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Theory of Constraints

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180 → **60** → 150

per hour at each station: tickets, griddle, toppings and coffee

The breakfast makes 60 an hour.

The slowest step sets the pace for everything.

THE IDEA

Every system has one slowest step, and the whole system can only go as fast as that step. Eliyahu Goldratt, a physicist, made the idea famous in his 1984 novel about a factory, *The Goal*.

Constraint — **The slowest step**, also called the bottleneck. In the episode: the griddle, at 60 plates an hour.

Throughput — **How much the whole system finishes** per hour, day, or week. It can never beat the constraint.

The pile — **Work waiting in front of the constraint.** Just past it, people stand idle. That pair is how you find it.

> *An hour lost at the bottleneck is an hour lost for everything. An hour saved anywhere else changes nothing.*

FIND THE BOTTLENECK: THE FIVE STEPS

1 Identify

Look for the pile. Last year it sat in front of the griddle; just past it, helpers stood idle.

2 Exploit

Waste nothing at the bottleneck. A helper took over mixing and plating, so the cook only cooks and the griddle never sits empty.

3 Subordinate

Everything else works at the bottleneck's pace. Goldratt called it **drum, buffer, rope**: the griddle is the drum, a full pitcher of batter is the buffer, and the ticket table is the rope, letting people in at the drum's pace.

4 Elevate

Add capacity at the bottleneck, and only there: a second griddle.

5 Repeat

Find the new slowest step and start again.

WHEN IT BREAKS

1 Exploit is not squeeze

The griddle got faster because the cook got help. When your bottleneck is a person, pushing harder is how you break them. Give the bottleneck help, not pressure.

2 The bottleneck moves

At 9:30 the coffee urn was empty, and a fresh one takes 10 minutes to brew. The fix was one more buffer: a second urn, always brewing. It gets messy when the bottleneck keeps moving, like in an emergency room.

3 Sometimes it's a rule

Sometimes the constraint isn't a step at all, but a rule, like last year's: only the cook touches the batter. Then you change the rule.

4 Sometimes it's demand

Once every station beat the 120 people arriving an hour, the constraint left the kitchen. Now it's how many people show up.

WORKED EXAMPLE FROM THE EPISODE

STEP	MATH	ANSWER
Last year, after one hour	60 waiting ÷ 1 a min	1 hour wait
Before: 3 min cooking, 1 min empty	4 plates every 4 min	60 an hour
Exploit: a helper mixes and plates	4 plates every 3 min	80 an hour
Elevate: a second griddle	2 × 80	160 an hour
Repeat: toppings and coffee now slowest	150 vs 120 arriving	keeps up
Result: 240 came, 240 fed	240 × $10	$2,400 (last year $1,200)

Two earlier fixes, a second ticket seller and more toppings helpers, changed nothing: neither touched the griddle. The 1 hour wait is Little's Law, from Episode 1.

TRY THIS WEEK

Pick one process you live with: getting the family out the door, a checkout line, a team's approvals, your inbox. Ask two questions: **Where does the pile form?** And **who is standing around waiting?**

The slowest step	What piles up in front of it	Who waits after it

Then pick one thing to stop wasting at that step. Speeding up any other step changes nothing.

A line for the next time someone says everyone needs to hurry:

"Where's the bottleneck?"

Sources: Eliyahu M. Goldratt and Jeff Cox, *The Goal: A Process of Ongoing Improvement*, North River Press, 1984. Eliyahu M. Goldratt and Robert E. Fox, *The Race*, North River Press, 1986 (drum, buffer, rope). The breakfast is a story; examples are illustrative numbers, not real data.