

CHANGE THAT STAYS · CHAPTER TWO

The Fire That Never Started

An organisation that rewards the rescue and cannot see the prevention will quietly spend the time its improvements need to last.

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A NOTE BEFORE YOU READ

This work is offered for education and leadership development. It is not legal, financial, accounting, investment, medical or psychological advice; take the advice of a qualified professional who knows your circumstances. Companies and events are described from the public record as the author understands it; characterisations are the author's analysis. Examples are illustrative, and no particular outcome is promised to any reader.

ABSTRACT

An organisation that rewards the rescue and cannot see the prevention will quietly spend the time its improvements need to last. It is twenty to seven on a Monday in October, and the stand-up at the packaging plant is held where it is always held, beside the whiteboard at the end of line three, under the strip lights and the noise of the extract fans. Eleven people in hi-vis, two coffees, one clipboard. The plant manager opens with thanks. At ten past three on Saturday morning the filler on line three seized, and the night crew stripped it, found the cracked bearing housing, drove forty minutes to fetch a part from the sister site and had the line running again by half past seven. There is a round of applause, and it is deserved. The shift lead goes slightly red.

CHAPTER TWO

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Twenty to seven, the stand-up

It is twenty to seven on a Monday in October, and the stand-up at the packaging plant is held where it is always held, beside the whiteboard at the end of line three, under the strip lights and the noise of the extract fans. Eleven people in hi-vis, two coffees, one clipboard. The plant manager opens with thanks. At ten past three on Saturday morning the filler on line three seized, and the night crew stripped it, found the cracked bearing housing, drove forty minutes to fetch a part from the sister site and had the line running again by half past seven. There is a round of applause, and it is deserved. The shift lead goes slightly red.

The maintenance planner stands at the back, by the fire door. Line two, beside them, has not stopped unplanned for eleven months. He knows why, because he wrote the schedule that takes it down every second Thursday for four hours, and he fought for those four hours in every production meeting since January. He also knows that in August, when orders were high, the Thursday stops on line three were cancelled twice to make the numbers, and that the bearing housing on line three was on the list for the second of them. His jaw is set. Nobody mentions line two. Nobody has ever mentioned line two. He is a composite, drawn from the cases in the research below and from the house's own practice, and no plant is meant.

Ammanuel Santa Anna's canon describes the culture in that room without naming a factory, and it puts its finger on the story the applause tells.[11] Writing about why so many organisations believe that real growth must hurt, it says:

> *For centuries, our dominant cultural narratives have linked growth to struggle, disruption, and the heroic overcoming of resistance. We celebrate the entrepreneur who slept on a factory floor, the athlete who trained through injury, the mystic who endured forty days of desert deprivation. These stories are not without truth — but they carry a hidden cost.*

This chapter makes one claim. Improvements that depend on preventing problems fade when an organisation rewards the people who fix problems and cannot see the people who prevent them. The applause at twenty to seven is not a small matter of morale. It is a mechanism, and over a year it decides whether line two stays the way it is.

Two ways to close a gap

The clearest account of that mechanism comes from two system dynamicists at the Massachusetts Institute of Technology, Nelson Repenning and John Sterman, who spent a decade studying improvement programmes through more than a dozen in-depth case studies, in telecommunications, semiconductors, chemicals, oil, cars and recreational products.[12] In 2001 they published the results in a paper with a title borrowed from one of their interviews: *Nobody Ever Gets Credit for Fixing Problems That Never Happened.*

Their starting point is almost too simple to state. The output of any process depends on two things: the time spent working, and the capability of the process the work is done with. When output falls short of what is wanted, there are two ways to close the gap. People can work harder, with overtime, more pressure and closer review. Or they can work smarter, by spending time on improvement: finding root causes, fixing equipment, training, maintenance. The two do not pay back in the same way. An hour of extra work produces an hour's extra output and then stops. An hour of improvement raises the output of every hour after it. In the authors' words, time spent on improving the capability of a process "typically yields the more enduring change."

