

“LEAN IN” TO CONTINUOUS IMPROVEMENT



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THE JOURNEY

Decision-making can quickly be derailed when it lacks vision. The most overlooked questions when starting a project are “Why?” and “How?”

A philosophy and culture of continuous improvement embeds these questions into daily thinking and decision-making by asking:

- ▲ Why are we embarking on this?
- ▲ How does this build the business, serve the customer and/or develop people?

By asking these relevant questions, Lean methodology aims to deliver maximum value while minimizing waste. Once answered, visionary companies carefully select the most effective tool(s) to drive improvements in process and systems that increase productivity, sales and market share.

This paper explores:

- ▲ The value of Lean professionally and personally for individuals and their companies.
- ▲ The role Lean Certification plays in pursuing a culture of continuous learning and improvement.
- ▲ The ways Lean and Six Sigma (6σ) work together.

It draws on the collective experience of the Lean Certification Alliance, which is composed of the Association for Manufacturing Excellence (AME), the Shingo Institute, and SME.

WHY DOES LEAN MATTER?

For decades, many companies and individuals have understood that Lean matters. Yet it has taken years for many to realize the greatest value of Lean is the integration and understanding of how Principles, Systems and Tools promote specific behaviors to create and drive sustainable culture change (see page 3).

Too often, businesses rely on tools alone without understanding the principles behind them. When Principles, Systems and Tools are aligned, ideal behaviors follow, resulting in operational excellence.

When implemented as an overarching business philosophy, Lean drives sustainable improvements and results within an organization, offering immense value for both businesses and individuals.

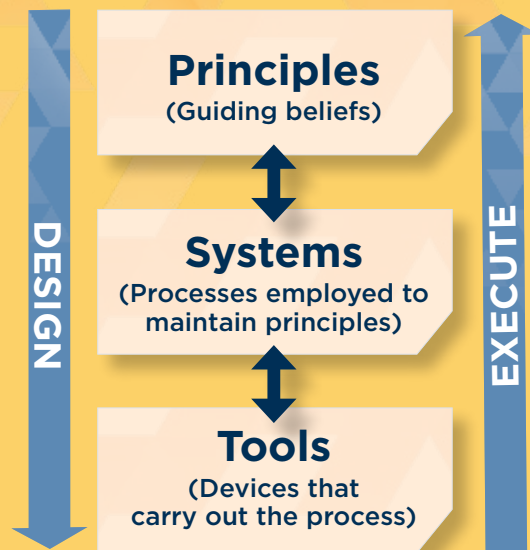


LEAN PRINCIPLES, SYSTEMS AND TOOLS

The foundation of personal development and professional growth begins with understanding three Lean concepts:

- ▲ **Principles:** In basic terms, a principle is “a fundamental truth or proposition that serves as the foundation for a system of belief or behavior or for a chain of reasoning.”¹ Stephen R. Covey defined a principle as a natural law that is universally understood, timeless in its meaning and self-evident. He taught that values govern our actions but principles govern the consequences of our actions.²
- ▲ **Systems:** According to the imminent scholar and management expert, W. Edward Deming, a system is a network of interdependent components that work together to try to accomplish the aim of the system.³ In the case of Lean, the goal or aim is to drive continuous improvement. It is a structured, repeatable “network” of processes and/or components (e.g., production plan, onboarding new employees, customer support system).
- ▲ **Tools:** This is defined as a single device or item that accomplishes a specific task (e.g., value stream map, Kaizen, 5S, etc.).⁴

It is important to remember that “a tool is nothing more than a point solution or a specific means to a specific end,” according to Dr. Shigeo Shingo. He referred to tools as techniques for problem solving, necessary but not sufficient. He taught that tools should be selected to enable a system to perform its intended purpose.⁵



¹ English Oxford Living Dictionaries (<https://en.oxforddictionaries.com/definition/principle>)

² “Shingo Model Basics,” Shingo Institute, Utah State University, 2016, p. 10

³ “Appreciation for a System,” The W. Edwards Deming Institute (<https://deming.org/management-system/sopk/appreciation-for-a-system>)

⁴ “Shingo Model Basics,” Shingo Institute, Utah State University, 2016, p. 6

⁵ Ibid, p. 16

THE LEAN ENTERPRISE

A Lean Enterprise is made up of fully integrated, self-evolving systems that reinforce ideal behaviors consistent with the principles of a Lean Culture, thereby, over time, creating a Lean Culture.

