

MANAGEMENT REVIEW

Management without theatre.

OPERATIONS

THE EXCEPTION FACTORY: WHEN THE PROCESS WORKS ONLY BECAUSE PEOPLE KEEP FIXING IT

Six chapters on invisible repair, routines, workarounds, diffusion, cost and redesign.



197h

spent observing hospital nurses in a foundational study of how immediate problem solving can inhibit organisational learning.

TUCKER, EDMONDSON AND SPEAR 2002, OBSERVATION TIME

INSIDE

COVER STORY

**A completed order, an
invisible repair**

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THE EVIDENCE

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EDITORIAL · VOLUME 11

The work beneath the work

A successful shift may conceal small repairs that the operating model never planned.

An operation may finish the day on time while requiring its people to correct the process repeatedly. A missing piece of information is found through an extra conversation. A trolley must be checked again. A handover is made usable by someone who knows what was omitted. The final report records the output, not necessarily the effort spent making the output possible. This eleventh volume opens the second cycle of the treatise. The question underneath them all is how much of what we call process reliability is actually repeated human compensation. Not all adaptation is wrong. Work always varies. The issue is whether managers can distinguish skilled adjustment within the rules from an unauthorised shortcut, and a temporary repair from an opportunity for redesign. The author has worked in last-mile operations, warehouse-facing coordination, wholesale management and hotel night shifts. These are verified domains, not permission to invent a named incident: the scenes combine plausible tasks to explain mechanisms, are labelled hypothetical and disclose no guest identities, private operating systems or commercially sensitive records. A workaround may be a warning, a useful innovation or a dangerous breach. Our task is not to praise or punish its existence, but to learn why the approved path did not work, protect what must never be bypassed and decide which part of the operating system should change.

Stiven Janaqi EDITOR · STIVEN CATALYST

HOW EVERY CHAPTER IS BUILT

1 The living scene

A shift, a ramp, a desk at 03:00: one piece of work followed as it actually happens, with the hand-off where it breaks. Scenes are constructed from real categories of work and say so.

2 The conceptual and scientific breakdown

The mechanism behind the scene, named with the model that explains it, and the research that tests it: the study, its population, its year and its limits, before it is applied anywhere else.

3 The operating protocol for action

What a working team can try on Monday: fields, questions, a cadence and a count, each with an owner, a next step and a return of information to the people who do the work.

THE READING CONTRACT

See the real work

Compare the prescribed procedure with the observed performance.

Test the risk

Protect safety, privacy and authority before evaluating a workaround.

Repair the system

Assign and verify a durable, authorised improvement.

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in three layers

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RESEARCH NOTE

Evidence without borrowed certainty

Observation, theory, case studies and log analysis answer different questions; none establishes a universal exception rate.

In 2002 Tucker, Edmondson and Spear reported 197 hours of observation of hospital nurses. They studied how staff dealt with obstacles and why fixing immediate problems can obstruct organisational learning. The 197 hours are time observed, not a number of breakdowns or a percentage of harmful workarounds. Feldman and Pentland (2003) gave a conceptual account of organisational routines: the abstract understanding of a routine and its particular performances continually shape one another. Alter (2014) offers a theory of why people consider and perform workarounds. Neither contribution provides a tested causal estimate for the author's workplaces. Bartelheimer, Wolf and Beverungen (2023) examined nine workarounds across three cases in a two-year multiple-case study, tracing how temporary deviations can diffuse through observation and communication and sometimes affect procedures, IT artefacts and organisational arrangements. Van der Waal and colleagues, online in 2024 and in a 2025 issue, identified eleven workaround types in two hospital departments with a process-mining approach. These are different populations and outcomes. The numbers must not be combined.

197 h

observation time in Tucker et al. (2002), not cases

9

workarounds in a three-case, two-year study (2023)

11

workaround types in two hospital departments with SWORD (2025)

The templates and sample calculations in this edition are editorial proposals. They have not been validated as safety controls or tested to improve throughput, error rates or employee wellbeing in any named company. Where a source was read through the publisher's summary, the list of sources says so.

OUR READING

Do not carry a descriptive count from healthcare into a logistics KPI.

Sources: Anita L. Tucker, Amy C. Edmondson & Steven Spear, *Journal of Organizational Change Management* 15(2), 2002; Christian Bartelheimer, Verena Wolf & Daniel Beverungen, *Information Systems Journal* 33(5), 2023 (via the abstract and the publisher's summary); Wouter van der Waal, Inge van de Weerd, Iris Beerepoot, Xixi Lu, Teus Kappen, Saskia Haitjema & Hajo A. Reijers, *Business & Information Systems Engineering* 67(2), 2025

Primary study records: Tucker et al. (2002); Bartelheimer et al. (2023); van der Waal et al. (2025). No field experiment was performed for this volume.

1 SCENE

2 BREAKDOWN

3 PROTOCOL

CHAPTER I · THE WORK THAT WAS NEVER IN THE SOP

A completed order, an invisible repair

The loading point may look orderly only because someone corrected the handover before the next person saw it.

HYPOTHETICAL COMPOSITE, NOT A REPORTED LOADING INCIDENT

A driver approaches the loading point. The plan says the order is ready, but a member of the team pauses to compare what is physically present with what the next stage expects. One item needs clarification. Someone who knows the usual arrangement asks a colleague, checks the right place and updates the next worker. The load eventually moves. The report will show a departure. It may show a delay. It probably will not describe the extra search, the unplanned conversation or the mental work of deciding whether the load was ready. Those actions occurred in the interval between the documented procedure and the work that made the procedure usable. There is no need to condemn the worker. A clarification may be the correct, authorised action. The diagnostic question is different: was that clarification a rare exception, or was it required because the agreed handover regularly failed to provide what the receiver needed? If the second holds, success on the departure board may be masking a cost borne by the team.

The author's last-mile experience included missing bags, mixed trolleys, scanning discipline and loading coordination. It provides no case record of the particular correction in this scene, the person who performed it, its duration or its effect on departure; those details are invented solely to illustrate the mechanism.

OUR READING

The fact that work was delivered is not proof that the designed process delivered it without repair.

The order, dialogue and outcome are constructed; the real occupational background is limited to documented last-mile work categories. The essay named below says why a good SOP is not a document.