The difficulty is time. Working harder pays immediately. Working smarter pays later, after a delay that can run to months, and in the meantime it costs output, because the hour spent on improvement is an hour not spent producing. Repenning and Sterman called the first pattern "better-before-worse" and the second "worse-before-better". A manager under pressure who tries both will see the first help this week and the second hurt this week, and will draw the obvious conclusion.

Then comes the step that turns a bad week into a bad decade. If the improvement time is cut to meet a target, capability does not fall at once; it erodes. Supervisors who defer preventive maintenance, the authors note, often enjoy "a grace period" in which output rises and costs fall, and only later, as the equipment wears, do yields and uptime drop. By then the cut is months old and nobody connects the two. The worse performance creates more pressure, the pressure cuts more improvement time, and the process slides into what they called the capability trap: a vicious cycle in which an organisation works ever harder on a process that is ever less able to do the work.

Walk the packaging plant's year through those loops and it reads like a calendar. In January the Thursday stops were agreed, and output on the lines that kept them dipped a little for a few weeks, as worse-before-better says it will. By spring line two had settled and was running cleaner than it had for years. In August orders rose, the production manager was short of output, and the quickest output on the site was the four hours a fortnight that line three spent stopped. Cancelling them was working harder, in the authors' sense, and it worked. September's figures were good. The bearing housing had been wearing all along, and the cancelled stop was the one on which a mechanic would have seen it. Nothing in September's figures said so.

Santa Anna's canon describes the same delay from the side of what it calls relational value, and the sentence fits a bearing housing as well as it fits trust: "The tragedy is subtle because the effects are delayed." The August decision to cancel two Thursday stops on line three was a good decision in August. Its cost arrived at ten past three on a Saturday in October, and when it arrived, it looked like bad luck.



The engineer's sentence

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The engineer's sentence

The title of the paper came from an engineer at a car company, who told the researchers: "Nobody ever gets credit for fixing problems that never happened." The sentence is funny and exact, and Repenning and Sterman placed it in the middle of the most uncomfortable part of their argument, which is about rewards.

As organisations grow more dependent on firefighting, they wrote, "they reward and promote those who, through heroic efforts, manage to save troubled projects or keep the line running." The learning, training and improvement work that would prevent the crisis in the first place goes unrewarded, because nobody

can see a crisis that did not occur. Over time, senior management comes to consist of the people who were good at rescue, and they promote people like themselves. A project leader the researchers interviewed put it without embarrassment: "Our [company] culture rewards the heroes. Frankly, that's how I got where I've gotten."

The point is not that the night crew on line three should not have been thanked. They did a hard thing well at three in the morning. The point is what the stand-up teaches the eleven people standing in it about where reputations are made. Nobody at the plant will become production manager by keeping line two boring. Several people may become production manager by being very good on the nights when line three seizes, and the more often it seizes, the more chances they get.

Santa Anna's canon, writing about the people in any system who hold it together without being seen, names what such a system lacks: "Recognition of invisible labor. Systems that see and value the relational, emotional, and translational work that keystone positions entail — and that compensate and support this work rather than taking it for granted — create conditions in which keystones can sustain their contributions over time rather than burning out." The planner by the fire door is doing exactly that kind of work, in a technical register, and like the team leader of Chapter 5, whose weekly review vanished the month she was promoted, he is holding up something the organisation does not know it depends on. And the canon is plain about why it goes unseen. Of the steady practice that holds any system together, it says: "It is not glamorous. It is not heroic."

There is a darker turn in the research, and it explains why the trap is so hard to see from the inside. Managers caught in it, Repenning and Sterman found, tend to blame the people rather than the system. When improvement programmes stall because nobody has time to do them, the managers conclude that the workforce lacks discipline, increase monitoring, and so increase the pressure that caused the stall. In one product-development organisation they studied, the engineers' account of a failed programme was simple: "There just weren't enough hours in the day, and the work wasn't going to wait." The managers drew the opposite lesson from the same events. Faced with engineers who cut corners to meet their dates, they concluded that the engineers could not be trusted, and added monitoring, which added work, which produced more corners cut. The attribution confirmed itself. At the packaging plant the same loop is easy to imagine: a production manager who sees the planner's stops as a luxury, cancels them under pressure, sees a breakdown, and concludes that the maintenance team is not good enough to prevent breakdowns. One of the engineers summed up the new process in a line any planner would recognise: "The new process is a good one. Someday I'd like to work on a project that actually uses it."

