

In the Office: Where Lean And Six Sigma Converge

by **Drew Locher**

Lean thinking—focused on flow and reducing nonvalue added activities (waste or *muda*) that impede flow—and Six Sigma—focused on reducing process variability—can come together when redesigning business processes.

The nature of most business processes found in industrial and service organizations clearly demonstrates how lean thinking and Six Sigma work in powerful combination.

Many people contend that variability prevents lean from working in an office setting and that variability can negatively impact flow. There are many examples of variability in business processes.

For example, demand on most office resources can be very unpredictable. In addition, people involved in business processes tend to multitask. There can be many interruptions in these activities in an office, adding to variability.

The complexity of information can vary—orders are not orders, quotes are not quotes, and designs are not designs. Most of this variability is nonactionable, many believe.

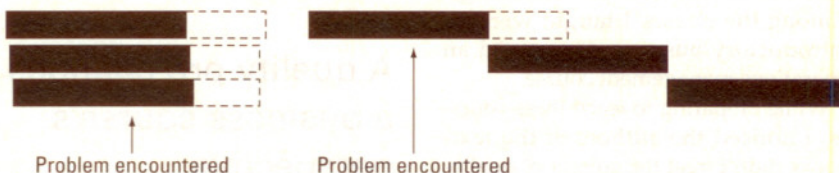
However, the various lean techniques, when properly applied, can effectively address the root causes for much of the variability in business processes.

Common Causes of Variability

The most common cause for process variability is the lack of standard work practices. People have often argued, “Why does it matter *how* work is performed as long as it gets done?” The fact is that it does make a difference. Process variability can contribute to variability in the output of the process.

This situation is perpetuated when new employees are brought into an office. Without standardized work practices, there cannot be standardized training. Learning curves will increase with the lack of standard work practices. Information quality also will decline.

FIGURE 1 Batch Processing Example



Batch of three.

Problem at any point in time with one will have greater impact on the other two. Most likely, action must be taken on all three to correct.

Batch of one.

Problem with one should have less impact on the others that have yet to be started. Most likely, action must be taken on just one to correct.

A major source of variability in business processes relates to the quality of the information.

For example, people can complete the same forms in different ways, perhaps omitting important information. This is commonly observed in office environments.

Standardized work is a foundation of lean thinking. Therefore, an initial focus of a lean effort is to implement true standard work practices throughout a business process.

Demand Variability

Existing business practices artificially create a large portion of demand variability. There are several possible root causes, many of which can be addressed. One of the common causes for demand variability is associated with batch processing, referring to the manner in which work is completed.

If a business process is performed infrequently (perhaps once a month), the volume of work to be completed in a period of time will be greater than if the process was performed more frequently.

Further, batch processing can have a ripple effect through the various steps within a business process as piles of work are pushed through the process step by step. Reducing batch sizes or increasing the frequency of a task is a

primary objective of lean since it results in improved information flow.

Lean techniques help to control the amount of work in process at any time, reducing the impact of problems that might arise (as shown in Figure 1) as well as demand variability (Figure 2).

Another source of demand variability is associated with when particular activities are performed. Many organizations perform certain activities at specific times on the calendar; for example, financial related reporting activities at the end of fiscal periods, such as the end of a month.

Many of these activities can be performed throughout the fiscal period and do not have to wait until the end, thereby leveling the workload. Leveling workloads is a key concept of lean.

When applied, leveling can reduce variability and provide important benefits to the organization such as reduced lead time and improved information quality.

Still another source of demand variability relates to the organization's attempt to meet short-term performance measures; for example, sales revenues.

Often, organizations wait too long to identify and react when they are in danger of not meeting particular goals.

Lean enterprises have short management timeframes. In other words,

they frequently review performance through simple and visual ways, and they react in a timely manner to address performance issues. This practice will result in leveling performance and demand over time.

Another source of variability comes in the form of interruptions. Since people working in an office environment perform multiple tasks, the potential for unpredictable interruptions increases. This can increase the time to perform work as a person must stop what he or she is doing to tend to the interruption, and then return to the task at a later time.

There are ways to manage interruptions. This can relate to batch processing. For example, an interruption will have less impact if a person is working on one order at a time, rather than five. In all likelihood, the person can complete the order he or she is currently working on and then attend to the interruption.

Another approach implemented in an office environment has been referred to as “a plan for every process”: Each activity a person is expected to complete is scheduled at a particular time.

An example is shown in Table 1. This includes unscheduled “drop-in” work or interruptions. In this way, the interruptions can be dealt with at a more convenient time. This is a form of leveling the mix of activities that a person performs. As previously mentioned, leveling of various forms is an important concept in lean thinking.

Organizing for Flow

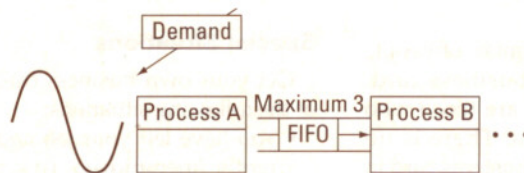
Many companies simply are not organized in a way to effectively and efficiently perform a business process. Many companies are organized by functions or departments with little regard to the overall flow of information.

For example, consider the following order process:

- Order entered in customer service department.
- Order sent to accounting for credit check.
- Order sent to planning for the scheduling of production.

Most companies will have in place a process with multiple hand-offs as the order makes its way from department to department. Each hand-off

FIGURE 2 Controlling Workflow



The use of pull systems in the form of first in first out (FIFO) lanes—which control the amount of allowable work in process at any time—can help reduce the impact of unleveled demand on the overall system. However, the root causes of demand variability should still be addressed.

TABLE 1 “Plan for Every Process” Example

Time	Monday	Tuesday
9-9:30 a.m.	Check e-mails	Check e-mails
9:30–10 a.m.	Enter orders	Enter orders
10–10:30 a.m.		
10:30–11 a.m.	Unscheduled work	Unscheduled work
11–11:30 a.m.	Enter return merchandise authorization forms	Process holds

gives rise to a potential queue, as well as the potential for information quality problems to occur.

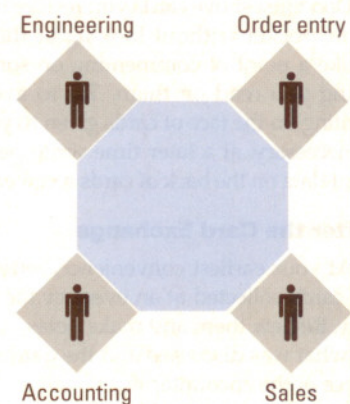
Lean thinking prompts you to consider an alternative approach—to organize by value streams and service families. In this approach, required resources are organized in a way to maximize flow.

Often, this takes the form of cross functional teams, sometimes located in a cell as shown in Figure 3, to process information in more effective and efficient ways. In this way, queues can be practically eliminated and information quality improved, along with other benefits.

My experience with industrial and service organizations shows the results of the successful application of lean to business processes are impressive—a typical 90% reduction in lead time and up to a 40% decrease in process time. The results are achieved using lean and other improvement approaches.

These efforts, primarily focused on the reduction in process variability, improve the predictability of the office environment and improve the flow of information.

FIGURE 3 Cross Functional Office Cell



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