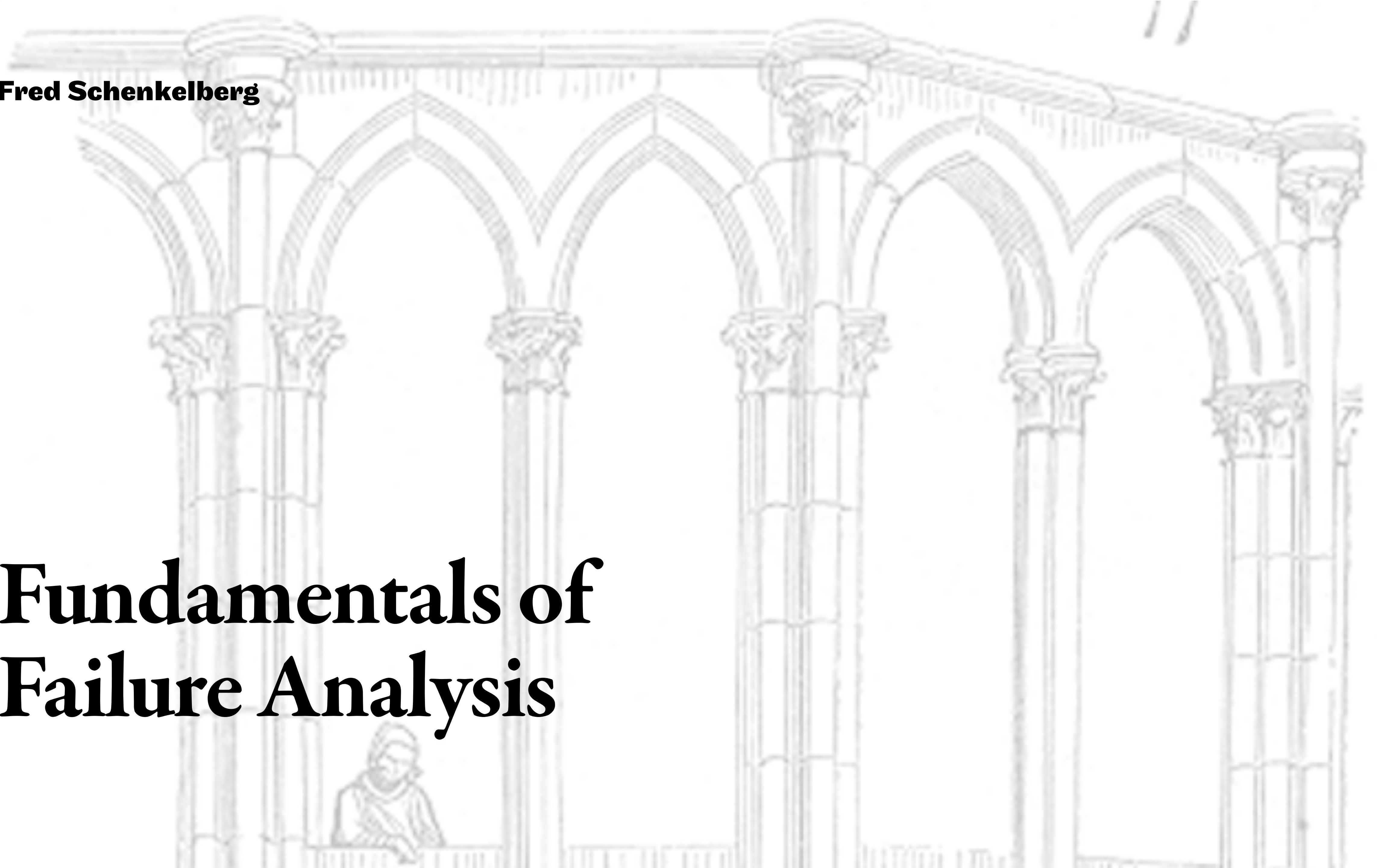