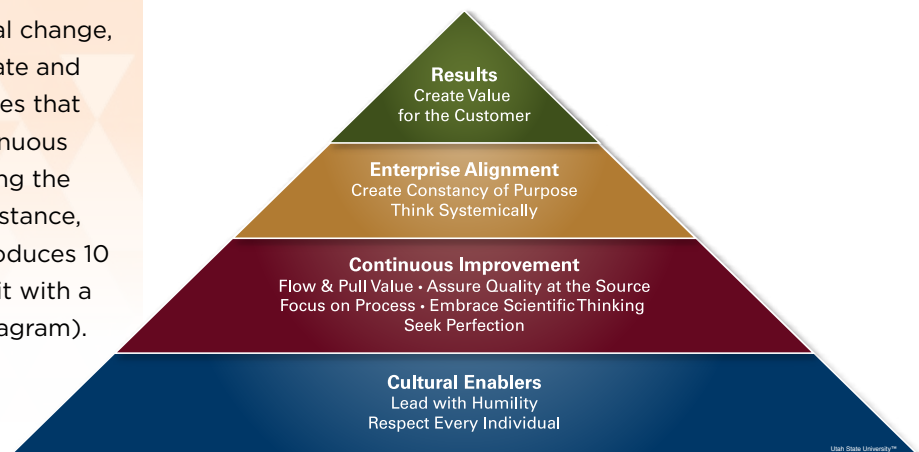
This journey starts with the adoption of a Lean mindset. Lean thinking embeds essential questions in each employee's mind - no matter the level.

As mentioned earlier, knowing the why and the how will drive excellence - and excellence will drive the achievement of a competitive advantage.

Asking these questions up front will help create alignment and understanding and enable the organization to define a clear purpose such as reducing lead time; improving quality; delivering products or services to a customer more quickly; or increasing employee involvement. Focusing in this manner has proven to have significant positive impact on business results, customer relations, and employee engagement.

THE GUIDING PRINCIPLES

For true transformational change, a company must articulate and support guiding principles that create a culture of continuous improvement by changing the way people think. For instance, the Shingo Model™, introduces 10 guiding principles that fit with a Lean philosophy (see diagram).



The Ten Guiding Principles of *The Shingo Model*™ from the Shingo Institute and Utah State University • www.shingo.org

LEAN THINKING

This overall Lean thinking is the essence of a transformative process and is much more important than just using “tools,” which on their own deliver modest improvements. Lean thinking must become ingrained in the culture for any substantial success in transforming a company into a lean organization focused on continuous improvement.

