

Learning from incidents

Understanding how things went right

Nick Stenning
@nickstenning

written with Jessica DeVita
@ubergeekgirl



<http://www.americanairmuseum.com/aircraft/10376>

Agenda

1. Why learn from incidents?

Agenda

1. Why learn from incidents?
2. Four common traps.

Agenda

1. Why learn from incidents?
2. Four common traps.
3. Four helpful practices.



Why do we try to learn from incidents?



How Complex Systems Fail

(Being a Short Treatise on the Nature of Failure; How Failure is Evaluated; How Failure is Attributed to Proximate Cause; and the Resulting New Understanding of Patient Safety)

Richard I. Cook, MD

<https://aka.ms/csfail>



“Complex systems contain changing mixtures of failures latent within them.”

<https://aka.ms/csfail>



“Complex systems contain changing mixtures of failures latent within them.”

“Complex systems run in degraded mode.”

<https://aka.ms/csfail>



"Complex systems contain changing mixtures of failures latent within them."

"Complex systems run in degraded mode."

"Catastrophe is always just around the corner."

<https://aka.ms/csfail>

Prevent a catastrophe



Respond to a catastrophe

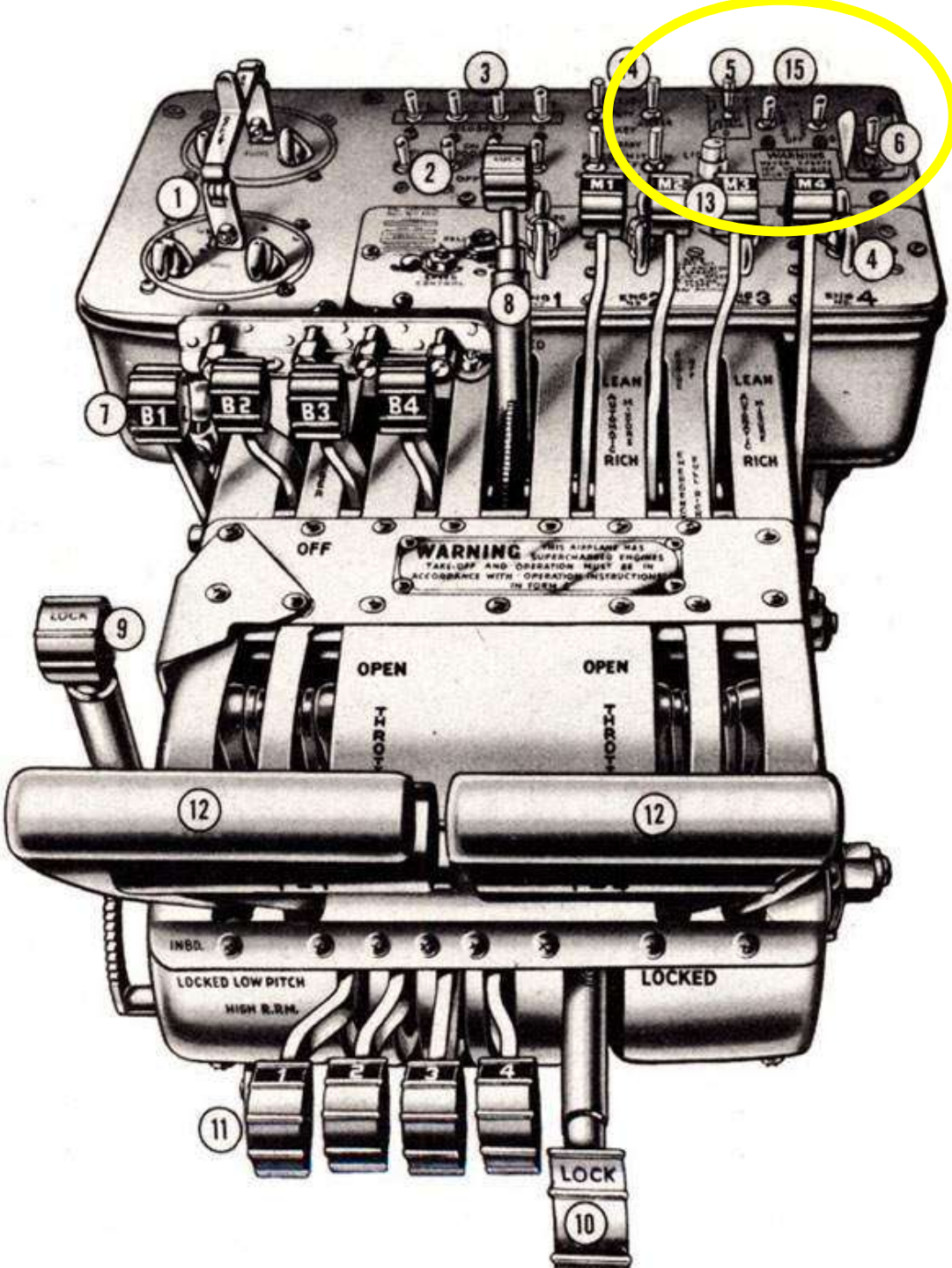




Language matters



Alphonse Chapanis

