A Tale of Two Postmortems

A Human Factors View

@101010Lund

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

Counterfactuals

They're about an alternate reality that never happened

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?
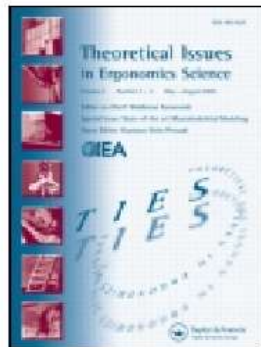
File Some Repairs

- Monitoring
- Runbook
- Point fix
- Training
- Aspirational broader fix

How many repairs are completed?

How many repairs make a difference?

Why do we do postmortems?

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

Sidney W.A. Dekker

@101010Lund

Epistemological

Establishing what happened

@101010Lund

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

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)

@101010Lund

Postmortem #2

Individual Interviews

Postmortem #2

Data Gathering and Preparation

@101010Lund

Postmortem #2

Incident Debriefing

What are our weaknesses?

What are our strengths?

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

Ironies of Automation*

LISANNE BAINBRIDGE†

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 Verneuil en Halatte, France

RISK MANAGEMENT IN A DYNAMIC SOCIETY: A MODELLING PROBLEM

Jens Rasmussen

Hurecon, Smorum Bygarde 52, DK 2765 Smorum, Denmark

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

"Going solid": a model of system dynamics and consequences for patient safety

R Cook, J Rasmussen

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

ARTICLE · JANUARY 1988

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 Verneuil en Halatte, France

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

@101010Lund

Debriefing
Facilitation Guide

Leading Groups at Etsy to Learn From Accidents

Authors: John Allspaw, Morgan Evans, Daniel Schauenberg

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 want from your postmortems?

What do want to know about your system?

Humans + hardware + software + ???

Invest in learning
from outages

Invest in learning about your systems

Improve every day

@101010Lund

Invest in your people

Be a team

Contact

- Tanner Lund
  - Azure PRSE
- @101010Lund
- /in/tannerlund
- tlund2@outlook.com
- Helpers:
  - Vasvi Kakkad (Microsoft)
  - Regina Zhang (Microsoft)
  - Bathrinath Raveendran (LinkedIn)