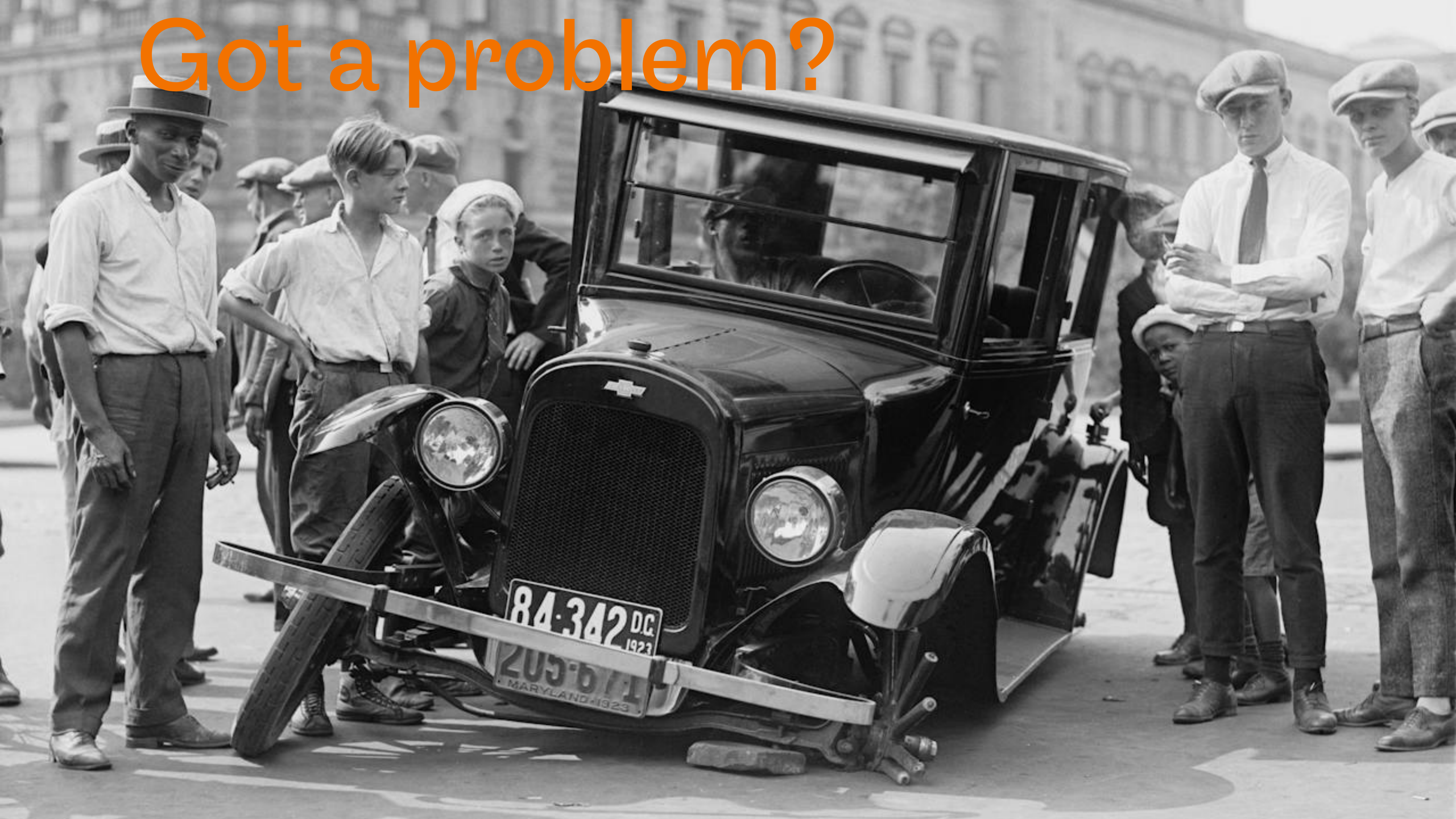