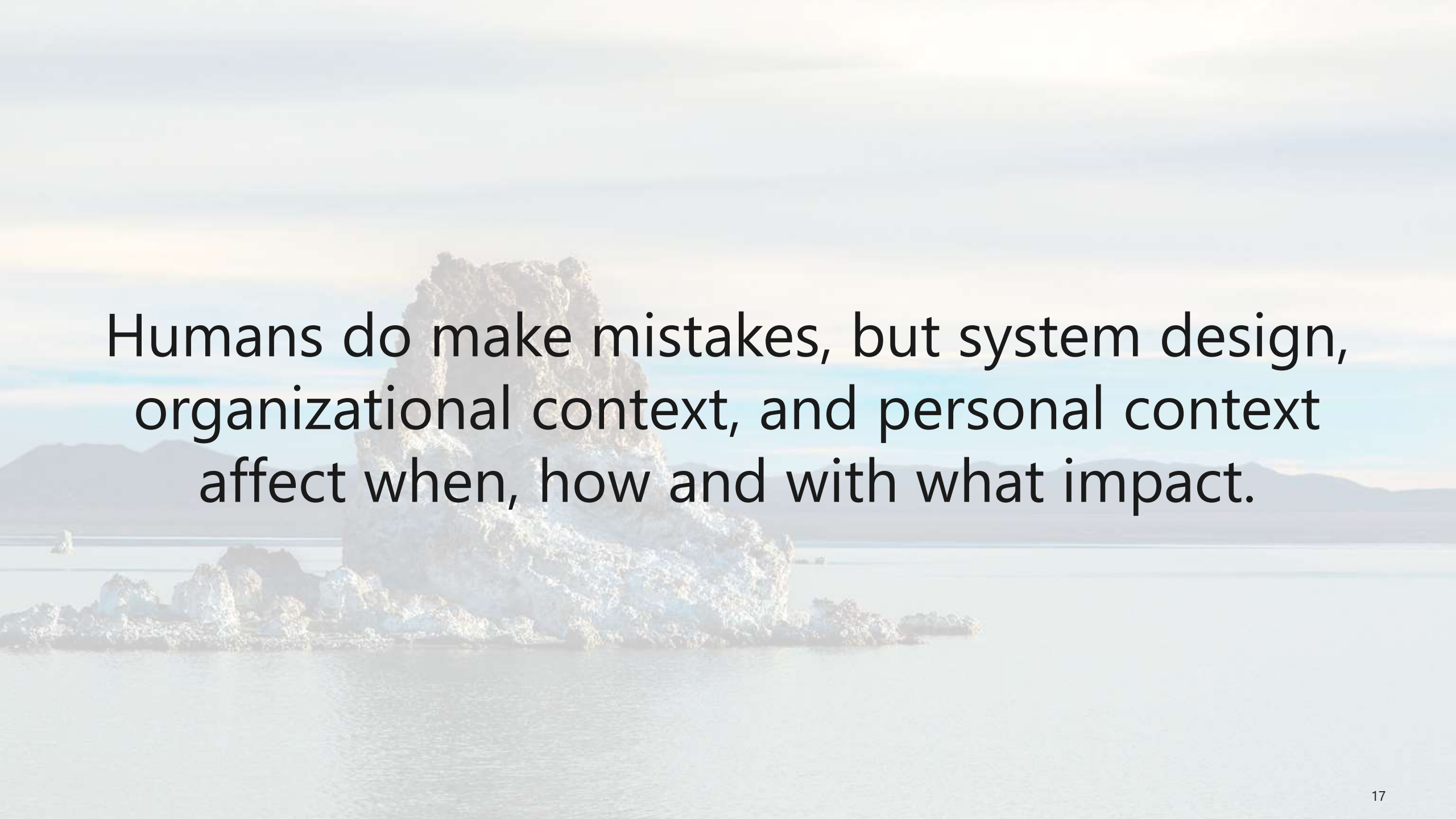




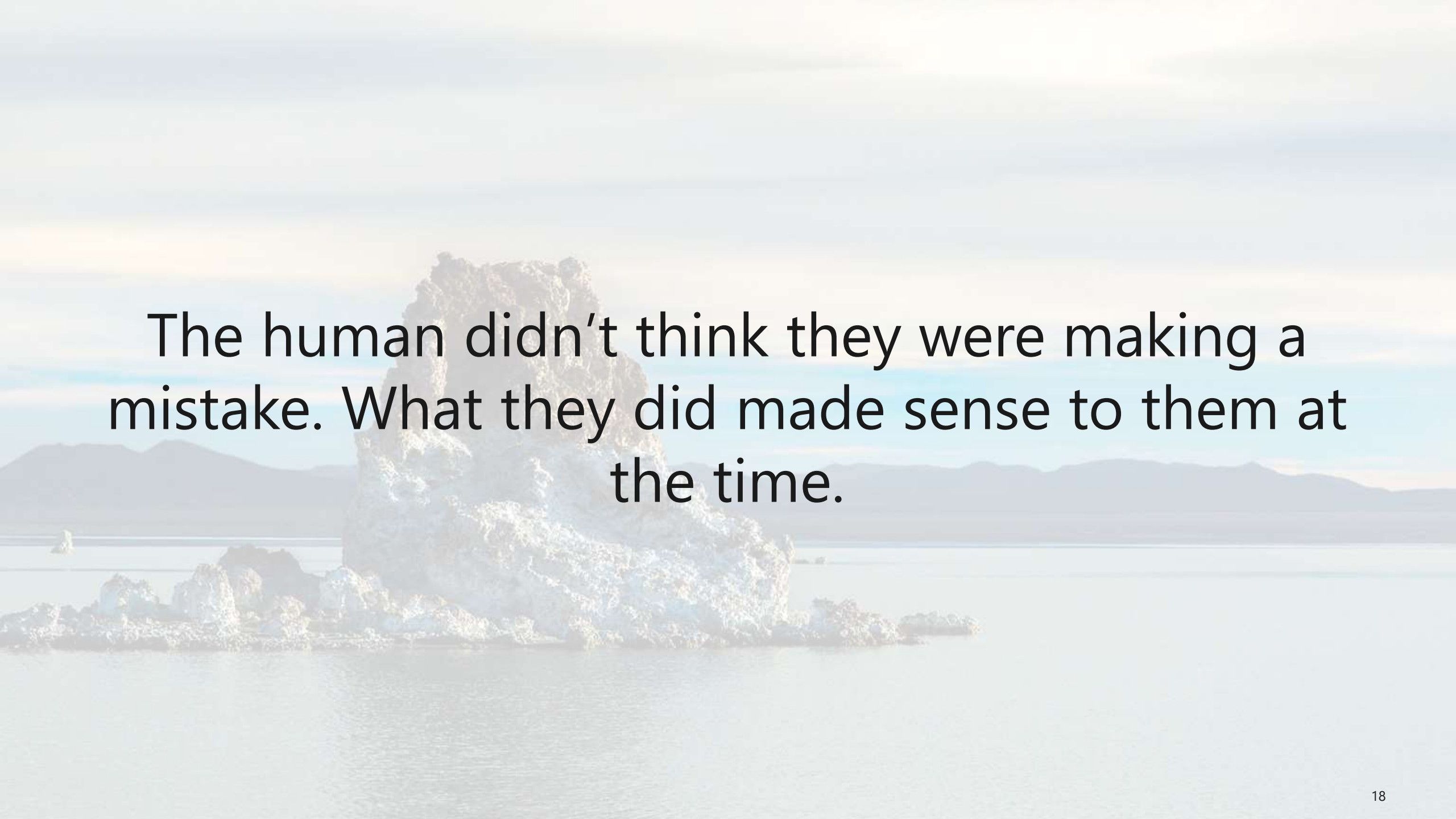
Trap #1: Attribution to “human error”



Photograph by Sheila Sund (<https://flic.kr/p/FzZFb1>)

A large, craggy rock formation, possibly a sea stack, stands prominently in the middle of a calm body of water. The rock is dark and textured, with many sharp edges and crevices. The water is a light, hazy blue-grey color. In the background, there are faint, rolling hills or mountains under a pale, overcast sky. The overall scene is serene and somewhat desolate.

Humans do make mistakes, but system design,
organizational context, and personal context
affect when, how and with what impact.

A large, craggy rock formation, possibly a sea stack, stands in the middle of a calm body of water. The rock is dark and textured, with some white foam or lichen visible. In the background, a range of low mountains or hills stretches across the horizon under a pale, hazy sky. The overall scene is serene and somewhat desolate.

The human didn't think they were making a mistake. What they did made sense to them at the time.



The problem

“Human error” is a label which causes us to stop investigating at precisely the moment we’re about to discover something interesting about our system.

