

## Lean Applied to Business Processes



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If your lean initiatives have stalled, you may discover the constraint isn't on the shop floor. Most existing constraints to your operations actually will be in your administrative or support areas. The good news? There's something you can do about it.

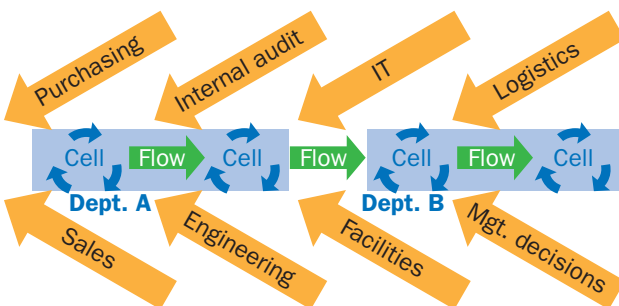
Lean applied to business processes: That's my core message and my life's passion. I have developed and taught a course for more than eight years, and I'd like to share its main ideas with you.

### My big epiphany

Back in the 1990s, I was a young operational supervisor in an aviation mechanical component repair shop. I was asked to reduce backlogs of aircraft parts needed for airline operations at city stations, which were causing increased delays and cancellations. Our shop had just started using lean methods, but it became obvious at the end of six months that applying lean to the shop floor was not enough.

Luckily, most of the mechanics had been through six-step problem-solving training, so facilitating process improvement by providing targets and giving employees time to improve was relatively easy. Empowering mechanics to create solutions meant that their ideas

Figure 1. **Business processes vs. production**



Mgt. = management

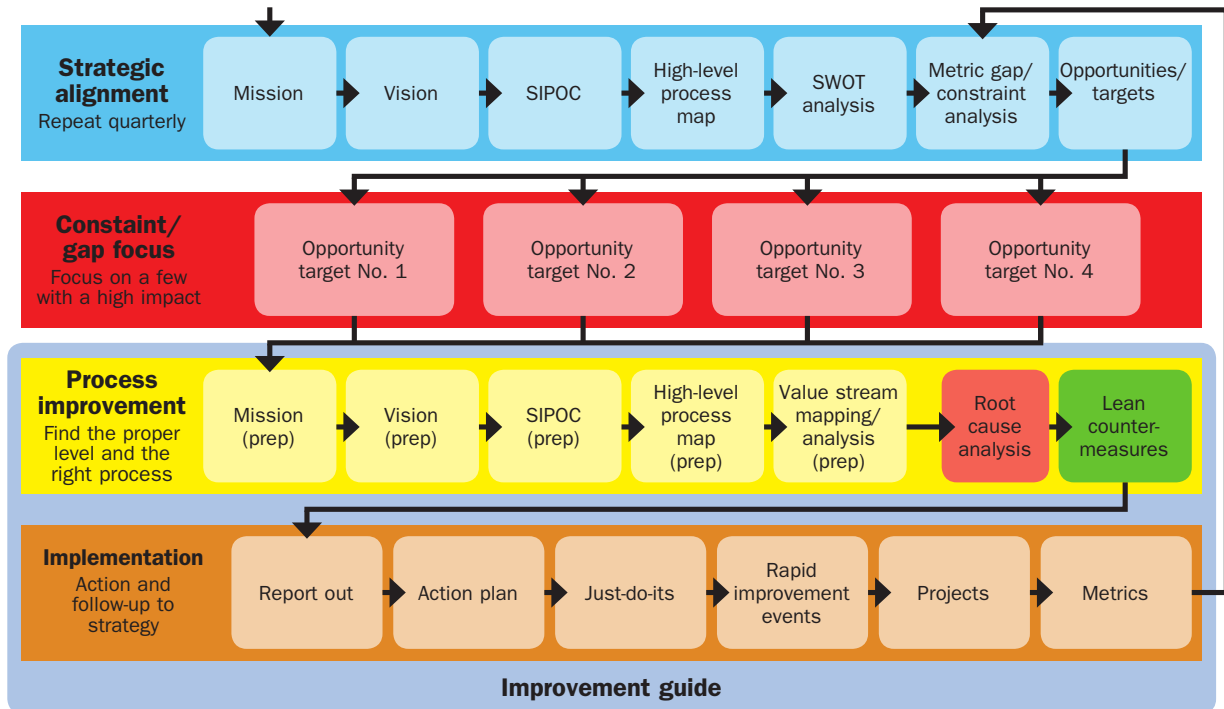
came fast and furiously—backlogs were reduced and improvements were made in the quality of the parts and how fast they could be produced.

