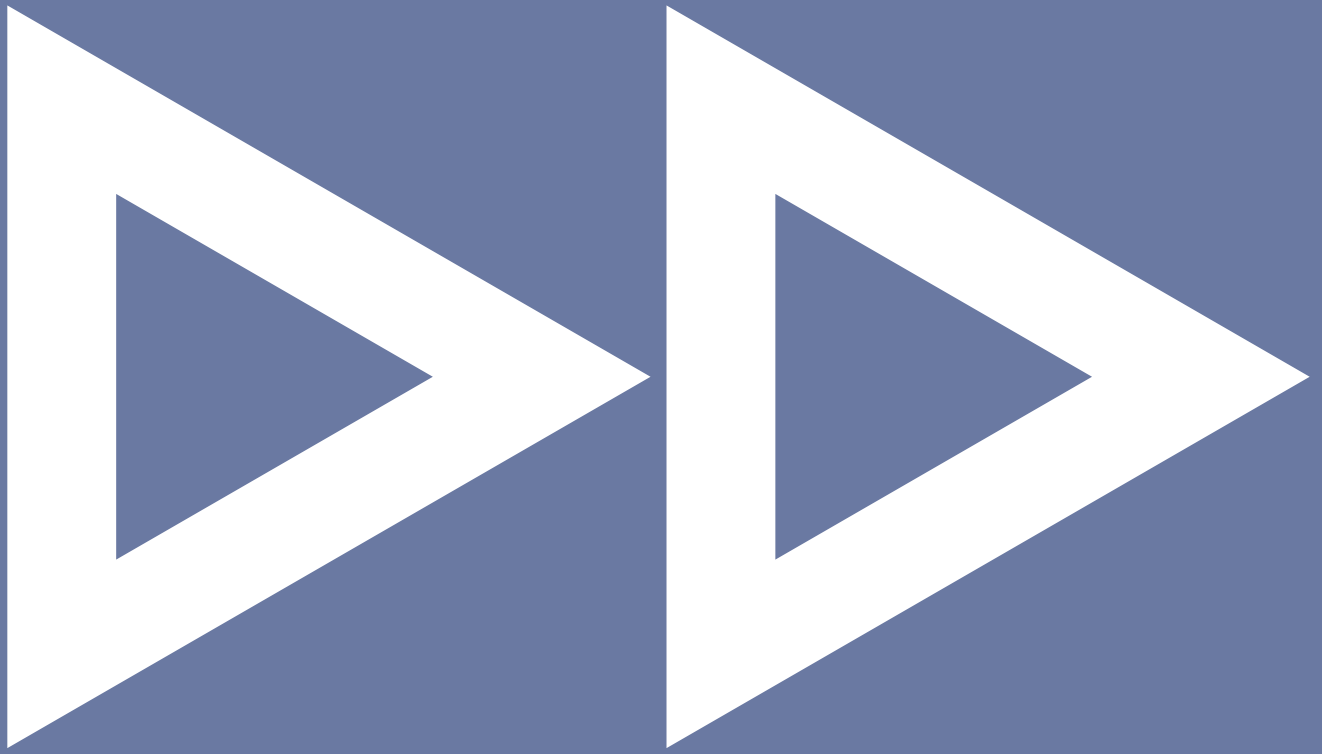
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specifically for the retail industry hold
the potential to drive high performance
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Lean Six Sigma (LSS) has been, in many ways, a part of the business world for decades. The LSS revolution began in earnest in post-World War II Japanese manufacturing companies, creating a quality-focused culture at a level unseen before. Later, LSS came to the forefront of American companies after adoption by General Electric (GE) and others.

Over time, the concepts have moved from shop floors into back offices within manufacturing sites, and eventually to pure transactional and service environments. Today, LSS has become common in financial services, insurance, health care and many other industries, even spreading into government and the US military. In recent years, another major industry has begun to join the LSS movement: retail.

Lean Six Sigma is a continuous improvement methodology that combines two of the most powerful improvement engines

available to business today. Lean provides mechanisms for quickly and dramatically slashing cycle time and waste in any process, anywhere in an organization. Six Sigma presents the tools and organizational guidelines that establish a foundation for sustained, data-based improvements in strategically important, customer-critical targets. Today, LSS has grown beyond these problem-solving roots and now encompasses high-level analytical tools and deployment guidelines that give companies the means to establish and maintain strategy-to-execution links.

