Lean and TOC: complementary questions, distinct controls

Select a bounded improvement from system evidence using Lean and TOC questions, preserve distinct release controls and evaluate the effect at the customer boundary.

The next project needs a reason beyond its tool name

Fictional repair route: preparation can supply 14 eligible units per hour, test can accept eight, and dispatch can handle 12. Demand is 10. Test loses time to incomplete kits, while a proposal promises to raise preparation from 14 to 18. Team lead Farah must choose a useful next experiment.

Your role and the reference condition

Improvement lead with preparation, test, dispatch and planning owners.
Normal: The team improves reliable accepted delivery while maintaining quality, safety and manageable work.
Gap: A local speed project is being selected because it is easy to measure, without explaining how more prepared units will pass through test.

Work within these conditions

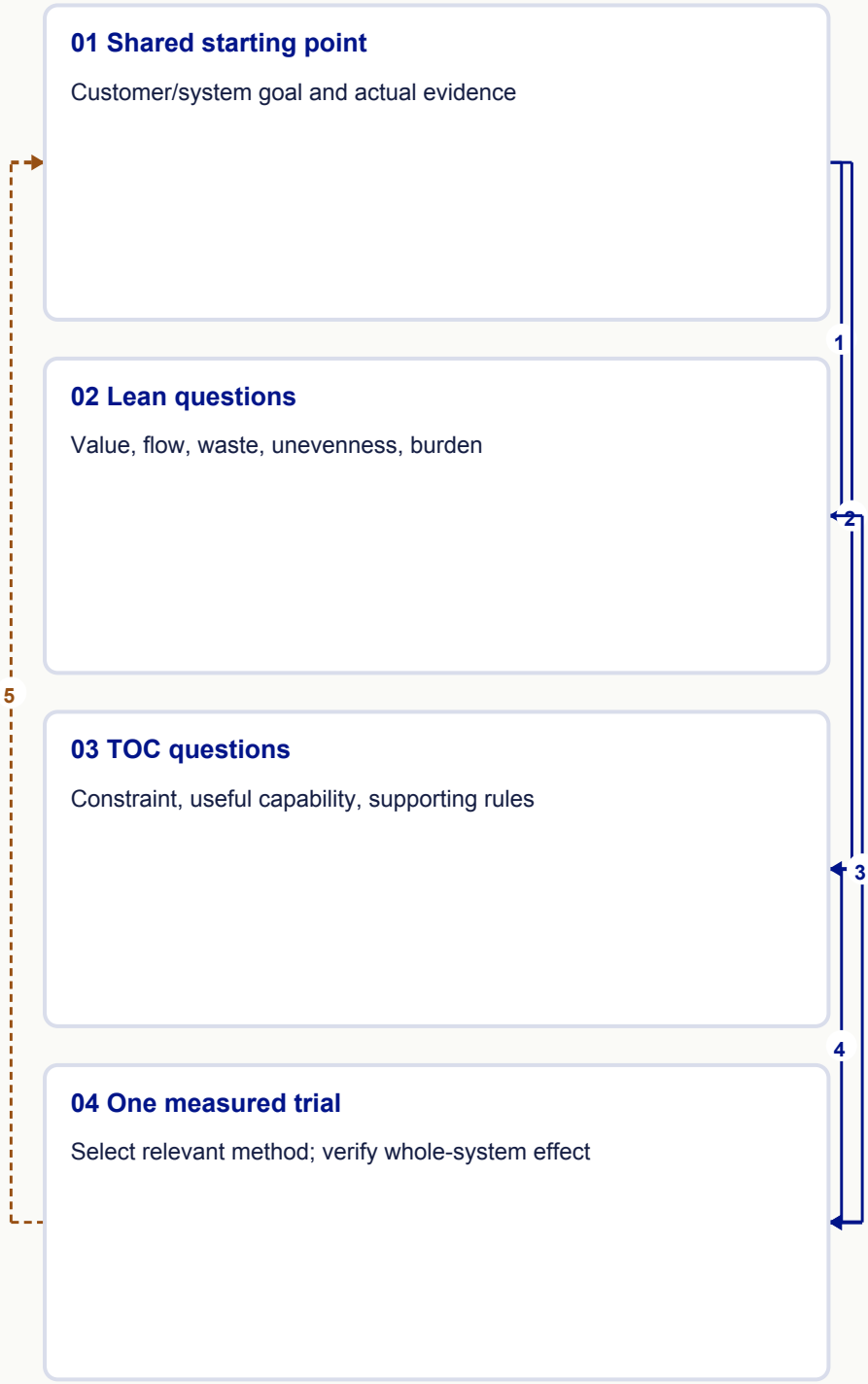
1. The rates are supplied comparable teaching values for the same mix; observe the real constraint mechanism.