But that didn't lead to sustained success. Why? We experienced a phenomenon that theory of constraints creator Eli Goldratt described this way: After the constraint is broken, a new constraint emerges. In my years applying lean as a consultant, I've seen this happen at every organization I've worked with. Some of these scenarios (Figure 1) may sound familiar:

- Management increasing production simply for the sake of end-of-period metrics, which changes the rate of production to an artificial demand, increasing cost of production through overtime and changing rate of consumption from materials management.
- Sales using a slow proposal and contract process with a lot of unnecessary rework that consumes much lead time.
- Purchasing having a large investment tied in inventory and espousing 90%-plus fill rates while serviceable parts or finished goods require 100%.
- Engineering having a long queue and lead time to provide approvals on any technical improvements.
- Internal auditing departments not only interpreting regulation beyond the scope and letter of the law, but also requiring operational representatives to implement policies and inspections.
- Facilities, HR and IT providing one-size-fits-all solutions that optimize their own production at the expense of the production processes they serve.
- Accounting and costing work being pushed on operational staff members who enter codes and inputs into an enterprise system with mystical algorithms, spitting out inaccurate forecasts.
- Logistics batching deliveries of serviceable units to reduce shipping costs while supply shelves remain empty.
- Finance or management criticizing process improvement using false negatives of temporarily increased lead time and costs per unit associated with reducing large backlogs.

Each of these groups is operating within its own corporate mandates (silos). With no responsibility for production, each group sometimes inhibits what they are actually supposed to enable. Although these departments' inputs to the operation are certainly outside of an operational supervisor's control, they are

Figure 2. **Lean applied to business processes strategic alignment and deployment guide**



SIPOC = suppliers, inputs, process, output and customers

SWOT = strengths, weaknesses, opportunities and threats

definitely not outside his or her influence.

Fortunately, lean can be applied to these supporting processes. This was my epiphany for my own organization, and it ultimately became my focus at the University of Tennessee’s Aerospace and Defense MBA program. Business processes are not unlike manufacturing processes, and therefore, continuous improvement methods apply.

### The first priority

Organizations should first go about finding the root cause of their revenue (or mission) constraints. Leaders should see this as their primary obligation and should be happy to find that root cause so improvement can begin. I created this strategic alignment and deployment (SA&D) guide (Figure 2) to offer leaders a standard, visual and repeatable method for that process.

By following the blue bar, the path to the constraint at any level of leadership can be easily discovered and communicated. Unfortunately, without articulating and making those items visual, problems become moving targets camouflaged with hidden agendas that

dilute improvement efforts. This method not only keeps the focus on the most important improvement at hand, but if it’s completed quarterly, it will also increase the number of improvements successfully implemented. The keys to the blue bar include:

- Articulated mission and vision are the foundations for all process improvement. Without that information, you may realize localized improvement, but to what end?
- Filling out the columns of a supplier, inputs, process, outputs and customer (SIPOC) diagram starts a visualization of the process, starting with identifying who the customer is. This is key for every process: The answer may not be as obvious as you think and may differ among employees.
- Creating a high-level process map provides a clear picture from which you may even see the constraint. “If you can’t describe what you are doing as a process, you don’t know what you’re doing,” said W. Edwards Deming.
- The commonly taught but seldom-used strengths, weaknesses, opportunities and threats (SWOT) analysis provides context for your improvement efforts.

Simply following this method at every level of the organization—while considering input from the higher level—eliminates much internal competition and misunderstanding. The process will show the path to the constraint and should continue at each level until the origin is found. What could be more important than that? If there is a policy constraint rather than a physical constraint, what department possibly could be above applying process improvement?

The yellow bar and green box in Figure 2 describe how to mitigate the constraint. Wherever the path to the constraint leads, repeat the mission, vision, SIPOC and high-level process map to:

- Make sure the problem is not just strategic misalignment.
- Scope the problem.

The next steps are to create a value stream map, identify the root cause and finally, apply lean countermeasures.

That tactical portion of the lean applied to business process improvement (LABP) method is shown

in Figure 3. The colors refer to the SA&D chart in Figure 2.

The key to mitigating the constraint in the lean way is to identify nonvalue-added steps and waste by applying a lean countermeasure. You'll use the value stream map to see the waste (yellow), use another set of tools (pink) to find the root cause of the waste and choose from a final list of tools (green) to offset the waste that still meets all properly vetted rules and regulations. Finally, you'll package (orange) the process improvement in a way that is palatable to all stakeholders.

### Identifying process wastes

Before performing a value stream map, which is the key to understanding the “how” of applying lean to business processes, you must be able to see administrative wastes in business processes in the same way one can see manufacturing wastes (I've added another waste to the traditional seven Toyota production wastes, as most authors who write about process improvement do):

#### 1. Lack of organizational focus:

This is the No. 1 waste: lacking the explicit documentation and communication of the results of the blue bar in the SA&D guide. Without this focus, many action items go unexecuted.

