Proactive RCA

A crystal ball for predicting the future…

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Agenda

- Risk and Uncertainty
- Systematic vs. Unsystematic Risk
- Mapping risk to cause and effect
- Proactively using RCA to manage uncertainty

RCA is Inherently Reactive

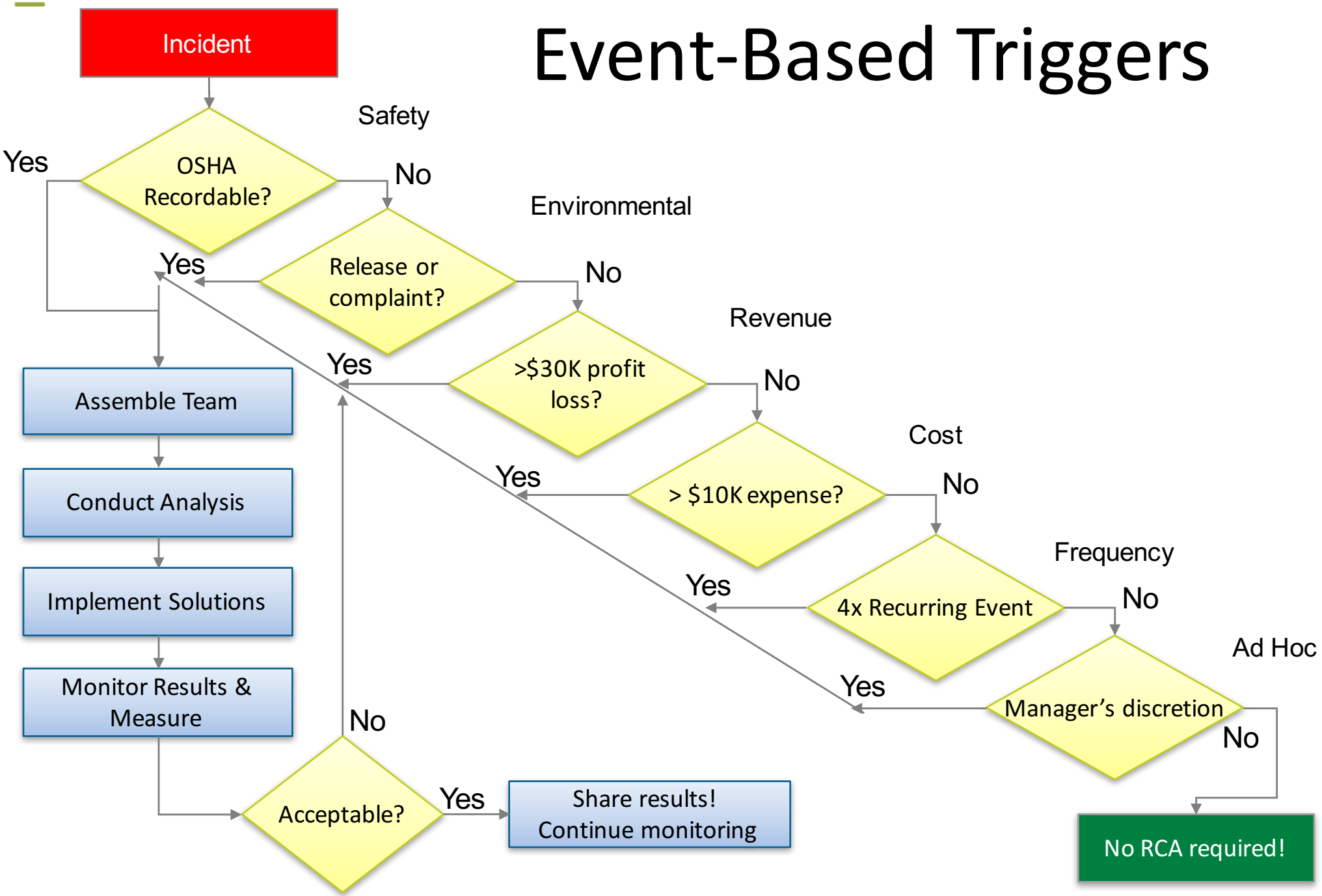
- We use RCA after an event has occurred
- It's Reactive
- It does a great job at understanding what happened, but…

“I Want to Know My Future”

Proactive Root Cause Analysis

- Proactive RCA benefits from a basic understanding of risk.
  - Identify proactive RCA candidates based on risk level.
  - Near misses are terrific opportunities
    - Many of the causes are the same regardless of outcome.
- Requires shift to Risk-Based Triggers
  - Most of us use event-based triggers
  - Need to assess impact and probability
  - Reducing risk is proactive – a percentage of future incidents will be prevented.

