

# Simulation for the Lean Enterprise: Applying Lean Thinking to Lean Implementation

## Value Proposition



## Lean Implementation Challenges

- Creating corporate cultural change and getting “buy-in” required for success
- Quantitatively prioritizing Lean projects
- Understanding ROI of the entire initiative
- Accurately quantifying the systemic impact of local Kaizen on the Value Stream
- Sustaining improvements after Kaizen

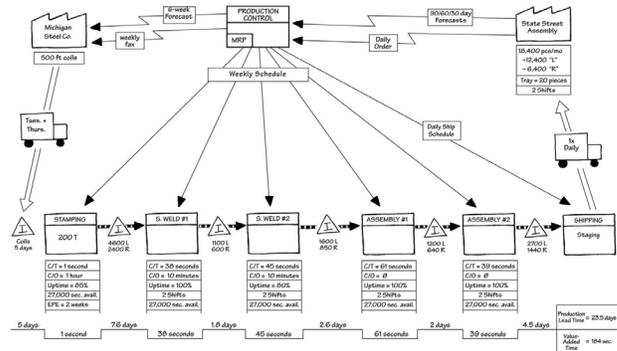


Image from *Learning to See* by Mike Rother and John Shook © 1999

These challenges exist for different reasons. Some are due to natural resistance to change, especially when the real impact of that change is unknown. However, much of the challenge lies in the complexity, variation, and interdependence that exist in day-to-day business reality.

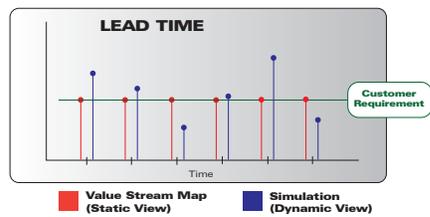
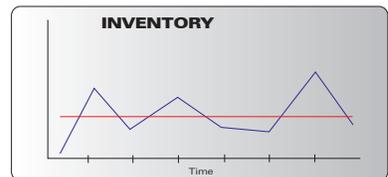
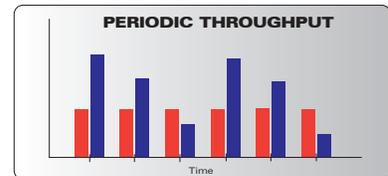
Unfortunately, traditional Lean tools do not address this complexity. Instead, the common method to implement Lean requires live trial-and-error, which introduces tremendous risk with unknown reward. Even a minor failure through this “live simulation” can be very difficult on the people required to execute the change, and can adversely affect the momentum of the overall Lean initiative.

## Value of Simulation for Lean – What Would it be Worth if:

- Your organization realized a Lean goal one month sooner on every value stream mapping project?
- Your team could avoid 10% of the downtime associated with Kaizen events?
- You could quickly predict the impact of a Lean initiative on key metrics prior to implementation?
- You could gain better visibility and predictability into all the Lean projects and allocate precious resources more effectively?

## Benefits of Implementing Lean with Simulation

- Enables rapid adoption and full life cycle support of Lean.
- Predict and quantify positive (or negative!) systemic impact of suggested improvements.
- Accelerate a single event and the whole initiative.
- Reduce risk and focus on events with opportunities to provide the greatest positive impact.
- Understand the potential impact on the “corporate or strategic” enterprise value stream.



Simulation accelerates Lean implementation by accurately predicting real life behavior.

## 5 Principles Characterize Lean Thinking:

Source: Lean Enterprise Institute (www.lean.org)

