A Tale of Two Postmortems
A Human Factors View
why do we do postmortems?
Postmortem

• Debriefing
• Post-Incident Review
• Retrospective
• RCA
Postmortem #1
A Common Example
what did we see?
“Human Error”
It’s an analytical dead end

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Counterfactuals
They’re about an alternate reality that never happened

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Normative Language

= Hindsight Bias + Blame
Mechanistic Reasoning

Do you *really* think getting rid of the humans is a good idea?
what will probably happen next?
File Some Repairs

• Monitoring
• Runbook
• Point fix
• Training
• Aspirational broader fix
How many repairs are completed?
How many repairs make a difference?
why do we do postmortems?
Theoretical Issues in Ergonomics Science

The psychology of accident investigation: epistemological, preventive, moral and existential meaning-making

Sidney W.A. Dekker

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Epistemological
Establishing what happened
Preventative

Identifying pathways to avoidance
Moral

Tracing the transgressions that were committed
Reinforcing moral and regulatory boundaries
Existential
Finding an explanation for the suffering that occurred
Outages are an opportunity to learn
Put empirical data in context
Complex Systems have many interacting parts
Emergent Behavior

It arises from interactions, not components
Tangled Causality
Not linear, not a tree

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The Problem of Induction

If it hasn’t happened yet, can you prove it will never happen?
The Curse of Dimensionality

X * Y * Z * ...
A Human Factors Inspired Approach
(of the "Resilience Engineering" flavor)
Postmortem #2

Individual Interviews
Postmortem #2

Data Gathering and Preparation
What are our weaknesses?
What are our strengths?

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Who are our experts?
How do we preserve and multiply that expertise?
What makes things hard?
How well does your system endure?

• Uncertainty
• Variability
• Incomplete knowledge
• Imperfect knowledge
• Chance
• Chaos
• Volatility
• Disorder

• Time
• The unknown
• Randomness
• Turmoil
• Stressors
• Errors
• Dispersion of outcomes
• Unknowledge
What can I do on Monday?

(These are suggestions, not homework!)
Study Complex Systems

Vive la diversité! High Reliability Organisation (HRO) and Resilience Engineering (RE)
Jean Christophe Le Coze
Institut National de l'environnement industriel et des risques, Parc Alata, 60550 Vernon-en-Halatte, France

Four concepts for resilience and the implications for the future of resilience engineering
David D. Woods
Initiative on Complexity in Natural, Social & Engineered Systems, The Ohio State University, United States

Coping with complexity: The psychology of human behaviour in complex systems

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
Cognitive technologies Laboratory
University of Chicago

"Going solid": a model of system dynamics and consequences for patient safety
R Cook, J Rasmussen

RISK MANAGEMENT IN A DYNAMIC SOCIETY: A MODELLING PROBLEM
Jens Rasmussen
Hurecon, Smorum Bygårde 52, DK 2765 Smorum, Denmark

Reflecting on Jens Rasmussen's legacy. A strong program for a hard problem
Jean Christophe Le Coze*
Institut National de l'environnement industriel et des risques, Parc Alata, 60550 Vernon-en-Halatte, France

Ironies of Automation*
LISANNE BAINBRIDGE†
Debriefing Facilitation Guide

Leading Groups at Etsy to Learn From Accidents
Authors: John Allspaw, Morgan Evans, Daniel Schauenberg

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Further Reading

• https://resiliencepapers.club
• https://continuous.wtf
• https://resilienceroundup.com
  • (for Resilience Engineering and Human Factors)

• https://necsi.edu/concept-map
  • (For complexity, emergence, interdependence, and feedback)
What do you want from your postmortems?
What do want to know about your system?
Humans + hardware + software + ???

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Invest in learning from outages
Invest in learning about your systems

Improve every day

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Invest in your people

Be a team

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