A large, craggy rock formation, possibly a sea stack, stands prominently in the middle of a calm body of water. The rock is dark and textured, with some lighter patches. The water is still, reflecting the light from the sky. In the background, there are low, hazy mountains or hills under a sky with soft, wispy clouds. The overall scene is serene and somewhat mysterious.

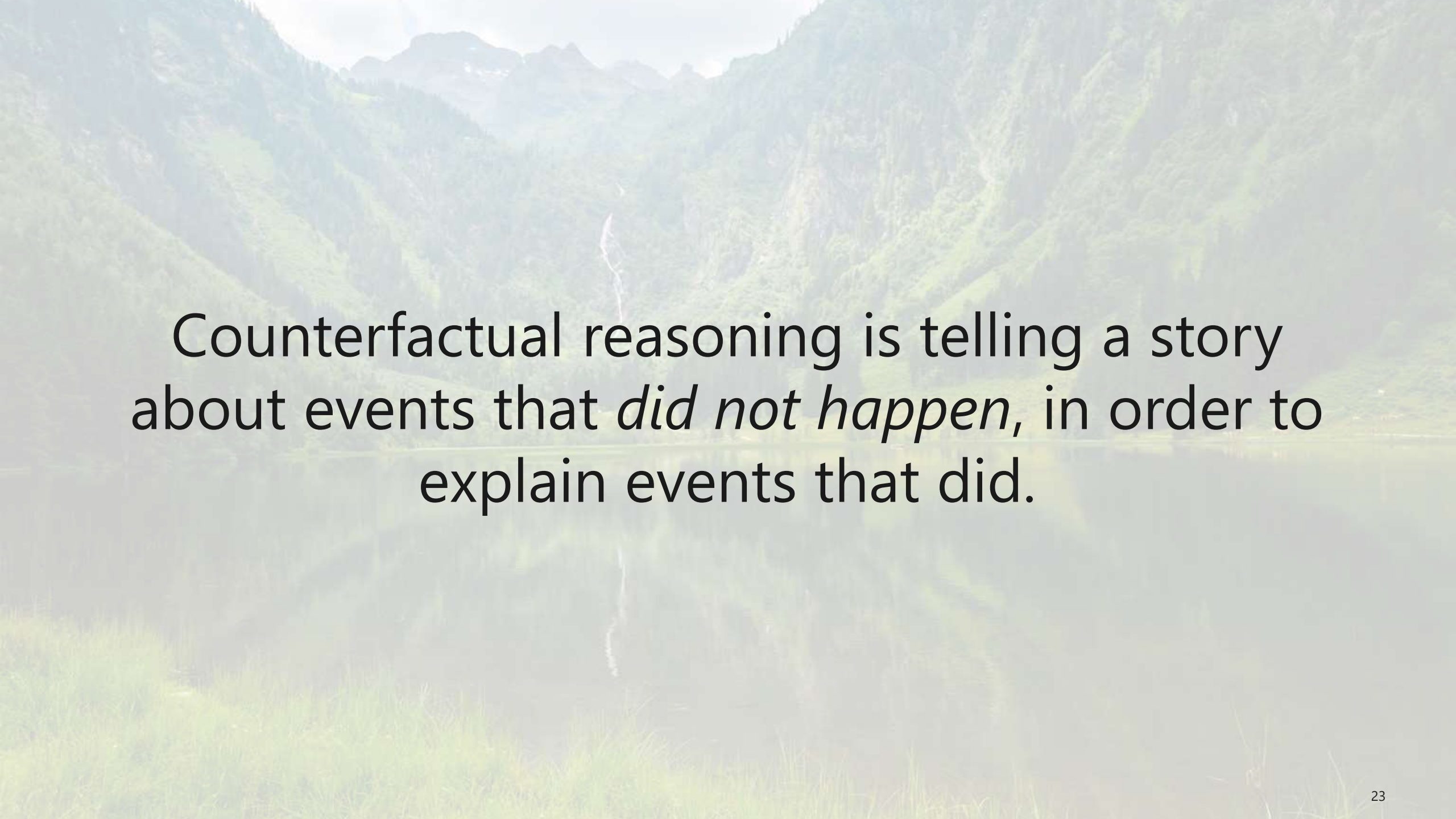
When we hear “human error”
we need to **look deeper.**



Trap #2: Counterfactual reasoning



"should have," "could have," "would have,"
"failed to," "did not."

A scenic view of a mountain valley with a lake and green slopes. The image is slightly faded to serve as a background for the text.

Counterfactual reasoning is telling a story about events that *did not happen*, in order to explain events that did.

The background of the slide is a scenic photograph of a mountain valley. In the foreground, there is a calm lake reflecting the surrounding greenery. A small waterfall is visible on the left side of the lake. The middle ground shows lush green hillsides with patches of forest. In the background, there are more mountains, some with patches of snow or light-colored rock, under a slightly hazy sky.

The problem

Time spent talking about things that didn't happen is time not spent trying to understand *how what happened, happened.*



Move beyond

"The problem wasn't detected in Canary."

and get to

"How was it detected?"

"What systems or people were involved?"

"How effective is Canary usually when it comes to detecting this kind of problem?"

Trap #3: Normative language



Photograph by Nimish Gogri (<https://flic.kr/p/8WXy8B>)



"inadequately," "carelessly," "hastily"

A close-up of a car's side-view mirror. The mirror is oval-shaped and has a warning label that reads "OBJECTS IN MIRROR ARE CLOSER THAN THEY APPEAR". The mirror reflects a road and a car behind it. The background is a blurred landscape with green fields and a blue sky.

Normative language judges the decisions and actions of those responding to an incident with the benefit of hindsight.

The problem

Decisions are judged based on their outcomes.
The outcome is the one piece of information
we know wasn't available to the person who
made the decision.



Move beyond

"The relevant code was reviewed hastily..."