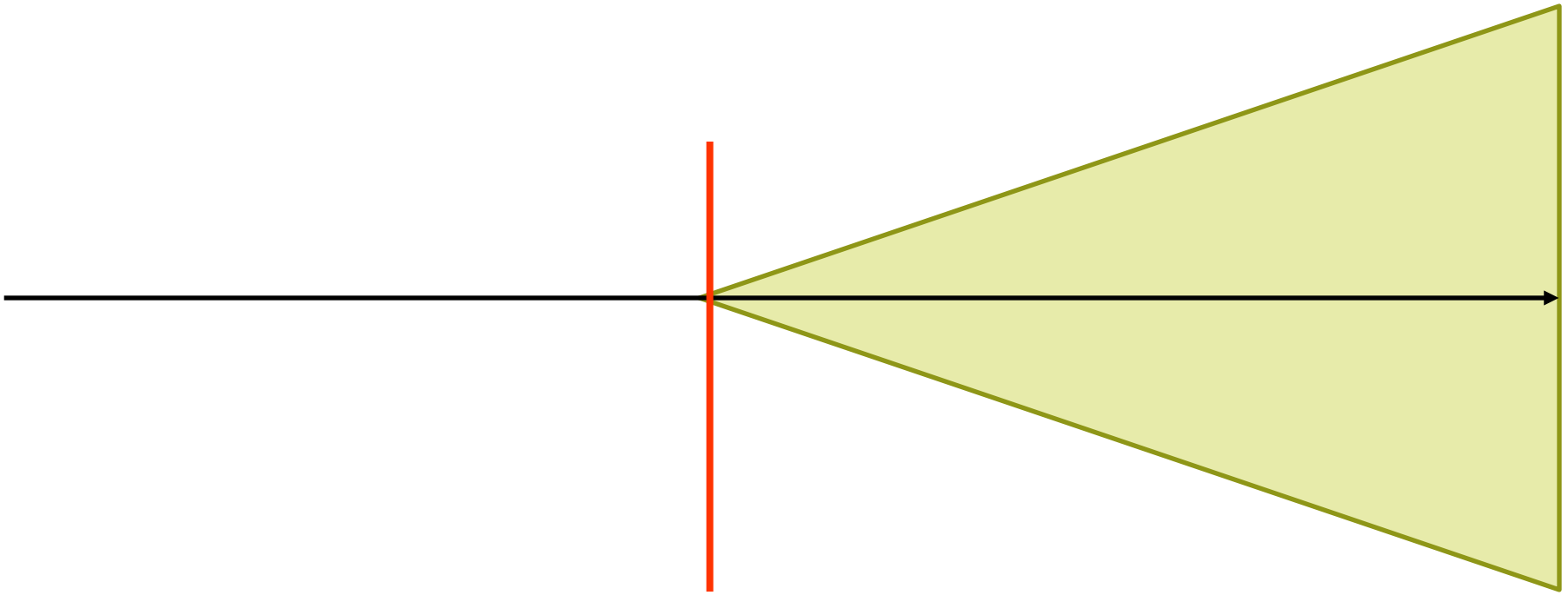
Event-Based Triggers



Proactive RCA (cont.)

- Near-miss events have limited Actual Impact, but large Potential Impact.
  - There is a wide variation of possible outcomes, including those with high levels of severity.
- Risk is a measurement of variation/volatility.
  - When outcomes are more widely variable, they represent greater risk.
    - The ability to accurately predict an outcome depends on the number and variation of possible outcomes.
  - Risk is not only a measurement of potential downside – risk has an upside component as well.
    - Risk-taking drives both gains and losses.
- "Being proactive" is best defined as effectively managing the risk of future adverse events.

