# Lean and Value Stream Mapping (VSM)

# www.itsmacademy.com

# WHAT'S INSIDE:

- What Is Lean and Why Is It Important?
- A Brief History of Lean
- Lean Benefits
- Five Principles of Lean Thinking
- Elements of a Lean System
- Value Stream Mapping
- It's a Journey!
- Want to Learn More?



**Lean** is a production philosophy that focuses on creating and managing the flow of value from start to finish – from concept to launch, from order to delivery, from need to fulfillment. Lean IT is the extension of Lean principles to the development and management of information technology products and services. Its goal is to continuously improve the value delivered by IT organizations to their customers and the professionalism of people working in IT.

Lean is	Lean is NOT
A continuous improvement strategy	A silver bullet
A mindset, skill set and toolset	Only a collection of tools and methods
A performance-based system	Only a cost-reduction method
A principles-based approach that can be applied to any industry and type of work	Concepts that apply only to manufacturing

In the digital era, the role of enterprise IT is shifting from merely supporting the business to delivering a competitive advantage. To create and maintain this advantage, organizations must embrace change; relentless and constant change. Whether changing customer demands, technologies or ways of working, organizations that fail to continuously improve run the risk of falling behind.

Copyrighted Material. Do Not Reproduce

Email me the .pdf!

Continue reading to learn more....



Easier said than done. Today's enterprises are complex and that complexity often makes it difficult for organizations to continuously improve, much less completely transform their ways of working. Lean provides a framework of principles, systems and tools that organizations can use to sustain continuous improvement.

### A Brief History of Lean

Lean has its roots in the Toyota Production System, which built upon quality and process control principles introduced in the 1900s. Starting in the late 1940s, Kiichiro Toyoda, Taiichi Ohno, and others at Toyota introduced a series of innovations that made it possible to provide both continuity in process flow and a wide variety of product offerings. These innovations were influenced by American automotive manufacturing methods introduced by Ransom E. Olds and Henry Ford, and the Statistical Quality Control practices of Kaoru Ishikawa, W. Edwards Deming, and Joseph Juran. These innovations included showing respect for workers, encouraging worker participation, employee development, team problem solving and a focus on continuous improvement.

# <u>Click here for a more comprehensive history of Lean.</u>

In the 1980s, organizations outside of the automotive industry began experimenting with the methods introduced by Toyota along with other continuous improvement methods such as Six Sigma, Total Quality Management and the Theory of Constraints.

# Toyota did not actually use the term 'Lean', considering it to be "just what we do".

It was not until 1988 that the term 'Lean' was first coined by John Krafcik in his 1988 article *Triumph of the Lean Production System*. The book *The Machine That Changed the World* (Womack, Jones, Roos, 1990) built upon Krafcik's research and introduced the term 'Lean manufacturing' along with the **Five Principles of Lean Thinking** (described below). In the publication *Lean Thinking* (Womack, Jones, 1998), the authors expand upon these principles.

#### Lean IT

Although Lean principles are generally well established and have broad applicability, IT organizations have historically been disengaged from Lean efforts. In *Lean IT* (Bell, Orzen, 2010), the authors ening that this (historical

the authors opine that this "historical disengagement from Lean efforts is one of the root causes behind the failure of many enterprises to achieve a *sustainable* Lean transformation". Historically, where Lean has been deployed in IT, the efforts have been predominantly limited to software development.

"I believe that most of the DevOps patterns are the emergent properties that arise when you apply the techniques like Lean, the Toyota Production System, the Theory of Constraints, etc. to the IT value stream."

Gene Kim

Times, however, are changing. Digital and

**DevOps** transformations have shifted expectations about what technology can do and how quickly innovations can be introduced. To meet expectations, IT organizations are integrating Agile, Lean, DevOps and **Agile Service Management** practices across the IT value chain.

**ITIL®4** (introduced in 2019) aligns with Agile, Lean and DevOps practices in an effort to ensure that IT products and services continually meet changing business needs. ITIL 4 brings ITIL up to date by re-shaping much of the established IT service management (ITSM) practices in the wider context of customer experience, value streams, and digital transformation. ITIL 4 – like Lean – encourages a principles-based approach as the foundation for an organization's culture and desired behaviors.

