A field guide to learning from failure

6 MISSED wastes

that piss off your team & harm your customers

Take the single most important process in your work. Whoever you are, whatever you make, whoever you make it for, I guarantee there's **waste** built into that process.

Nobody wanted things to be that way. **Nobody designed the process to be wasteful.** But it still happened.

It takes time and effort to make defective or broken stuff, to produce and pass along bad information, and to create and eventually clean up errors—*if* the errors get noticed. Otherwise, they're out into the wild, harming your customers.

- Your customers aren't getting the service they expect and deserve.
- The people who do the work are frustrated, too.
- Things are slower, more error-prone, and more awful than they need to be, and seem to get worse over time.

Waste WTF

"Waste" is jargon from the world of continuous improvement. Waste is anything that fits two criteria:

1. Your customer doesn't need it.
2. You don't need it in order to get the work done.

Finding and removing waste is a great way to make things better for customers and for the people who do the work. That's what we'll be doing together in this field guide.

Did you know that in the United States there are government programs where if the agency makes a mistake and gives a low-income person more grocery money than they're eligible for, the person is still on the hook to repay it, even though the reason they got that benefit is that they couldn't afford groceries? It's true, and it's a great example of waste.

Failures and waste in the processes the government uses to sort out a person's benefits have real costs, not just for the feds, but for you or your neighbors. OK, but *where* is that waste? Let's look for it.

- **It's a waste** on the government's part to give out the wrong benefits.
- **It's a waste** of government staff time to make and fix these errors.
- **It's a waste** for the person receiving the service to have to deal with errors somebody else created.
- **It's a waste** of government resources to spend money trying to recover money from people who don't have much of it.
- **It's a waste** for society to make people with little or no income jump through all these bureaucratic hoops while they're in a personal crisis rather than just feeding people who are hungry and housing people who need a place to live.

Waste and its costs are everywhere, once you start looking.

- Trains derail because the speed control system was turned off.
- Floor mats in cars jam accelerators to the floor.

- Surgeons operate on the wrong patient, or the wrong half of the right patient.

- The new mission-critical software system that was supposed to make everything faster is down for the first week after launch.

This kind of failure happens all the time, every day, everywhere. Wasteful systems drag everybody down. That's the bad news.

The good news? While you might not be able to do anything about waste "out there," when it comes to the waste hidden inside your processes...

Waste is wonderful

Because anytime you locate waste it's a giant, flashing billboard pointing to a problem built into your system.

You can go to where the work happens every day, use this field guide to identify waste where it happens, and make everyone's day better by kicking that waste to the curb.

This field guide will help you do three things:

1. **Uncover the 6 MISSED wastes buried in your work. We'll look at Memory, Inconsistency, Stress, Started, Errors, and Delays.**

2. **Capture the insight and experience of everybody on your team.**

3. **Improve something today.**

Waste #1: Memory

The process asks people to remember too much or too infrequently

The first thing I noticed when I visited the office was the front counter. Somebody had brought in an old, beautiful wrought iron grate from the teller window of a bank, and integrated it into the front counter. Visitors would arrive at this office with questions or to drop off materials, and the teller window made everybody smile.

The second thing I noticed were all the logbooks.

- The front desk had an electronic log of visitors & materials received.
- Each employee kept their own paper log of activities.
- The supervisor kept a paper log of what staff were working on.
- There was a daily log, also paper, in a separate place in a hallway.

They kept all these logbooks so nothing important would be forgotten. Do you think everyone remembered to log everything, all of the time?

Of course not! And who could blame them? There were too many places to record things. I saw people jotting down notes they'd need to enter into the actual logbooks when they had a minute. When we looked for a certain day's electronic log, we found four different, non-identical copies. The "trusted" copy was on one person's USB thumb drive.

If you ask people to remember too much, or remember some detail at the wrong time, they'll slip. In this office, staff were being asked to remember to log too many things, too often, in too many different places. When faced with a customer in front of them, a ringing desk phone, and a pile of other assignments, it made sense that all that redundant logging was the first thing that slipped.