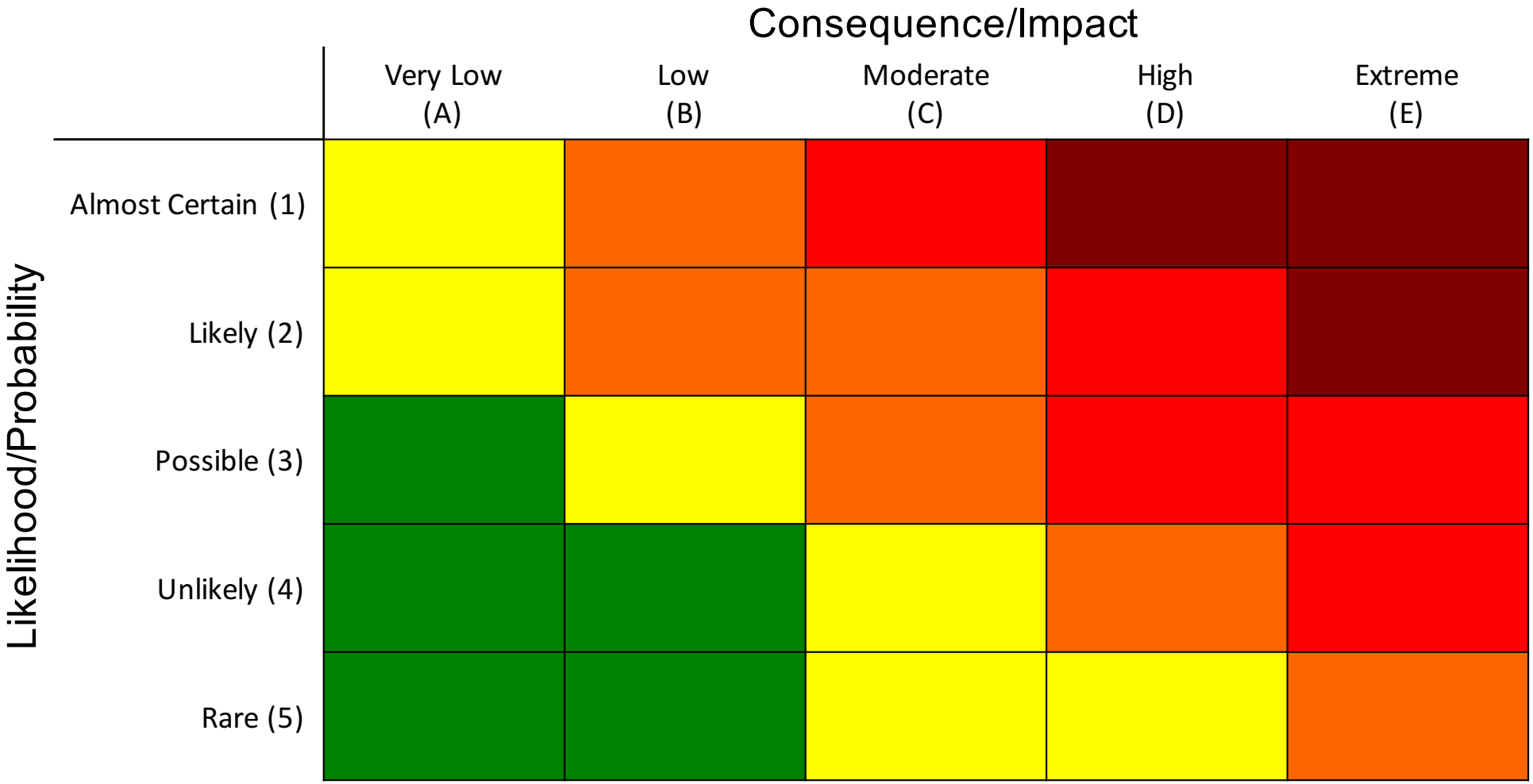
Cone of Possibility



Measuring Risk

- Calculating risk objectively requires reliable data.
  - A large, clean data set that spans a long period of time generates statistically significant results.
  - Unfortunately, the data for such a calculation is often not available.
- Risk can be calculated subjectively.
  - On a scale from 1 to 5 (or any scale you like), estimate the probability of an event recurring.
  - Use the same scale to estimate the severity.
- You can set triggering criteria based on this score.
  - All events scoring above a predetermined threshold require formal RCA.
- Consider using a heat chart to plot risk.
  - Define severity levels for each goal impacted.