[More in the essay](#)[A good SOP is not a document](#)

1 SCENE

2 BREAKDOWN

3 PROTOCOL

CHAPTER I · THE WORK THAT WAS NEVER IN THE SOP

The routine and its performance

A procedure describes what should be repeatable; work is the set of actions people actually perform in context.

Feldman and Pentland (2003) distinguish the ostensive aspect of a routine, its abstract account, from the performative aspect, the actions taken by specific people at particular times. One is not simply a truthful blueprint and the other a faulty copy: repeated performances can maintain, adapt or change the understood routine. A staff member may discover that a recurring field is missing and add an informal clarification step. What looks like a deviation may reveal that the standard was written without enough attention to the receiving team's real information needs. But a boundary follows. Some standards protect safety, law, security or personal data; they are not optional because workers find another path faster. The purpose of observation is to discover the actual mechanism and classify it correctly, not to celebrate every shortcut. Follow one task from origin to recipient: what does the policy expect, what do staff really do, why does the difference exist, and is that variation permitted, temporary or prohibited?

01

Ostensive routine

What the organisation says the recurring work is.

02

Performative routine

What people actually do, with concrete constraints and knowledge.

01	Written work	Instructions, roles, expected inputs and intended results.
02	Performed work	Observed sequence, clarifications, rechecks and handovers.
03	Difference	A question for investigation, not immediate proof of failure.

OUR READING

A variance in performance is a starting point for explanation, not a verdict.

Source: Martha S. Feldman & Brian T. Pentland, Administrative Science Quarterly 48(1), 2003

Feldman and Pentland (2003), Administrative Science Quarterly 48(1). The loading application and the three-row comparison are editorial.

1 SCENE

2 BREAKDOWN

3 PROTOCOL

CHAPTER I · THE WORK THAT WAS NEVER IN THE SOP

Compare the path people really use

A minimal comparison of work as described and work as performed, before changing any SOP.

1

Select one handover

Define the work item, the receiving person and the expected customer result.

2

Read the current rule

Record the authorised process and any mandatory controls.

3

Observe without guessing

Describe the actual steps, including calls, checks and idle time.

4

Ask why the extra step exists

Separate missing information, missing resources and local preference.

5

Protect the boundary

Escalate unsafe or prohibited practices through authorised channels.

6

Choose the next test

Confirm which part of the standard or workflow may need redesign.

Use a small, non-sensitive sample from one process and mark each extra action as observed, reported or not verified. In a protected area, study an anonymised description, never the guest, employee or transaction record. Do not rewrite the SOP because one operator prefers another sequence; first confirm that the standard is accurate, usable and still authorised.

OUR READING

Document the discrepancy before prescribing the correction.

Sources: Martha S. Feldman & Brian T. Pentland, *Administrative Science Quarterly* 48(1), 2003; Anita L. Tucker, Amy C. Edmondson & Steven Spear, *Journal of Organizational Change Management* 15(2), 2002

Editorial observation protocol informed by Feldman and Pentland (2003) and Tucker et al. (2002); not an employer-approved SOP.

1 SCENE

2 BREAKDOWN

3 PROTOCOL

CHAPTER II · THE HERO WHO HIDES THE FAILURE

The colleague who always knows

Good intentions can make a fragile process appear dependable for far longer than it is.

HYPOTHETICAL SCENE, NOT AN ACCOUNT OF A PARTICULAR EMPLOYEE

The morning begins with a familiar obstacle. The information passed to the next team is incomplete. Rather than sending the work back, an experienced colleague knows which question to ask and whom to call. They correct the record, share the answer and return to the next task. Everyone appreciates the speed. The customer receives what was expected. Tomorrow the same obstacle appears. The colleague repairs it again. The weekly summary reports completed work. Nobody has deliberately falsified anything. Yet the organisation has made the same mistake twice, and the person who prevented visible failure has become part of the system's unrecorded capacity. Then the colleague is absent. The process has not suddenly deteriorated; its hidden dependency has become visible. Another worker cannot complete the same step because the explanatory knowledge was never built into the handover or the procedure.

This is an invented story. The author has worked with practical SOPs and cross-shift information, but no evidence confirms this recurring correction or this colleague. The point is not that helpful staff cause problems. It is that a workplace can reward immediate problem resolution while failing to invest in preventing recurrence.

OUR READING

A person may protect today's customer while the process remains unchanged for tomorrow.

Source: Anita L. Tucker, Amy C. Edmondson & Steven Spear, *Journal of Organizational Change Management* 15(2), 2002

Constructed narrative; Tucker, Edmondson and Spear (2002) motivate the distinction between an immediate fix and organisational learning. The essay named below is about the handover that carries what one person knows.

[More in the essay](#)

Why the shift handover is one of the most underrated processes

CHAPTER II · THE HERO WHO HIDES THE FAILURE

First-order action, second-order learning

Restoring the immediate task and removing the recurring obstacle are two different achievements.

Tucker, Edmondson and Spear (2002) observed hospital nurses for 197 hours and studied how frontline staff addressed obstacles in everyday work. Their analysis explains how the local success of quickly coping with a failure can reduce the chance that the organisation learns how to prevent it. It is a hospital study, not a count of warehouse exceptions. The useful distinction is between making the present case work and changing the conditions that produce the case. An employee may have no time or authority for a full root-cause investigation during a busy shift; a manager who wants second-order learning must provide a path through which evidence from the first repair reaches someone able to redesign the system. The two forms of action should not be confused or set in competition. An immediate repair may be essential for safety or service continuity, and a root-cause analysis that leaves the current customer unprotected is equally poor management. The sequence matters: contain risk, restore the permitted service, record the systemic obstacle, assign follow-through. If the only recognised performance is completion speed, reporting and prevention are crowded out. Learning has to count as real work, with time, ownership and feedback.

01 Now · restore Help the present case within the approved standard.	02 Next · explain Record the verified recurring condition.	03 Later · redesign Change the upstream cause and test the result.
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OUR READING

The issue is not heroism itself. It is an organisation that relies on heroism instead of repairing its process.

Source: Anita L. Tucker, Amy C. Edmondson & Steven Spear, Journal of Organizational Change Management 15(2), 2002

Tucker, Edmondson and Spear (2002), Journal of Organizational Change Management 15(2), 197 observed hours of nursing work. The application to other sectors is editorial.