and get to

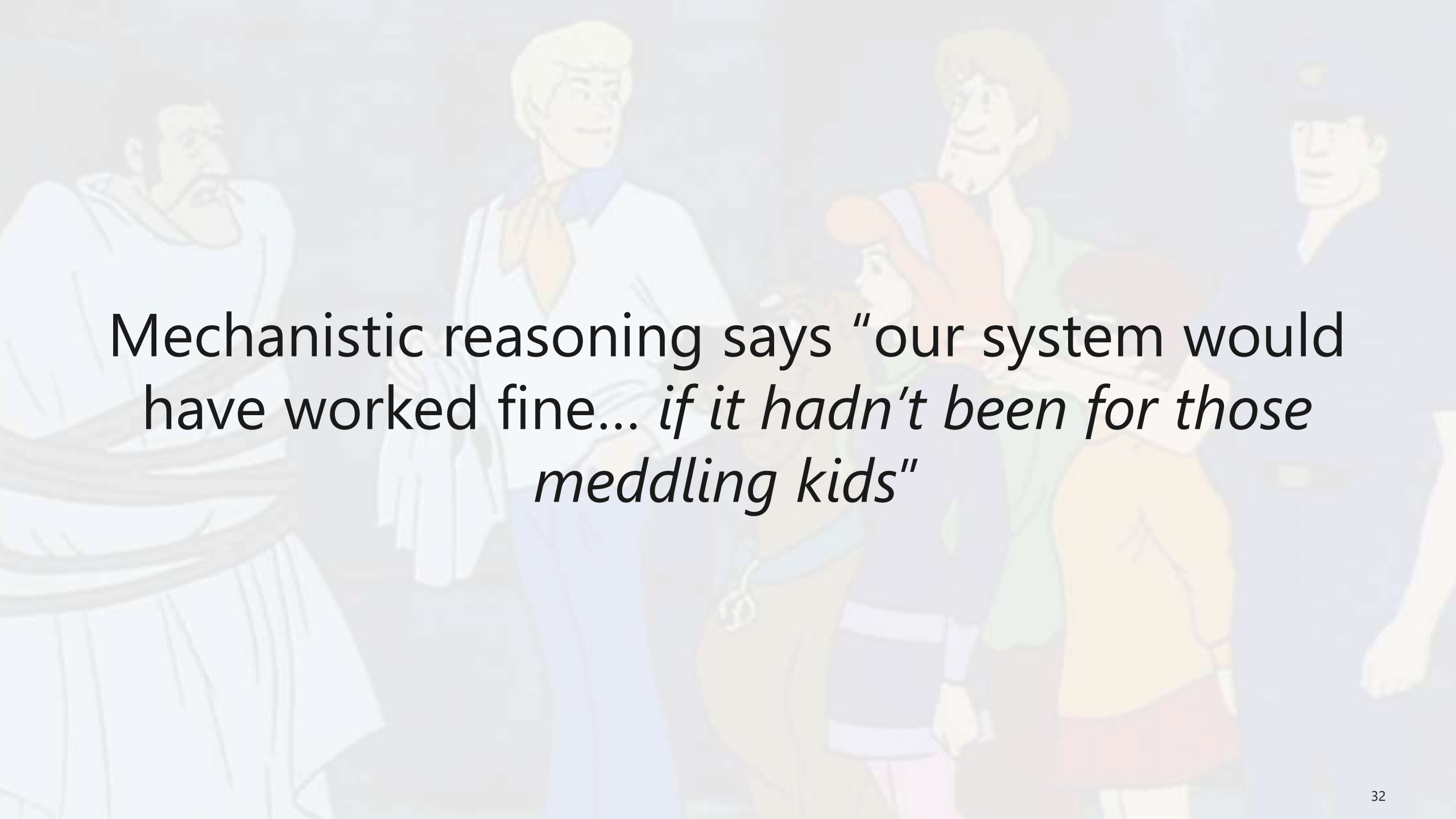
"What had the previous 48h been like for your team?"

"Tell us how rollouts like this normally work."

"What signals were you looking at when you made that decision?"



Trap #4: Mechanistic reasoning



Mechanistic reasoning says "our system would have worked fine... *if it hadn't been for those meddling kids*"

A faded, light-colored illustration of the Scooby-Doo gang and a police officer. From left to right: a man with a beard and a white tunic, a man with blonde hair and a white shirt with a blue bow tie, a man with brown hair and a green shirt, a woman with red hair and a red shirt, a woman with brown hair and a yellow shirt, and a police officer in a blue uniform. The text "For how long could your service run without human intervention?" is overlaid in the center.

For how long could your service run without
human intervention?



Human adaptive capacity is *needed* to keep our systems up and running in the first place.



The problem

Identifying one “failed” component isn’t the same as understanding the incident.

Agenda

1. Why learn from incidents?
2. Four common traps.
3. Four helpful practices.

The image shows a large, modern, semi-circular assembly hall. The seating is arranged in multiple tiers, with the front rows being closer to the center. The seats are upholstered in a dark green or grey fabric. In the center of the hall, there is a raised platform or podium area with a wooden desk and some equipment. The walls are light-colored, and there are large windows or openings in the upper part of the structure. The overall atmosphere is formal and professional.

1. Run a facilitated post-incident review

Photograph by Melody Ayres-Griffiths (<https://flic.kr/p/bnT21X>)




Hold a *facilitated* meeting to review what happened with incident participants.




No marathons. 60 to 90 minutes max.




Prepare with one-on-one interviews.



Facilitators should ideally *not* have been involved
in response to the incident.



Think carefully before allowing management
presence in the room.



Start slow and build confidence.
Pick *interesting* incidents, not big scary ones.

