

# **Lean Continuous Improvement, Sustainability and Toyota**

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More than 40 years ago I started my continuous improvement (CI) journey as a young engineer and I've spent the last 15+ years as a Lean and Supply Chain consultant at Supply Velocity. We leverage Lean, Six Sigma, Theory of Constraints and Supply Chain tools and techniques to help clients improve their operations and supply chains. Most of our implementations include Key Performance Measures, which help align and focus the organization on the behaviors and tasks to achieve the best results and sustain improvements.

Sustaining improvements is a long-standing challenge for most of our Clients and Lean practitioners around the world. Generally, we believe the better job we do facilitating teams that include process owners, subject matter experts (SMEs) and operators, involving them at every step and providing education along the way, the more likely they are to “buy in” and sustain improvements. This has worked to promote sustainability, however, in truth, it works at varying degrees.

### Toyota Kata

I recently read Mike Rother's book, Toyota kata. Rother's book probes into how and why Toyota has been so uniquely successful. As a Lean expert, Rother wanted to better understand and differentiate the Lean techniques and best practices Toyota developed versus the management approach and routines (Kata translates as pattern or routine in Japanese) Toyota used that promoted their CI culture that developed those Lean techniques. This is an important difference – to better understand the management approach and culture that drove CI and sustained improvements, not just the CI techniques themselves.

We can't expect to be like Toyota, who has been doing this for decades, but we can drive positive change and improve sustainability with some practical takeaways.

### Exposing Issues

Lean principles and best practices work great at eliminating waste, but like most things they require practice and continuous use to be proficient. A related and very key point from Rother's book was that the issues that may arise when applying Lean techniques, actually help to expose other improvement opportunities that need to be addressed. This is a key point I didn't fully appreciate! Often with the first sign of things not going well, people use that as a basis to complain that the Lean effort was a bad idea and push back that we should return to the way we did it before. No no no! We should plan for this and consider that Lean simply exposes other issues that need to be addressed, like resistance to change or lack of understanding. Therefore, this exposure is actually a good thing.

To further make the above point, consider a reverse case. When helping companies' layout operations, we encourage work-cells that improve teamwork and communications. This approach also promotes personnel flexibility which most people believe is a good thing. However, what if the people lack the skills? Or people don't think they have the tools to do their job in a flow (versus batch) process. I still think labor flexing is a solid cell approach to meet production goals, but it can expose problems you

have allowed to stay hidden because “fixing” them is probably a lot of work. Just another “hidden factory” example to keep in mind.

### True North Goal

Each company or organization needs a long-term “true north” goal that is not short term or easy to achieve. As a long-term goal, it needs to be aspirational and adaptable to outside changing conditions that are not known currently. In Toyota’s case, that goal is not just to be a profitable car manufacturer, but it includes sustainability, market adaptability and personnel job security. If they can make this happen, the result is profitability and leadership in their market. This is much longer term thinking than most of us consider and it is a key driver to Toyota’s CI culture.

Consider the following goals that Toyota holds as of highest importance:

- Zero defects
- 100% value added
- One-piece flow
- Security for people

To Lean practitioners these should look familiar, but the level of perfection seems unattainable. Toyota uses these to help drive CI, knowing that they may never achieve the “true north” goal of near perfection, but it provides a direction to pursue for Toyota managers and employees to develop shorter term “target conditions.” These are more specific, measurable, and attainable in a short period of time. They lead to the implementation of continuous improvement and advancement toward “true north.”

This all probably feels familiar to Lean Practitioners, but here is a key difference – an improvement may have negative short-term consequences or tradeoffs. Consider the possible impact of promoting more line changeovers to increase on-time delivery to customers but knowing that may also drive up production costs. Or what about promoting synchronized flow with suppliers while knowing it may increase the risk for supply chain disruption, clearly a current issue. Many companies would stop the CI effort if the short term cost-benefit analysis was negative, but Toyota would not. Toyota would use cost-benefit analysis with a continuous improvement mindset to develop counter measures, while still pursuing their CI improvements. For my earlier examples, they might challenge, how they can decrease the time and reduce the scrap related to set-up? Or how can they pursue synchronized flow with suppliers while building in resiliency and not be subject to delays? This approach is different than using cost benefit to determine to NOT follow the goal and implement the improvement!

By setting short-term target conditions and applying CI, they chip away at issues that are obstacles. Rother describes how Toyota continuously sets new CI goals:

- Grasp the current condition or state – Reminds me of Admiral Stockdale’s quote about surviving as a prisoner-of-war (POW) in captivity by “confronting the brutal facts and current reality”

- Define the next goal “target condition” – In my career I have always liked the phrase, “describe what good looks like”
- Implement CI to move toward the target condition using Plan Do Check Act (PDCA) – Don’t let perfection be the enemy of progress

### Coaching and Mentoring

Toyota uses coaching and mentoring to train and promote CI and make it a core part of each manager’s responsibility to drive it to the employee level. Toyota promotes a pattern or routine for CI thinking, which is the basis of the term “kata.” Performance at the employee and department level is measured on driving improvements in operations, customer success, employee satisfaction, innovation and sustainability and less about financials. When I first joined DuPont as a young engineer, I was introduced to another engineer who had been around 6 months to serve as a peer guide and to a senior manager who was not my actual supervisor. They were mentors who I could go to when I had difficult questions. It worked very well at my first job and my facility had a history of high performance. How many companies have formal mentoring plans today?

### Summary

For improvement initiatives that are sustainable, incorporate these concepts with your Lean / Six Sigma / Theory of Constraints efforts:

1. Lean, Six Sigma and Theory of Constraints techniques and best practices are excellent foundations, and you should continue to apply them to your processes. The issues that may arise during or soon after implementation are themselves improvement opportunities, not reasons to stop.
2. Establish a “true north” that is aspirational and adaptable, in spite of future conditions you can’t forecast now. Hold to your “true north” vision and establish interim target conditions that advance you in the right direction. Just because something you are striving to achieve may seem impossible, it doesn’t make it wrong. Use creativity and cost benefit analysis to drive CI efforts that chip away at the obstacles and advance, perhaps slowly, toward “true north”.
3. Place greater emphasis on developing and mentoring employees to drive CI thinking that supports making CI a fundamental part of the culture. When using key performance measures, don’t just focus on short term and financial, try to measure progress on improvements in operations, customer success, employee satisfaction, innovation and sustainability that drive target conditions.