2. Necessary safety and quality problems require response wherever they occur, including nonconstraint processes.

Fictional teaching case. Supplied observations support the exercise; proposed actions are not verified customer results.

See how the method works

Start with the outcome and the actual problem, not a contest between methods. Lean questions can reveal customer value, waiting, unevenness, overburden and barriers to flow. Constraints thinking focuses attention on what limits the defined system goal and how other work should support it. A setup or reliability improvement may serve both perspectives when it addresses a relevant limitation. Keep the control mechanisms distinct: customer takt, a scheduled pacemaker, kanban authorization and a constraint-based release rule are not interchangeable labels. Choose a bounded intervention, verify the whole-system effect and update the method as the evidence changes.



Read every connection

1. Step 1 > 2
Examine

2. Step 1 > 3
Examine

3. Step 2 > 4
Relevant intervention

4. Step 3 > 4
Relevant intervention

5. Step 4 > 1
Learn and re-evaluate

Connected method map: Shared starting point, Lean questions, TOC questions, One measured trial. Every authored connection is shown with a numbered arrow and named legend.

Follow the evidence and decisions

Inspect the supplied case inputs

Evidence / proposal	Supplied fact
Demand	10 accepted units/hour
Preparation / test / dispatch	14 / 8 / 12 units/hour
Observed test issue	Incomplete kits cause interruptions
Proposed speed project	Preparation 14 > 18/hour
Candidate trial	Improve kit readiness before test release
Release controls	Must be explicit; kanban and DBR are not interchangeable labels

01 / Start with the system outcome

Farah defines accepted delivered units and compares the supplied rates with demand. Test at eight per hour is the first internal constraint hypothesis, with a modeled gap of two.

Why: The same starting point lets the team ask different method questions without arguing about which label should win.

Evidence / check: Customer/system boundary and the provisional constraint comparison are recorded.

02 / Use Lean questions to expose the work

Follow a kit to test with the operator. Identify missing information, search, waiting, rework, uneven release and burden. Check what the customer needs and what makes the work difficult.

Why: The method should help people see a mechanism in the actual work, not merely assign a waste label to a department.

Evidence / check: Incomplete-kit examples, their causes to investigate and their effect on test readiness are retained.

03 / Use TOC questions to focus the response

Ask how the kit issue limits useful test capability and how supporting release/preparation rules can serve the system. Compare that with increasing preparation speed alone.

Why: More nonconstraint output may create additional WIP without raising accepted delivery. It can still be useful if it addresses a necessary condition or a demonstrated supporting dependency.

Evidence / check: Kit-readiness trial has an explicit path to protecting test; preparation-speed proposal lacks that path so far.

04 / Keep the selected controls distinct

Choose a defined readiness and release trial. If the site uses consumption-based kanban, retain its authorization semantics. If it uses constraint-paced release with protective buffers, retain that method's definitions and owner.

Why: Similar-looking cards do not make kanban and drum-buffer-rope the same system. Mixing triggers can create duplicate or uncontrolled release.

Evidence / check: One accountable release rule is written for the trial; no informal parallel authorization is added.

05 / Test and evaluate the whole effect

Predict fewer test interruptions, then measure eligible test completions, delivered output, WIP, quality and operator workload. Reconsider the focus if the limiting condition changes.

Why: A local reduction in searching is useful evidence but not by itself proof of a customer-delivery improvement. A bounded trial can reveal either outcome.

Evidence / check: Adopt/adapt/stop decision ties observed mechanism changes to system results and necessary conditions.