Don't clutter your processes up. Don't clutter your team's minds up. In this case, instead of requiring staff to remember to keep all the various paper logs up-to-date, the solution was a simple one-day fix: a single, streamlined electronic logbook shared by everybody.

Other wastes of memory:

- Distributing important information once (*"we sent a memo"*, reciting details in training, hiding it away in a document or intranet page) and then expecting people to recall it perfectly, at the right time.

- Tasks that require people to clutter their working memory, or keep too many things straight. Have you heard of the 5-7 rule? That's about how many items most people can hold in working memory without much trouble. How many digits in a phone number? That's no coincidence. When you ask people to juggle more than a handful of pieces of information at once, you're setting them up to fail.

- Activities where people have to remember to check too many places, or do too many things. These are error-prone if people are interrupted.

Waste #2: Inconsistency

There is bonus variation or chaos baked into the process

Waiting rooms are the worst. Once you start practicing continuous improvement, you will be cursed to identify all of the wastes that stack up in any waiting room. At least fuming pointlessly at them will keep you occupied while you wait.

As much as I hate waiting in waiting rooms, I love to visit them at client sites. You can always learn something.

A client I worked with ran five waiting rooms in different locations that were all intended to handle an identical "front of the house" process. Why did one location's wait times look so much shorter than the other four? The client had staffed each office properly relative to the flow of customers appearing at each. Were the staff in some offices lazier than others? Did all the "easy" customers go to a particular location?

It all came down to measurement. Customer wait time was supposed to be measured starting from the moment a customer appeared and checked in, to the time they were seen. The waiting rooms had fancy lobby management software which had been elaborately configured to disable 95% of its features and allow staff to easily keep wait time measurements.

In some waiting rooms, the clock started for a customer when they walked in and said hello.

In others, the lobby staff did some unofficial triage first. Why was the customer here? Did they bring the right paperwork? Was it filled out? Only once these things were squared away would lobby staff check in the customer and start the wait time clock.

What started as a conversation about wait time quickly turned into an exploration of what was happening in different waiting rooms. The triage function turned out to provide an important benefit for customers: it saved them time by letting them reschedule at the beginning, rather than the end, of an appointment if they didn't happen to have everything they needed on hand. It was also good for the rest of the staff. Customers seemed to be more organized and prepared—because they were!

The shorter wait times were because wait room staff were doing extra work to provide a better level of service. That extra time and effort happened to fall outside the measurement system.

After putting all this together, my client gathered the waiting room staff around a table, provided some snacks, and gave them time to figure out what the best triage procedure would be. They made the new procedure the standard across all five waiting rooms. This meant that waiting room staff actually got some coaching on points of service, as well as standardized materials to hand out to customers. Everybody won.

A note on variation & standards

These inconsistencies are examples of **variation**, which you can think of as the degree of "wobble" or change within a system. Variation is always going to exist, but it's an easy thing to look for and figure out whether it's a hint of something deeper.

Sometimes the variation is baked into a process: if you were one of the people waiting in the waiting rooms we just discussed, and were told there'd be a 10 minute wait, you might expect to wait somewhere between zero and 15 minutes. But there'd be no reason to get mad if your wait wasn't *exactly* 10 minutes long.

Sometimes variation has special causes: waiting rooms the world over fill up after long weekends or holidays.

And sometimes variation develops between different *instances* of a process. That's what we saw across those five waiting rooms.

Not every inconsistency you discover is a sign that something is wrong. Not everything needs to be standardized. But understanding variation in your processes and where it comes from could be your superpower.

Waste #3: Stress

Staff & customers leave the process more stressed than they enter it

My urban planning client had just moved all their staff into their new open-plan office space. Folks were doing plan review for construction projects in their community. Unrolling giant paper plans and complex schematics, sweating out the details. Get it wrong? The city and its residents pay the price for decades. Plumbing is a game of inches.

While staff were immersed in these reviews, they were semi-randomly interrupted by a godawful sound. The perforator: it was right next to

their plan review area, and it was super loud. It sounded like an airplane's landing gear falling off.