Risk-Based Triggers



“History doesn’t repeat itself, but sometimes it rhymes”

- Mark Twain

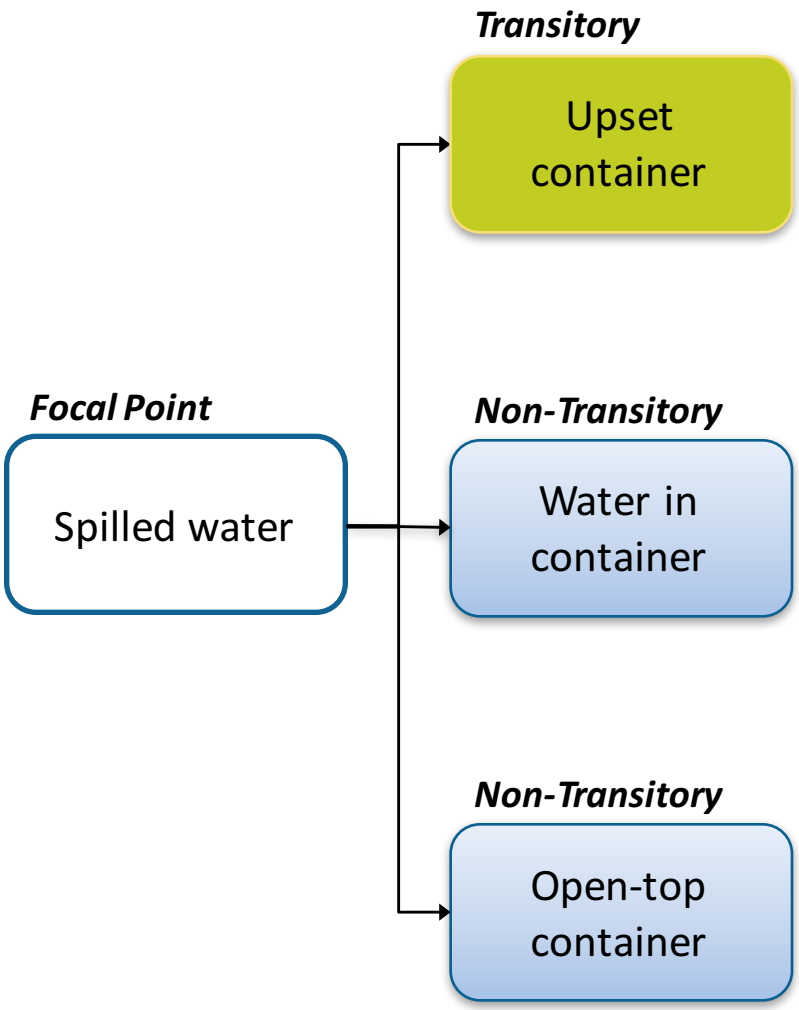
Does the Past Repeat?

- We hate uncertainty
  - Managers in particular
  - But they are paid to manage uncertainty
    - Reduction in uncertainty is helpful
- Precursors
  - We discount based on linear thinking
  - We'd rather see what we want to see
- We try to predict the changes
  - But we ignore the constants!

Importance of Identifying Cause Types

- Identifying Transitory and Non-Transitory causes helps with risk reduction.
- Risk can be broken down into two components: Systemic and Non-Systemic.
  - Systemic risk is risk inherent in the system itself.
  - Systemic risk is more constant, consistent, and usually non-transitory.
  - Non-systemic risk is risk inherent in the individuals interacting within any given system.
  - Non-systemic risk is more variable, harder to predict, and often transitory.
  - Total Risk is the combination of the systemic and non-systemic risk components.

