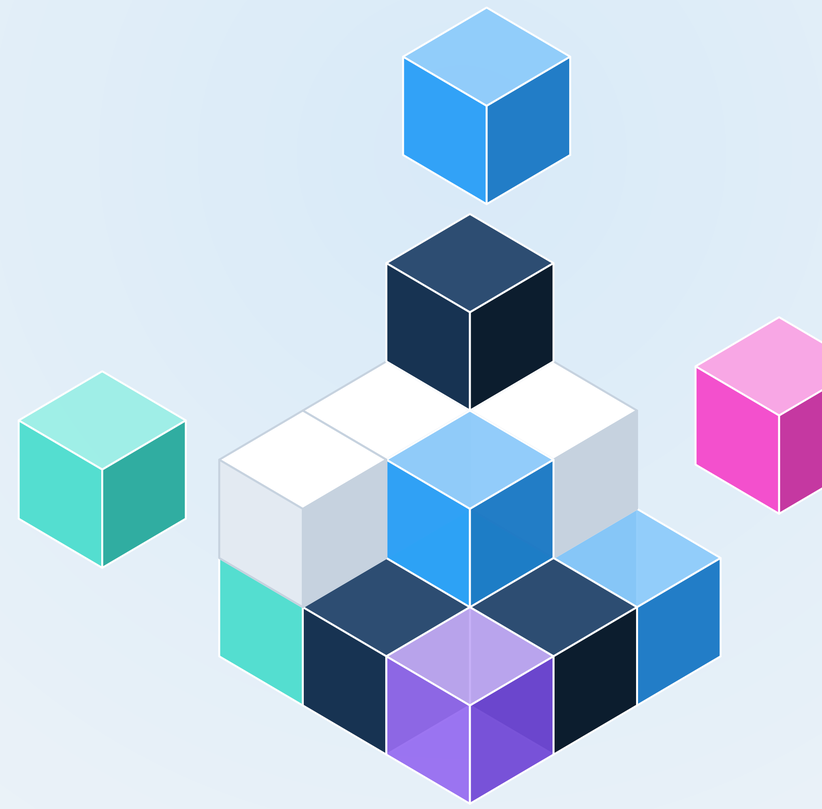
PROCESS IMPROVEMENT

Bottleneck Analysis



Bottleneck analysis finds the one step in a flow whose capacity limits the output of the whole system, so improvement effort goes where it raises throughput.

01 THE CORE MODEL

FLOW LINE · THE CONSTRAINT SETS THE PACE



Bottleneck

The step with the lowest capacity relative to demand.

Typical signs

A queue in front, idle steps after it, constant urgency around it.

System output

Equals the bottleneck output, however fast the other steps run.

02 FINDING IT

Look for where work waits, not for where people are busy.

GUESSING — EVIDENCE

MISLEADING SIGNALS

- The loudest department
- The most expensive machine
- Local efficiency reports

RELIABLE SIGNALS

+ Largest queue in front of a step
+ Steps after it often idle
+ Highest load against capacity

03 WORKED EXAMPLE

SHEET METAL LINE FROM THE DIAGRAM · ILLUSTRATIVE

BOTTLENECK
Weld at 62 s
all other steps faster

→

LINE OUTPUT
58 units / h
3,600 s ÷ 62 s

→

ACTION
Second weld jig
load while welding

→

NEXT CONSTRAINT
Bend at 45 s
the new bottleneck

04 MANAGEMENT TAKEAWAYS

01
Walk the line and look at queues
Queues show the bottleneck more reliably than reports.

02
Protect the bottleneck
Never let it wait for material, people or quality checks.

03
Expect it to move
Once relieved, the next slowest step becomes the constraint.

05 COMMON MISTAKE

LIMITATION
Improving a non-bottleneck
Speeding up any other step only builds inventory in front of the bottleneck.