1 SCENE

2 BREAKDOWN

3 PROTOCOL

CHAPTER II · THE HERO WHO HIDES THE FAILURE

Why fixing fast is not learning fast

Follow-up research described repeated interruptions at the boundary between required materials, information and frontline work.

In a 2004 study of operational failures encountered by hospital nurses, Anita Tucker reported that in the studied setting most failures stemmed from breakdowns in the supply of materials and information across organisational boundaries, and that employees quickly compensated for most of them. With Edmondson (2003) she had already followed 26 nurses in nine hospitals for 239 hours and found that most responses restored the work without addressing the cause. These papers provide a mechanism, not evidence of how often last-mile drivers or night auditors meet the same problem. The cost of compensation has layers. The visible action may take a few minutes, but the worker also stops the planned task, finds someone with authority or knowledge, verifies an answer and re-enters the original activity; a time study that watches only the corrective motion misses coordination and switching costs. There is also an information cost. If the correction is silent, the process owner never receives reliable evidence that the input is systematically unfit for use. If every event is reported but no decision returns, reporting becomes another burden. This volume treats the recurring workaround as a clue that deserves two decisions, with possibly different owners and horizons: how to protect the current case, and whether the designed process should change.

197 h of direct observation in the 2002 nursing study (Tucker, Edmondson and Spear): observation time only, not a number of failures.

OUR READING

A completed correction belongs in the operational account. Its recurring cause belongs in the improvement account.

Sources: Anita L. Tucker, Amy C. Edmondson & Steven Spear, *Journal of Organizational Change Management* 15(2), 2002; Anita L. Tucker & Amy C. Edmondson, *California Management Review*, 2003; Anita L. Tucker, *Journal of Operations Management* 22(2), 2004

Tucker et al. (2002); Tucker and Edmondson (2003), *California Management Review* 45(2); Tucker (2004), *Journal of Operations Management* 22(2). Findings apply to the hospital contexts studied.

1 SCENE

2 BREAKDOWN

3 PROTOCOL

CHAPTER II · THE HERO WHO HIDES THE FAILURE

Protect the worker. Surface the defect.

An immediate fix and an improvement ticket need different questions and different owners.

1

Restore safely

Resolve or contain the current issue within policy and delegated authority.

2

Capture the trigger

Name the missing input, constraint or rule that made the extra action necessary.

3

Count recurrence

Observe repeated appearances with a consistent event definition.

4

Assign an improvement owner

Give the systemic condition to a person able to change it.

5

Return the decision

Tell affected staff what will change, what cannot change and why.

6

Retest without the expert

Check whether the redesigned process works for another trained worker.

Do not turn every helpful correction into an accusation; prohibited shortcuts go separately through the formal controls. A useful indicator is not how many people performed workarounds, but the share of verified, recurring obstacles that receive a decision and a later check of whether the workaround is still needed. Open cases stay in the denominator, or success is manufactured by leaving unresolved work out.

OUR READING

Recognition should reward the person who made the constraint visible, not only the one who kept it invisible.

Sources: Anita L. Tucker, Amy C. Edmondson & Steven Spear, *Journal of Organizational Change Management* 15(2), 2002; Anita L. Tucker, *Journal of Operations Management* 22(2), 2004

Original editorial protocol informed by Tucker et al. (2002) and Tucker (2004); the proposed measures are not validated in a named workplace.

1 SCENE

2 BREAKDOWN

3 PROTOCOL

CHAPTER III · THE ANATOMY OF A WORKAROUND

A small list beside the system

A separate note can be a sensible learning aid or an unauthorised second source of operational truth.

HYPOTHETICAL COMPOSITE, NO GUEST OR INTERNAL DATA

A new employee opens the official system and needs to complete a routine task. The procedure is correct but difficult to find. A colleague has made a small personal reference: a few steps, a note about where the approved instruction lives, perhaps a sketch of the decision sequence. It makes learning easier. Now imagine a different version. The same personal note starts recording real cases, assumes a system status or tells people to skip a mandatory approval. What began as a convenience has become a second operating system, one without governance. The two versions may look similar from a distance. Their risk is not the same. The question is not whether staff may learn from their own notes. It is what a note is doing: supporting authorised work, compensating for poor system design, or silently replacing a controlled decision.

The author developed Front Desk Control as an aid for finding SOPs and learning material in hotel work. Its documented purpose was organisation and retrieval, not replacement of the official property-management system. There is no confirmed management approval, shared operational adoption or measured productivity benefit, and this scene is not evidence that sensitive data were entered into that project.

OUR READING

A workaround becomes significant at the point where it changes a protected fact, action or authority.

Constructed scene referencing a documented personal learning-tool project, without claiming operational use or security guarantees. The essay named below sets out when a personal tool may be shared.

[More in the essay](#)

The small list beside the system: the tools you build yourself

CHAPTER III · THE ANATOMY OF A WORKAROUND

Why workarounds emerge

Steven Alter treats workarounds as responses to constraints in a work system, not as one homogeneous category of misconduct.

Alter's 2014 Theory of Workarounds examines how circumstances, perceived obstacles, goals and the costs of possible alternatives shape the decision to deviate from a normal work process. The theory is integrative: it explains why workarounds are considered and performed, not that each one is safe or productive. In practice we can examine four pressures without presuming motives. The formal process may be hard to execute because an input is missing. A system may lack a useful field or present information at the wrong moment. Volume and deadlines may intensify local improvisation. The organisation may reward completion while leaving exception resolution unowned. There is a sharp difference between adaptation within authorised discretion and a workaround that bypasses a required control. The first may be an expected part of a flexible standard; the second may be urgent even if its immediate outcome looks successful. Halbesleben, Wakefield and Wakefield (2008) review how workarounds in health care can carry patient-safety consequences. A good intention does not certify the method, and a deviation alone does not prove disregard for quality.

01	Constraint	What prevented the approved path from producing the needed result?
02	Alternative	What different action was taken, if any?
03	Boundary	Was it permitted, restricted or expressly prohibited?
04	Consequence	What did the next worker or customer actually experience?

OUR READING

Start by naming the constraint. Do not start by guessing the worker's character.