Du Pont and the pumps

The paper also describes two organisations that escaped, and the first is worth telling in some detail, because it shows both how the trap is broken and how quickly it closes again.

In 1991 an internal benchmarking study at Du Pont compared the company's maintenance record with the best performers in the chemicals industry.[12] It found a paradox. Du Pont spent more on maintenance than the leaders and got less for it: 10 to 30 per cent more per dollar of plant value, with uptime some 10 to 15 per cent lower. Its mechanics worked more overtime, its spare-parts stores were overfull, and it still relied on expedited orders for critical parts. The pattern was the capability trap in a single page. Cost pressure had cut planned maintenance, breakdowns had risen, mechanics had been moved from planned work to repairs, and breakdowns had risen again.

A manager named Winston Ledet and a small team built a model of the problem, and then, realising that their own minds had changed because they had built it, turned it into a role-playing simulation they called the Manufacturing Game. The game let a room of mechanics and operations managers experience in a few hours what a plant experiences over months: that a planned-maintenance strategy makes costs rise and uptime fall before both improve. By the end of 1992 about twelve hundred people had played it. At the plants that put the programme in place by the end of 1993, the mean time between failures for pumps rose by an average of 12 per cent each time cumulative operating experience doubled, and direct maintenance costs fell by an average of 20 per cent. In twenty-three comparable plants that did not, the learning rate averaged 5 per cent, and costs rose.

These figures come from the company and its practitioners, reported by the researchers rather than independently audited, and they should be read as a well-documented case, not a trial. What makes the case useful is the sentence that follows the results. A member of the modelling team told the researchers: "As soon as you get the problems down, people will be taken away from the effort and the problems will go back up." And that, in part, is what happened. Mandated cost-cutting programmes led to downsizing across the company, weakening the very cycle of reinvestment that had produced the gain. The improvement was undone by the same logic that had created the need for it.

What broke the trap at Du Pont, in the authors' reading, was less the maintenance technique than a change in how managers explained their own problems. They quote a manager from one of the successful efforts who put the change in two sentences: "There are two theories. One says, 'there's a problem, let's fix it.' The other says 'we have a problem, someone is screwing up, let's go beat them up.'" The second theory is what the capability trap teaches. The first is what an organisation has to choose, deliberately, before any tool will help.

The second case, a BP refinery in Lima, Ohio, adds one detail that matters for anyone planning a change. When the refinery introduced the same learning laboratory in 1994, maintenance costs rose by 30 per cent in the first six months. Management, which had played the game, had been told this would happen, and did not abandon the programme. The worse-before-better dip, expected, became a sign the work had started. Unexpected, it would have looked like failure.

The time famine

Two years before the Repenning and Sterman paper, the sociologist Leslie Perlow published a study of a software engineering team that shows the same mechanism at the scale of a single day.[13] Over nine months she watched how the engineers used their time. They had too much to do and too little time to do it, a condition she called a time famine, and part of the cause was the team's own way of working: engineers were constantly interrupted by colleagues, and a crisis mentality, backed by a reward system built on individual heroics, kept the interruptions coming. When the way the team used its time was changed, its collective productivity improved.

Perlow's study is one team, observed closely, and it should be read as a vivid case rather than a general law. But it adds something the factory cases do not. The heroics were not only a response to crises. They were also a cause of the next ones, because each rescue interrupted the work that would have prevented the following crisis. A culture that rewards firefighting does not merely fail to reward prevention. It actively consumes the time prevention needs.