Over a series of articles, we explore how LSS deployments designed specifically for retail can drive operational excellence throughout a company, from corporate offices to individual stores, and help retailers drive to high performance. This series provides retail-specific insights gained in working with pioneering retailers deploying LSS. The articles in this series cover the following topics:

"Applying Lean Six Sigma Principles in Stores": A discussion of the specific challenges retail companies face and case examples highlighting what some retailers have done to overcome these challenges in applying LSS in stores.

"Solving Retail Problems Using Lean Six Sigma": A look into solving simple to complex business problems using LSS tools and approaches.

"Lean Six Sigma Leadership in Retail": An exploration into the necessary leadership roles and discussion of leadership support in successful LSS deployments.

Only recently have retail companies begun to turn a serious eye toward applying the successful principles behind Lean Six Sigma (LSS)—for so long viewed as a part of the manufacturing world—as a way to foster a process-oriented culture within their organizations. As retailers become interested in building a continuous-improvement capability to enable competitiveness, growth and high performance, a difficult challenge has repeatedly arisen in retail LSS deployments: How do we apply LSS in the stores given the unique challenges? This article explores some answers to this question and highlights examples from pioneering retailers that have successfully deployed LSS in stores, creating significant bottom-line results.

Lean Six Sigma in stores

Anyone who has spent time in a retail corporate office or worked in a store has heard about the brilliant failures of “can’t-miss improvements” in stores. As retailers become interested in building continuous improvement capabilities, such capabilities help them become more competitive, grow, and ultimately, achieve high performance. The reality today is that corporate leaders are traditionally promoted from store management, where those who effectively react to crises are often more recognized than those who successfully plan and prevent problems. Moreover, while many improvement projects that impact stores are driven from the corporate office, the changes rarely include input from frontline, customer-facing associates. While these cultural behaviors are common, they often lead to ineffectual decisions.

Some leading retailers, however, are discovering the value of implementing LSS to provide a disciplined, proven

methodology to solve problems, execute planned, methodical changes and make process-change decisions. Yet in general, retail LSS deployments have been more difficult to embed culturally than other industries because the deployment process and methodology have not been adjusted and fully developed consistently to store environments and needs. LSS deployments in retail have been difficult to deploy with meaningful success because approaches and principles used are based on those from manufacturing businesses.

Only by addressing the unique challenges of the retail industry as well as of store environments will LSS drive high performance in retail as it has in other industries. Those retailers that have taken into account the industry’s and their company’s uniqueness have been successful in deploying LSS and in fostering a continuous improvement culture. These early leaders in LSS,

such as Best Buy, Staples and Tesco, have greatly improved their operational capabilities and not only driven financial results, but also improved their ability to grow in the increasing competitive retail industry.

LSS is a comprehensive methodology that provides a structured way for retailers to transform their organizations to build competitive advantage, customer satisfaction and shareholder return, as well as to achieve high performance.

Recognizing the industry’s unique characteristics

Although retailers are similar to many other for-profit companies in one aspect: growth and profitability are the key metrics, the retail industry has many characteristics and attributes that are unique among industries. This distinctiveness is especially evident when compared to the traditional manufacturing industry,

where LSS originated. For retailers to successfully deploy LSS programs beyond the corporate office and into stores, companies need to first recognize and address the industry's specific characteristics:

Direct relationship with ultimate end-user customer.

Many manufacturers may produce units to order, but never see the end customer. Some try to simulate the interaction by posting a photograph of the buyer with the product while other industries collect demographic data to predict customer behavior. Most industries, however, are not as directly impacted by the distinctive, constantly changing and inconsistent behavior of actual customers. This intense customer interaction is particular to retailers, and demands rapid responses to meet ever-changing customer needs.

Large number of independently operated stores. In manufacturing environments, companies typically have from a few to a couple dozen sites. Conversely, retailers can have hundreds or thousands of stores. For example, Best Buy has more than 1,100 stores, while Kroger has some 2,400 and Wal-Mart/Sam's Club around 3,900. To complicate matters further, individual stores either operate as nearly independent entities or are actually privately owned as typical in the hospitality subset of retail. Each of these customer-facing outlets has at least some level of autonomy, making corporate-wide changes extremely complex and difficult to execute. Typically, decisions made at corporate are disseminated throughout the organization as one would expect, but the challenge lies in the consistent execution of a large number of changes required at each store.

Tight margin pressures. While margin is a common and important measure in most for-profit companies, it is a critical measure for retail companies in order to remain competitive.