Sources: Steven Alter, Communications of the Association for Information Systems 34, article 55, 2014; Jonathon R. B. Halbesleben, Douglas S. Wakefield & Bonnie J. Wakefield, Health Care Management Review 33(1), 2008 (via the publisher's record)

Alter (2014), Communications of the Association for Information Systems 34, article 55; Halbesleben et al. (2008), Health Care Management Review 33(1), on safety concerns. The four questions are editorial.

CHAPTER III · THE ANATOMY OF A WORKAROUND

Four exceptions, four responses

A working classification for discussion, not a validated taxonomy or permission to bypass controls.

The four categories below are editorial: they translate published insights into a practical conversation about governance, and are not a classification measured by Alter or a regulatory definition. An authorised adjustment stays inside an approved range of discretion. A compensating workaround keeps work moving because a process input is inadequate. A candidate innovation points to a possibly better practice but requires testing and approval. A prohibited bypass crosses a control designed to protect people, confidentiality, quality or lawful authority. The categories can overlap, and the classification stays provisional until the actual mechanism is checked. An unfamiliar sequence may be an approved exception the supervisor never learned; a fast result may conceal a breach. Ask for the current standard and the actual delegated authority before judging.

01

Approved flexibility

A documented choice within delegated limits.

02

Compensation

An extra step used because required inputs are unreliable.

03

Innovation candidate

A better route proposed for controlled validation.

04 · PROHIBITED BYPASS

A mandatory safety, legal, access, privacy or financial control cannot be waived by an informal workaround. Follow authorised escalation immediately.

OUR READING

Context determines whether a deviation is acceptable; speed alone never does.

Sources: Steven Alter, Communications of the Association for Information Systems 34, article 55, 2014; Jonathon R. B. Halbesleben, Douglas S. Wakefield & Bonnie J. Wakefield, Health Care Management Review 33(1), 2008 (via the publisher's record); Christian Bartelheimer, Verena Wolf & Daniel Beverungen, Information Systems Journal 33(5), 2023 (via the abstract and the publisher's summary)

Editorial synthesis after Alter (2014), Halbesleben et al. (2008) and Bartelheimer et al. (2023); the categories are proposed, not empirically validated.

CHAPTER III · THE ANATOMY OF A WORKAROUND

Twenty deviations, sorted before judged

A fully synthetic sample shows why a single count of “workarounds” cannot tell a manager what to do.

SYNTHETIC EXAMPLE, AUTHORED FOR THIS VOLUME; NOT EMPLOYER DATA

INVENTED SAMPLE, TWENTY OBSERVED DEVIATIONS FROM ONE WRITTEN PROCEDURE



Every count is invented so the categories can be compared, not measured at any workplace. On a dashboard these twenty would read as one number. Sorted, they call for four different responses. Eight sit inside approved discretion: the action is to document the flexibility so a supervisor does not mistake it for a shortcut. Seven compensate for an input that arrives incomplete: the action belongs upstream, with the owner of that input, not with the people who repair it. Three are candidate improvements that need a bounded test before anyone copies them. Two are the smallest group and the most urgent: a prohibited bypass is escalated at once, whatever its share of the total. A real operation would classify its own sample, with the actual standard and delegated authority in hand; the chart shows only that the decision begins after the sorting.

OUR READING

The smallest group on the chart is the one that cannot wait.

Source: Steven Alter, Communications of the Association for Information Systems 34, article 55, 2014

Every value on this page is synthetic, authored for this volume; the categories are the editorial four of the previous page, after Alter (2014). The author’s PDF describes the categories without counting them.

CHAPTER III · THE ANATOMY OF A WORKAROUND

Ask before you classify

A manager needs a fair fact-finding conversation, with an immediate stop rule for prohibited practices.

1

Identify the intended outcome

What result was the worker trying to deliver?

2

Read the authorised route

Which current process and exception policy should apply?

3

Describe what actually occurred

Separate observation, report and assumption.

4

Check exposure

Did the variation affect safety, privacy, legal obligations or a protected transaction?

5

Locate the system constraint

Which input, interface, timing or resource made the approved path difficult?

6

Choose the governance response

Restore compliance, redesign, test formally or document approved flexibility.

Keep sensitive cases in secure channels; teaching examples stay abstract and anonymised, and nobody is asked to demonstrate a prohibited bypass. Where the issue is low-risk and permitted, a short controlled trial can check whether a change helps both the local team and the receiving one. If the benefit is unproven, write “hypothesis”, not “saving”.

OUR READING

A useful exception report makes it possible to decide; it does not authorise the exception.

Sources: Steven Alter, Communications of the Association for Information Systems 34, article 55, 2014; Jonathon R. B. Halbesleben, Douglas S. Wakefield & Bonnie J. Wakefield, Health Care Management Review 33(1), 2008 (via the publisher's record)

Editorial protocol after Alter (2014), with safety boundaries from Halbesleben et al. (2008).

1 SCENE

2 BREAKDOWN

3 PROTOCOL

CHAPTER IV · WHEN EXCEPTIONS BECOME NORMAL

The shortcut everyone learns

An informal repair can spread through a team without appearing in a training record or a revision history.

HYPOTHETICAL TRAINING SCENE, NOT AN OBSERVED INCIDENT

An experienced worker teaches a newcomer how to prepare the next step. The written guide explains one route. The experienced worker shows a slightly different sequence and says this is how the team usually gets through the busy part of the day. The new person follows it because it appears efficient and socially accepted. Nothing in that exchange proves the alternative is unsafe. Nothing proves it is better either. What has happened is that a routine has acquired an informal version and transmitted it through observation. If the receiving team accepts the result, the difference can stay hidden for months. If a later worker cannot interpret the result, the organisation pays in rechecking and clarification. The managerial error would be to assume that printing the standard more prominently makes informal behaviour disappear. If workers believe the alternative is necessary, the investigation starts with what they are trying to accomplish and why the approved process does not fit the moment.

The author has worked with onboarding, ramp-up and standard operating instructions, but has no documented case in which this exact sequence spread across a team. The dialogue, roles and consequences are constructed to isolate a process of diffusion, not to describe a specific workplace.

OUR READING

The unwritten route can become a social standard long before it becomes a governed one.

Hypothetical composite informed by organisational routines theory and published workaround-diffusion research. The essay named below says why “watch how I do it” is not training.