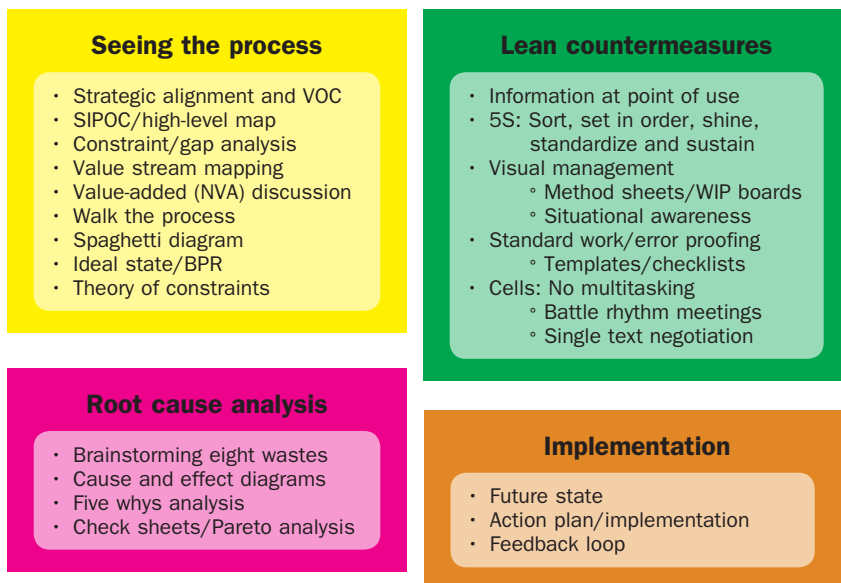
#### Lean countermeasure:

Complete the blue bar in the SA&D guide for your organization and require that subordinate departments solve the yellow bar.

**2. Inventory:** Typically, business processes don't have a pile of unfinished goods. Instead, they have too much work in process (WIP). Assuming a constant productivity level, the No. 1 metric for meeting deadlines is the amount of WIP. Because most WIP is not visual, as it is in manufacturing, business process or knowledge workers end up inducting too many documents, projects or initiatives, causing them to compromise quality or content to meet their deadlines.

**Lean countermeasure:** Use the SA&D guide to limit WIP to the

Figure 3. **Lean applied to business processes improvement guide**



BPR = business process reengineering  
NVA = nonvalue add  
SIPOC = suppliers, inputs, process, output and customers  
VOC = voice of the customer  
WIP = work in process

important few, create a WIP board to make items visual and keep WIP optimal.

**3. Transportation:** For business processes, transportation waste is the hurdle of handoffs and other obstacles to relaying information.

**Lean countermeasure:** Use value stream mapping to identify and reduce excessive handoffs; use standard work to eliminate the need for approvals.

**4. Motion:** For business processes, the mental motion of searching for information and documents in electronic folders and the search for situational awareness in our mind's eye represents waste.

**Lean countermeasure:** Sort, set in order, shine, standardize and sustain (5S) electronic and paper folders. Use WIP boards to increase situational awareness.

**5. Waiting:** This waste is even more costly in business processes than in manufacturing because knowledge workers start other processes while they wait, forcing their own excess WIP.

**Lean countermeasure:** Find the right battle rhythm to

work, meet and think.

**6. Defects:** Creating and revising documents serially, in other words, working asynchronously via email ping-pong.

**Lean countermeasure:** Work collaboratively using single-text negotiation. For example, teams project a document and simultaneously review and edit, rather than serially and separately.


**7. Overprocessing:** The waste of reinvention, variation and multitasking in processes within and between workers. For example, constantly attending to pop-up email notifications while trying to draft a document.

**Lean countermeasure:** Create standard work and checklists (best practices by employees doing the work). Understand and mitigate the start-up costs of switching between tasks. Shut off your email notification.

**8. Overproduction:** Business processes seldom have excess finished knowledge products, but certainly suffer from too many emails, meetings and reports.

**Lean countermeasure:** Adopt an email protocol,<sup>1</sup> create and follow standard work for meetings, and perform a 5S on reports.

After you've gathered your low-hanging fruit using lean for manufacturing processes, you may discover that the eight wastes, described earlier, are actually the root causes of the constraints on the shop floor. If you don't apply lean to your enabling business processes, you'll limit the effectiveness of lean on the operational processes they serve. Business processes are not unlike manufacturing processes—they're simply less tangible.

Applying lean analytical tools to identify waste and constraints in all your processes represents a tremendous opportunity for you as a leader. The happy result will be increased throughput with shrinking backlogs and less rework. 

## REFERENCE

1. Mike Song, Vicki Halsey and Tim Burress, *The Hamster Revolution: How to Manage Your Email Before It Manages You*, Berrett-Koehler Publishers, 2008.

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