In the current era of margin degradation, retailers have turned to a common practice of reorganizing the corporate office regularly to manage and reduce selling, general and administrative (SG&A) costs (the primary focus in most retail LSS deployments). In addition, store costs, particularly labor hours, are constantly being reviewed and adjusted. But these corporate-driven activities usually fail to adequately instill sustainable improvement efforts. Although labor-hour allocation, simplistically, is a balance between profitability and customer experience, neither tightening SG&A nor readjusting labor allocation establishes the framework to build real, long-term positive impact to the industry's three critical players: customers, employees and shareholders.

Addressing retail store-specific challenges

The concept of deploying LSS for retailers is understandably daunting because of not only the difficulty in addressing the unique challenges in stores, but also the limited success in consistently executing and sustaining changes in stores. However, by understanding these challenges, specific approaches can be developed that address these issues and increase the probability of success. Some of the store challenges of particular difficulty include change inputs, labor hours, customer experience, turnover, consumer and employee demographics, and store autonomy:

Change inputs from multiple functions. Stores are inundated with changes and improvements from multiple departments simultaneously, forcing store management to determine which solutions to adopt and which to ignore or postpone. In addition, because corporate departments are often working in silos, the changes stores are asked to implement frequently conflict, requiring store

managers to make choices between options. Because of this local and necessary decision making, corporate initiatives that are designed to create better conformity among the stores actually create more variation. Furthermore, implementation of relatively simple changes becomes more complex than expected because of different footprints, models, and sizes, and created solutions are rarely one size fits all.

Tightly budgeted labor hours.

To maintain profitability, store labor hours are constantly being manipulated to reduce labor costs. This constant constraint does not allow associates to work on process improvements without impacting store operations. Many retailers avoid sending associates to a class to learn to be more effective or efficient when these valuable hours away replace not only functional labor hours but also customer service hours, reducing store sales dollars. Moreover, because resources are limited, stores have little bandwidth to implement additional local improvements that would serve as differentiators from competitors. The sheer number of daily or weekly processes in stores can be staggering. For instance, one store manager with a large global retailer explained that he has to manage 40 processes (e.g., covering payroll, loss prevention, regular reporting, hiring, etc.) each week by himself before consideration can even be given to process improvements.

Minimized impact to customers.

The impact on customer service within the stores because of expected process changes cannot be overlooked. In many cases, the negative impact of making store adjustments on the customer experience is minimized by executing physical changes after hours or when blocked from customer view. However, this approach potentially delays and/or limits what stores can implement quickly.

Retail Challenges in Deploying Lean Six Sigma

Retail Challenges

- Direct relationship with ultimate end-user customer
- Large number of independently operated stores
- Tight margin pressures
- Change inputs from multiple functions
- Tightly budgeted labor hours
- High turnover rate over 35%, some stores near 100% per year
- Inexperienced associates – 50% between 16-19 years old
- Constantly changing consumer demographics
- Significant store autonomy



Cultural Change

- Targeted projects and resources aligned to strategic goals
- End-to-end process views with focus on prime value chains
- Accountability for sustainability of improvements and benefits – measurement of impact & metrics
- Engaged leaders and team members throughout the entire organization to continuously drive improvement efforts
- Culture of attacking waste and solving problems using disciplined methodologies
- Focus of best, high-potential people on the highest priorities
- Data-driven, fact-based decision making



High turnover. The turnover rate in retail is more than 35 percent as an industry compared to 26 percent in other industries.* Some retailers experience turnover in stores approaching 100 percent per year, which has profound impact on the sustainability of improvements. As such, continual basic training consumes most of the allotted education labor hours given to stores, and store management is reluctant to invest in additional training when the time required for a positive return on investment (ROI) exceeds the expected tenure of most store associates.

Inexperienced employee demographics. A contributing factor to turnover is the employee demographic in retail (more than 50 percent of all employees are between 16 to 19 years old), which impacts the educational and business acumen level of frontline associates. Retailers are naturally reluctant to provide much decision freedom to associates because of their limited business experience. Furthermore, the limited ability of inexperienced, part-time associates to learn and apply statistical tools makes long-term, impactful change in the stores more difficult to accomplish.

