What Can We Learn from Error Management in Aviation?

28th CEEMAN Annual Conference

Jan U. Hagen

Berlin, September 24, 2020

Source: https://vimeo.com/94950270 accessed on 8.9.2020

But what high risk environments?

Safety - Precision - Perfection

Patrouille Suisse overflying Mümliswil on July 6, 2019

Source: https://www.20min.ch/schweiz/news/story/Patrouille-Suisse-fliegt-am-falschen-Ort-23785045 accessed on 8.7.2019

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Patrouille Suisse: Fighter jet display team fly-by misses town

8 July 2019 Share

A Swiss aerial display team has performed a fly-by over the wrong town, surprising people at a yodelling festival taking place nearby.

The Patrouille Suisse were due to fly over Langenbruck to honour the centenary of a Swiss flying pioneer.

But instead the team flew over the nearby town of Mümliswil, which was hosting **the 31st Northwest Yodelling Festival**.

A spokesman for the Swiss Defence Ministry has apologised for the error.

The squadron - a Swiss version of the UK's Red Arrows or the US Blue Angels - was due to perform for the 100th anniversary of the death of Oskar Bider.

Bider was the first person to fly over the Alps in both directions, a feat he accomplished in 1913 at the age of 22.

The aviator was born in Langenbruck. But the squadron leader saw the tent set up for the yodelling festival in Mümliswil, roughly 6km (4 miles) west of the town, and misdirected the jets.

The yodel festival patrons are reported to have enjoyed the unexpected show.

