

Muda, mura and muri reinforce each other

Use daily release and workload evidence to explain how unevenness can produce overburden and waste, then design a test without assuming that all quiet time is removable.



Friday is overloaded before the work begins

Fictional training case: a service coordinator receives 20 complete requests each weekday. An internal manager releases work to the processing team in one large Friday bundle. Analyst Luis asks whether overtime reflects customer demand, the release rule or a lack of capacity.

Your role and the reference condition

Service team leader and request-release owner.

Normal: The team works at a sustainable pace and completes accepted requests accurately within the service promise.

Gap: The weekly total looks manageable, but a Friday surge produces repeated clarification calls and rushed corrections.

Work within these conditions

1. Use the supplied daily sustainable processing capacity of 25 requests.
2. This first-pass calculation ignores carry-in backlog and variation; verify both before implementing a release change.

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

See how the method works

A weekly release surge can make people hurry, create errors and leave others waiting later. Those are connected observations, not three unrelated improvement projects. Ask how work arrives, what capacity is available, and where the method demands unreasonable effort. Then redesign the release or work arrangement with the people affected. A short pause may protect reliability; eliminating it without understanding the system can worsen the outcome. Compare customer service, workload and quality after the change. The aim is an easier, steadier method that removes avoidable waste without transferring burden elsewhere.



Connected method map: Unevenness, Overburden, Waste, Redesign and test. Every authored connection is shown with a numbered arrow and named legend.

Follow the evidence and decisions

Inspect the supplied case inputs

Day	Customer arrivals	Internal release
Monday	20	0
Tuesday	20	0
Wednesday	20	0
Thursday	20	0
Friday	20	100
Every day	Sustainable capacity	25 requests

01 / Separate demand from the release rule

Luis plots arrivals and released requests on the same five-day axis. Both total 100, but arrivals are steady and the internal release is concentrated on Friday.

Why: The weekly sum hides the timing mechanism. A demand surge and a management-created release surge require different investigations.

Evidence / check: Arrivals: 20 each day; release: 0, 0, 0, 0, 100.

02 / Name each mechanism using evidence

The release pattern is unevenness, or mura. Attempting 100 requests against a sustainable 25-request day is an overburden risk, or muri. Correction and repeat clarification are observed candidates for waste, or muda.

Why: The labels describe linked conditions rather than three boxes into which each person must be placed. Do not diagnose worker effort from a chart.

Evidence / check: The supplied Friday release is four times the declared daily sustainable capacity.

03 / Keep the capacity assumption visible

At the supplied limit, only 25 of the Friday release can be processed that day, leaving 75. Luis records that overtime results and actual quality rates have not been supplied.

Why: A simple queue calculation can expose an impossible promise but cannot prove a medical, ergonomic or capability threshold. The declared capacity is a teaching assumption.

Evidence / check: First-pass Friday remainder: $100 \text{ minus } 25 = 75$ requests.

04 / Test a steadier release with safeguards

The release owner proposes 20 complete requests daily, retaining necessary readiness checks. The team verifies that the information is available and the service promise allows immediate release.

Why: Leveling a controllable internal release may reduce induced overload. It does not mean holding urgent customer work to make a graph smooth.

Evidence / check: Proposed daily load 20 versus capacity 25; five-request nominal margin, not guaranteed spare capacity.

05 / Check all three conditions after the trial

Record waiting, repeat work, completion accuracy and experienced workload. Keep time for problem solving and response coverage rather than filling every quiet minute with more starts.

Why: Removing visible idle time can remove the ability to absorb normal variation and then recreate overload elsewhere.

Evidence / check: Trial review compares daily patterns, queues and worker feedback with the original mechanism.

Completed release diagnosis

Mechanism	Case evidence	Response
Mura	Friday-only internal release	Check daily release feasibility
Muri risk	100 released against 25/day	Do not demand an impossible daily rate
Muda candidates	Clarification and corrections	Observe causes and frequency
Prediction	20 ready requests/day	Check accuracy, age and sustainable workload

The customer actually sends a Friday surge

A new observation shows 80 requests arrive on Friday and only five on each earlier weekday.

Decision

Reopen the demand and capacity assumptions; do not pretend the release manager created all the unevenness.

Reasoning

The same visual symptom can have a different cause. Options may include agreed lead times, flexible trained capacity or readiness changes, subject to customer needs.

What would change the decision?

Separate arrival and release histories support the revised explanation.

Practise with a changed case

A different weekly pattern

Fictional warranty desk: arrivals are 12 per day, releases are 0, 0, 20, 20, 20, and sustainable capacity is 15 per day. There is no initial backlog.

Day	Release
Monday	0
Tuesday	0
Wednesday	20
Thursday	20
Friday	20

Your task

1. Calculate end-of-day queues from Wednesday through Friday.
2. Distinguish actual arrivals from internal release and explain the overburden risk.
3. Propose a test using the 12-per-day arrival pattern and state what still requires observation.

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

Your practice worksheet

A different weekly pattern

Daily arrivals and releases

Capacity assumption

Queue at each day end

Proposed rule and exception

Quality and workload evidence

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

Check your reasoning and transfer it

1. Wednesday leaves 5; Thursday starts with 5 plus 20 and leaves 10; Friday leaves 15 after processing 15 from 30.
2. The 60-request weekly load is below 75 theoretical weekly capacity, yet delayed release prevents earlier capacity from serving it.
3. Twelve ready requests released daily is a testable proposal if readiness and promises permit it. Validate mix, time per request and quality instead of treating the arithmetic as proven capacity.

Suggested completed record

Day / proposal	Calculation	Result
Wednesday	20 minus 15	5 waiting
Thursday	5 plus 20 minus 15	10 waiting
Friday	10 plus 20 minus 15	15 waiting
Proposed	12/day against 15/day	Test readiness and variation

Plausible wrong turns

1. Weekly average load does not show daily overburden.
2. Leveling does not justify delaying genuinely urgent work or ignoring variable task effort.

Evidence of a sound answer

1. Carry the queue forward correctly.
2. Distinguish the release policy from customer demand.
3. Include quality and worker experience in the trial review.

Take the learning back to work

Commitment	Agreed follow-through
Owner	Release owner with service team leader
Record	Daily arrivals/releases/completions, queue age and workload observations
Review	Daily during a limited trial, then at the agreed service review
Verification evidence	Accurate completion with less induced waiting and no increase in strain or hidden work
If unresolved	Review readiness, real demand variability and trained capacity; retain explicit urgent-work rules.

Help someone else apply the method

Prepare

1. Five day cards and 60 request counters
2. Release/arrival chart and queue worksheet

Minutes	Activity and coaching prompt
4	Compare the two patterns What does the weekly total hide?
7	Build the Friday queue Which assumption makes the 75-request remainder valid?
9	Calculate the warranty variant Where does Thursday begin: zero or Wednesday's remainder?
5	Plan transfer What evidence would identify real demand variation?

Debrief

1. Challenge claims that the team simply needs to work faster.
2. Discuss necessary response capacity before eliminating apparent quiet time.

Individual or remote practice

Use a separate row for arrivals, release, completion and queue; explain each change before viewing the solution.

Connect the method and check its boundaries

Before application

1. Defined work boundary
2. Worker input on strain

Outside this lesson

1. Idle capacity is not automatically waste
2. Do not remove required checks as non-value work

LEI: Muda, Mura, Muri

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Waste, unevenness and overburden are interrelated

Method reference; original OPEX scenario and diagram are synthetic teaching content, not source case results.

[Open this lesson and its visual aids](#)