One group picked that spot for the large work surfaces for unrolling paper plans. Somebody else put the vile perforator there. Once the building opened, a third group—our plan reviewers—came in and got to work. But things got better when they moved it out of earshot from the plan review area. An area for focus. And an area, far away, for shooting holes through stacks of paper.

Nobody *wants* to feel stressed, physically or mentally. But we do it to ourselves. Our bad systems guarantee that people who do the work every day get stressed because of the aggravations, interruptions, and demands of the environment around them. When these aggravations aren't essential to the work, get rid of them!

Interruptions & fragmented work drive mental stress through the dang roof

Here are two findings from a study where researchers peppered increasingly flustered participants with inane questions while they were trying to respond to emails:

> *"When people are constantly interrupted, they develop a mode of working faster ... to compensate for the time they know they will lose by being interrupted. Yet working faster with interruptions has its cost: people in the interrupted conditions experienced a higher workload, more stress, higher frustration, more time pressure, and effort. So interrupted work may be done faster, but at a price."*

> *"After only 20 minutes of interrupted performance people reported significantly higher stress, frustration, workload, effort, and pressure."*
>
> From The Cost of Interrupted Work: More Speed and Stress by Gloria Mark, Daniela Gudith, and Ulrich Klocke.

People can crank up their performance to deal with being interrupted. But this comes at a cost for each person individually, and it hides problems in the system. When you notice "interrupted conditions," don't merely accept them as the way things are—fix them.

Waste #4: Started & unfinished

You can see work lying around, especially work in process

It's human nature. It's easier to start things than to finish them.

Some things—like pancakes—you pretty much have to finish once you start them. Try cooking the first half of a pancake, setting it to the side, cooking the first half of another pancake, and continuing until you have a stack of five half-cooked pancakes. How on earth are you going to finish those? It's a gooey, inedible mess.

Yet I often see people making the first halves of a great many pancakes.

There's a special term for it: "rework". That's when somebody begins a task, sets it to the side, and then by the time they come back to it, circumstances have changed such that they have to start it all over again, rather than picking up where they left off.

When I first started to program computers, I learned this lesson the hard way. I'd write the first half of three cool things, get all three of them into some inoperable mess, and then have to throw out all but the first half of the first cool thing.

That was a waste when I did it on my own time, but I've participated in professional software development teams where we did the same thing, except at much greater expense.

I've worked with groups where the impact of the work they'd started—but not finished—was thrown into stark relief when they had to evacuate their office buildings due to natural disasters. Some offices were able to grab a few select files, etc. and lock the doors. In others, somebody had to comb each employee's office looking for work in progress in inboxes and on desks. Talk about adding extra stress to an already stressful time!

Where's the best place for a given piece of work to be in your process?

1. Work that is finished and making a customer happy is best.

2. After that, it's best to not have started the work at all.

3. Last and least: having *work in progress*; started, but not finished. It's easily interruptible and as delicate as a half-cooked pancake.

That said, having the right amount of work in progress is what lubricates a system—helping things flow smoothly. Think about your work in progress like cars on a freeway. Each car is trying to get somewhere. It'd be best if they could all be at their destinations already, but that's not realistic. If you jam as much work in progress into your process as you possibly could, you'd have a traffic jam. And if you only allowed a single

car at a time on the freeway, one lucky vehicle would heed the call of the open road but you'd be creating backups everywhere.

For today, it's enough to ask: What problems crop up in the time between when a task is started and when it's finished? Do you know how much work in progress you actually have? Where are opportunities to re-sequence or simplify work in order to reduce the amount of things you're starting, but not finishing?

Waste #5: Errors

Time spent making, finding & fixing errors, defects & mistakes

Everybody makes mistakes.

The single biggest mistake is not learning from your mistakes.

Call them errors, defects, bugs, lousy results, broken parts, misdiagnoses, incorrect determinations—call 'em what you like, but be sure to learn from them!