Fred Schenkelberg

Fundamentals of Failure Analysis



Got a problem?



Find a
solution

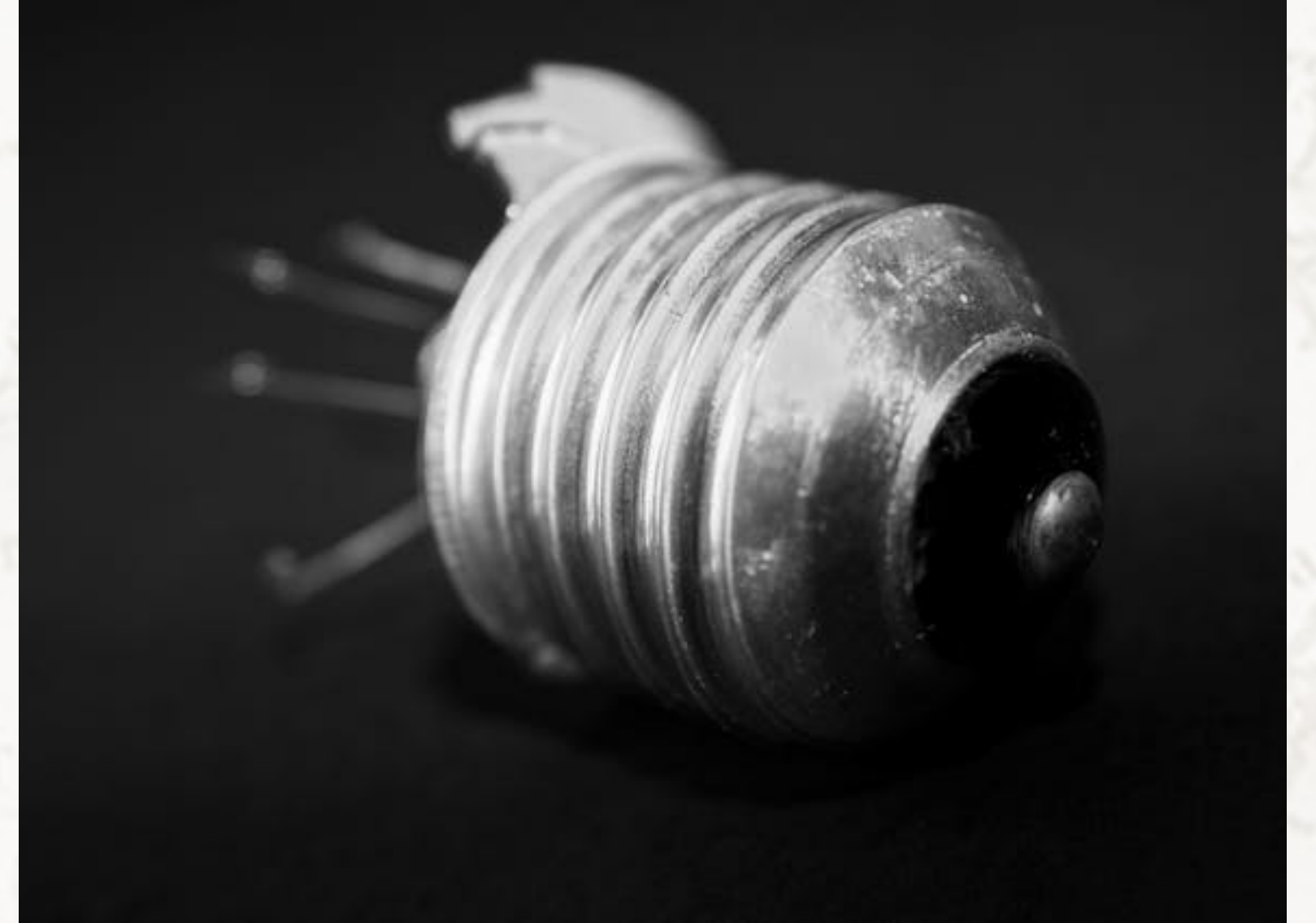




short and long
term solutions

What is the first thing to do
when a failure is discovered?