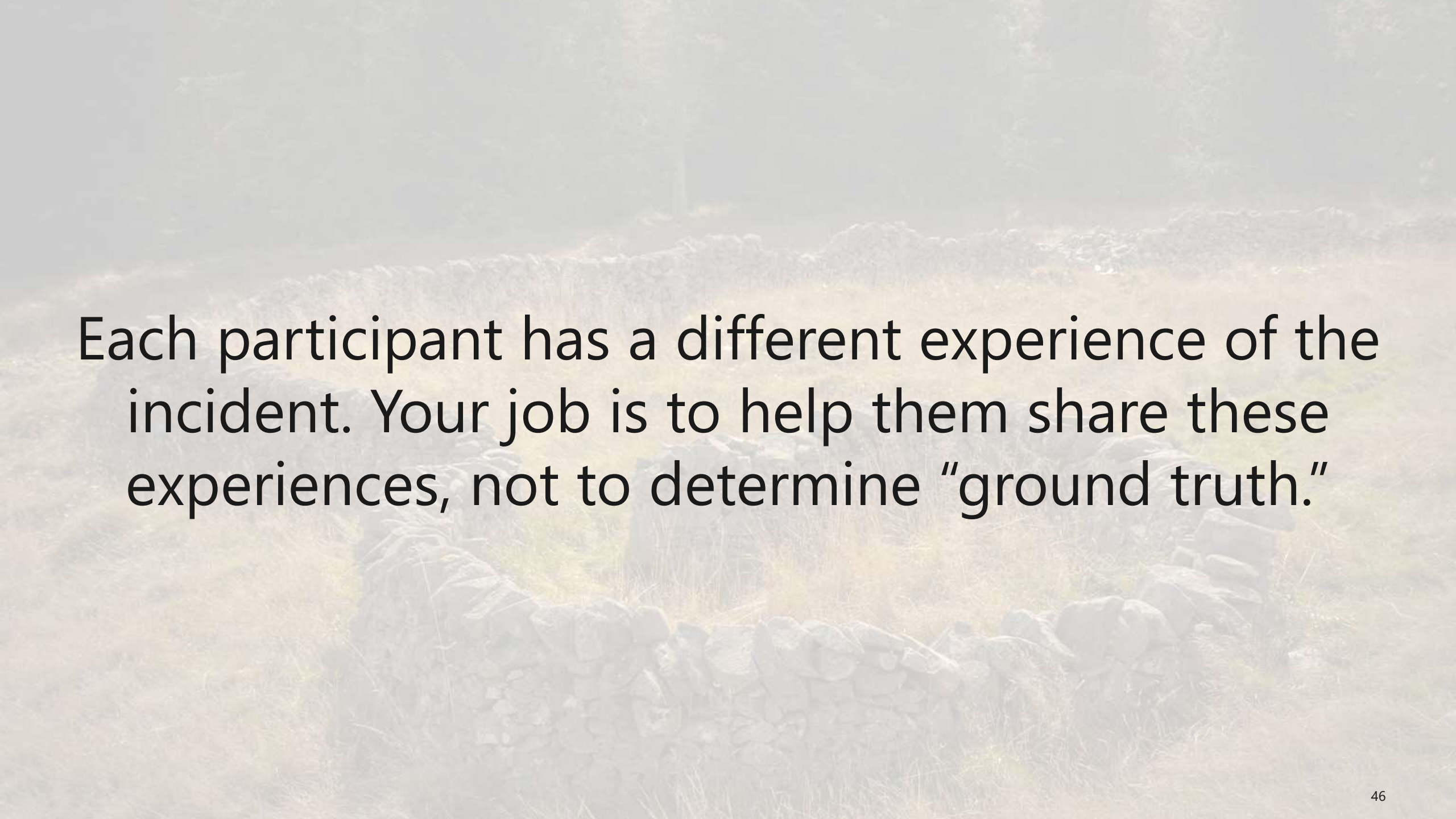
2. Ask better questions



Photograph by Barney Moss (<https://flic.kr/p/gmMJ4K>)

A misty landscape with a stone wall and trees. The scene is hazy, with a stone wall in the foreground and trees in the background. The text "Language matters: prefer 'how?' over 'why?'" is overlaid on the image.

Language matters: prefer "how?" over "why?"

The background of the slide is a faded, grayscale image of a rural landscape. It features a prominent stone wall in the foreground, with tall grass and some trees visible in the background. The overall tone is soft and slightly hazy.

Each participant has a different experience of the incident. Your job is to help them share these experiences, not to determine “ground truth.”

A misty landscape with stone walls and trees. The scene is hazy, with a stone wall in the foreground and a line of trees in the background. The text "Ask about what normally happens, too!" is overlaid in the center.

Ask about what normally happens, too!

A stone wall in a field with trees in the background.

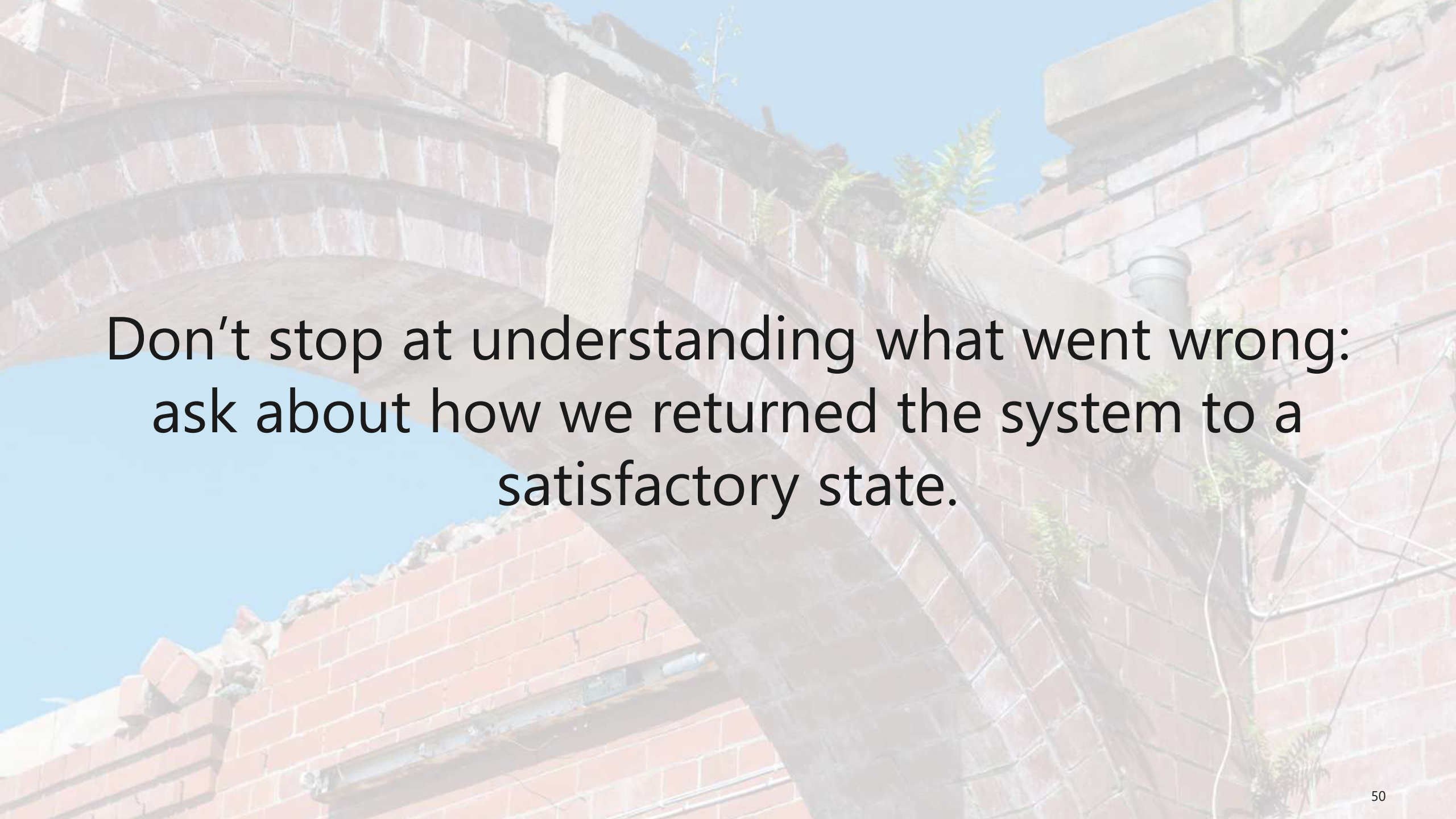
Learn how to be a better facilitator:

<https://aka.ms/etsydebriefing>

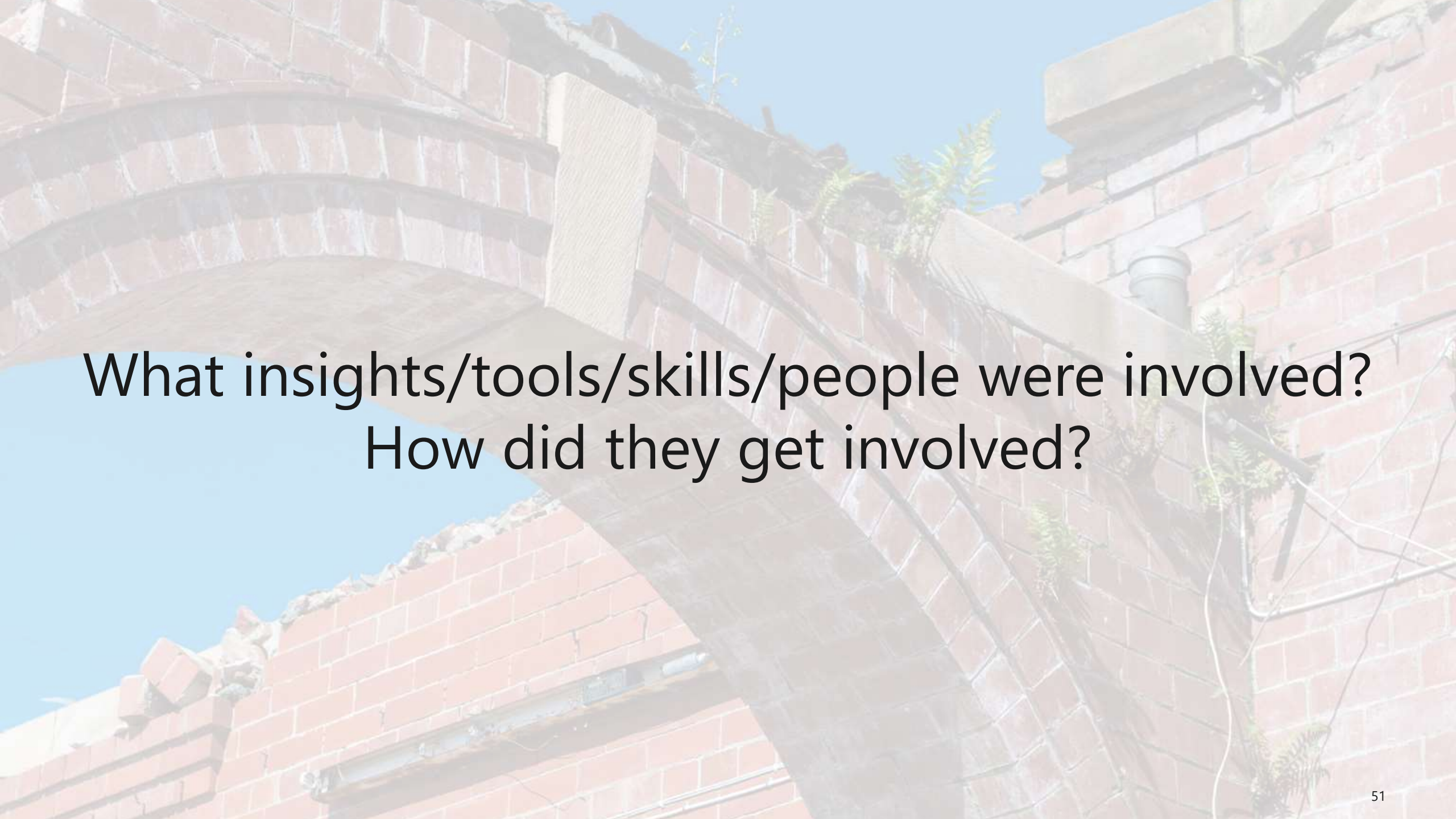


3. Ask how things went *right*

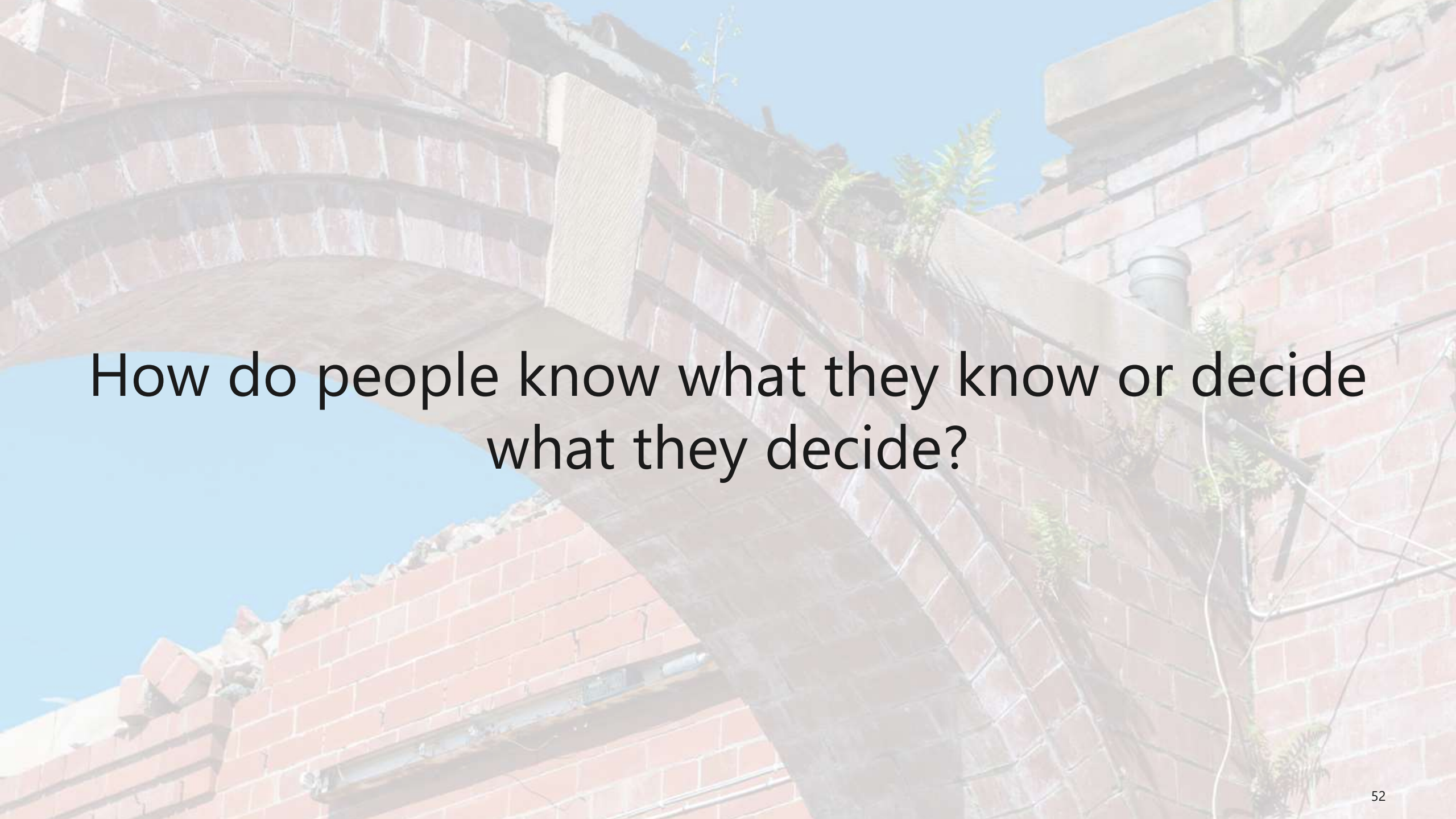
Photograph by Dave Bleasdale (<https://flic.kr/p/H9ZgUq>)



Don't stop at understanding what went wrong:
ask about how we returned the system to a
satisfactory state.



