

## Reducing the Systemic Risks of Human Error

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Disciplinary action is used to punish those who make choices that are incongruent with acceptable norms and to warn others not to follow the same path. Many leaders do not know what else to do. However, discipline has limited success because most workplace errors are not intentional – they are caused by gaps in attention, knowledge, skills, or procedures. When an investigation focuses on finding the person who committed the error, the solution will likely focus on disciplinary action. This will have a negligible long-term impact on the error rate. Instead, it will lead to increased risk that future errors will be committed. It will also encourage people to cover up errors.

Conversely, by providing people with a more robust way to identify conditional causes, solutions will more likely be identified that fix the problem permanently and reduce risk. When discipline is taken off the table, the result is greater participation by those who have direct knowledge of the error.

### Overview of Risk

In my experience, nothing brings tempers to the boiling point faster than human error. Make no mistake (pun intended), people certainly err. And when these errors occur in high-risk situations, bad things happen. Sometimes, inexperienced investigators confuse an incident investigation with a prosecution. They think their primary task is to find out who did what, or who didn't do what. The reason the error was made frequently gets lost in the shuffle. Risk management is often reduced to retraining or disciplining people. It is imperative to examine why the focus on human error persists, as well as on what can be done to improve the culture.

### Basics of Risk

In many disciplines, risk is understood as a function of uncertainty. Many in industry define risk as the possibility that change will lead to an undesirable outcome, whereas uncertainty is a broader label encompassing all possibilities – both positive and negative.

Below is a simple equation for calculating risk:

$$\text{Risk} = \text{Probability} \times \text{Consequence}$$

There are variations on this equation. Sometimes a variable is included that accommodates the presence or absence of a barrier that would mitigate undesirable consequences. And because most of the time a group is estimating probability and consequence, the results can be highly subjective. Still, many find going through the scoring exercise to be valuable.

However, not everyone equates risk with the potential for a negative outcome. In the financial world, risk is not a subcomponent of uncertainty – they are one and the same. Financial analysts see risk as the potential that the future price of an asset will be something different than expected. Price volatility, measured statistically, provides a measurement of risk. In the financial analyst's world, risk includes the potential for both upside and downside outcomes – not just the downside -- hence the notion of a trade-off between risk and return. To earn large returns in a short amount of time, the investor is required to take large risks. Of course, another possibility is the realization of large losses.

Financial analysis requires that risk be measured as a combination of two components – systemic risk and non-systemic risk. Systemic risk is the risk associated with the business environment, which is shared by all other firms in the same sector. For example, all automobile manufacturers share the same systemic risk component. So all are subject to the ups and downs of the automotive industry. Non-systemic risk is the risk associated with any individual automobile firm. Each individual firm has risk factors that differentiate it from its competitors. This individual risk is the non-systemic risk component.

The key distinction is that individuals in any environment have a degree of control over their non-systemic risk (their choices and actions). However, they can do nothing to lower the systemic risk floor of the environment itself. Both types of risk combine to equal the total risk to which any individual is subject.

## **Role of Human Error in an Event**

Human behavior is often the solitary focus of an incident investigation. What did someone do (or not do) that was the primary contributor to the outcome of the event? Many solution recommendations attempt to control human behavior in one manner or another. Disciplinary action – punishment – is one favorite. Other recommendations such as writing better procedures, sending people to additional training, and implementing best work practices are common actions. While some of these solutions may be good starting points, more can be done. These solutions address only the non-systemic risk components of an event – not the systemic environmental risk. Why not focus on dropping the systemic risk floor to a lower level? Doing so would subject all individuals to a lower level of risk – regardless of individual behaviors.

One reason this does not happen more often is that decision makers often lack the information required to identify systemic risks. Sometimes this is because the information is presented in such a way that it is not consistent with a strategy to reduce risk, yet still provide an acceptable return on investment. A thorough incident investigation, including a good causal analysis, provides decision makers with much better information.

## Disciplinary Action Increases Risk

The goal of an incident investigation is to mitigate the risk of future recurrence. However, far too often an incident investigation leads to disciplinary action as the primary solution. In some cases, disciplinary action is absolutely warranted.

- An easy litmus test to determine when disciplinary action is appropriate is to simply review for recurrence: did the disciplinary action have an impact on the future recurrence of the problem? If so, then it must have controlled causes on some level. But that is only part of the test.
- Another question must be answered as well. This question is: “Did the disciplinary action cause additional problems?” This is more difficult to assess.

As stated in the opening section, in most cases disciplinary action has, at best, zero impact on the risk of future recurrence. And, depending on whom you ask, it definitely causes additional problems. It is generally a coarse reaction to an event consisting of many nuances. From an experienced analyst’s perspective, it usually represents a surrender to the limits of time, obsolete techniques, and outdated thought processes.

Some of the problems that share disciplinary action as a cause include:

- Stress in the employee population. People spend time “waiting for the shoe to drop.” They question who is going to get in trouble. They also question the extent of the discipline. Like an episode of “American Idol” in which they are all participants, the suspense leading up to the outcome permeates their consciousness until the decision is made.
- Disagreement with the outcome. If employees do not agree with the outcome, they will not let it go. A perceived injustice does not have a statute of limitations. It gets hashed and rehashed – both internally, and externally.
- Fear of future mistakes. If employees fear punitive action as the result of mistakes, they will be afraid of making mistakes. Some may see this as a positive outcome – if employees are afraid to make mistakes, this will cause them to make less of them. The opposite is usually what happens.

- Closing the ranks. When future mistakes occur, anticipation of disciplinary action causes employees to close ranks. This means that potentially significant near misses go unreported and important causal details remain hidden for fear that the information will be used against someone.

These are all effects, but effects are also causes. When you combine “stress in the employee population,” “disagreement with previous actions,” “fear of future mistakes,” and “closing ranks,” the result is often a net increase in risk of future errors.

## Conclusion

Sometimes disciplinary action is appropriate. Some companies do a super job of assessing whether discipline is an acceptable course of action. Siemens Energy, for instance, uses a decision tree based on James Reason’s Culpability Model. But like an invasive surgery, even appropriate disciplinary action can still result in unintended consequences. The takeaway? Use disciplinary action in moderation, or risk finding yourself contributing to the cause path of future problems.

Use of an effective causal analysis methodology to analyze significant events provides the team many causes from which to choose when brainstorming targeted solutions. The best solutions control the environmental contributors to human error.

Cars these days are great examples of conditional controls. Features like sensors that reduce closing speed when approaching another car, beepers that sense when you are about to hit something when backing up, rear view cameras, heated mirrors, windshield washer emitters, and the list goes on.

These are all changes to the conditional environment to either reduce the risk of errors, or to trap them and mitigate their consequences. Granted, the costs are greater, but I think results show the benefits are worth the investment.