Cause and Effect Analysis



Transitory causes represent a ***point of change***. In this case, the water was not spilled until the container was upset. This represents a change from contained water to spilled water

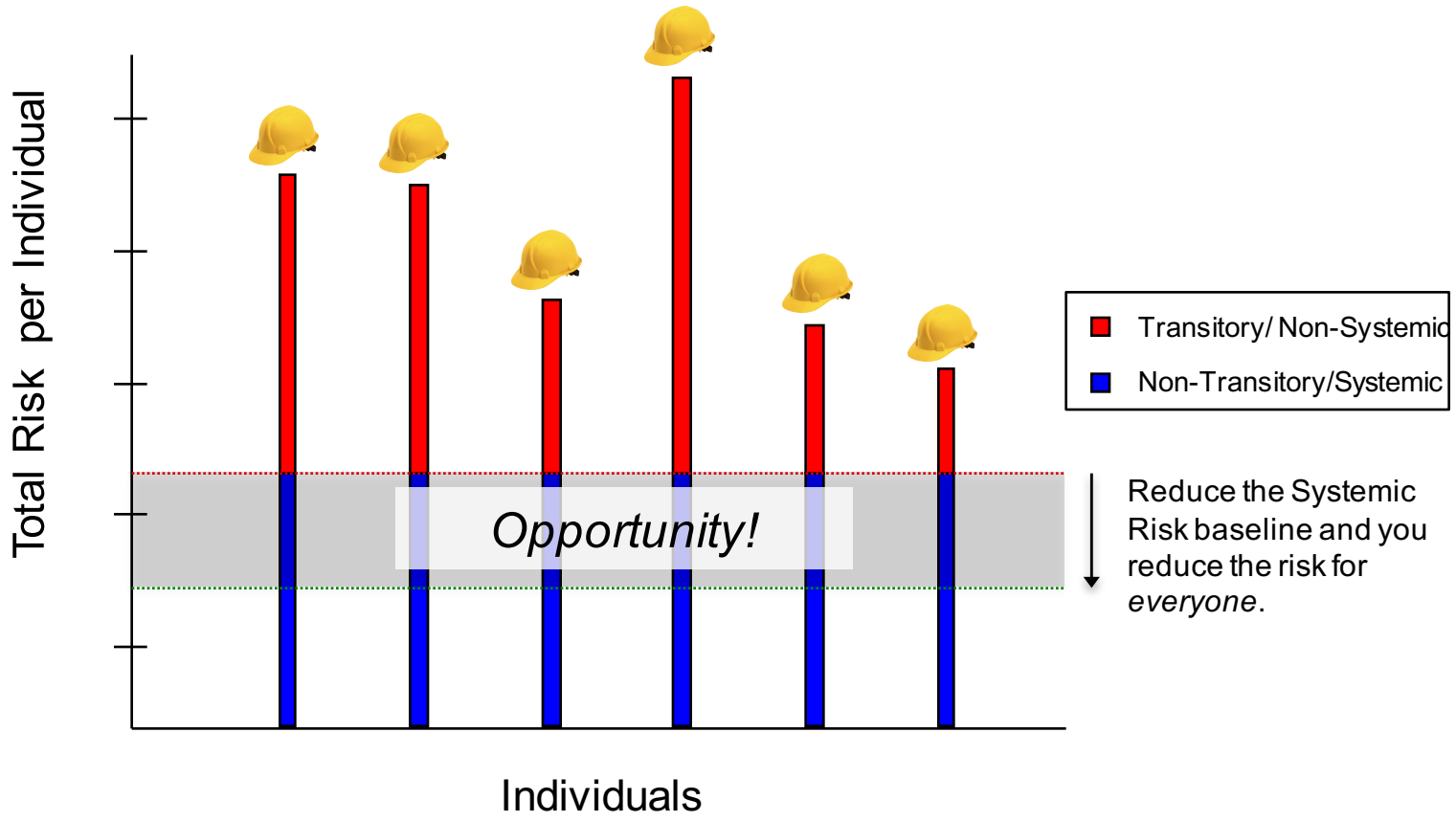
Non-Transitory causes are the ***players in an event***. In this case, the water in the container represents a status of the container (and the water) at the time of the event. Status changes over time.

The cause 'open-top container' is a non-transitory property of the container. Properties are generally stable and resist change.

Systemic and Non-Systemic Risk

- Transitory Causes are often associated with non-systemic risk.
  - People – and how they interact with their environments – are often associated with non-systemic risk and transitory causes.
  - This kind of risk is more difficult to predict – it is more volatile.
  - Yet many corrective actions focus on fixing people. While important, there is more that can be done.
- Non-Transitory causes are often associated with systemic risk.
  - When we control non-transitory causes, we are more likely to control the causes of systemic risk.
  - This makes the environment safer for everyone.