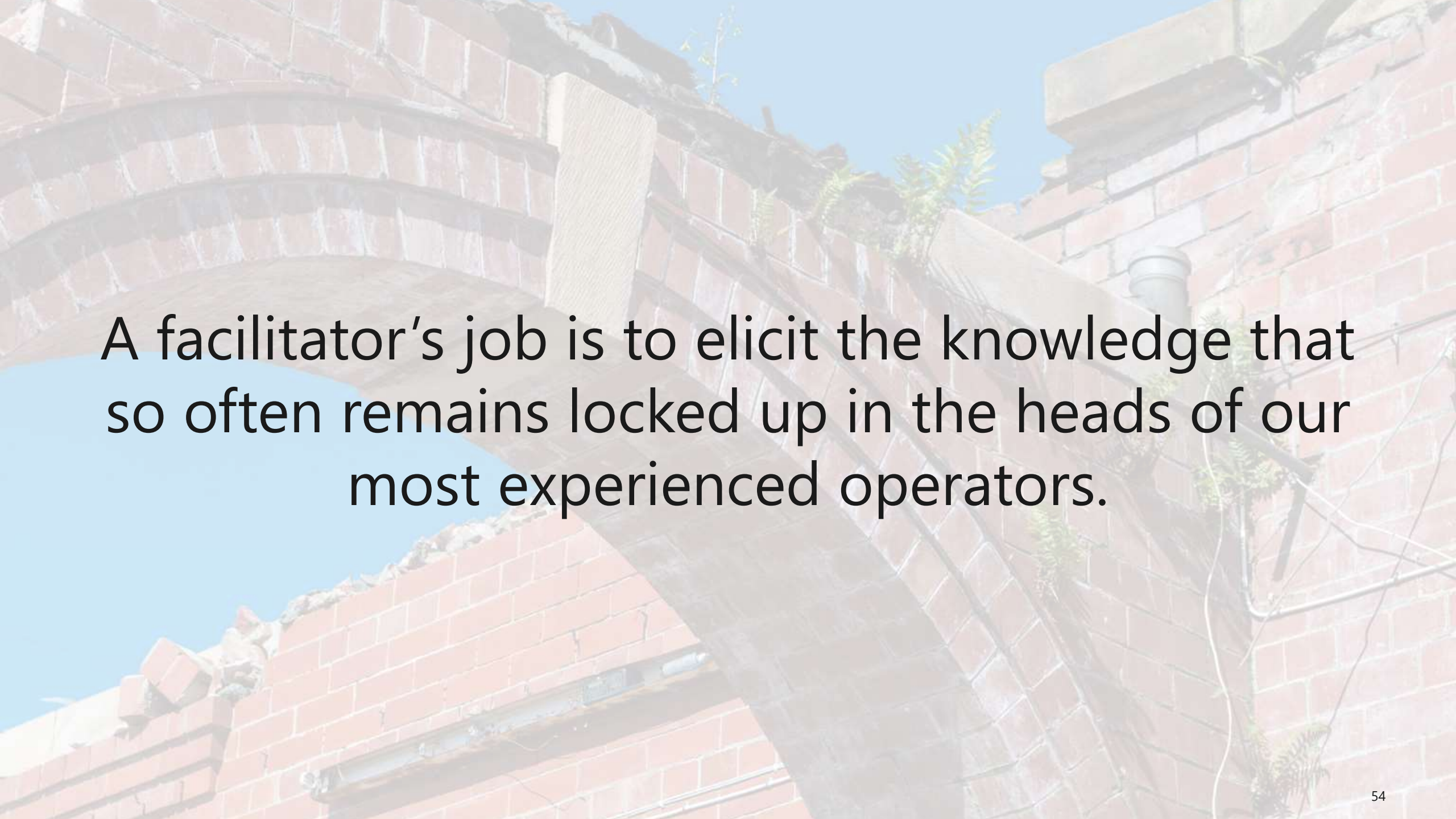
What insights/tools/skills/people were involved?
How did they get involved?

A low-angle photograph of a brick building with a large archway. The image is semi-transparent, allowing the text to be clearly visible. The brickwork is reddish-brown, and there are some green plants growing on the roofline. The sky is a clear, pale blue.

How do people know what they know or decide
what they decide?



Where did we get lucky?



A facilitator's job is to elicit the knowledge that so often remains locked up in the heads of our most experienced operators.


4. Keep review and planning meetings separate




Photograph by Ian D Keating (<https://flic.kr/p/2c9scLA>)

The background of the slide is a photograph of a church interior. It features a large, light-colored dome that fills most of the upper half of the frame. In the center, at the far end of the church, there is a small altar area. On the wall above the altar, a small, framed religious painting is visible. The floor appears to be made of dark wood or stone. The overall lighting is soft and even.

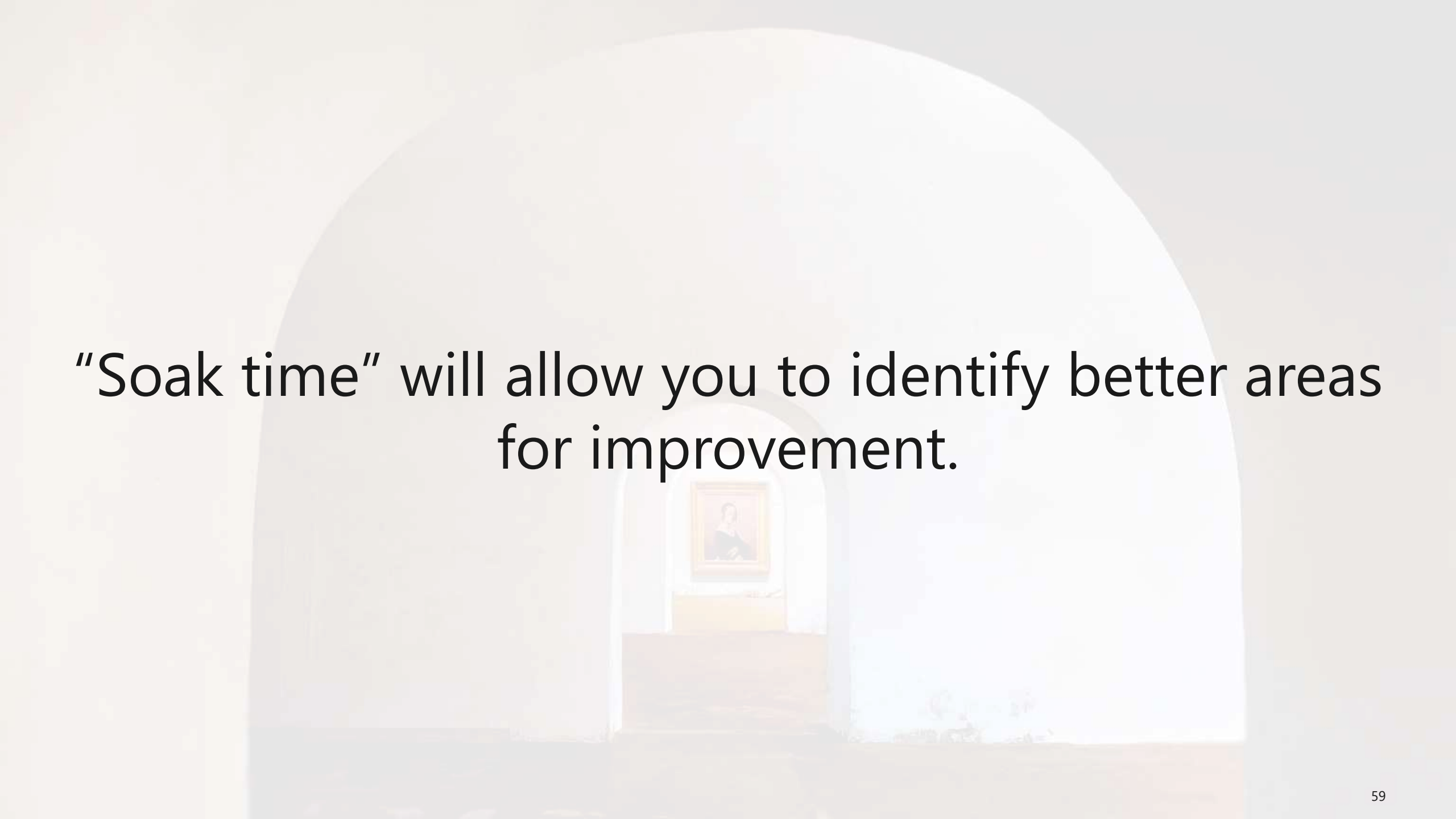
Keep discussion of future mitigation out of the
post-incident review.