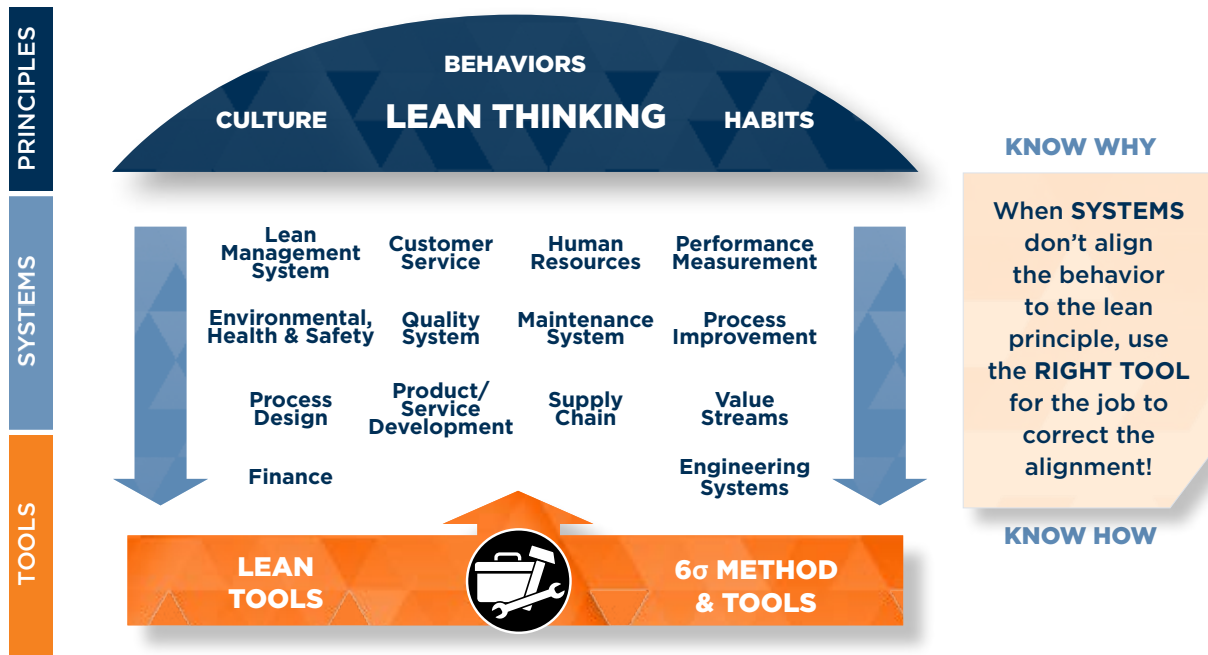
Lean is not industry specific as waste and inefficiency can be present in any process: service, transactional or production. Lean can be implemented at companies of any size, for any service or product in

industries as diverse as healthcare, financial services, manufacturing, aerospace, oil and gas, and more.

Because Lean is applicable to all functional areas, it is extremely powerful for building a stronger, more competitive organization.

Additionally, Lean benefits individuals throughout an organization by enabling them to develop, build, and shape a culture of learning and continuous improvement. This experience and change in thinking shapes an individual's personal growth, making them more professionally competitive.

THE LEAN UMBRELLA



Lean is overarching like an umbrella. It is through Lean thinking (principles), that one decides which system to use and which tool (or tools) is appropriate for a specific challenge.

You will notice this diagram includes Six Sigma tools as part of the tool box. There is a reason for this. Lean and Six Sigma methodologies can be excellent partners.

As discussed earlier, Lean focuses on culture as well as the identification and elimination of waste in and at all levels of a company, its processes and systems. Lean talks about three different types of waste: Muda, Muri and Mura (often called the 3Ms of Lean management). Alternatively, Six Sigma focuses on variation reduction. As variation is a form of waste, it will be identified while applying Lean.

Organizations that are committed to setting a standard for operational excellence and driving a capable, empowered, and engaged workforce

DEFINITIONS⁷

- Muda:** non-value adding; waste
- Muri:** overburden; unreasonableness
- Mura:** unevenness; irregularity

often use tools from Lean and Six Sigma. In fact, they share some common tools.

For instance, consider PDCA and DMAIC which are both strategies for achieving optimal outcomes:

- ▲ **PDCA** is Lean terminology; an acronym for a Lean improvement methodology: Plan, Do, Check, Act.
- ▲ **DMAIC** is Six Sigma terminology; an acronym for the Six Sigma improvement cycle: Define, Measure, Analyze, Improve, and Control.

⁷ "Muda, Mura, Muri," Lean Enterprise Institute (www.lean.org/lexicon/muda-mura-muri)

WHAT IS LEAN?

Regardless of the industry, business competitiveness is fundamental. Lean delivers value to customers by engaging everyone in the organization in the journey of continuous improvement by the relentless pursuit of eliminating waste, overburden, and unevenness or irregularities.