# Lean Benefits

Lean is about challenging the way things are done and opening our eyes to ways to be more effective. Benefits include:

- Increased focus on customer needs
- Improved customer satisfaction
- Improved employee satisfaction and engagement
- Improved visibility
- Improved predictability
- Increased productivity
- Increased efficiency and effectiveness
- Increased quality
- Reduced lead and process times
- Reduced costs
- Less fire fighting

# **Five Principles of Lean Thinking**

Lean is a principles-based approach that focuses on the perspective of the end customer.

The principles of Lean thinking include:

- 1. Define value precisely from the perspective of the end customer
- 2. Identify the entire value stream for each service, product or product family, eliminating whenever possible steps that do not create value
- 3. Make the value-creating steps flow
- 4. As flow is introduced, let the customer pull as needed
- 5. Pursue perfection through endless cycles of improvement

#### Value

Value is defined by the end customer and represents the needs or requirements that a customer has regarding a specific product or service. The value that a customer assigns to a product or service also determines what the customer will pay.

The voice of the customer (VOC) process captures and analyzes customer (internal or external) requirements and feedback to understand what the customer wants. Improvement efforts that fail to consider VOC can jeopardize an organization's relationship with its customers and position in the marketplace.

#### Value Stream

A **value stream** is the sequence of activities required to design, produce and deliver a specific product or service. Value streams typically span multiple organizations, functions and processes.

The ability to create flow begins with acquiring an accurate and complete understanding of value stream activities. Lean identifies three types of activities.

- Direct value add work that adds value in the eyes of the customer – what the customer is willing to pay for and/or expects
- **Support, indirect value add** work that does not add value directly to the customer, but needs to be done given current processes, regulations, ethics, etc. May include necessary non-value add



• **Non-value-add (NVA)** – work that does not add value for the customer or the business

<u>Value Stream Mapping</u> is used to examine value stream activities, minimize and remove whenever possible those steps that do not create value, and break down barriers to flow such as:

- Waste (Muda) anything that does not add value to the customer
- **Variation (Mura)** fluctuation (e.g., in customer demand, processing times, the way work gets done)
- **Overburden (Muri)** pushing a person, process or system beyond its natural limits

Both variation and overburden cause waste.

Types of waste include:

Туре	Definition
Defects	Any aspect of the product or service that does not meet customer requirements
Over-production	Producing work faster than the downstream process step can handle
Waiting	Idle time created when processes are not synchronized
Non-Utilized People	Not effectively leveraging the skills of our employees
Transportation	Unnecessary movement of materials, products or information
Inventory	WIP (work in process) in excess of the amount actually needed
Motion	Needless movement of people
Extra Processing	More work than necessary to satisfy customer requirements

#### Flow

**Flow** is the continuous forward movement of products, services and information. Flow may also be referred to as continuous flow, single-piece flow and "make one, move one". Flow means minimal or no delays, queues, rework, batches or waiting.

"The first visible effect of converting from departments and batches to product teams and flow is that the time required to go from concept to launch, sale to delivery... falls dramatically."

Lean Thinking

If a value stream stops moving forward at any point, waste is the inevitable by-product.

## Pull

With improved flow, time to market (or time to value) can be dramatically improved. This makes it much easier to deliver products and services as needed.

A **pull** system is a Lean technique that limits the amount of work in process (WIP) that can be introduced into the system.The pull approach dictates that nothing is made until the customer orders it. Rather than pushing work through the system based on a forecast and schedule, a pull system allows just-in-time delivery of work and helps to reduce wasted time and effort.

This requires a great deal of flexibility and short design to delivery lead times. It also requires an efficient way of communicating what is needed to each step in the value chain.

Pull systems typically use visual signals such as Kanban boards that are worker managed to make work queues visible and to define limits for queues. Kanban boards enable workers to visualize, prioritize and

manage workflow and to work collaboratively to improve flow.

#### Perfection

The pursuit of perfection is NOT achieved through delay-causing quality controls (inspections). Rather, pursuing perfection involves systematically and



continuously removing the root causes of poor quality.