Source: https://www.bbc.com/news/world-europe-48916084 accessed on 11.7.2019

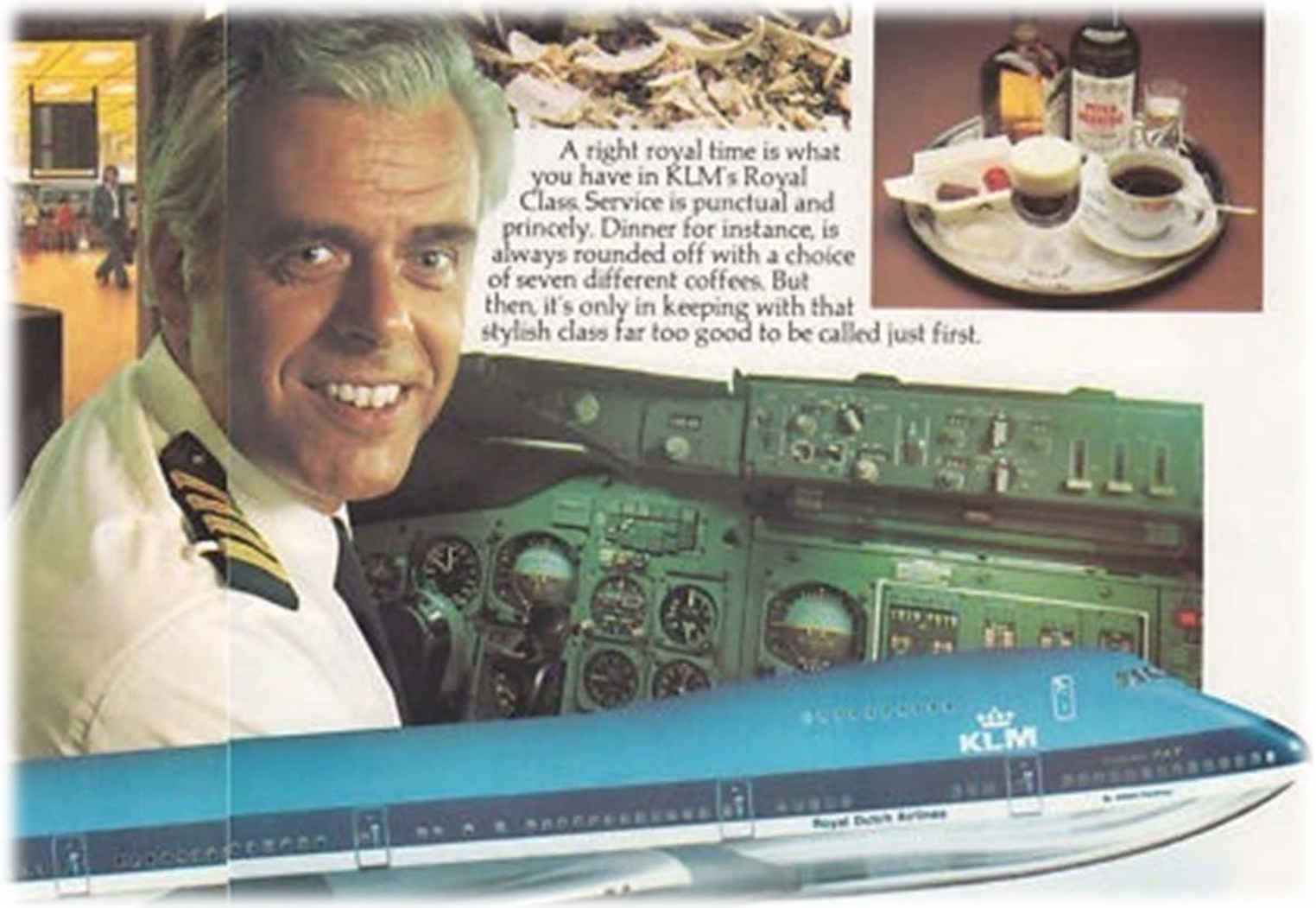
Error avoidance is not that easy

Category	MTBF*
Simple and repetitively executed tasks at low stress	~ 30 min
Complex, repetitively executed tasks in normal situations with no time pressure	~ 5 min
Complex tasks in non-normal situations with **high stress** and/or **time pressure**	**~ 30 sec**

* Mean time between failures

Source: Bubb, H. (1997)

Understand the role of competency and experience



Speaking-up with ideas, questions, concerns, or mistakes may be more difficult than we realize

“This had better be good”

Understand the role of competency and experience

Source: National Transportation Safety Board (1994). A Review of Flight Crew-Involved Major Accidents of U.S. Air Carriers, 1978 through 1990, Safety Study, NTSB SS-94/01. Washington, DC: NTSB.

The concept of psychological safety

Psychological safety

is a belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns, or mistakes.

Source: Edmondson, A. (1999). Psychological safety and learning behavior in work teams. Administrative Science Quarterly, Vol. 44, No. 2, pp 350-383

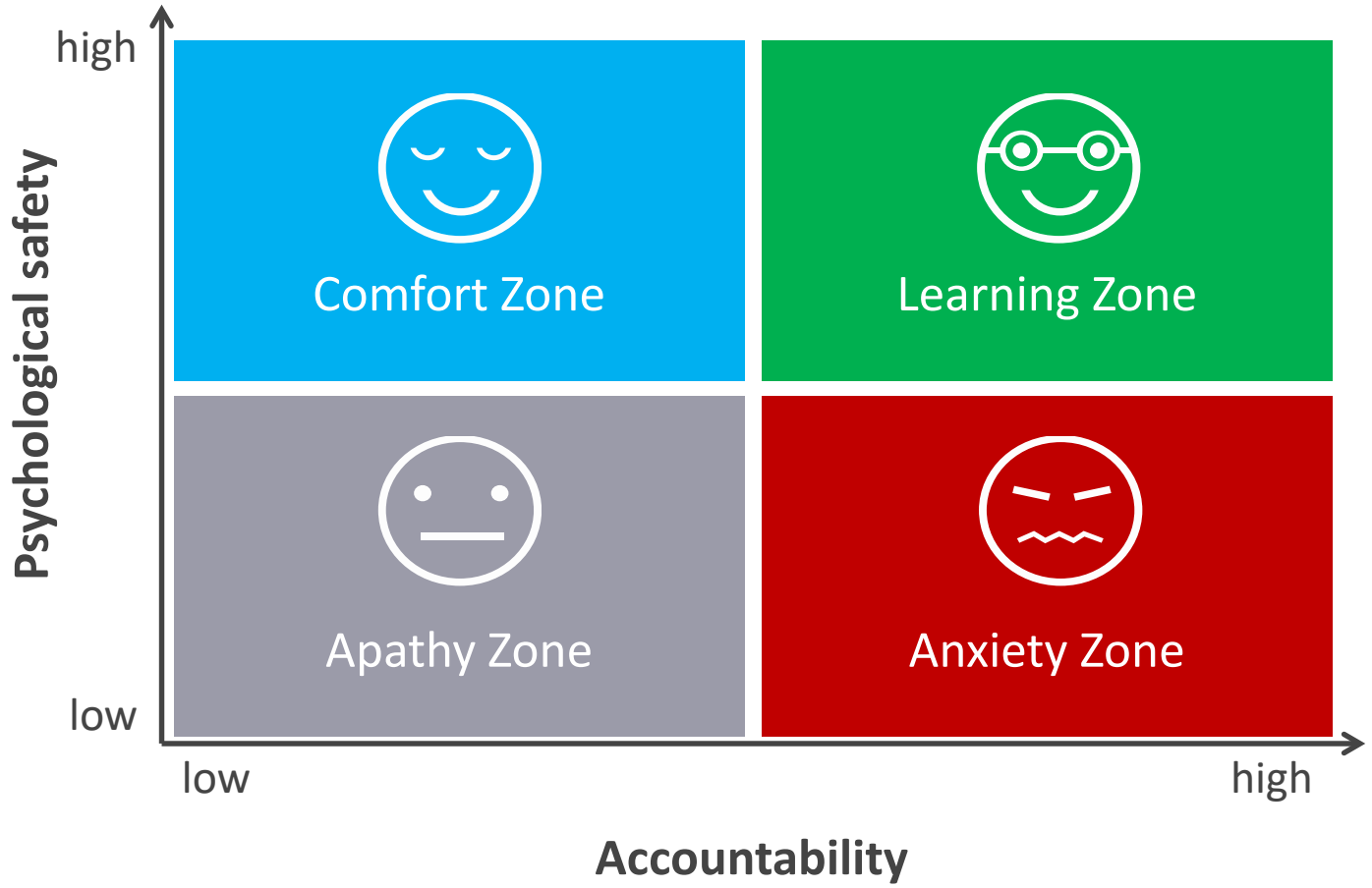
Sounds great!