[More in the essay](#)[“Watch how I do it” is not training](#)

CHAPTER IV · WHEN EXCEPTIONS BECOME NORMAL

How a repair spreads

Case research shows a workaround can move through people, software artefacts and eventually organisational arrangements.

Bartelheimer, Wolf and Beverungen (2023) examined nine workarounds across three cases during a two-year multiple-case study. They identified communication and observation as important paths through which workers learned about informal adjustments. Some practices affected colleagues' routines; some contributed to changes in IT artefacts or wider organisational arrangements. This is an account of cases, not an experimental estimate of how often a shortcut becomes innovation, and widespread adoption does not certify a better process. A workaround may travel because the original difficulty is common, because the alternative is visible, or because local norms reward completion. The mechanism must be examined separately from the desirability of the result. The study is especially useful for understanding when a workaround fails to travel. Workgroups can have different tools and weak visibility into each other's methods. The same unofficial adjustment can be adopted locally yet never become part of a shared process definition, and a receiving department may then reject or rework outputs that made sense to the sending team. When managers see this split, the right intervention is not another message telling everyone to comply. It is a shared diagnosis of the interface and a governed decision about the standard.

9

workarounds examined across three cases over two years (Bartelheimer, Wolf and Beverungen 2023): descriptive study scope, not a success rate.

OUR READING

Diffusion tells us that a behaviour spreads. It does not tell us whether it should survive.

Source: Christian Bartelheimer, Verena Wolf & Daniel Beverungen, Information Systems Journal 33(5), 2023 (via the abstract and the publisher's summary)

Bartelheimer, Wolf and Beverungen (2023), Information Systems Journal 33(5), 1085–1150. Case-study findings cannot establish universal frequencies.

CHAPTER IV · WHEN EXCEPTIONS BECOME NORMAL

Can process logs reveal the hidden path?

Digital records can locate unusual sequences, but they rarely carry the full reason someone acted differently.

Van der Waal and colleagues developed SWORD, a semi-automated workaround-detection framework that uses event-log traces. In two hospital departments they identified eleven types of workarounds. The paper appeared online in January 2024 and in the 2025 volume of the journal. Eleven is the number of workaround types in that case study, not the number of people, incidents or errors. A log can show that recorded steps occurred in a surprising order or that a task returned to an earlier status. Such a deviation may suggest a workaround, a legitimate exception, an incomplete trace or an error in the process model; its meaning still needs investigation with people who know the domain. As van der Aalst (2016) sets out for process mining in general, a system records its own events; it does not observe every physical correction, conversation or decision. This matters when leaders use process mining as if it were a surveillance verdict. If the logs omit the second channel where work happens, the picture stays incomplete. The method can identify a question worth investigating; it cannot attribute motive or justify disciplinary action. Process mining fits where lawful access, data quality and organisational authorisation are present. Otherwise a small anonymised observation sample may be a better first step.

11

types identified in a two-department hospital study

Trace

partial evidence: records observed events, not full explanations

Verify

with people: was an apparent deviation permitted?

OUR READING

Event data are traces of recorded work, not a camera on the whole process.

Sources: Wouter van der Waal, Inge van de Weerd, Iris Beerepoot, Xixi Lu, Teus Kappen, Saskia Haitjema & Hajo A. Reijers, *Business & Information Systems Engineering* 67(2), 2025; Wil M. P. van der Aalst, Springer, 2016 (via the publisher's overview)

van der Waal et al. (2025), *Business & Information Systems Engineering* 67(2), 171–190, online January 2024; van der Aalst (2016), *Process Mining*, second edition.

CHAPTER IV · WHEN EXCEPTIONS BECOME NORMAL

Stop drift before it hardens

Treat repeating deviations as a governance signal that requires a real decision about the approved way of working.

- 1 Notice a pattern**
Use anonymous observation, feedback or authorised records to identify repeated variation.
- 2 Verify the actual purpose**
Ask both sending and receiving teams what the alternative achieves.
- 3 Inspect the boundary**
Check which requirements may never be bypassed.
- 4 Test the proposed path**
Use a bounded, documented evaluation when the alternative is permitted.
- 5 Decide the standard**
Approve, redesign or prohibit explicitly through the responsible authority.
- 6 Teach and retire**
Train the people affected, remove obsolete notes and check recurrence later.

Drift is ambiguous, so the decision is written. If management quietly tolerates an alternative the SOP forbids, workers must interpret conflicting authority; if it prohibits the alternative without fixing its constraint, the difficulty returns tomorrow. Record the new rule with the information the next team needs to follow it.

OUR READING

Improvement occurs when the correct version becomes clear and usable for the next trained person.

Sources: Christian Bartelheimer, Verena Wolf & Daniel Beverungen, Information Systems Journal 33(5), 2023 (via the abstract and the publisher's summary); Martha S. Feldman & Brian T. Pentland, Administrative Science Quarterly 48(1), 2003; Wouter van der Waal, Inge van de Weerd, Iris Beerepoot, Xixi Lu, Teus Kappen, Saskia Haitjema & Hajo A. Reijers, Business & Information Systems Engineering 67(2), 2025

Editorial governance cycle inspired by Bartelheimer et al. (2023), Feldman and Pentland (2003) and van der Waal et al. (2025).

1 SCENE

2 BREAKDOWN

3 PROTOCOL

CHAPTER V · THE INVISIBLE COST OF KEEPING THINGS MOVING

Four minutes that never appear

A small repair may look trivial until it repeats across many handovers and consumes attention the dashboard does not show.

FICTIONAL NUMERICAL EXAMPLE, NOT COMPANY DATA

Suppose a receiving team has to clarify an incomplete instruction before it can use a prepared order. One clarification lasts four minutes. It feels unremarkable. The next task arrives. The day goes on. Now consider an illustrative sample of eighty similar handovers. Twelve require the same kind of clarification. The direct correction time is twelve multiplied by four minutes: forty-eight minutes. That is not a daily total for any workplace where the author has worked; both the event count and the time are invented. More important, forty-eight minutes is not a full economic cost. It excludes interruption, waiting by others, rechecks, any error made during the confusion and the opportunity cost of an experienced colleague's attention. Counting these effects responsibly would require their own observations and clear assumptions.

