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# Lean Operations and the Toyota Production System

Toyota is frequently associated with high quality as well as overall operational excellence, and, as we will discuss in this chapter, there are good reasons for this association—Toyota has enjoyed decades of economic success while changing the history of operations management.

- Various elements of the company’s famous Toyota Production System (TPS) are covered throughout this book, but in this chapter we will review and summarize the components of TPS, as well as a few that have not been discussed in earlier chapters.
- We also will illustrate how the various elements of TPS are intertwined, thereby making it difficult to adapt some elements while not adapting others.

Readers who want to learn more about TPS are referred to excellent reading, such as Fujimoto (1999) or Ohno (1988), from which many of the following definitions are taken.

As we will discuss, one of the key objectives of TPS is the elimination of “waste” from processes such as idle time, unnecessary inventory, defects, and so forth. As a result, people often refer to (parts of) TPS as “lean operations.” The expression “lean operations” has been especially popular in service industries.

## 10.1 The History of Toyota

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To appreciate the elegance and success of the Toyota Production System, it is helpful to go back in time and compare the history of the Toyota Motor Company with the history of the Ford Motor Corporation.

Inspired by moving conveyor belts at slaughterhouses, Henry Ford pioneered the use of the assembly line in automobile production. The well-known Model T was the first mass-produced vehicle that was put together on an assembly line using interchangeable parts. Working with interchangeable parts allowed Ford to standardize assembly tasks, which had two important benefits. First, it dramatically reduced variability, and thereby increased quality. Second, it streamlined the production process, thereby making both manual and automated assembly tasks faster.