Constantly evolving consumer demographics. Evolving consumer demographics drive the need to alter stores to meet specific local requirements. The recent trend to design stores based on customer segmentation is an example of applying demographics specifically to local customer demands. However, the design of more neighborhood-focused stores creates a number of internal problems. For example, simple planogram changes require hundreds of versions to satisfy each store's individual needs, delaying the speed at which changes can be implemented. In addition, this type of demographic identification and planning creates different experiences for customers who visit multiple stores, causing confusion with different footprints, design and assortment.

Significant store autonomy. To exacerbate current challenges, individual store managers typically have autonomy within each store that creates replication complexities. There is usually no reward or benefit to sharing information among stores whose managers are in competition with their peers and whose leadership traditionally has had a strong "not-invented-here" mentality toward mandated changes.

To successfully apply LSS in the stores as well as to sustain improvement changes, the industry and store-specific challenges must be addressed and managed in the deployment design and planning of an LSS program. Another critical requirement to establish a successful LSS program is to include the active participation of frontline associates. They interact with customers daily, observe customer reactions and understand today's customers better than anyone else. This unique customer insight, along with a tailored LSS approach in stores, is critical in deploying LSS successfully in retail.

Key LSS deployment components

A single, standard approach will not address the numerous yet unique challenges retail companies face. The possible approaches are complex and varied, and must be designed specifically for each particular organization. Those companies that effectively tackle these components pave the way for the successful deployment of LSS and reap the benefits of efficiency, cost savings, and ultimately, achieve high performance.

- Leadership exposure to and awareness of LSS to understand and support store activities.
- Real-time, district-level (six to 12 stores) problem solving that includes just-in-time instruction, immediate application of tools, and short implementation window by the team.

- Selection of high-potential associates to reduce the risk of turnover of the best associates.
- Creation and implementation of a process for replication of findings to other stores to maximize ROI.
- Sustainability of the LSS program by:
 - Communication at all levels.
 - Replication methodologies across districts first, then regions.
 - Accountability for immediate and sustained success at multiple levels of management.
 - Celebration and sharing of success.
 - Growth of a consistent program across all regions of the organization.
 - Institutionalization of a certification program.
- Setting the goal of enterprise-wide cultural change.

Retailers that have had the greatest success in the initial and sustained deployments have recognized the need to consider these key components before launching their initiatives. Other considerations must also be evaluated to help drive understanding of the strategic outcomes of any LSS deployment prior to program launch. Categorized at a high level, these include financial and budget components, human resources considerations, and integration to the existing culture and growth strategy. By carefully evaluating and executing these considerations, organizations can successfully deploy LSS and achieve significant results.

** Note: The retail data includes corporate while the highest level of turnover in retail is frontline, customer-facing associates.*

Achieving LSS process improvements in store operations

Despite the inherent challenges in retail, retailers have nevertheless quite successfully deployed LSS initiatives in stores. They have done so by following LSS deployment fundamentals of leadership support, in-store participation, use of high-potential associates, frequent communication, and emphasis on sustainability and replication. The following examples demonstrate ways in which retailers have overcome the difficulties of store application of LSS and successfully achieved and sustained process improvements in store operations.

Large global retailer: Store chair display holes

A North American region for a large global retailer was experiencing flat sales in its office chair category compared to growing sales in other regions. The current chair assembly and display-replacement process was resulting in the failure of 75 percent of the 40 stores to replace chairs upon sale of a chair from a display. As a result, customers were unable to see assembled chairs on display, which impacted their buying decisions, and ultimately sales.

An LSS project enlisting the expertise of a cross-functional team including essential store associates was organized to address this problem. Using the LSS Define, Measure, Analyze, Improve and Control (DMAIC) methodology, the project team discovered that 15 percent of chair displays were missing on a daily basis (on average more than five chairs per store per day). In addition, the difficult assembly process required more than 45 steps to assemble a single chair.

To solve these process issues, the team uncovered a number of root causes including: 1) gaps in current inventory management; 2) complexity of store formats and planograms as well as lack of posted pictograms; 3) lack of signage that impacted recovery and

inventory management processes; and 4) lack of consistent assembly process (tools, training and work space). After brainstorming possible solutions to improve this process, the team selected and piloted the optimal solutions in the stores that included basic training for assembly, standardized assembly tools, changes to the inventory management processes, signage changes and simplification of planograms.

The pilot reduced average missing displays (to less than 1.5 chairs per store per day) and improved recovery standards, integrity of chair planograms, and impact of aged inventory without impact on store associates labor time. Also, the process improvements generated more than \$3 million in increased sales of chairs for this single region, with estimated benefits at \$14 million upon replication to other regions in the chain.