Santa Anna's canon describes the bodily side of that culture, and it is the side a leader can feel in her own week. Writing about how organisations hold time, it says: "Chronic urgency is a systemic sympathetic activator." The stand-up at twenty to seven is held at the speed of the fans. And the canon's passage on performance systems that run on activation explains why such a culture can look so productive for so long:

> *They generate productivity through activation — urgency, competition, anxiety about outcomes. This works in the short term. It produces measurable output. But it does so at the cost of the very capacities that values-based performance seeks to cultivate: creativity, relational depth, ethical sensitivity, and sustainable engagement.*

The packaging plant produces measurable output in the weeks it cancels the Thursday stops. What it gives up is visible only on the nights it loses.



Counting what did not happen

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Counting what did not happen

The practice this chapter describes has two halves, and they answer the two halves of the trap: the time that is cut, and the credit that is never given.

The first half is the protected hour. Improvement and prevention time, the Thursday stops on line two, is set as a standing allocation, agreed with production in advance and treated as the last thing cut, not the first. When it has to be cut, as it sometimes will, the cut is decided by a named person, written down with the date and the reason, and given a date by which the time will be restored. That record turns an invisible

erosion into a visible loan. This is a negotiation, and the production manager's side of it deserves to be stated fairly. She is measured on output this month, she has customers waiting, and four hours a fortnight on a line that is running well looks like four hours given away. She is not wrong that the stop costs output. She is wrong only about when the bill for skipping it arrives, and she is wrong because nothing she is shown tells her. The protected hour works when the person who gives up the output is shown the record of what the stops have found, and when her own targets allow for the stops instead of competing with them. Without that, the agreement lasts until the first busy month.

In October the planner would not have had to remember, privately, that the August stops on line three were cancelled. The record would have shown it, beside the date the bearing housing failed.

The protected hour comes with a warning, given out loud before the change begins, that results will get worse before they get better, and roughly for how long. The Lima refinery's managers held their nerve through a 30 per cent rise in costs because they had been told to expect one. A dip that has been named in advance arrives as an appointment rather than a verdict. *The Cairn*, another of the house's books, makes the same point about [an obstacle written down before it arrives]({{BOOK:rsd-rsd-and-self-confidence}}), and it holds for a plant as well as for a person.

The second half is the quiet ledger. Once a month, at the review where rescues are discussed, the team also reads a short list of things that did not happen and why. Line two ran eleven months without an unplanned stop. The new supplier's film jammed three times on trial and was rejected before it reached production. A mechanic noticed a hairline crack on a guard during a planned stop. Each line names the person or the practice responsible. The canon describes the same practice for the invisible work of holding a team together and calls it a naming ceremony, with an example sentence that could have been written for the planner: "I want to acknowledge that Marcus has been translating between engineering and design in ways that have prevented three conflicts this quarter." Prevented problems are hard to count, and the ledger does not pretend to count them exactly. What it does is make them part of the story an organisation tells about itself.

There are failure modes. The ledger becomes a list of claims that nobody checks, and people start writing down every breakdown they can imagine avoiding. The answer is to record only things with evidence: a stop that was planned and held, a defect found before it shipped, a part replaced on schedule and found worn. The protected hour becomes a ritual, held but not used, with the line taken down and nobody working on it. And leadership praises the ledger and goes on promoting the rescuers. That last is the decisive one, because promotions are the loudest message an organisation sends. Chapter 7 carries the protected hour and the quiet ledger as working pages, with the record of cuts and the monthly reading.

The practice changes what the stand-up is for. It still thanks the night crew, because they deserve it. It also, once a month, reads out line two. And it asks a question it has not asked before: of the rescues this month,

which could have been prevented, and what would it have taken? In the canon's terms, it begins to treat prevention as a capacity worth investing in "even when individual heroism would be faster and easier."