The background of the slide features a large, light-colored dome structure, possibly a mausoleum or a religious building. In the center of the dome, there is a smaller, arched opening. Inside this opening, a framed portrait of a person is visible. The overall scene is brightly lit, with a soft, ethereal glow.

Hold a separate, smaller planning meeting a day or two after your post-incident review.



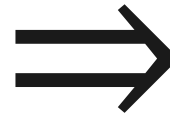
Discussion of repair items will *easily* derail an attempt to understand what actually happened.

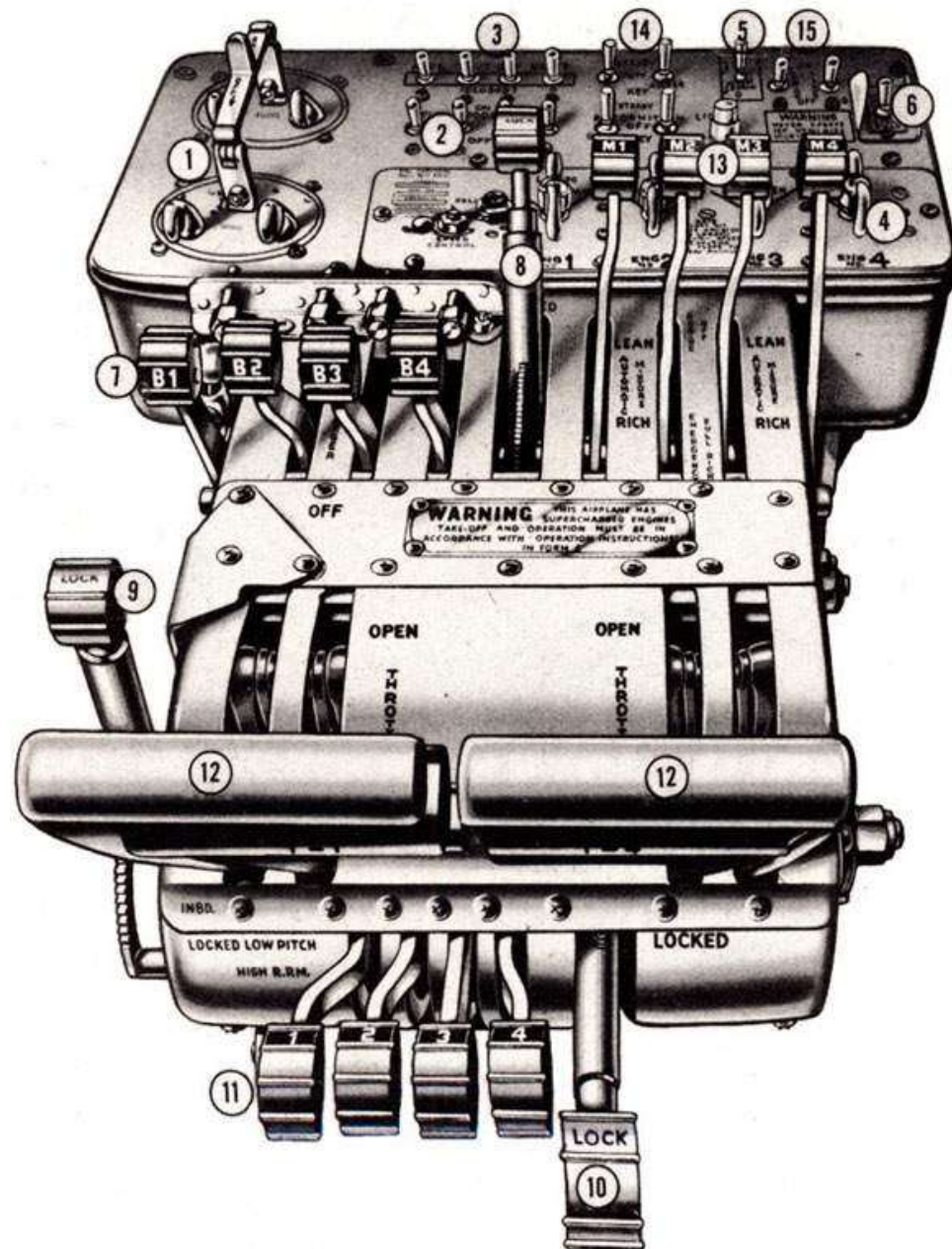
The background of the slide is a photograph of a large, light-colored dome, possibly a mausoleum or a religious structure. In the center of the dome, there is a smaller, arched opening. Inside this opening, a framed portrait of a person is visible. The overall scene is brightly lit, with the dome's surface appearing almost white.

“Soak time” will allow you to identify better areas for improvement.

The background of the slide is a photograph of a large, light-colored dome, possibly a church or a historical building. In the center of the dome, there is a smaller, arched niche. Inside this niche, a framed portrait of a person is visible. The overall lighting is soft and even.

If management or executives need to feel involved, include them in the planning meeting.







Debriefing Facilitation Guide

Leading Groups at Etsy to Learn From Accidents

Authors: John Allspaw, Morgan Evans, Daniel Schauenberg

Etsy

Thank you

<https://aka.ms/leaddev/lfi>

New “learning from incidents” community:

[@LFISoftware](#)