

ROOT CAUSE EXPERT

FOR PRACTITIONERS AND THE MANAGERS WHO DEPEND ON THEM

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Root Cause Dictionary "Flawed Defense"

Most everybody has heard the phrase "failed barrier." I believe root cause analysts should move beyond that mind-limiting image.

Defenses against trouble are rarely limited to engineered features. They frequently include procedures, human performance, and technical processes, with many interdependencies among them.

Moreover, defenses can prove to be inadequate three ways:

1—Defenses can fail outright, be penetrated, or overcome.

2—Defenses can be available but not used, which raises questions about work planning and supervision.

3—Defenses can be feasible but not provided. That's a tip-off that earlier corrective actions may have been ineffective or the organization was not firmly plugged into operating experience.

"Flawed defense" seems to do a better job of describing these possibilities.

FINDING THE "ULTIMATE" WEAKNESS

Independently I've been leading and facilitating intensive cause determinations for almost 11 years. Before that, I did much the same for a utility employer, although with a lot less industry perspective.

More seasoned now, I decided to pull **eight of the most comprehensive assessments from my files**, including one from that earlier time, and search for a common underlying factor—an "ultimate" weakness—that links them all. If such a factor exists, we might expect every significant adverse condition and horrific event to involve this universal ingredient, regardless of any situation's particular details.

I pulled them all out and started reading. Eight sites. Eight issues. Shared themes began to emerge right away.

In four cases, supervisors acted inappropriately or did not bring out the best in their



people.

Four reports implicated work-arounds or tolerance for long-standing conditions.

Four involved some shortcoming in corrective action program follow-through.

Three revealed deficient training content or delivery. Planning and scheduling inadequacies stood out in three more reports.

Inadequate trending was a lone ranger in the eight sampled assessments.

And just one had something to do with the quality of root cause analyses!

So, what was the big one, the common factor, the ultimate weakness in the eight?

Was there even one for me to find? (Please turn to Page 2.)

START (OR BOOST) YOUR ROOT CAUSE PROGRAM

For a consultant, this is probably a bad marketing idea, but below are **six suggestions you should try** if you are just starting out or if you need to give your root cause program a positive jolt:

First: Seek some of the root cause experts in your own company. They may have moved on to other jobs, but they can tell you what works,

maybe even share what has troubled them over the years.

Second: Read a good book on the so-called "learning organization." Not one of those "Secrets of the Warrior Leader" best-sellers, but a well-thumbed oldie by Chris Argyris, Edgar Schein, or Donald Schon.

Maybe throw in a psychology book by Carl Rogers or an

adult learning book by Malcolm Knowles.

Take notes and compare what they say against what has happened in your own career and what is going on around you now.

Form your own mental model of why people behave as they do. Challenge it. Adapt it.

(Please turn to Page 4.)

EIGHT ASSESSMENTS —

(Continued from Page 1.)

Some were root cause reports. Others determined collective significance. All involved a diverse team and a systematic approach. All had strong senior leadership interest, including a Chief Nuclear Officer or two.

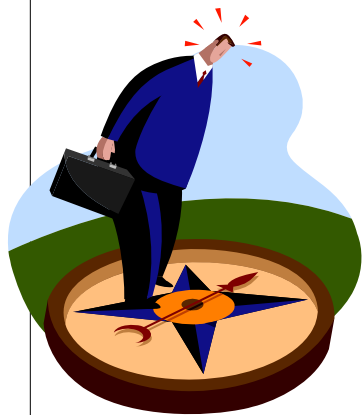
On close inspection, **each assessment offered a clue** to the shared weakness:

1. Managers expected "everything" to get done, without setting meaningful priorities. In addition managers took on every troubleshooting job personally, distracting them from strategic activities.
2. Managers did not intrusively question reports of weak line involvement in training, poor class attendance, and job qualification problems. They preferred tackling plant issues, too.
3. Managers knew of technical inadequacies, but believed they could be corrected later. They shortened quality reviews and emphasized schedule.
4. Managers drove daily activities in a well-coordinated, top-down manner, yet they allowed individual departments total latitude in performing self-improvement.
5. Employee concerns data

revealed a decline in trust, but managers continued making arbitrary operational and personnel decisions that seemed to favor cost over safety.

6. Managers recognized the need for continuous improvement (work management/system health) and PM optimization, but implemented only one option.
7. Despite emphasis by external assessors, managers held wrong beliefs about operator human performance, e.g., that it did not apply to "routine" jobs. And, while they tracked attrition, managers did not populate

"A successful job involves a task, a work environment, equipment, information, and cooperation by others."



HU—IT'S NOT JUST USING TOOLS

Emphasizing human performance ("HU") tools is a good thing. Everybody needs to know how to recognize and take charge of error-likely situations and emerge successful.

Root cause analysts, however, cannot stop there.

We avoid citing "inattention to detail," but "failure to self-check" and "inadequate situational awareness" are pretty

much the same thing. Both focus on the individual, not the system.

A successful job involves a task, a work environment, equipment, information, and cooperation by others.

Human performance breakdowns that produce significant events, HU clock resets, or disturbing trends require cause evaluators to go beyond the

individual(s) to a deeper level.

What was it about the task design that led to trouble?

What human mental or physical limitation was strained to the limit?

How often in the past has the same "error" sent us a lower-significance warning signal?

What does that mean?

"GRADING" ROOT CAUSE REPORTS

You need some kind of performance indicator reflecting the quality of root cause reports and perhaps apparent cause reports as well.