Completed intervention choice

Question	Case evidence	Decision
System gap	Demand 10; test 8	Investigate test limitation
Lean inquiry	Incomplete kits, search/wait	Observe with operators
TOC inquiry	Kit readiness affects test	Align supporting work
Preparation speed	14 already above test 8	No demonstrated delivery benefit alone
Trial	Ready kits under one release rule	Measure delivery, WIP, quality and workload

A hazard is found at preparation

The observation reveals an uncontrolled safety condition at the nonconstraint preparation station.

Decision

Use the required safety response immediately through its owner; do not defer it because test is the current throughput hypothesis.

Reasoning

System improvement includes necessary conditions. Constraint focus does not authorize unsafe work elsewhere.

What would change the decision?

Safety action and the separate flow-improvement hypothesis are both visible.

Practise with a changed case

Choose an office improvement from the evidence

Separate fictional claims route: intake 20, validation 12 and authorization 16 cases per day; demand 15. Validation repeatedly waits for missing customer documents. Proposal A makes intake faster; proposal B tests a complete-document readiness check with a named support response.

Input	Value
Intake / validation / authorization	20 / 12 / 16 cases/day
Demand	15/day
Recurring issue	Missing documents at validation
Alternatives	Faster intake / readiness-and-response trial

Your task

1. Identify the first constraint hypothesis and modeled gap.
2. Explain what each method's questions add to the readiness trial.
3. Specify system checks and a finding that would make you revise the proposal.

Use the next page to record your reasoning before reading the answer.

Your practice worksheet

Choose an office improvement from the evidence

Customer boundary and rates

Observed work difficulty

Constraint/supporting-policy question

Single trial rule

Outcomes and disconfirming evidence

Complete your reasoning before turning to the answer. Use the separate learner workbook for group practice.

Check your reasoning and transfer it

1. Validation at 12 is the first internal hypothesis against demand 15, a modeled gap of three cases per day.

2. Lean inquiry follows missing documents, waiting and rework with the people doing the work. TOC inquiry asks how the dependency limits useful validation capacity and how intake/support should align.

3. Test proposal B without claiming it is proven: record readiness, validation completions, correct authorized cases, total waiting and workload. If missing documents are rare or the check merely moves a longer queue upstream, revise the mechanism and trial.

Suggested completed record

Decision element	Evidence / action	Interpretation
Hypothesis	Validation 12 versus demand 15	Gap 3/day
Trial	Complete-document readiness + response	Observe rather than assume
System check	Correct authorized cases and waiting	Customer outcome
Disconfirming evidence	Longer total queue or no interruption effect	Adapt/stop

Plausible wrong turns

1. Combining method questions does not merge their control rules.

2. Constraint focus does not justify ignoring safety, quality or people elsewhere.

Evidence of a sound answer

1. Connect the proposed action to a system mechanism.

2. Retain one clear release authority.

3. Specify evidence that can disconfirm the preferred intervention.

Take the learning back to work

Commitment	Agreed follow-through
Owner	System improvement owner with affected operators and process owners
Record	Problem evidence, trial/release rule and whole-system result review
Review	After a bounded representative trial and any changed constraint evidence
Verification evidence	Correct delivery, controlled WIP, reduced relevant interruptions and sustainable work
If unresolved	Revisit the mechanism or constraint hypothesis; preserve necessary controls and avoid multiplying incompatible release rules.

Help someone else apply the method

Prepare

1. Route-rate cards, kit/document examples and two proposal cards
2. Trial prediction and system-outcome sheet

Minutes	Activity and coaching prompt
4	State the outcome What must reach the customer, and under which conditions?
8	Ask both sets of questions What do operators see, and what limits useful system output?
8	Compare the office proposals Could a readiness check simply move the queue?
5	Define the control and review Which release rule remains authoritative?

Debrief

1. Reject tool-first answers without an observed mechanism.
2. Use the safety exception to check that necessary conditions remain explicit.

Individual or remote practice

Write the same problem through both question sets, then choose one test with a falsifiable prediction.

Connect the method and check its boundaries

Before application

1. Known boundary and outcome
2. No predetermined tool mandate

Outside this lesson

1. Pacemaker is not automatically bottleneck
2. Kanban, takt and DBR are not synonyms

TOCICO: Process of Ongoing Improvement

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Five focusing steps connect applications and complement other improvement approaches; public synopsis only

Public course synopsis only; no claim to have viewed restricted course content.

Open this lesson and its visual aids