5 Ways Simulation Can Drive your Lean Projects

We all know taking on a lean project is a big task, but did you know that simulation can help drive your lean projects?

From initial buy in to assessing your return on investment this white paper explains how simulation can become a catalyst for your lean process improvement projects.

1   **Building project buy-in**

2   **Quickly comparing different solutions**

3   **Developing a quality strategy**

4   **Road testing your KPIs and outcomes**

5   **Assessing Return on Investment**

Building project buy-in

1

You are a team leader or improvement manager in the opening stages of a new project, you are convinced that lean can revolutionize your organization, your ideas are amazing and the potential savings are huge but now for the tricky part - convincing others in the organization that the project, and you, are worthwhile investments.

Far too often, great opportunities are missed simply because the potential of the project was lost in your 50 page briefing report or because nobody was really captivated by all of those colorful charts that you made.

Simulating your process gives you a real advantage here. Being able to present a dynamic and animated display of your process is a very powerful way of highlighting the constraints in a system and is very effective in rallying both operational and managerial staff to recognize the need for change.

Whether your simulation is showing a large queue building-up, or a series of activities grinding to a halt due to a lack of stock, nothing is more effective at communicating these types of issues than letting staff see this happening for themselves.

> **Presenting a dynamic and animated display of your process is very effective in rallying both operational and managerial staff.**
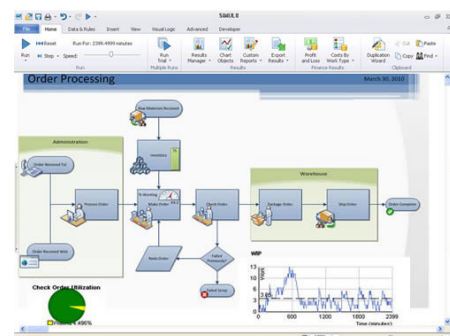
Quickly compare different solutions

2

Rarely in a lean project is there one clear solution to an identified issue. As a lean team your role should be to identify the best course of action by comparing competing solutions in terms of objective criteria, such as the potential to improve the process or the cost of implementation. Often, however, these types of decisions will become politically influenced or else delayed and avoided due to the costs associated with conducting dry-runs or live trials.

Process simulation offers 2 main benefits here. Competing solutions can be quickly modeled using simulation software and compared to determine which scenario will produce the best results. Comparing solutions in this way is inherently more cost effective and minimizes the need for down-time or costly live trials.

The speed at which solutions can be tested using simulation is also a marked advantage here. In mere seconds the performance of a system can be assessed over a week, a year, or even ten years, and throughout these tests the software is fully capable of modeling random elements such as seasonal variation or fluctuating sales demand.

The second benefit of using process simulation here means that the process is always foremost in the progression of the project. This offers great benefits in being able to avoid fighting between teams and the sort of political difficulties that are a

> **In seconds the performance of a system can be assessed over a week, a year, or even ten years.**

real part of working in any large organization.

Focusing on a simulation and being able to clearly demonstrate the background, justification and potential benefits of an approach really helps to push forward a projects agenda and to dispel any concerns that a suggested approach is unwarranted or is an attack on others interests.

Developing a Quality Strategy

3

Whether or not your lean project is part of a wider Six Sigma program, we are all aware of the importance of maintaining quality in any product or service stream. Yet, what are the ways of doing this in your system and where are the best places in your process for conducting quality assurance measures that will identify the most defects whilst minimizing disruption to flow?

Mapping your process out and discussing the pros and cons of different quality strategies with your team is an essential part of answering these questions and achieving a truly lean operation.

Process simulation can really enhance this activity by providing quick and accurate assessments of different quality approaches. Does your bottling line need one or two visual checking systems, or does your passenger service require 2 or 3 stand-by coaches at peak time?

These are just some of the questions that can be quickly answered using simulation software.

> **Process simulation can really enhance this activity by providing quick and accurate assessments of different quality approaches.**

Road testing your KPIs and Outcomes

4

Having the wrong KPIs (Key Performance Indicators) or quality measures is a real risk to any lean initiative. Assessing results and outcomes can be a time-consuming process in its own right and is often difficult to replicate after the actual event.

Watching a process run through each of its stages and being able to do this multiple times and at different speeds, or under different conditions, is one of the most constructive ways of using process simulation.

Working in this way, it becomes very easy to identify the characteristics of a process and to gain an insight into exactly which results and KPIs are the most significant to the overall performance of the system.

For example if you were running a factory producing aircraft parts – how would you assess which factor has the biggest influence on your output? Is it the staff availability per day, the stock levels of your key components or the equipment breakdowns that prevent you from achieving the required output levels?

Process simulation gives you the ability to experiment with scenarios quickly and effectively, and to see results instantly.

> **It becomes very easy to identify the characteristics of a process and to gain an insight into exactly which results and KPIs are the most significant.**

Assessing Return on Investment

5

Determining the Return on Investment (ROI) of a process improvement project can be an arduous task.

Frequently this calculation will need to factor in complex measures such as the performance of a process over the next year (including seasonal variation, changes in demand, etc) or the expected influences to a system from events such as staffing changes or the introduction of new equipment.

Making this even more difficult is knowing that this calculation will be scrutinized and that there will be responsibility on you to clearly demonstrate the method that you have used to determine your results.

Working with process simulation can be of real benefit at this stage in a project. Simulation allows you to take into account factors such as the expense of capital equipment, individual staffing rates or the return generated per work item.

You can then generate an accurate breakdown of the costs and revenue potential of any given scenario.

> **Simulation provides a simple and easily traceable way of evaluating the benefits of adopting a lean approach.**

This provides a simple and easily traceable way of evaluating the benefits of adopting a lean approach and reinforces your confidence in being able to deliver a successful project.

Powerful.
Flexible.
Fast.

SIMUL8 is powerful, flexible, and fast simulation software.

Powerful

Join the world's largest organizations, like Ford and GE, in creating powerful simulations to generate ideas that save millions of dollars. Create any size of simulation with limitless complexity. Connect to other software. Control through your own applications. Make better decisions with industry leading results

Flexible

Simulate your current process. Experiment with new processes. Create your own components. It's your call. You can simulate any process where there is a flow of work. Customizable building blocks and Visual Logic coding make SIMUL8 the most flexible simulation tool on the market.

Fast

Fast to learn. Fast to build your simulations. Fast to experiment with new ideas. Run hundreds of scenarios in seconds and start analyzing results immediately. 10 times faster than the competition in speed trials, SIMUL8 gives you the quickest return on your investment.

> We increased throughput without increasing costs. Using SIMUL8 lets us stay flexible when planning resource to cope with demand fluctuations.

Joy Boath
Virtual manufacturing
General Motors