One way to get this is to "grade" evaluation reports and track the numbers.

Be very careful here. How you handle "grading" is all-important.

Make sure your underlying cause procedure and report template perfectly match the grading criteria

and prompt users to enter all required information.

You can't demand that writers produce something the procedure doesn't enable them to do.

Avoid making value judgments like "found the real root cause". How can a scorer know the answer better than the analyst who did the work? Instead, judge whether or not the report writer "supported the analysis with relevant facts."

Coach analysts at the front end; don't nail them at the finale. Few root cause practitioners consider after-the-fact scoring any benefit at all, other than as another indicator to fret about.

Given their importance, every root cause report should be fully acceptable. One that merely "passes" should be suspect. Consider guiding root cause analysts to 100% successful outcomes and not even bothering to "grade" their work.

THE COMMON WEAKNESS

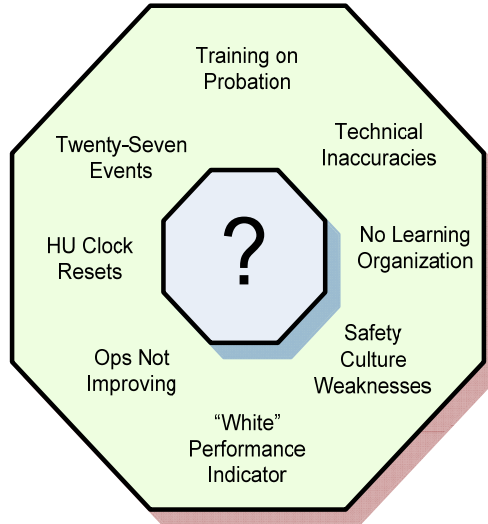
Ops career paths with enough talented people.

- 8. Despite identified weaknesses in peer checking, HU tool use, and HU training, management observations frequently occurred near the end of the month and were superficial.

The common link?

Managers were aware of serious risks and chose to act on other priorities. AS A RESULT, inconsequential precursors grew and combined into significant problems.

Quite a claim? Perhaps. But I'll be looking out for this weakness in the future. You should, too.



“Protection encompasses... everything an organization does (or doesn't do) to prevent disruption of its ability to Compete and Perform.”

WHAT WERE THE EIGHT ISSUES?

- **1993:** 27 events brought a multi-unit site to the threshold of the “Watch List.”
- **2000:** The National Academy placed a BWR’s technical training program on probation.
- **2001:** A Federal project issued inaccurate technical products, including predictive models.
- **2003:** A station was not embracing the concept of a learning organization.
- **2004:** A station experienced events that appeared to reflect safety culture weaknesses.
- **2005:** Engineering predicted that a plant’s equipment reliability data would change an NRC performance indicator to “white.”
- **2005:** An Operations improvement plan was not delivering the desired positive effects.
- **2006:** There were too many human performance clock resets despite vigorous corrective actions for each event.

COMPETE-PERFORM-PROTECT!

Colleagues Dean Macris and Ozzie Paez offer interesting perspectives on a topic I used to label “risk management.”

According to Macris, a distinguished organizational effectiveness consultant, and Paez, a bright, new-generation computer security expert, managers are great at competing and performing. **Unfortunately, many corporate executives still treat “protection” as a bolt-on afterthought,** and hand their responsibility to specialists

while they pursue the business vision. Unfortunately, that vision rarely includes “Protect.”

With Dean and Ozzie I co-authored an article on C-P-P for Dean’s newsletter UPDATE: “A State of Bliss? Nuclear Power in Three Dimensions.”

We stressed that “Protection encompasses the totality of everything the organization does (or doesn’t do) to prevent disruption of its ability to Compete and Perform.”

Nuclear power folks have long believed in C-P-P, and most of us have acted accordingly.

Our advantage? We engage in performance improvement and learning (by various names), which embraces CAP, OE, trending, self assessment, observations, benchmarking, and human performance—**BUT ONLY IF** we nurture and apply it.

For more information on C-P-P and the full text UPDATE article, visit: www.acmacris.com or www.simplicitydata.com.

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ROOT CAUSE PROGRAM BOOST

(Continued from Page 1)

Third: Look at your "best" root cause reports and compare them against the INPO criteria and the NRC 9500X inspection plans. Are your documents clear and crisp? Do they explore extent of cause as well as extent of condition? Do they evaluate how operating experience let you down—in other words, how the organization under-appreciated it, leading to flawed defenses that permitted the adverse condition or event in question?

Fourth: Read the corrective actions. Do they REALLY nail the causes, or are they just easy-to-close stopgaps that dodge real issues? Does every high significance level root cause report have at least one corrective action aimed at strengthening safety culture?

Fifth: Worry (a little) about the root cause methods. Any well-reasoned system will do, but are the tools structured, orderly, and complete? Do they bring problem sources to the ground with strong evidence, or do they let causes off the hook with nice-sounding descriptions? Any flow chart, "pick-a-cause," or labeling system is NOT a root cause methodology. If your system doesn't allow you to describe evident root causes in plain language of your own choosing and to show the evidence, be wary.

Sixth: Is there a strong supply of willing, capable root cause analysts? Is serving as an investigator attractive to people? Or do you wind up with folks nobody else knows what to do with? Conversely, are the same excellent people being used over and over and gradually becoming fried?

If you work through these six items and still need leadership, support, or encouragement, please get in touch!



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