Risk Components



- A combination of solutions that controls both types of causes works best to reduce risk.
  - Think of it as a well-balanced investment portfolio.

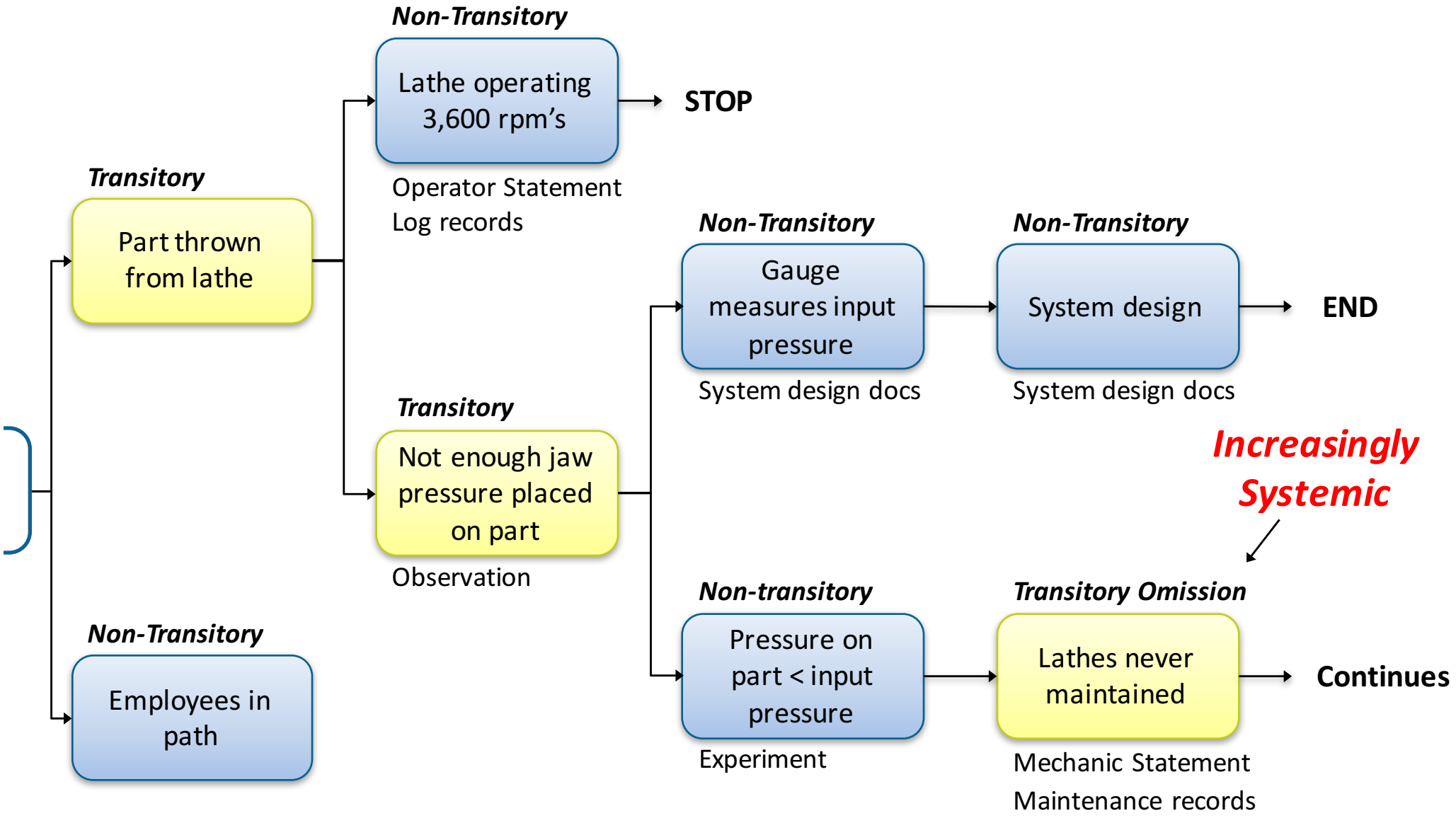
Identifying Systemic Causes

- Systemic causes impact the organization as a whole
- Most RCAs can uncover systemic causes – if they do not stop too soon

Identifying Systemic Causes (cont.)

