

General Information

What is Lean?

Lean is a process designed to bring about rapid, dramatic improvements to the performance of an organization through an overhaul of the value stream. It consists of a comprehensive set of elements, rules and tools that focus on value, the elimination of waste (any activity that consumes resources but creates no value for the customer) and continuous incremental improvement. As market forces dictate pricing and create pressure for lead-time reductions, organizations need to focus on streamlining processes in order to grow margins and remain competitive.

Lean primarily focuses on the relentless elimination of waste from all business activities. This is achieved through the use of specific concepts that are intended to provide excellent quality products or services, delivered on time, at the lowest total cost, and only on the specific demand of the customer. Organizations that have transitioned to a Lean culture have seen a radical improvement in profitability, service levels, productivity, asset utilization, cash flow, inventory levels, changeover times, product designs, quality, cycle times and product costs.

As a manufacturing philosophy, Lean reduces the time occurring between order placement and shipment. Applied to business processes or service environments, Lean thinking reduces cycle times and streamlines processes by removing non-value-added steps.

What is Six Sigma?

Six Sigma is a business-driven, multi-faceted approach to process improvement, reduced costs, and increased profits. With a fundamental principle to improve customer satisfaction by reducing defects, its ultimate performance target is virtually defect-free processes and products (3.4 or fewer defects per million opportunities (DPMO)). The Six Sigma methodology, consisting of the steps "Define - Measure - Analyze - Improve - Control," (DMAIC) is the roadmap to achieving this goal. Within this improvement framework, it is the responsibility of the improvement team to identify the process, the definition of defect, and the corresponding measurements. This degree of flexibility enables the Six Sigma methodology, along with its toolkit, to easily integrate with existing models of process implementation.

Six Sigma originated at Motorola in the early 1980s in response to a CEO-driven challenge to achieve tenfold reduction in product-failure levels in five years. Meeting this challenge required swift and accurate root-cause analysis and correction. In the mid-1990s, Motorola divulged the details of their quality improvement framework, which has since been adopted by several large manufacturing companies and service organizations.

Six Sigma is essentially a comprehensive yet flexible system for achieving, supporting, and maximizing organizational profits. It is a methodology driven by understanding customer needs, and the disciplined use of data, facts, and statistical analysis to improve and reinvent organizational processes.

Why Lean Six Sigma?

Customers are becoming increasingly demanding. As a result, companies must consistently deliver products and services that are of greater value. Many companies pursue either Lean or Six Sigma as means to meet these challenges. Individually, Lean and Six Sigma fill important needs. Both are based on improvement. However, using one or the other alone has limitations. Six Sigma reduces scrap rates and quality defects by focusing on measurement systems as well as capability or process quality variation; however, it doesn't optimize process flow. Lean doesn't dramatically improve process capabilities but it does target cycle times, wastes and other process costs. However, used together, these methods complement and reinforce each other.

If your company or organization has excess inventory, lack of space or lead time issues, Lean tools are applied to attack these problems. If your company or organization has reject, scrap, overall yield issues or service errors, Six Sigma tools are used to define, measure, analyze, improve and control (DMAIC) these issues. Then both methodologies, Lean and Six Sigma, are continually applied in tandem to sustain the realized improvements and allow for a continuous improvement program to take hold within your enterprise. Companies can expect to see greater speed, less process variation, and more bottom line impact by focusing the use of statistical tools and establishing baseline performance levels.

Our approach combines the speed and power of both Lean and Six Sigma to achieve process optimization. Speed, quality and cost are the components that drive the success of any organization. Lean Six Sigma works on all three simultaneously because it blends Lean, with its primary focus on process speed, and Six Sigma, with its primary focus on process quality, within a proven organizational framework for superior execution. Participants will learn how Lean and Six Sigma tools complement each other. Both are necessary pillars of any continuous improvement process and this program specifically addresses how integrating Lean (making work faster) and Six Sigma (making work better) helps an organization move quickly with higher quality and lower cost. Tools applicable to each approach and their respective uses will be demonstrated. Organizations, and the managers who lead them through Lean Six Sigma will be more successful than their competitors.