Two important points when you're looking for this type of waste.

First, remember that errors are produced as well as corrected, discarded, or passed along without notice. When you spot errors, it's important to notice where the errors were produced in addition to where they were spotted (and hopefully corrected). Step T of a process might be where the error crops up—but it may have actually occurred way back in Step F. Fix step F. The lean expression is to *"build in quality at the source."*

I often hear people say something like, *"We get these things that are wrong in this particular way."* They'll have a method for dealing with it. The opportunity for improvement lies in reducing or eliminating the amount of things that come in wrong. A simple, useful measure is to track the percentage of work that's complete and accurate ("%CA") as it **enters** each step of a process. Where does this percentage go down? Where does it go up? Ideally, it'd start at 100% and stay there all the way through.

Second, remember to fix the problem, not the blame. You'll have to learn from the person who *made* the mistake or *produced* the error. But don't just proclaim "do better"—build in quality at the source in one of these ways:

A. By making it harder for mistakes of this kind to happen in the first place. (If you need a hint, it might be because the process taxes **memory**, has built-in **inconsistency**, or generates undue **stress**.)

B. By catching mistakes and fixing them immediately, rather than kicking the can down the road.

Waste #6: Delays

People, materials & information sitting around or stalled

It was the end of a long day, and the sun was already low over the foothills. Nobody was happy. We'd gathered for a few hours to scribble a whiteboard-sized picture of the step-by-step process this group uses to get clients enrolled into a particular program.

Nobody was happy because of a little table down in the lower-right corner. It read (in part):

> **Process time: 15 minutes—30 minutes**
> **Lead time: 45 days—60 days**

What that means is that if a client showed up to get enrolled, and all of the staff that needed to "touch" the client's work were in the same room, lined up in order, that client could get enrolled in half an hour.

However, it took **sixty days**.

For reference, that's the gestation period of a wolf.

My job in that moment was to preserve the group's unhappiness—but to stop them from taking it *personally*. They were fixing the blame on themselves. Once they started being critical of their process instead, they saw a huge opportunity for improvement.

Guess what? They got that lead time down to 14 days, mostly by shuffling things between groups in a way that eliminated some of the bigger delays. A huge difference after a single day's work!

Identify delays. And look for ways to reduce or re-sequence activities to cut those down.

MISSED opportunities

OK, let's review the 6 daily wastes you can find hidden inside your most important processes.

Memory	The process asks people to remember too much or too infrequently	These tax the most important resource you have: the people doing the work
Inconsistency	There is bonus variation or chaos baked into the process	
Stress	Staff and customers leave the process more stressed than they enter it	
Started	You can see work lying around, especially work in progress	These steal time, energy, and results from your customers
Errors	Time spent making, finding, and fixing errors, defects, and mistakes	
Delays	People, materials, and information sitting around or stalled	

Taken together, these 6 wastes can seem daunting, and add up to a lot of effort expended by your team that doesn't make you money, delight your customers, or make the world worth living in. However...

Each waste you identify is a MISSED opportunity to make a small, reversible change that improves the performance of the system.

How to identify and remove waste like a dang champ

ROUND 1: Identify waste!

You gotta go to where the work happens.

> **Question:** *But our work happens in the computer system!*
> **Answer:** *I don't care, go to where people are touching the computers.*

> **Question:** *We already know what our problems are!*
> **Answer:** *Great, let's go gather some evidence to tell a story about what you already know. (We'll find new stuff too!)*

> **Question**: *We don't have extra time to spend on improvement!*
> **Answer**: *OK, then I guess you're perfectly happy to keep doing things exactly as they are today, and can accept that they're likely to gradually worsen over time.*

Here's the **step by step procedure**:

1. Review the 6 MISSED wastes (pages 4-15 of this guide).
2. Print off a few waste walk worksheets (the last page of this guide).
3. Go to where the work happens.
4. Set a timer for 30 minutes.