Specify value to the customer

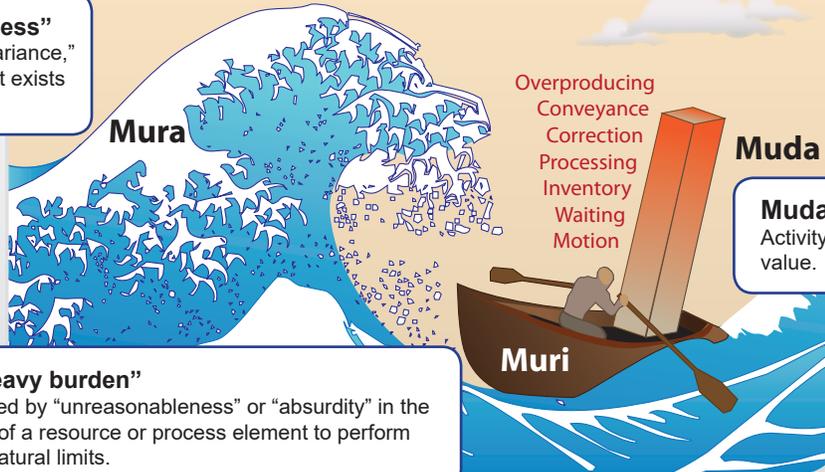
Identify the value stream

Eliminate the 3 M's of Waste to Enable Flow

Allow customer to pull on demand

Pursue perfection through continuous improvement

**Mura: "unevenness"**  
Waste created by "variance," or "unevenness," that exists in most processes.



**Muda: "unnecessary"**  
Activity that does not add value.

**Muri: "heavy burden"**  
Waste created by "unreasonableness" or "absurdity" in the expectation of a resource or process element to perform beyond its natural limits.

*"The inevitable result is that Mura creates Muri that undercuts previous efforts to eliminate Muda. Even worse, they put Muda back that managers and operations teams have already eliminated once."*

*So I would give some different advice... to senior managers trying to create lean businesses: Take a careful look at your Muri and your Mura as you start to tackle your Muda."*

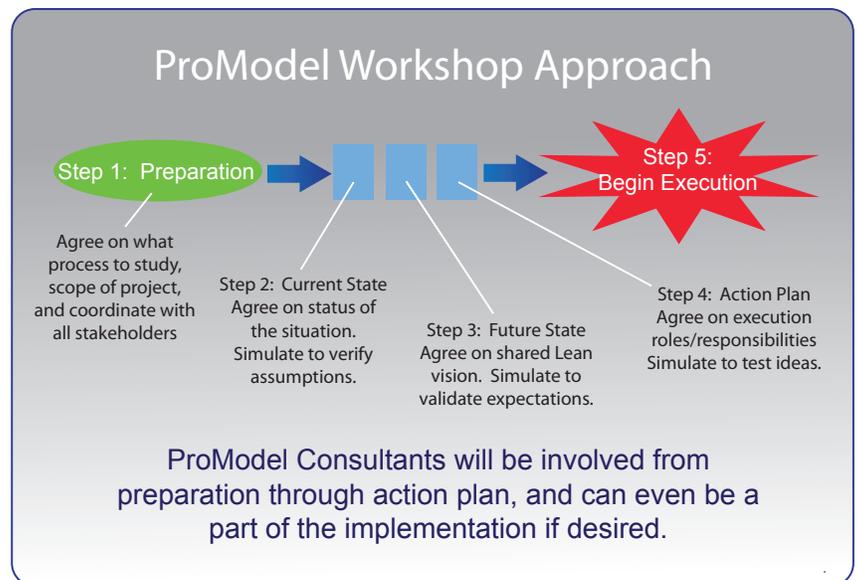
— Jim Womack,  
Founder, Lean Enterprise Institute

## ProModel Provides an "Accelerated Lean Methodology" for the Lean Journey:

Value Stream Mapping makes it easy to find Muda, but cannot help you with Mura or Muri. This leads to unrealistic future state expectations, and frequently is the root cause of failure with lean implementation.

ProModel Solutions predict the impact of Muda, Muri, and Mura, taking into account the combined effect of variability, uncertainty, and complex interdependencies between events in compressed time.

ProModel's certified Lean and Six Sigma consultants utilize the PDCA (Plan, Do, Check, Adjust) methodology with clients through an onsite workshop approach. During the workshop we facilitate "Virtual Kaizen" events prior to live events, as well as other complementary lean solutions, to help customers achieve accelerated results.



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