The example can also be misread in the opposite direction. Twelve clarifications may include authorised quality checks, not waste. Counting them as defects without knowing why they exist would punish care and quality. The point of measurement is to tell avoidable repair from necessary control, not to produce a larger cost number.

OUR READING

A repeated four-minute fix is a hypothesis about process design, not proof that every four-minute check is waste.

All numbers on this page are synthetic and reproducible; no workplace sample was collected. The essay named below counts recurring problems with Pareto and 5 Why.

[More in the essay](#)[Pareto and 5 Why in practice, not in PowerPoint](#)

CHAPTER V · THE INVISIBLE COST OF KEEPING THINGS MOVING

The hidden expense ledger

A repair may consume more than direct labour time, yet some waiting and checking are essential safeguards.

The temptation is to assign a unit cost to each workaround and declare savings when the count falls. That can become another misleading KPI. A lower exception count may reflect a redesigned process; it may also reflect under-reporting, a redefinition of the event or the removal of an important verification step. Use at least four lenses. Direct correction time captures the visible work. Coordination captures calls and handover clarification. Downstream quality checks whether the receiver can use the work without further repair. Recurrence tests whether the same obstacle returns after a claimed solution. These should never be collapsed into one attractive number without stating their boundaries. A value-stream view, as Rother and Shook (1999) and Martin and Osterling (2014) describe it, separates process time from waiting and asks whether work arrives complete and accurate; here those ideas serve as a frame, not as measured results. A necessary quality check is not a defect merely because it takes time, and a customer-facing failure may need urgent action even if its repair lasts seconds. Risk and consequence matter alongside time. The most useful comparison is before and after a controlled change, with the same event definition and similar conditions. If repair time falls but incomplete deliveries, unresolved guest problems or other downstream failures rise, the improvement has not been demonstrated.

01	Correction time	Minutes spent performing an unplanned, permitted repair.
02	Coordination	Extra clarification or rework imposed on other roles.
03	Downstream quality	Whether the recipient received complete, usable work.
04	Recurrence	Whether the same verified obstacle appears again.

OUR READING

Measure the effect of the repair, not merely the movement of its cost into another department.

Sources: Anita L. Tucker, Journal of Operations Management 22(2), 2004; Mike Rother & John Shook, Lean Enterprise Institute, 1999 (via Lean Enterprise Institute, introduction and Part I excerpts); Karen Martin & Mike Osterling, McGraw-Hill Education, 2014 (via Karen Martin, "Value Stream Mapping: Lead Time" (author's blog, 2014))

Editorial measurement model informed by Tucker (2004), Rother and Shook (1999) and Martin and Osterling (2014); no local data.

CHAPTER V · THE INVISIBLE COST OF KEEPING THINGS MOVING

An honest calculation with limits

Simple arithmetic can expose the scale of a hypothesis while making its omissions explicit.

SYNTHETIC EXAMPLE, AUTHORED FOR THIS VOLUME; NOT EMPLOYER DATA

SYNTHETIC DIRECT CORRECTION TIME, FOUR MINUTES PER EXCEPTION

Before: 12 cases



After: 5 cases



For the invented example in the scene of this chapter, suppose exactly twelve of eighty handovers required one four-minute clarification. The event incidence is 12 divided by 80, or 15%. Direct extra work is 12 times 4 minutes, or 48 minutes in the sample. Neither measure estimates other teams, other dates or any actual employer. Now imagine that a redesign, in a comparable hypothetical sample, reduces the verified recurring clarifications from twelve to five. With the same assumed four minutes, direct correction time would fall from 48 to 20 minutes, a difference of 28. This does not prove a real saving; the redesigned work may consume preparation time elsewhere. The comparison is a calculation, not an observed experiment. Before measuring a real intervention, fix the boundary and the definition: what counts as a clarification, what must still be checked, who records it, and what would show that the downstream result stayed at least as good. Only then does the calculation become useful.

15%

12 of 80 sampled handovers needing clarification, an illustration: not a defect rate measured at any employer. Checked: $12 \times 4 = 48$; $5 \times 4 = 20$; $48 - 20 = 28$; $12 \div 80 = 0.15$.

OUR READING

A projection should be labelled as a projection until the new process has actually been observed.

All counts and times are invented for a reproducible arithmetic example, as in the author's PDF; no result was observed.

CHAPTER V · THE INVISIBLE COST OF KEEPING THINGS MOVING

Measure the cost without blaming the fixer

A small sample, a clear denominator and a downstream check are a more reliable start than an elaborate dashboard.

1

Define the population

Choose a clear class of handover and an observation window.

2

Agree on an exception

Count only the extra activity that fits the approved definition.

3

Time a sample

Capture correction and coordination separately, where permitted.

4

Verify necessity

Keep required safety and quality controls outside the avoidable-rework category.

5

Test one redesign

Document the change, scope, owner and success condition.

6

Check the recipient

Measure usability of the output and recurrence, not only apparent time saved.

A small sample is fine if its limits are stated. Voluntary reports are not the whole universe of exceptions; silence is a source of bias. Do not compare weeks whose order mix, staffing or demand differ without saying so. Aggregate sensitive work at process level: the chart shows where the process is weak, not who worked it.

OUR READING

An exception becomes actionable when its definition, cost, risk and owner are understood.

Source: Anita L. Tucker, Journal of Operations Management 22(2), 2004

Original editorial measurement protocol; not a validated benchmark or an implemented internal control. The interruption and switching costs follow Tucker (2004).

CHAPTER VI · FROM WORKAROUND TO BETTER PROCESS

The fix that should no longer be needed

A good redesign removes the need for repeated compensation without removing the worker's capacity to detect new problems.

HYPOTHETICAL IMPROVEMENT SCENE, NOT A DOCUMENTED OUTCOME

A team recognises that the same clarification keeps interrupting a handover. Rather than asking the experienced worker to repeat the workaround, the process owner interviews the sender and the receiver. Both describe the gap. They agree to make a required status clear at the point where the information changes hands. The change is modest. The team tests the revised handover on a narrow set of work, checks the receiving person's experience and compares it with the previous process. Staff keep the ability to report unexpected conditions. Nobody is told to skip verification because the new workflow is supposed to be better. If the revised process works, the remaining task is governance. Update the controlled instruction, teach the receiving team, retire conflicting side notes where authorised, and return the result to the people who first described the obstacle. A useful process is one a trained colleague can use without relying on the memory of its original designer.