The trap reaches beyond the factory floor, because the same arithmetic applies wherever an improvement needs time to keep. The missed-appointment work that slipped back at the outpatient clinic of Chapter 1 was undone by the same quiet reallocation of hours. And when the time is protected and the old way still returns, the cause often lies closer to the work, in the routine that people's hands still remember after the training has been forgotten, which is the subject of Chapter 3.

Protecting the hour, in practice

The article this chapter began as ended at the stand-up in March. The book can go further, into the finer points a manager meets when she tries to protect improvement time in her own operation, and the first is how much time to protect.

The honest starting point is the time the work already needs, not the time an improvement programme would like. For a maintenance planner that is the planned work the equipment requires; for an office it may be the hour a week the team spends on the problems that keep recurring. Begin there, protect it fully for a quarter, and expect the dip. Asking for more than the work needs, in the first quarter, invites the production manager to treat the whole allocation as negotiable.

The second point is the shape of the agreement. It works best when it is written as a standing fixture in the plan the operation already runs to, the production schedule, the rota, the shift plan, and not as a separate improvement plan that competes with it. A Thursday stop that is in the production schedule is a Thursday stop. A Thursday stop that is in the maintenance plan is a request, renewed every fortnight.

The third is the record of cuts, which is the heart of the practice. Each time protected time is given up, four things are written on a single page kept by the planner: the date, who decided, the reason, and the date by which the time will be restored. Nothing else. The page is shown at the monthly review beside the quiet ledger. Its purpose is not to shame anyone for a cut; some cuts are right. It is to make the loan visible, so that when a breakdown comes, the team can look back and see whether it followed a cut, and when, and the organisation can learn the delay between the two in its own plant. That delay is the number Repenning and Sterman's managers never knew, and it is the one that would have changed their decisions.

The fourth is the warning of the dip, which should be given with numbers wherever possible. After the first few weeks of a protected hour, the team will have a rough sense of what the stops cost in output. Write it down, show it to the people who will feel it, and say how long it is expected to last. When the dip comes, it will then be read against the forecast, not against the old normal. A dip within the forecast is the programme working. A dip beyond it is a question worth asking early.

The fifth is the evidence rule for the quiet ledger. Only things with a trace go on it: a stop that was planned and held, a part replaced and found worn, a defect caught before shipping, a complaint that did not recur because its cause was fixed. Each line names the person or the practice. A ledger of imagined disasters avoided is worse than none, because it teaches people to overclaim, and the first sceptical reader will dismiss the rest.

The sixth is the one that leadership must do itself, and it is about promotion. If the people who prevent problems are not, over a few years, among the people who are promoted, the ledger is decoration. A practical step is to add one question to every performance conversation for anyone whose work includes prevention: what did you prevent this year, and how do we know? Asked consistently, the question changes what people bring to the conversation. Within a year or two it begins to change who is seen as capable.

The seventh is a simple measure of whether the trap is loosening. In maintenance it is the share of work that was planned rather than reactive; in an office it is the share of the week spent on new work rather than rework, chasing and repair. It moves slowly. When it rises, the capability trap is opening. When it falls for several months in a row, something is being cut that the record of cuts has not caught.

And there will be genuine emergencies, in which the protected time has to go. The test of the practice is what happens after them. If the time is restored by the date on the record, the protected hour has survived its hardest case. If it is not, the next cut will be easier, and the one after that easier still, which is how the trap closes. Chapter 6 places the protected hour in the second month of the ninety days after done, and Chapter 7 gives the record of cuts and the quiet ledger as working pages.

The stand-up, in March

It is twenty to seven on a Monday in March, and the stand-up is beside the whiteboard at the end of line three. The fans are as loud as ever. The plant manager opens with thanks to the afternoon crew for a clean changeover, and then reads, from a page clipped to the board, three lines. Line two: fourteen months without an unplanned stop. Line three: the Thursday stops have been held since November, and the second bearing housing was found worn on one of them and replaced. A mechanic: a crack in a guard, found on a planned stop.

Nobody applauds, quite. Somebody says *nice one*. The planner, at the back by the fire door, looks at the board.

On line three, nothing has happened all winter.

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