According to the classic, nationally bestselling book from 1990, *The Machine that Changed the World*⁸, “Lean production...is ‘lean’ because it uses less of everything compared with mass production - half the human effort in the factory, half the manufacturing space, half the investment in tools, half the engineering hours to develop a new product in half the time. Also, it requires keeping far less than half the inventory on site, results in many fewer defects, and produces a greater and ever growing variety of products.”

Today, in order to be successful, all areas of a company - beyond production - need Lean thinking.

Due to dynamic environments — new facility opening, employees hired, products or services introduced, changing technology - Lean is a never-ending commitment to continuous improvement. By eliminating inefficiencies, it creates new opportunities.

REDEFINING LEAN:

According to the Lean Certification Alliance, Lean is a learned way of thinking involving everyone, everywhere, everyday that leads to success — a philosophy referred to as **E³**.



⁸ James P. Womack, Daniel T. Jones, and Daniel Rose, *The Machine That Changed The World: The Story of Lean Production - Toyota's Secret Weapon in the Global Car Wars That is Now Revolutionizing World Industry* (New York: Free Press, 1990), 11.

IMPACT ON BUSINESS

For maximum success, Lean should be used as intended, as a business philosophy that is understood and executed from the corner office to the shop floor. That means it is important to invest in employees so that they have the right knowledge and skills to ensure a company is operating at its most competitive, all the time.

When employees are trained to “think Lean,” they ask important questions: “Why?” (why do it?), “What?” (what do we need?) and “How?” (how does it connect to other processes and how will we accomplish this?). When anchored on Lean principles, the answers will drive a competitive advantage.

This Lean thinking becomes the foundation of every employee’s mindset to help the company be better, quicker, and stronger. As it becomes ingrained into the culture, it drives the behaviors of employees, including new hires, to foster an environment that supports long-term competitive success.

Businesses using Lean principles see increased speed and innovation while creating more value for the customer. Examples of outcomes include:

- ▲ Increased quality through fewer defects and rework
- ▲ Increased efficiency from fewer machine/process breakdowns
- ▲ Improved customer service through increased response times
- ▲ Increased cash flow by reducing inventory
- ▲ Increased throughput due to streamlined processes
- ▲ Improved employee engagement and morale as individuals feel more empowered to share their ideas and see the personal impact they make
- ▲ Increased creativity as team adopts Lean thinking
- ▲ Increased profit

WHAT DOES LEAN MEAN TO THE BUSINESS?

Business Philosophy Benefits:

- ▲ Leadership involvement and mentoring
- ▲ People involvement and development

Creates culture of constant learning and continuous improvement, resulting in:

- ▲ Increasing agility and speed
- ▲ Achieving results
- ▲ Simplification
- ▲ Embracing change to achieve a competitive advantage
- ▲ Greater customer satisfaction



IMPACT ON INDIVIDUALS

Developing a Lean mindset — and applying its principles — can provide a direct benefit to everyone from executives to those working at the point of execution.

Competitive challenges and opportunities are always evolving. Companies value employees who are trained to identify inefficiencies and waste, driving business improvements along the way.

Individuals demonstrating Lean thinking and a commitment to continuous improvement are typically the ones driving this positive change which can lead to career advancement.

Employees also can feel more job satisfaction as they witness their ideas positively impact their organization and are recognized for their efforts.

WHAT DOES LEAN MEAN TO INDIVIDUALS?

- ▲ Applied learning
- ▲ Knowledge
- ▲ Development
- ▲ Constant discovery
- ▲ Recognition
- ▲ Achievement
- ▲ Advancement
- ▲ Personal excellence
- ▲ Personal influence
- ▲ Personal growth
- ▲ Expertise

LEAN CERTIFICATION

So how do successful companies of all sizes integrate Lean into their business? This starts with training employees to understand and use Lean principles, systems and tools.

A formal, global certification process, such as Lean Certification, can ensure excellence and consistency both company- and industry-wide.

There is a depth of expertise that comes with the training & development required to achieve levels of certification – and continuing education, training, and work experience required to maintain their credentials.

While individuals may pursue Lean certification on their own, companies often choose to certify whole groups within the company so they can drive simultaneous improvements in the business.