8D process



Form a Team and Describe the problem 8D process

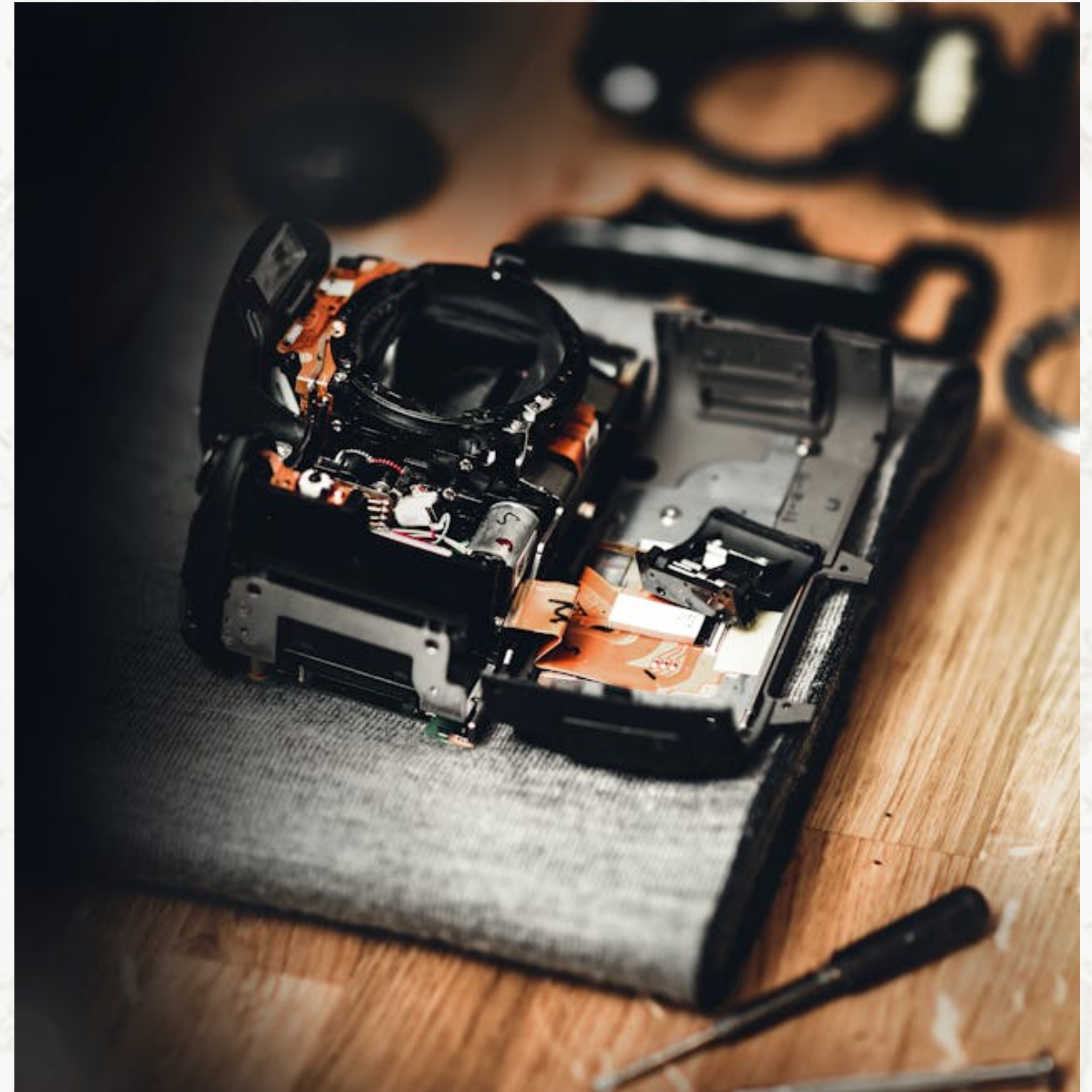
Not every problem needs this
process

D1: Form a team

consider members with product,
process, and data

D2: Describe the Problem

what do we know and do not know
using inductive and deductive tools



D3: Interim Containment

8D process

Is this a one-off (probably not)

Batch, vendor, production line?

everything?

Stop the line, stop shipping

Alert customers? (safety)



D4: RCA and Escape Point

8D process

Can the root cause be turned on/off

A mix of brainstorming, experimentation, observations, and lots of thinking

Non destructive and destructive tools

DO NOT SEND TO THE VENDOR!



What is your experience

sending failures to the vendor?

8D continued



D5: Permanent Corrective Action

8D continued

This step may iterate with verification to find viable solutions

It's a trade-off decision

Make changes

- solve the root cause
- monitor escape point

this might be a people process problem



D6: Implement and Validate

8D continued

This might take planning to roll in the solution

Check everything that has changed

Check what the changes could impact (unintended consequences)

This is where too many teams stop



D7: Prevent Recurrence

8D continued

Make the changes systemic

- review similar products/
processes
- educate other on findings/
results
- update documentation