Large retailer: Excessive inventory in urban stores

The amount of product inventory distributed to stores is typically driven by sales and planned promotions and advertising. A large retailer, however, operated a group of stores in urban areas with high sales volume per square foot but little backroom space to hold inventory. The excess inventory squeezed into these space-constrained stores led to multiple handling of product, difficult inventory management, inefficient use of labor, frustrated associates and managers as well as negative impact on the customer experience.

To improve the flow of inventory to these space-constrained stores, an LSS project was initiated with a focus on 45 stores with the smallest selling-floor space and shelf-holding capacity. The team determined the stores held an average of 10.7 weeks of inventory supply, while still receiving shipments five days per week. Incorporating cross-functional expertise, the retailer's project team

discovered eight critical inputs that affect weeks of inventory supply: 1) item order cycle and flow lead time increasing order up to level; 2) flow SKUs issues, or stores without maximum inventory; 3) large promo assortment; 4) promo plans and display quantity for bulk categories; 5) ad SKU receipts of bulk items; 6) inactive ad SKUs; 7) forward buys; and 8) large store assortment.

Understanding the inputs that could affect excessive inventory, the team addressed seven of the eight critical inputs except for store assortment, which was determined to be a separate project because of the complexity. In one unique solution experiment, the team identified three combinations of system changes to item order cycle and lead time. Each scenario was piloted in a group of six stores, and all three scenarios proved effective in driving down inventory. Some of the other implemented solutions included: 1) reduced item order cycle to one on all SKUs; 2) created constrained-store promo assortment; 3) developed replenishment process to land bulk promo and ad items closer to sales; and 4) established standard process for sending inactive product to space-constrained stores.

Without negatively impacting in-stock products or sales, the implemented solutions reduced inventory by 8,800 units per store and weeks of inventory supply from 10.7 to 7.8—a \$3.3 million reduction in inventory.

Office supply retailer: Empty ink and toner cartridges

A large office supply retailer was not taking full advantage of vendor ink and toner cartridge recycling coupon redemption programs. When customers returned cartridges for recycling, the stores were not returning 33 percent of these cartridges to vendors for coupon redemption. This poor return rate directly reduced the retailer's margin on these products—by nearly \$20 million annually.

LSS DMAIC Methodology

DMAIC (pronounced d-may-ick) is the incremental process improvement methodology of Lean Six Sigma. It is an acronym that stands for five interconnected phases: Define, Measure, Analyze, Improve and Control. Practitioners who use LSS follow the DMAIC process strictly to ensure the improvements are data driven instead of led by conventional wisdom. The five phases of the methodology are:

Define—What exactly is the problem? Identify and/or validate the improvement opportunity.

Measure—What data do we have? Identify and collect critical metrics/data to understand the problem and establish baseline process capability.

Analyze—What does the data tell us about how good (or bad) we and the primary drivers of the process are? Identify and validate that the true "root causes" are being addressed.

Improve—What does the data tell us are the best possible solutions both from an impact standpoint as well as cost/benefit? Identify, evaluate and select the right improvement solutions, and then pilot solutions before full implementation.

Control—What do we put in place to ensure the problem stays fixed? Establish process controls and metrics so we don't have to solve the problem again next year.





In the execution of a quick LSS improvement project, the team determined that nearly 6 percent of the stores redeemed 0 percent of the coupons during an entire fiscal quarter. In attempting to identify the potential causes of this problem, the team learned the critical reason was the lack of awareness by store associates of the ink/toner redemption financial impact to the retailer. The team identified several quick, simple awareness and metrics-reporting solutions to the stores. By providing visibility to the financial and program metrics to the stores, the stores achieved 100 percent coupon redemption, resulting in an annual financial benefit of \$12.7 million.

Making the transition

Although Lean Six Sigma in retail may be in its infancy compared to manufacturing industries, some early adopters have demonstrated successful applications of LSS in both the corporate office, but more

critically, in stores. LSS is growing in popularity and success, and clearly, a transformation in retail is happening. The company that drives to high performance will be the one that transitions to a data-driven, process-oriented culture and resolves the age-old problems of in-store executions. The traditional manufacturing and transactional LSS deployments, however, are not effective or even possible in retail. By designing an LSS program with an understanding of the unique factors in retail—of each company and in the store environment—LSS can drive consistent, high-quality and sustainable improvements delivering similar benefits to retailers as they strive for the high performance realized by companies in traditional manufacturing and transactional industries.

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