LEAN CERTIFICATION BENEFITS ORGANIZATIONS

Many companies turn to Lean Certification to help drive an organization's cultural transformation.

Benefits include:

- ▲ Demonstrates to customers, competitors, suppliers, staff, and investors that a company is using an industry respected best practice to optimize efficiency and provide the greatest value to its customers.
- ▲ Increases return on investment — more than 90 percent of companies that use certifications have seen a positive ROI.⁹
- ▲ Leads to overall improved performance — as the workforce's performance improves so does the organization.
- ▲ Improves safety ratings — certified employees understand the importance of safety and quality, and how to drive improvement in those areas.
- ▲ Validates Lean knowledge. It is a benchmark to support workforce development initiatives and takes the guesswork out of hiring and promotion.
- ▲ Reduces turnover — companies report as much as a 50 percent reduction in turnover from hiring certified employees.¹⁰
- ▲ Differentiates candidates beyond academic experience — demonstrates a commitment in continuous improvement.

LEAN CERTIFICATION BENEFITS INDIVIDUALS

Lean Certification also offers benefits directly to individuals. In fact, many of those going through Lean Certification programs are the ones driving productivity, quality and profitability within their organizations, which is a direct benefit to companies and the industry overall.

This is an effective standardized method for assessing employee knowledge and providing measurable results that can be tied to development plans and business objectives. This can result in promotions, raises and other benefits.

Benefits include:

- ▲ Validates individual's knowledge against industry standards and shows that skills are current.
- ▲ Shows commitment to practitioner's field and confirms they have the necessary skills to excel.
- ▲ Provides a portable, industry-recognized credential that travels with practitioner throughout their career.
- ▲ Enhances career opportunities – certification can provide a competitive advantage in the job market.
- ▲ Improves marketability by demonstrating commitment to continuous education.
- ▲ Separates individuals from their peers who lack these credentials.

⁹ "Developing Skilled Workers: A Toolkit for Manufacturers on Recruiting and Training a Quality Workforce," The Manufacturing Institute.

¹⁰ Ibid.

LEAN CERTIFICATION OFFERS CONTINUAL INNOVATION

Lean Certification also helps keep employees' knowledge current. Lean is an ongoing journey due to quickly changing environments with rapidly evolving technology and other innovations.

With Lean Certification, individuals need to document a minimum of 60 recertification credits over a three-year period from receiving last certification.

Recertification ensures that an individual's knowledge base stays up to speed with best standards.

INDUSTRY STANDARD: LEAN CERTIFICATION

The Lean Certification Alliance created the Lean Certification Program as the industry standard. The Lean Certification Alliance is a partnership among three non-profit partners – the Association for Manufacturing Excellence (AME), Shingo Institute, and SME – that collectively set the standard for operational excellence and an improved workforce.

Lean Certification provides individuals, companies, and educators with a comprehensive and effective roadmap for professional and workforce development that aligns with industry recognized standards.

It is an evolutionary journey weaving innovative ways of thinking and doing business with real-world applications and results.

Lean Certification helps individuals attain the required knowledge and skills – and validate it.



OBTAINING LEAN CERTIFICATION

Obtaining Lean Certification can be an important step in gaining a competitive advantage in the job market and is regarded by many as an excellent way to enhance one's career and demonstrate commitment to continuous learning and improvement.

There are three certifications focusing on principles, systems and tools.

- ▲ Lean Bronze: focuses on the fundamentals of Lean from a tactical perspective (tools)
- ▲ Lean Silver: integrates Lean knowledge with leadership experience (systems)
- ▲ Lean Gold: focuses on the strategic transformation of an entire enterprise (principles)

As many of those looking to invest in Lean Certification for career development have strong on-the-job experience, candidates can obtain certification at the rank that is most appropriate to their career, knowledge, and experience.