D8: Closure and

team celebration

Some Thoughts



Urgency and Time

Some Thoughts

The 'jump to solution' issue

All hands on deck issue

Management pressure issue



Root Cause Analysis

Some Thoughts

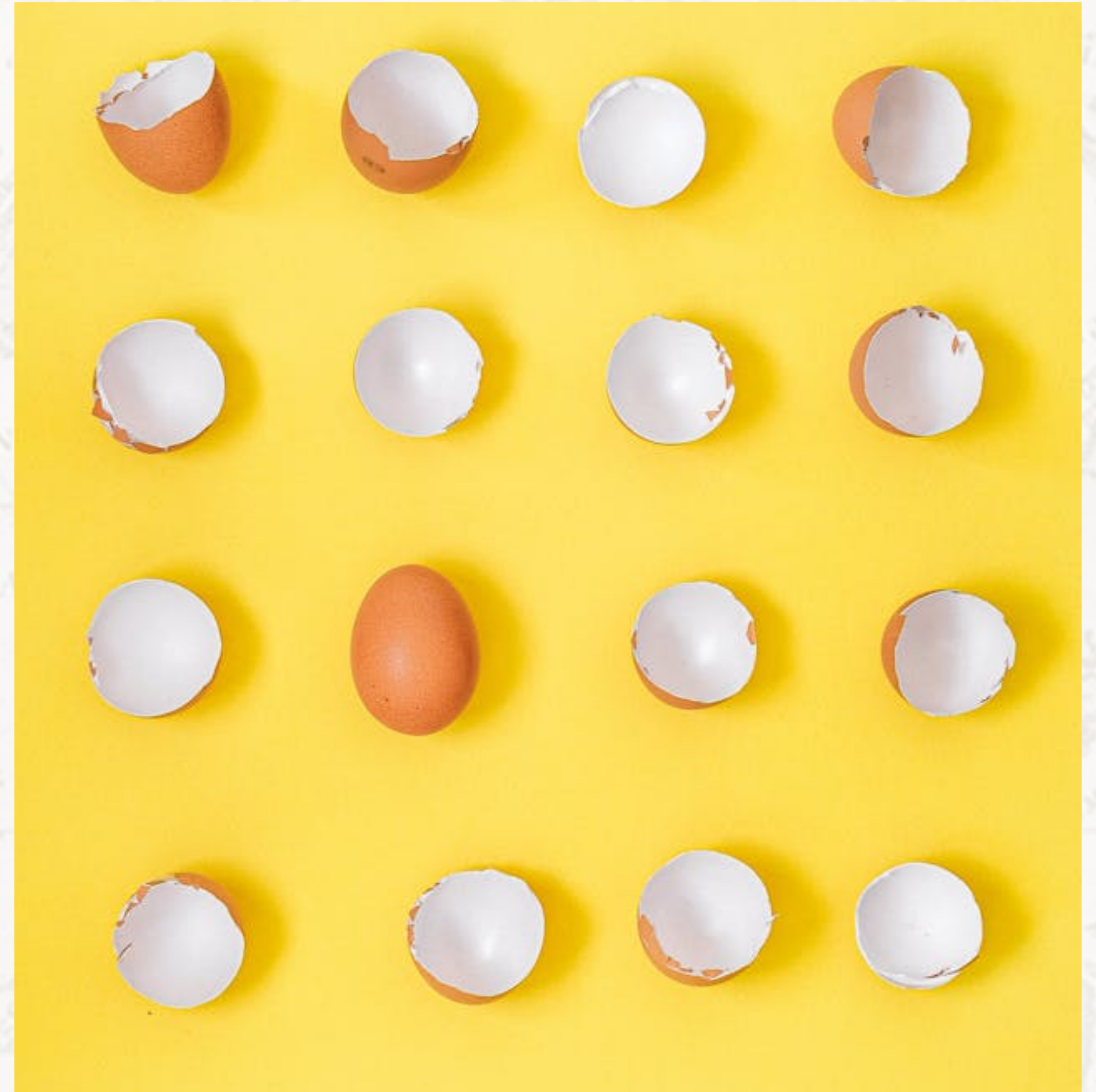
Crime scene approach

collect data and information

do not needlessly destroy evidence

Remember, the part that failed may
be a victim or hero not the cause

Work with a FA lab, not the vendor



Getting the Full Benefit

Some Thoughts

Spend the time to understand the problem and root causes fully

Verify, Verify, Verify

Follow up with the systemic changes to documents, processes, etc

Update the useful lessons learned system



Are you benefiting from

proper failure analysis?

Additional Comments and Questions

Thanks

see more at AccendoReliability.com