Certification Options

White Belt Certification

Description

Our lean White Belt certification is a 20-hour introductory course that covers the basics of Lean and Six Sigma philosophies and concepts. Participants will learn fundamental tools that makes it easy for people to question how things get done within the "line-of-sight." Participants will be introduced to the DMAIC methodology. Define, Measure, Analyze, Improve and Control-as well as receive training in methods and tools used.

Green Belt Certification

Description

Lean Six Sigma Green Belt candidates are selected because of their process knowledge and experience. After training, they will typically spend about 15% - 25% of their time on Lean Six Sigma projects. Their main responsibility when functioning as a Green Belt is to support Black Belts on their projects by collecting and conducting simple data analyses, and in the preparation of reports. Some more experienced Green Belts may also lead small, focused projects within their departments. With our program, "Lean Six Sigma" refers to a methodology utilized to drive out waste and improve the quality, cost and time performance of any process.

Black Belt Certification

Description

Lean Six Sigma Black Belt candidates are change agents and leaders who have developed a high proficiency in Lean and Six Sigma philosophies, concepts and tools, and understand how these two powerful methodologies augment each other. They are the "doers" in implementing Lean Six Sigma strategies who lead and manage all aspects of the improvement projects. Lean Six Sigma refers to a methodology utilized to drive out waste and improve the quality, cost and time performance of any process. Becoming a Lean Six Sigma Black Belt is an outstanding investment in your personal and professional development.

- Historical Perspective
- Integration of Six Sigma and Lean
- Project chartering and management
- Team facilitation and management
- Understanding Voice of the Customer
- Benchmarking
- Quality Function Deployment (QFD)
- Cost of Poor Quality (COPQ)
- GEMBA
- Value stream mapping/process mapping
- Kaizen Techniques
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- Theory of Constraints (TOC)
- Introduction to statistics
- DMAIC process
- Cause and effect diagram
- Measurement Systems Analysis (MSA)
- ANOVA
- Process capability studies
- Lean and Six Sigma metrics
- Design and Process FMEA
- Design and Analysis of Experiments (DOE)
- Randomized blocks
- Full factorial designs
- Fractional factorial designs
- Response Surface Methods (RSM)
- Taguchi methods and robust design
- Reliability engineering
- Regression analysis
- Statistical Process Control (SPC)
- Mistake Proof / Fail Safe



The Project

Lean Six Sigma success is achieved through process improvement projects that yield higher quality, efficiency and customer satisfaction. For this reason, ECC has chosen a project-based approach to delivering and reinforcing Lean Six Sigma Black Belt skills. Rather than try to immerse candidates in four or five days of intense statistical training, our program requires candidates to work through a real improvement project while training and coaching are provided over a specific time. This results in a deeper level of learning and immediate payback for the organization. Personal review and coaching on your individual Lean Six Sigma project will be arranged during the course. In addition, the project incorporates hands-on experience with MINITAB® to support statistical calculations and analysis.

A Black Belt Lean Six Sigma project should:

- Provide a significant, measurable return to the organization
- Be completed within the time frame of the program
- Be within the candidate's authority to conduct
- Have one or more of these objectives:
 - 4 Improve customer satisfaction
 - 4 Optimize the supply chain
 - 4 Reduce defects
 - 4 Reduce cycle time
 - 4 Improve first-pass yield
 - 4 Shorten lead time
 - 4 Reduce variability
 - 4 Optimize product performance
 - 4 Optimize process performance
 - 4 Cut costs
 - 4 Reduce the cost of quality
 - 4 Improve delivery performance

It is expected that the candidate will come to the program with a project in mind. Projects will be noticeably larger in scope than Green Belt requirements. The participant will work with the program instructors to formalize the content and the anticipated deliverables. This will be done early on in the classroom environment. If a candidate is not employed and meets the program admission standards then ECC will work the prospective participant to place him/her in a project. Because of the complexity and importance of these projects, ECC cannot guarantee this placement.



Our Partnership

Erie Community College in collaboration with its partners have created this program to provide Lean Six Sigma training to area businesses and individuals. Several different professional associations and organizations have agreed to assist us with program development and delivery.

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