LEAN CERTIFICATION AT-A-GLANCE

- ▲ Process of individual development in the principles, systems and tools of **operational excellence**.
- ▲ Way to **validate** learning and experience
- ▲ Progressive personal **growth** and **development**
- ▲ Qualification to a **standard**
- ▲ Current and **relevant**
- ▲ **Recognized** certification internationally
- ▲ **Demonstrated** proficiency
- ▲ **Increase** potential / advantage
- ▲ **Journey** – Bronze / Silver / Gold



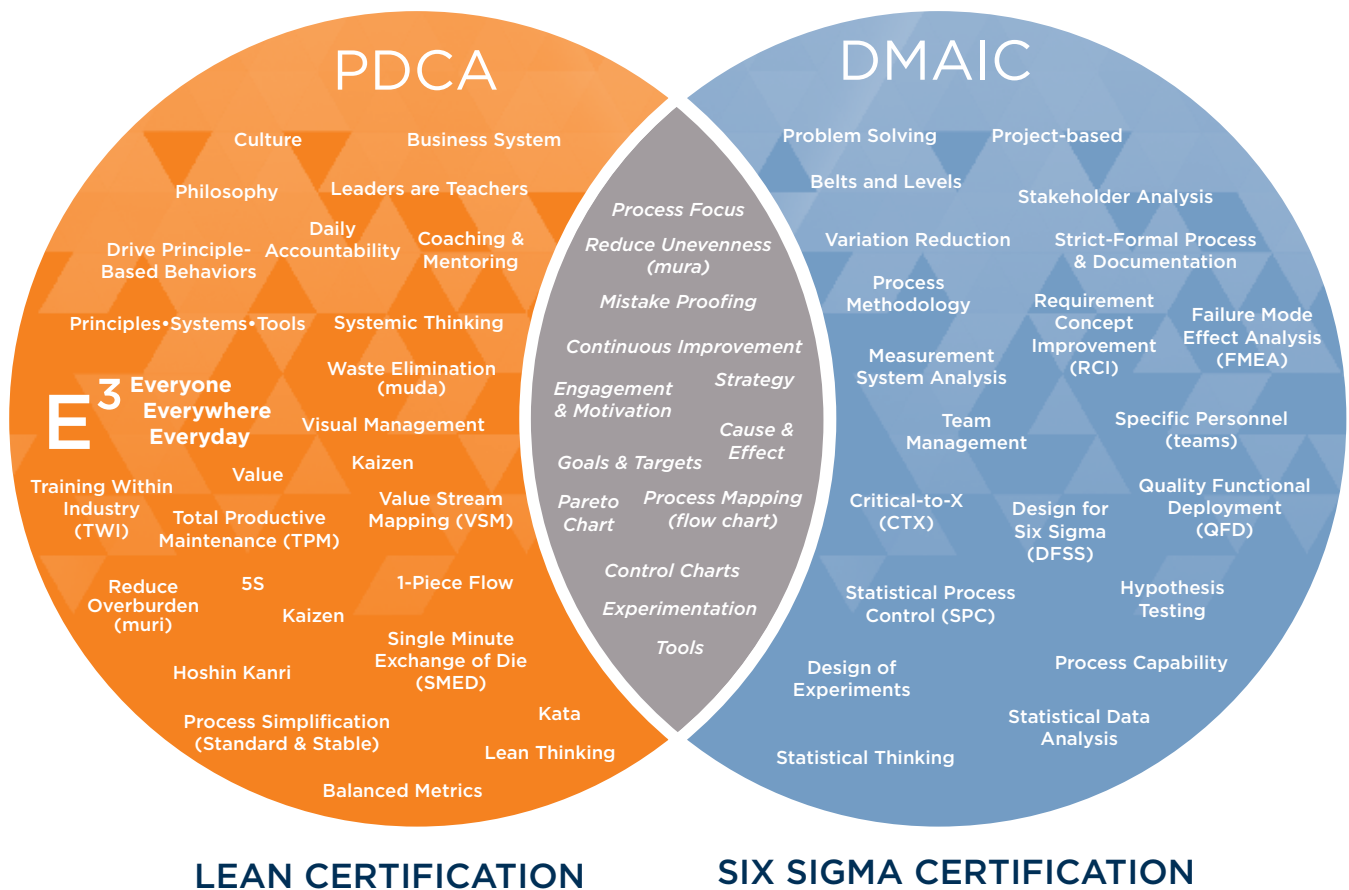
SIX SIGMA AT-A-GLANCE

- ▲ A management methodology that allows companies to use data to eliminate defects in any process (reduces variation).
- ▲ A “disciplined, data-driven approach and methodology for eliminating defects (driving toward six standard deviations between the mean and the nearest specification limit) in any process – from manufacturing to transactional and from product to service”.¹¹
- ▲ Goals: customer satisfaction and development/delivery of near perfect products/services.
- ▲ Business outcomes include:
 - Better process control
 - Higher quality levels
 - Ownership of quality
- ▲ Six Sigma Certification (Green Belt to Master Black Belt)

Six Sigma

¹¹ “What is Six Sigma?,” iSix Sigma (www.isixsigma.com)

LEAN CERTIFICATION AND SIX SIGMA CERTIFICATION



Regardless of methodology, sustaining an improvement effort is critical.

Engagement and involvement of those who do the work is essential to ensure the solutions “stick.” Lean thinking, culture, philosophy and principles guide companies and individuals in decisions about which tool to use and it is often a combination of both Lean and Six Sigma tools.

Top performers often hold both a Lean Certification and a Six Sigma Certification as this combination provides a more comprehensive skillset than either one alone.

Implementing a Lean culture within an organization drives sustainable improvements and offers value to both businesses and individuals. Earning and maintaining Lean Certification demonstrates one’s ability to ask the relevant questions (“Why?” and “How?”) to achieve maximum results.

LEAN CERTIFICATION IN ACTION

Jeff Lytle, director, Continuous Improvement Americas for Momentive, has been driving bottom line cost savings and margin improvement in the manufacturing industry for nearly 15 years, ever since he left a career in information technology.