5. Look at what's happening.

    A. Try to notice details without making judgements, assumptions, or inferences.

    B. Ask questions if you need to, but save them for later if you can.

    C. When you see an instance of waste, write it down on the sheet.

6. After time is up, share what you found with others and compile everybody's ideas into a single list.

It's not complicated. You just have to do the work.

A few tips:

- **If the time seems too long**, feel free to move around so long as you're staying where the work happens.

- **If you get bored**, try writing down a separate list of everything you see in the work area. You're practicing looking.

- Pretend to be a **new person seeing all this for the first time**. What stands out to you?

ROUND 2: Learn from everybody

The easiest way to do this is to give everyone involved in the work a chance to do a waste walk together. Compile and compare all the responses and discuss over snacks. This is your chance to ask all the questions you collected during the waste walk.

ROUND 3: Knock that waste out!

If you can think of a "gimme" or a drop-dead simple, obvious change, just go for it.

Otherwise, try a SmaRC.

A SmaRC is a Small, Reversible Change

A small change. Look for the smallest possible change that you can try in order to test whether removing the waste is an improvement—and to make sure it doesn't just push your problems around.

Think of smallness in terms of...

- **Size**. Instead of making the change sitewide, can you have a few people try it first?
- **Time**. Can you commit to the change for a week or a month?
- **Ambition**. If the right way to do this would be using a computer system, can you fake it for today using a spreadsheet or paper?

A reversible change. One big reason to keep your changes small is so that they're easily reversible. If they don't work out, you can go back to the way things were before.

It's easier to ask yourself or someone else to try out a new way of doing something if it can be quickly reversed or rolled back if it didn't turn out as well as you'd hoped.

How to find your SmaRC

Write up a plan for how you might try out a change. Remember, you want to try the change out, see if it works, and learn from it as quickly as possible.

If the change worked... great!

Jot down your ideas for how to standardize the change—making it part of how the work gets done everyday. How will you sell it to everybody? (The initial success of your SmaRC will do most of the work for you, here.) How will you make sure everybody knows what's happening and how it will affect their work? How will you express appreciation for the people who contributed to the waste walk, the change, and the work ahead?

If the change didn't work... great!

At least you learned something, and you didn't drag everybody through a huge, painful process redesign in order to figure that out. What else did you learn? Write that down next to the plan and keep it somewhere where you can find it down the road. Find the next thing to try and go for it.

> "Our life is an apprenticeship to the truth, that around every circle another can be drawn; that there is no end in nature, but every end is a beginning; that there is always another dawn risen on mid-noon, and under every deep a lower deep opens."
>
> —Ralph Waldo Emerson, "Circles"

Where to? What next?

With this field guide and your waste-walkin' shoes, you have everything you need to look for MISSED opportunities for improvement—and to use what you found to improve something today. I encourage you to imagine and build your own continuous improvement program.

Your work is important & the people you work with are valuable. Don't wait for a crisis to start improving.

Making improvements is best done in a spirit of continuous improvement, rather than the giant overreactions that we typically undertake in response to a crisis.

Continuous improvement is the way to get better at responding to changes and dealing with them earlier, and more effectively, than everybody else. The benefits are huge.

Thanks for reading the field guide. I hope you found something to act on. It doesn't have to be big, it doesn't have to knock out the most important problem you have. But still. Life is short. All we have is this day.

Let's use it: improve something today.

—*Brian*

Online resources

Ready for more? Follow along with the Improve something today blog, podcast, or mailing list for free resources and stories from the field.

Take the next step

Hi, I'm Brian Kerr.

For years now, I've helped diverse groups figure out how to practice continuous improvement & address their most critical performance problems.

What if you could skip all of the setup & program design stuff—getting right into finding and removing the waste that's holding your team back?

What if you could learn from my mistakes—and all my clients' mistakes—and get a head start on your continuous improvement journey?

I travel light, I respect your time, and I bring snacks.

Interested? See what I can do for you.

Waste walk worksheet

Name: Date:

Waste	What do you see?	Where do you see it?	Possible solutions
Memory			
Inconsistency			
Stress			
Started (but not finished)			
Errors			
Delays			