This is a constructed future-state illustration. The author has built practical guides and discussed SOP improvement, but there is no before-and-after evidence that this particular redesign reduced delays or errors in a workplace, and a professional publication must preserve that boundary.

OUR READING

The goal is not zero adaptation. It is fewer avoidable repairs, clear controls and faster learning when reality changes.

Constructed scene synthesising published process-learning and workaround-innovation mechanisms; no local intervention is claimed. The essay named below follows a mistake between sender and receiver.

[More in the essay](#)

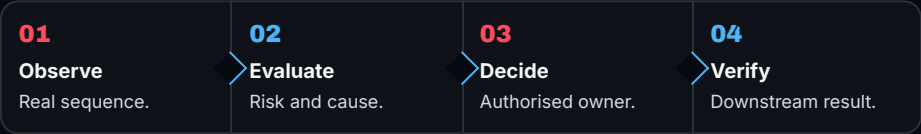
[Mistakes get lost between departments](#)

CHAPTER VI · FROM WORKAROUND TO BETTER PROCESS

Build the repair into the system

Improvement requires authority and testing, not simply copying the popular informal alternative.

The multiple-case research by Bartelheimer and colleagues describes how bottom-up adaptation can contribute to process innovation, but also shows that diffusion may go unnoticed and be governed unevenly. The practical conclusion is not to adopt every workaround. It is to create a deliberate pathway by which verified constraints are reviewed and safe alternatives tested. First, protect the customer and the current work. Second, determine whether the observed action was within authorised discretion. Third, find the process condition that created the alternative. Fourth, name an improvement owner with authority to alter that condition. Fifth, run a bounded test with a downstream quality measure. Sixth, revise the standard, train users and check whether the original constraint returns. The decision may be to keep the existing standard and remove the workaround. If it is a non-negotiable safety or privacy control, no experiment grants permission to bypass it. In other cases the standard itself may be obsolete or incomplete. In either direction the decision should be explicit, documented and communicated. Redesign creates a new risk: a cleaner procedure can shift work to another role. Check both sender and receiver before calling the change an improvement.



OUR READING

The standard must carry the learning that the workaround exposed.

Sources: Steven Alter, Communications of the Association for Information Systems 34, article 55, 2014; Christian Bartelheimer, Verena Wolf & Daniel Beverungen, Information Systems Journal 33(5), 2023 (via the abstract and the publisher's summary); Martha S. Feldman & Brian T. Pentland, Administrative Science Quarterly 48(1), 2003

Editorial governance model after Alter (2014), Bartelheimer et al. (2023) and Feldman and Pentland (2003).

CHAPTER VI · FROM WORKAROUND TO BETTER PROCESS

A controlled exception-to-change cycle

One problem family, one owner and one documented check of whether the extra repair is still needed.

- 1

Contain
Protect current customers, workers and regulated obligations first.
- 2

Describe
Write the actual exception in factual, anonymous terms.
- 3

Verify
Confirm the root condition with both sides of the handover.
- 4

Choose
Assign an authorised decision: approve, redesign, retain or prohibit.
- 5

Test
Compare recurrence and downstream quality in a bounded sample.
- 6

Institutionalise
Update controlled material, train users and report back on the outcome.

The research cited here proves no universal thirty-day deadline: urgent harms need immediate controls, and structural redesign may take longer. A documented open issue with a named owner is more honest than a premature “closed”. Track whether the workaround is still necessary and whether the recipient gets a better service; if only the first changes, the work may simply have moved.

OUR READING

Remove the recurring obstacle, not the employee's permission to notice a new one.

Sources: Anita L. Tucker, Amy C. Edmondson & Steven Spear, *Journal of Organizational Change Management* 15(2), 2002; Steven Alter, *Communications of the Association for Information Systems* 34, article 55, 2014; Christian Bartelheimer, Verena Wolf & Daniel Beverungen, *Information Systems Journal* 33(5), 2023 (via the abstract and the publisher's summary)

Original editorial method, inspired by Tucker et al. (2002), Alter (2014) and Bartelheimer et al. (2023); not a validated procedure.

FIELD TOOL

The Exception Intelligence Card

An original, anonymised worksheet for understanding recurring deviations without normalising unsafe shortcuts. One exception, one boundary, one decision, one check; if something is unknown, write “not measured”.

01 Observed exception

which approved step or input failed? what is verified?

02 Boundary and containment

was any mandatory safety, privacy or authority control involved?

03 Worker correction

what additional action was taken? was it authorised?

04 Recurrence and consequence

how often? extra time? downstream quality? write “not measured” if unknown

05 Decision and owner

retain, redesign, prohibit or investigate: who can authorise it?

06 Verification and tell-back

when will the next sample be checked and the team updated?

Sources: Steven Alter, Communications of the Association for Information Systems 34, article 55, 2014; Anita L. Tucker, Amy C. Edmondson & Steven Spear, Journal of Organizational Change Management 15(2), 2002

Use boundary: this card does not authorise bypassing a controlled SOP, safety check, privacy obligation, hotel procedure or legal requirement. Keep sensitive cases in approved internal systems. The Kaizen Board on this site keeps the decisions and their checks.

Open the tool: [Kaizen Board](#)

stivencatalyst.com/tools/kaizen-board/

CLOSING ESSAY

The hidden tax on good work

A dependable organisation does not ask its best people to conceal the same defect forever.

We praise the people who know how to keep things moving. Often they deserve that praise. A frontline worker who notices a missing input, verifies the condition and protects the next person is demonstrating judgement. But there is a managerial danger in turning that competence into a permanent operating requirement. When the same extra action must be repeated, the organisation has not yet decided whether it belongs in the process. A report may show that the job was completed. The worker remembers the phone call, the recheck and the explanation that made completion possible. Neither perspective is automatically false; they describe different parts of the work. The purpose of management is to connect them without mistaking the visible output for the whole production of that output. The research in this volume resists simple morals. Tucker and colleagues found that solving immediate problems can interfere with organisational learning. Feldman and Pentland explain why routines vary in performance. Alter shows the forces behind workarounds. Bartelheimer and colleagues show how informal practices can spread and become sources of innovation. Van der Waal and colleagues show that digital traces can help identify candidate patterns, while still requiring interpretation. Together these perspectives demand curiosity and governance, not celebration of shortcuts. For a warehouse, a delivery network, a wholesale operation or a hotel shift, the discipline is similar. Observe the real work. Identify the missing condition. Protect the boundaries that are non-negotiable. Give the recurring problem to someone who can change its source. Test the improvement at the receiving end. Return the answer to the people who had to carry the old burden. The aim is not to remove human initiative from the workplace. It is to stop charging workers an invisible tax for weaknesses the organisation can repair. Good judgement will always be needed. The same preventable correction, performed forever, should not be its permanent assignment.