“I wanted to get more involved with manufacturing,” Lytle said about his career change. Over the years, he has earned certifications including Lean Gold, Lean Six Sigma Green Belt, Black Belt, and Master Black Belt certifications as well as a Fundamentals of Management certificate from Case Weatherhead School of Management. He is also a certified Crucial Conversations trainer.

Today, he is responsible for developing and leading Continuous Improvement strategies across Momentive’s sites in the Americas and globally for the Quartz and Ceramics business sector.

Lytle said earning Lean Certification and other certificates helped with his career development.

“I offered to be a beta tester for the original Lean Certification and have been involved ever since,” Lytle said, who received the very first Lean Gold Certification from the Lean Certification Alliance. “I regularly go through recertification to hone my skills.”

Lytle said Lean Certification also benefits employers. “Companies recognize that employees holding Lean Certification have learned to think differently. They ask what is the impact of this project? Why does it matter?”

According to Lytle, Lean Certification is not a test; it is about building a portfolio that describes the impact of Lean initiatives on an organization, its customers and/or its people.

“Lean is about identifying the business need, defining the metrics, and then using the right tools, whether Lean and/or Six Sigma, to drive the required behaviors to deliver on those metrics,” Lytle said.

“A combination of Lean and Six Sigma offers a more complete toolkit,” he added. “At Momentive, we are doing things to build Continuous Improvement – we don’t care which tools we use as long as they ultimately help us run better plants and a better business.”



CONTACT

For more information on Lean and Lean Certification, please contact the Lean Certification Alliance at **800.733.4763** or email: Certification@SME.org.



ABOUT THE LEAN CERTIFICATION ALLIANCE

The Lean Certification Alliance (www.sme.org/leanalliance) is a partnership among three non-profit partners that sets the standard for operational excellence and an improved workforce. The partners — the **Association for Manufacturing Excellence (AME)**, the **Shingo Institute**, and **SME** — draw on their collective experience, and the proven practices of thousands of individuals, to provide continuous improvement practitioners in-depth access to the latest lean and continuous improvement thinking and best practices.



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