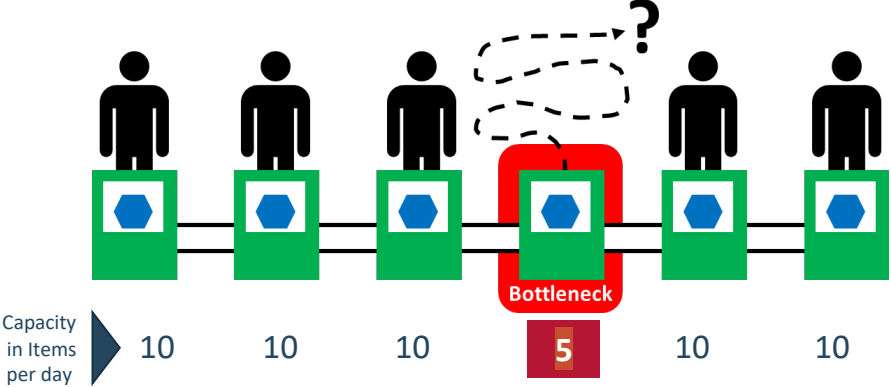


Tools for SMALL Businesses

Level 1 Question 8: We do not experience bottlenecks and/or quality issues in the process?

Please note the process mapping tools presented in this Toolkit is for small companies, that needs a quick overview of their processes.

For more detailed Pross mapping tools, please examine the tools in the MEDIUM and LARGE sections.

Title	Process levelling
Why	<p>The Theory of Constraints, a management paradigm developed by Eliyahu Moshe Goldratt, says every system has limitation factors, also known as bottlenecks.</p> <p>Focusing improvement efforts to better utilize this constraint is normally the fastest and most effective way to improve profitability."</p> <p>Identifying bottlenecks in your processes is an important step to improve efficiency and help your team reach important goals.</p>
What	<p>Bottlenecks are bumps in the road that should instead be smooth processes. They are the barriers between you and your company's established goals that slow down workflows or even block them. We can find process bottlenecks in:</p> <ul style="list-style-type: none"> • Project management and service request processes: These bottlenecks are usually information, people, time, and communication. • Production and supply chain processes: Factors such as sourcing machinery, raw materials, and suppliers are important and create bottlenecks. <p>Therefore, it is vital for operations management to focus on quickly identifying and managing bottlenecks.</p>  <p>The diagram shows a process flow with six stations. Each station is represented by a person icon on top of a box. The boxes are green with a blue hexagon, except for the fourth one which is red and labeled 'Bottleneck'. Below the boxes, capacity values are shown: 10, 10, 10, 5, 10, 10. A dashed arrow points from the bottleneck station to a question mark above it.</p>
How	<p>A step-by-step to how to identify bottlenecks</p> <p>To identify if something is wrong with your workflows, you first need to understand the types of bottlenecks that can occur. Short-term bottlenecks are temporary and may affect your process, but they don't have lasting impacts. Also,</p>

you should be aware of the long-term bottlenecks that can block your process and indeed influence your company's bottom line.

1. Map and analyze your processes

Mapping processes allows you to take a broader perspective when analyzing a process's overall flow and performance. Observe each process step, its resources, interactions, workflow lead time, and task backlog. This way, you can identify what is restricting production capacity and performance which will reveal existing bottlenecks.

Step 2. Find the constrained resource (bottleneck).

In this step, the process that limits production is identified.

Some examples of problems and causes you might find:

- Delays on final deliveries caused by a slow computer
- An overburdened employee, while others are vacant
- Information spread in different channels, causing execution mistakes and delays
- A machine is operating at full capacity, making other machines operate at a lower capacity.

Example:

The management at Computers, Inc., has identified department 4, quality testing, as the bottleneck because assembled computers are backing up at department 4. Quality testing cannot be performed fast enough to keep up with the inflow of computers coming from departments 1, 2, and 3. A limitation of labor hours available to perform testing is causing this backlog.

Step 3. Optimize the use of the constrained resource.

Here are some examples of what you can do to optimize the bottleneck:

- **Maximize Bottleneck Capacity**
Look for ways to get more out of your bottleneck under current conditions without adding expense. If your bottleneck stems from equipment downtime, rescheduling maintenance may improve performance with minimal added cost. If you discover that some workers perform above the bottleneck rate, consider additional training for those who don't. Look also to the bottlenecked process. If input work is inconvenient for a machine operator to reach, for example, neither he nor the machine operate at capacity.
- **Adjust Non-Bottlenecks**
When you have maximized bottleneck capacity, adjust the other points in the complete process to match the bottleneck flow. Reducing the speed at which incoming work arrives at the bottleneck removes extra material handling and may free staff at the input stage. Matching output of the bottleneck minimizes wait time at later stages. This step places emphasis on the flow of work through the entire process, leading to minimal wasted effort and maximized efficiency.

	<ul style="list-style-type: none"> <p>• Elevate the Bottleneck Operation When the previous steps of bottleneck theory produce improvements to constraints that still fall short of the capacity your business requires, then the bottleneck requires elevation. Steps such as adding another machine or more workers add major or ongoing expense to your business. Since capital purchases remove funds from your cash flow or add financing costs, and since more workers adds to production costs, profitability falls. Consider elevation only after maximizing and adjusting your bottleneck fail to remove the bottleneck.</p> <p>• Review the Process The improvement process is ongoing, a continuous improvement process devoted to optimizing workflow. When you implement change to address workflow, those changes require analysis, going back to step one and assessing the true impact on bottleneck performance. Look for the same factors such as work piling up or work stations waiting for input. Remove any fixtures or processes that supported the original bottleneck condition.</p> <p>Example</p> <p>The constrained resource has been identified as the number of labor hours available to perform testing.</p> <p>At this point, Computers, Inc., would like to optimize the labor hours used for quality testing. This is done by reducing the Quality testing requirements, as it turns out they are too rigorous, compared to the historic quality issues with the product. This way time in the Quality department is freed up, leaving room for more testing.</p> <p>In addition Management's goal is to loosen the constraint by providing more labor hours to department 4. For example, management may decide to move employees from departments 1, 2, and 3 to the quality testing department. Another option is to authorize overtime for the workers in department 4. Perhaps management will consider hiring additional workers for department 4</p> <p>Step 4. Repeat steps 1 through 3 for the new bottleneck.</p> <p>Once the bottleneck is relieved, a new bottleneck will likely arise elsewhere. Going back to step 1 requires management to identify the new bottleneck and follow steps 2 through 3 to alleviate the bottleneck.</p>
<p>Template</p>	