OUR READING

When people must repair the process every day, the process is not as reliable as the dashboard suggests.

Editorial essay opening the second cycle of the treatise. No recurring correction, workaround or redesign is attributed to any named employer.

METHOD

Where the claims come from

An evidence-informed editorial synthesis, not original field research: eleven reference works, observation studies, routines theory, a theory of workarounds, a multiple-case study and a process-mining study, each with its limits. Scenes, sample arithmetic and the card are editorial.

01	Observation	197 hours of nursing work (Tucker et al. 2002); 239 hours, 26 nurses, nine hospitals (Tucker and Edmondson 2003); most failures from material and information supply across boundaries (Tucker 2004). Hospitals, not warehouses or hotels.
02	Theory	Feldman and Pentland (2003) on ostensive and performative routines; Alter (2014) on why workarounds are chosen; Halbesleben et al. (2008) on their safety consequences. Mechanisms, not measured rates.
03	Cases and logs	Nine workarounds in three cases over two years (Bartelheimer et al. 2023); eleven types in two hospital departments (van der Waal et al. 2025, online 2024). Counts of study scope, not benchmarks.
04	Invented counts	Twenty deviations by category (8, 7, 3, 2) and the handover example (12 of 80, 15%; 48 → 20 minutes, 28 less) are illustrations flagged on their pages.

The four categories, the six-step protocols, the four measurement lenses and the Exception Intelligence Card are editorial proposals for local testing, not validated safety controls or employer-approved procedures. Publisher records were checked for every source; where a book or paper was read through its publisher's summary, the list says so. Editorial standard: a theory, a field study, a case study and a proposal are named as such, and the sentence stops claiming where the evidence stops.

Sources: Anita L. Tucker, Amy C. Edmondson & Steven Spear, *Journal of Organizational Change Management* 15(2), 2002; Martha S. Feldman & Brian T. Pentland, *Administrative Science Quarterly* 48(1), 2003; Anita L. Tucker & Amy C. Edmondson, *California Management Review*, 2003; Anita L. Tucker, *Journal of Operations Management* 22(2), 2004; Jonathon R. B. Halbesleben, Douglas S. Wakefield & Bonnie J. Wakefield, *Health Care Management Review* 33(1), 2008 (via the publisher's record); Steven Alter, *Communications of the Association for Information Systems* 34, article 55, 2014; Christian Bartelheimer, Verena Wolf & Daniel Beverungen, *Information Systems Journal* 33(5), 2023 (via the abstract and the publisher's summary); Wouter van der Waal, Inge van de Weerd, Iris Beerepoot, Xixi Lu, Teus Kappen, Saskia Haitjema & Hajo A. Reijers, *Business & Information Systems Engineering* 67(2), 2025; Wil M. P. van der Aalst, Springer, 2016 (via the publisher's overview); Mike Rother & John Shook, *Lean Enterprise Institute*, 1999 (via Lean Enterprise Institute, introduction and Part I excerpts); Karen Martin & Mike Osterling, McGraw-Hill Education, 2014 (via Karen Martin, "Value Stream Mapping: Lead Time" (author's blog, 2014))

Every source is cited on the next page; the eleven records, their journals, volumes, pages and years were checked against the publishers' metadata and abstracts.

SOURCES AND METHOD

Where the claims come from

The figures in this volume come from the sources below, each with its year. The scenes are constructed; the protocols are proposals; what is research is named as research.

When problem solving prevents organizational learning

Anita L. Tucker, Amy C. Edmondson & Steven Spear, *Journal of Organizational Change Management* 15(2), 2002

Reconceptualizing Organizational Routines as a Source of Flexibility and Change

Martha S. Feldman & Brian T. Pentland, *Administrative Science Quarterly* 48(1), 2003

Why Hospitals Don't Learn from Failures

Anita L. Tucker & Amy C. Edmondson, *California Management Review*, 2003

The impact of operational failures on hospital nurses and their patients

Anita L. Tucker, *Journal of Operations Management* 22(2), 2004

Work-arounds in health care settings: Literature review and research agenda

Jonathon R. B. Halbesleben, Douglas S. Wakefield & Bonnie J. Wakefield, *Health Care Management Review* 33(1), 2008 · via the publisher's record

Theory of Workarounds

Steven Alter, *Communications of the Association for Information Systems* 34, article 55, 2014

Workarounds as generative mechanisms for bottom-up process innovation: Insights from a multiple case study

Christian Bartelheimer, Verena Wolf & Daniel Beverungen, *Information Systems Journal* 33(5), 2023 · via the abstract and the publisher's summary

Putting the SWORD to the Test: Finding Workarounds with Process Mining

Wouter van der Waal, Inge van de Weerd, Iris Beerepoot, Xixi Lu, Teus Kappen, Saskia Haitjema & Hajo A. Reijers, *Business & Information Systems Engineering* 67(2), 2025

Process Mining: Data Science in Action, second edition

Wil M. P. van der Aalst, Springer, 2016 · via the publisher's overview

Learning to See

Mike Rother & John Shook, Lean Enterprise Institute, 1999 · via Lean Enterprise Institute, introduction and Part I excerpts

Value Stream Mapping: How to Visualize Work and Align Leadership for Organizational Transformation

Karen Martin & Mike Osterling, McGraw-Hill Education, 2014 · via Karen Martin, "Value Stream Mapping: Lead Time" (author's blog, 2014)



MANAGEMENT REVIEW

Management without theatre.

Every volume, one question about operations, followed from the floor to the protocol
and tested against research.

ALL VOLUMES

stivencatalyst.com/magazine/operational-treatise.html