



# CHAPTER

# 1

“Flow systems configure and reconfigure themselves to overcome the friction and other forms of resistance that hinder them. Faster, easier, cheaper in terms of fuel (useful energy, exergy) used and materials required for movement: that is the flow system’s mantra.”

– Adrian Bejan and J. Peder Zane<sup>1</sup>

---

1. Adrian Bejan and J. Peder Zane (2012) *Design in Nature*, p. 57.



## Introduction

To be true to its original meaning, Lean is the state of an organization. In this state, organizations strive to deliver more and more value to customers in less time, making fewer errors and using less physical resources.

John Krafcik coined the term Lean in 1988. Krafcik commented on the Toyota car manufacturing company as one that exemplifies “truly [...] lean operations. Inventory levels were kept at an absolute minimum so that costs could be shaved and quality problems quickly detected and solved; bufferless assembly lines assured continuous flow production; utility workers were conspicuous only in their absence from the payroll. If a worker was absent without notice, the team would fill in; repair areas were tiny as a result of the belief that quality should be achieved within the process, not within a rectification area.”<sup>2</sup> Krafcik described the state of Toyota’s operations as being a ‘lean’ state.

At Toyota in the early 1950s, Taiichi Ohno, an engineer by trade, started challenging employees to improve. By right-sizing inventory (*just-in-time*), stopping production when problems were detected, deeply understanding root causes and building in quality at each step (*jidoka*), Ohno had one goal: flow only value to customers.

Ohno remarked that he “... had this idea of a fast, even-flowing river in which there are no dams that slowed the flow or rapids that sped it up [...] It was to be a river system where ideally the only materials flowing were those for cars that customers were now buying. There would be no unneeded parts, yet we would

---

2. John F. Krafcik, Triumph of the Lean Production System, *Sloan Management Review*, 1988. [lean.org/downloads/MITSLsloan.pdf](http://lean.org/downloads/MITSLsloan.pdf), p.45.

always have the parts that were needed.”<sup>3</sup> Ohno’s analogy of an even-flowing river depicts a flow system where there is a continuous flow of value, without disruptions. Over time, Ohno created the Toyota Production System (TPS).

Toyota continuously strives to only flow value to customers by being a learning organization. This means putting the conditions in place where employees are expected to be creative and to experiment with innovative solutions to flow problems. It also means that everyone consistently and deliberately learns to see how work flows, experiments with improving flow and shares data and learning. Management ensures effort aligns with organizational goals.

Employees are the greatest asset of an organization like Toyota. This is not an empty slogan. At Toyota, workers are not just a set of hands assembling a car: “Before we build cars, we build people.”<sup>4</sup> Employees close to *real* work (that impacts customers) have very few assumptions about work and can therefore put in place countermeasures to problems that are more likely to succeed. The common goal is always to improve the flow of value to customers.

Employees at Toyota are knowledge workers. They learn, share and build on their experience with flow on the front line.

Lean management<sup>5</sup> is based on the Toyota Production System and applies in any context: government, not-for-profit, for profit, education or at home. Work in this book is understood as human or machine energy (or effort) expended. Where there is work, Lean applies.

---

3. Reza M. Pirateh and Robert Fox (2011) *Profitability With No Boundaries*, p.97.

4. Jeffrey Liker (2003) *The Toyota Way: 14 Management Principles from the World’s Greatest Manufacturer*, p.182.

5. For brevity, in this book the terms Lean and Lean management are used interchangeably all the while being fully aware that Lean is the *state* that organizations engaged in Lean management are striving to achieve.

**Lean:** Manage work as a flow system

Lean holds a core understanding of work as flow regardless of where work is performed, who the customer is, or who is performing the work. Flow is defined here as energy (work as effort) moving through a system (processes and value streams). Lean organizations measure flow to understand how energy (work) is moving with simple measures such as time and quality.

Lean is rigorous, evidence-based and fosters a culture of learning, creativity and innovation. Lean organizations achieve this by putting in place conditions for people to be able to focus and solve problems collaboratively and creatively by getting into what is called a *flow experience*.

Lean organizations also reflect a particular model of science: collaborative science. In Lean as collaborative science, people as equals rigorously investigate problems. They do so with a specific object that is observed and measured, in this case flow. They gather and analyze data to reach a common goal: improve the flow of value to customers. Toyota has been living collaborative science since the 1950s.

This book challenges the reader to embrace the Lean paradigm. This requires a move away from seeing work as a place, as money, as results or as people. It also requires moving away from changing work to optimize for capacity, from commanding and controlling people, from throwing money and people at problems, from perpetual 're-organizing' and 're-structuring', from focusing only on results and from changing seating and furniture layouts without consideration for the flow of value to customers.

In the Lean management paradigm, work is organized to improve the flow of value to customers and to collaboratively engage and train those closest to value work to continuously

solve flow problems. By concentrating on *how* to better flow value to customers and by being deliberate to measure and experiment with improvement, results will come.

The role of management is critical in a Lean organization. Lean leaders lead by example by improving their own work every day. Being deliberate and improving how decisions are made, how budgets are managed or how approvals are done. Lean leaders also deliberately put in place the conditions for everyone to be the best they can be at what they do.

Ultimately, one of the goals in a Lean organization is to grow more leaders. To become a Lean leader, start with humility. Once unleashed from command-and-control, people surprise and delight everyone with their understanding of, and their passion for improvement. Customers will also be thankful.

Lean management is the most robust, powerful and sustainable management system an organization can embrace – and will be, if well-implemented – the *only* management system your organization will ever need to continuously innovate and thrive.

This book is hopefully a starting point for readers to *be* Lean in their own work and to start a Lean journey in their workplace.