- Have you passed the “minutia restriction” in the cause chain?
  - If so, you are more likely to uncover systemic causes.
  - If not, keep asking “why” until you are able to identify the minutia restriction.
- Use the “Cause + 2 Strategy”
  - This will help ensure you get beyond the minutia and into systemic causes.

Systemic Cause Example



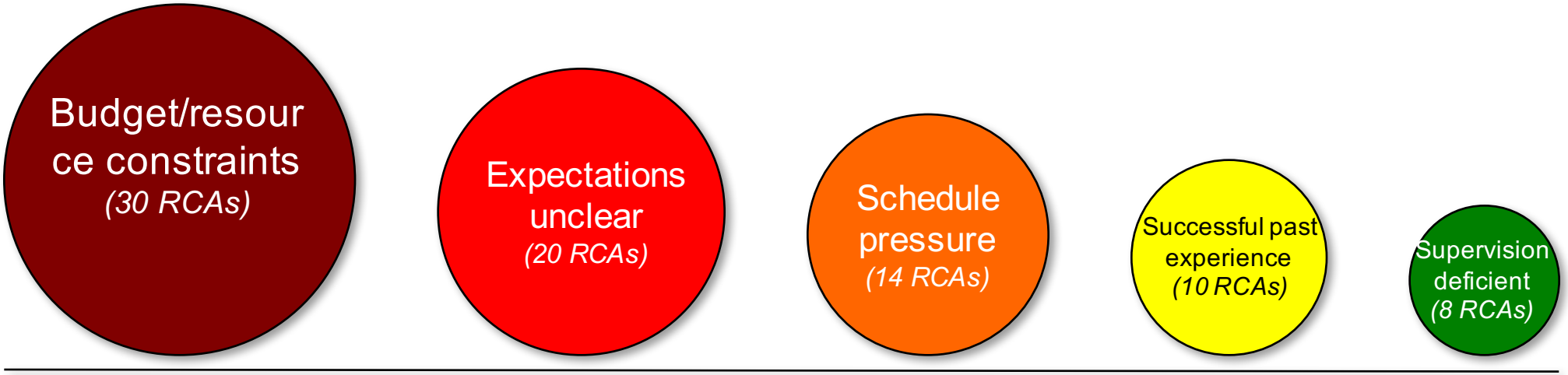
Dynamic Common Cause Analysis

- Dynamic (common cause) analysis identifies systemic causes.
- Most RCAs focus on individual, discrete events.
  - Single event analyses are like examining an individual tree.
  - Over time, a "forest" of knowledge is created.
- Dynamic analysis identifies patterns in the forest.
  - Common causes can be found through common cause analysis.
- Focusing on common causes is both reactive and proactive.
  - Reactive: Identifying causes to problems that have already occurred.
  - Proactive: These causes contribute to elevated risk of future events.

Dynamic Common Cause Analysis (cont.)

- Return on Investment (ROI) is calculated differently when addressing common causes.
  - Common causes may have a larger ROI threshold to meet – that's because they may be more expensive to fix.
  - Combine impacts of RCAs sharing common causes.
  - ROI for solutions addressing common causes should be calculated using the combined actual and potential impact for all RCAs sharing the cause.
  - Solutions not originally implemented due to cost may now be economically feasible.

Dynamic Common Cause Analysis (cont.)



Conducting Dynamic Analysis

- Manually
  - Print out the cause-and-effect charts.
  - Hang them on the wall next to each other.
  - Examine for commonalities and similar patterns.
  - You will probably need to identify patterns even when the exact cause language varies between analyses.
  - This works when comparing a small number of analyses.

Conducting Dynamic Analysis (cont.)

- Programmatically
  - Causelink conducts root word searches in real-time.
  - These root words often, but not always, are related to each other.
    - You will still need to interpret the results!
    - However, this will be much easier since Causelink Enterprise groups similar words together.
  - This is the only way to dynamically analyze a large volume of data.

Questions

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