It involves each resource in a value stream:

- Striving to do things right the first time
- Striving to continuously improve
- Being willing to learn and being willing to teach

Transparency and fast feedback loops help people make quick corrections when efforts fail to meet expectations.

Ultimately, the goal is not perfection – meaning the complete elimination of Muda – (which is unattainable), but rather, the pursuit of it. A concept otherwise known as continuous improvement.

# **Elements of a Lean System**

The House of Lean is a useful tool that illustrates the order in which Lean should be implemented.

A house is used because it illustrates how to build a structure that will support itself (i.e., the foundation comes first and the walls must be built before the roof can be put on).

# The Foundation in the House of Lean

A solid foundation sets up a successful implementation of Lean, resulting in the ability to deliver customer value in the



shortest, sustainable lead time at a reasonable cost. This foundation includes:

- **Stability** having essential capability, availability, and flexibility in terms of people, processes and technology
- **Standardization** having repeatable and reliable processes that make the most effective use of people, processes and technology and that form the baseline for continuous improvement

It's impossible to make value-creating steps flow when there is chaos and instability. Stability and standardization make it possible to sustain improvements.

Building a solid foundation requires strong leadership, employee engagement, mutual trust, and a clear goal. Without these, the foundation will crumble.

## The Walls in the House of Lean

The walls in the house of Lean enable organizations to optimize both the production and quality of their products and services and represent two key concepts:

- Just-in-time making only what is needed, when it is needed, in the amount needed
- **Jidoka** highlighting the causes of problems by stopping work immediately when a problem first occurs

Lean tools used to form the walls include value stream mapping (described below), Kanban, Kaizen (continuous improvement), poka-yoke (mistake-proofing processes), root cause analysis techniques, and intelligent automation, to name just a few.

## The Roof in the House of Lean

The roof in the house of Lean is focused on the goal of creating customer value. This is achieved by providing the best quality, at a reasonable cost, with the shortest lead time.

Product and quality optimization are essential, but only if customers want or need the new feature. Optimizing a product or service only for the sake of improvement is a form of waste. Keeping the customer's specific wants and needs in mind at all times is what will protect the rest of the house. Without the roof, the rest of the house will eventually fall because the focus is wrong.

#### The Heart of a Lean System

Two important objectives that have been passed down from the Toyota Production System and that live at the heart of the house of Lean are:

- **Respect for people** fostering a culture that enhances individual creativity and teamwork, while honoring mutual trust and respect between workers, management and stakeholders
- **Continuous improvement (or Kaizen)** making small, ongoing (continuous) changes in an effort to maximize value, minimize waste and improve flow

The respect for people objective often receives less attention than other key performance indicators as it has historically been perceived that 'respect' is difficult to measure. This is changing, however, as organizations strive to build high-trust cultures and as they realize that promoting employee engagement and work-life balance leads to greater productivity, innovation and sustainability.

Continuous improvement is based on the belief that everything can be improved. Improvements may involve:

- **System (value stream) improvements** aimed at improving flow and reducing overburden and variation
- **Process improvements** aimed at reducing waste and increasing efficiency and productivity

A myriad of methods support continuous improvement including:

- **A3** problem solving
- **Kaizen events** facilitated rapid improvement workshops
- PDCA (Plan, Do, Check, Act) incremental improvement
- The Improvement Kata experimentation and learning
- The Theory of Constraints (ToC) identifying and improving constraints
- **Kanban** developing and managing a predictable, rhythmic, and constant flow of work
- **Agile Service Management** adapting Agile values and practices to ITSM process design and improvement

Developing people's ability to effectively use these methods through training and coaching drives ongoing improvement and innovation.

Value stream mapping can be used to ensure improvement efforts support the primary aim of creating and managing the flow of value.

# **Value Stream Mapping**

**Value stream mapping** is a Lean tool used to document, analyze and improve the flow of information or materials required to produce a product or service for a customer. Value stream mapping helps organizations to <u>significantly</u> improve and optimize performance by examining and improving work <u>across</u> organizations, functions and processes.

Value stream mapping links Lean thinking with action.

During a facilitator-led <u>value stream mapping workshop</u>, a cross-functional team observes, analyzes and documents the current state and performance of the activities that take a product or service from its beginning through to the customer. The team then designs a target future state, projects performance targets and outlines an executable transformation plan for making the improvements using the continuous improvement methods discussed above.

# It's a Journey!

Lean, like any framework, methodology, body of knowledge or philosophy is only as valuable as the results it helps to achieve. Lean requires systems thinking and involves adopting new, principles-based ways of working. In other words, achieving a Lean transformation is culture change, and that means it's hard, and that it's not going to happen overnight.

Training, effective communication and cross-functional collaboration are critical to the success of a Lean initiative. Managing the associated organizational change and striving to avoid change fatigue are also key.

*Culture change and continuous improvement cannot happen without the support of people like you.* 

## Take action!

Contribute to your organization's Lean effort by expanding your knowledge of Lean principles, practices and tools and by enthusiastically using what you learn to lead value stream and process implementation and improvement activities.

## Be a change champion!

# Want to Learn More?

Training helps individuals and organizations build and maintain their capabilities. Training also provides individuals the knowledge, skills and information needed to fill their role in the organization or achieve their career goals, along with a place to test and develop the confidence to use these skills in the workplace.

For modern IT organizations, we believe that continuous improvement is achieved by leveraging and integrating the practices of multiple methods and frameworks.

## <u>Click here to register for one of ITSM</u> <u>Academy's classes today.</u>



Contact us to schedule time with a subject matter expert.

+1-954-491-3442	http://itsmacademy.com	info@itsmacademy.com
-----------------	------------------------	----------------------

#### **Additional Resources:**

- ITSM Professor Blog a WEALTH of knowledge published weekly since 2008
- <u>Webinar Archives</u> Monthly since 2007
- ITSM Academy Resource Center

# **ITSM Academy**

We are a female owned small business, established in 2004. Our extensive catalog contains accredited and sustainable IT Service Management (ITSM) education and advice including; ITIL<sup>®</sup>, DevOps, Process Design (CPDE), Agile, Site Reliability Engineering (SRE), Value Stream Mapping (VSM) and Experience Level Agreement (XLA). Our business values are founded on trust, loyalty, professionalism and long term relationships.

...educate and inspire is not just our corporate slogan, it speaks to our core mission and goal.

Follow our founder and CXO, Lisa Schwartz, on LinkedIn.

#### Instructors

Every ITSM Academy instructor is certified to the highest levels in the areas they train. They have years of hands-on IT practitioner experience, enabling them to effectively intertwine theory and real-life stories and scenarios. Using the highest quality content, this engaging training style encourages active group participation, allowing all learners to bring from class a wealth of practical and actionable knowledge.

## Accreditations

All of ITSM Academy's certification courseware is developed or enhanced in-house and is accredited by independent, international organizations where applicable.

## **Game On! - Interactive Learning**

Involves students in active learning, using the engaging qualities of a game, fueled by our subject matter experts.

#### **Courseware Licensing** (all developed or enhanced in house)

In addition to our public and corporate/onsite training, our courseware is available for licensing / co-branding under our flexible licensing program, including Train-the-Trainer (for qualifying organizations).

#### my.itsmacademy.com (digital portal)

Extends the learning experience with games, videos, exercises, sample exams, and course materials. It also provides instructors a vast repository of information and guidance to successfully prepare for and teach our courses.

## Professional Education Hours (CPDs/PDUs/CPEs/CEUs):

ITSM Academy is proud to make it possible for individuals who attend our classes to earn professional education hours. (e.g., CPDs, PDUs, CPEs, CEUs). These professional education hours can be submitted to associations such as PeopleCert, the Project Management Institute and ISACA, if applicable.

.educate & inspire®



Today, ITSM Academy is widely recognized for its expertise in multiple IT frameworks (ITSM, ITIL, Process Engineering (CPDE), DevOps, Agile Service Management, Lean) and, more importantly, how they work together. But that's not where we started.

+1-954-491-3442

http://itsmacademy.com