Are there limits for psychological safety?

Psychological Safety ← ? → **Accountability**

Source: http://www.skybrary.aero/bookshelf/books/3124.pdf accesed on 23.9.2020

Psychological safety and accountability

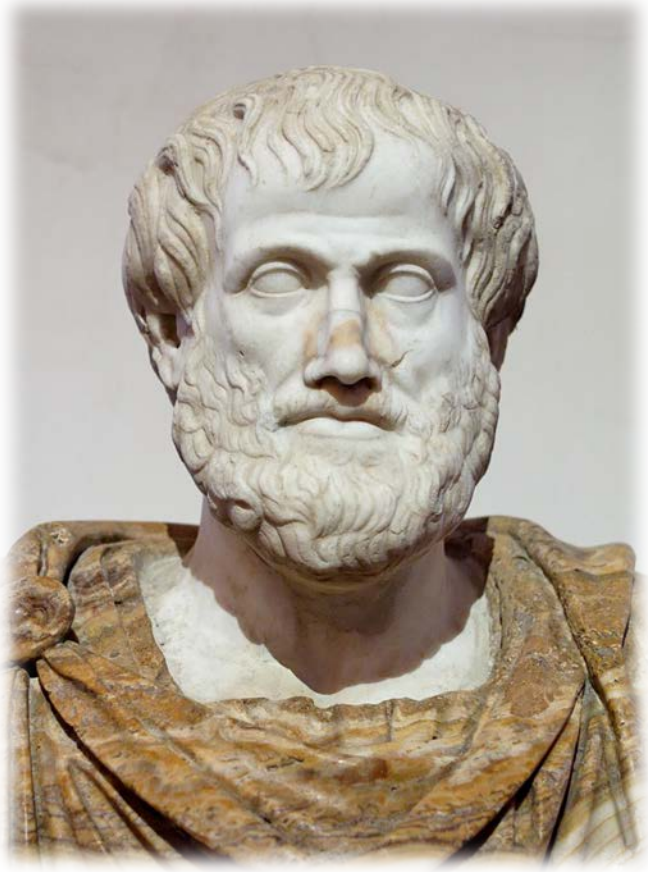


Source: Edmondson, A. (2012). Teaming: How organizations learn, innovate, and compete in the knowledge economy. San Francisco, Jossey-Bass.

The concept is embraced by HROs – but does it work for corporations?

Google

Google launched a big data analytics project to answer the question: What makes a Google team effective?



Project Aristotle

The cope of the analysis:

- 180 active Google teams
- Team effectiveness was measured along 4 main criteria:
  - Executive evaluation of the team
  - Team leader evaluation of the team
  - Team member evaluation of the team
  - Sales performance against quarterly quota
- Over two years 200+ double-blind interviews with Google employees were conducted
- More than 250 items from the annual employee engagement survey were analyzed

Result from the project

WRONG

*The **Google dream team** consists of a perfect mix of individual traits and skills – e.g. a Rhodes Scholar, two extroverts, a software engineer who rocks at AngularJS, and a PhD.*

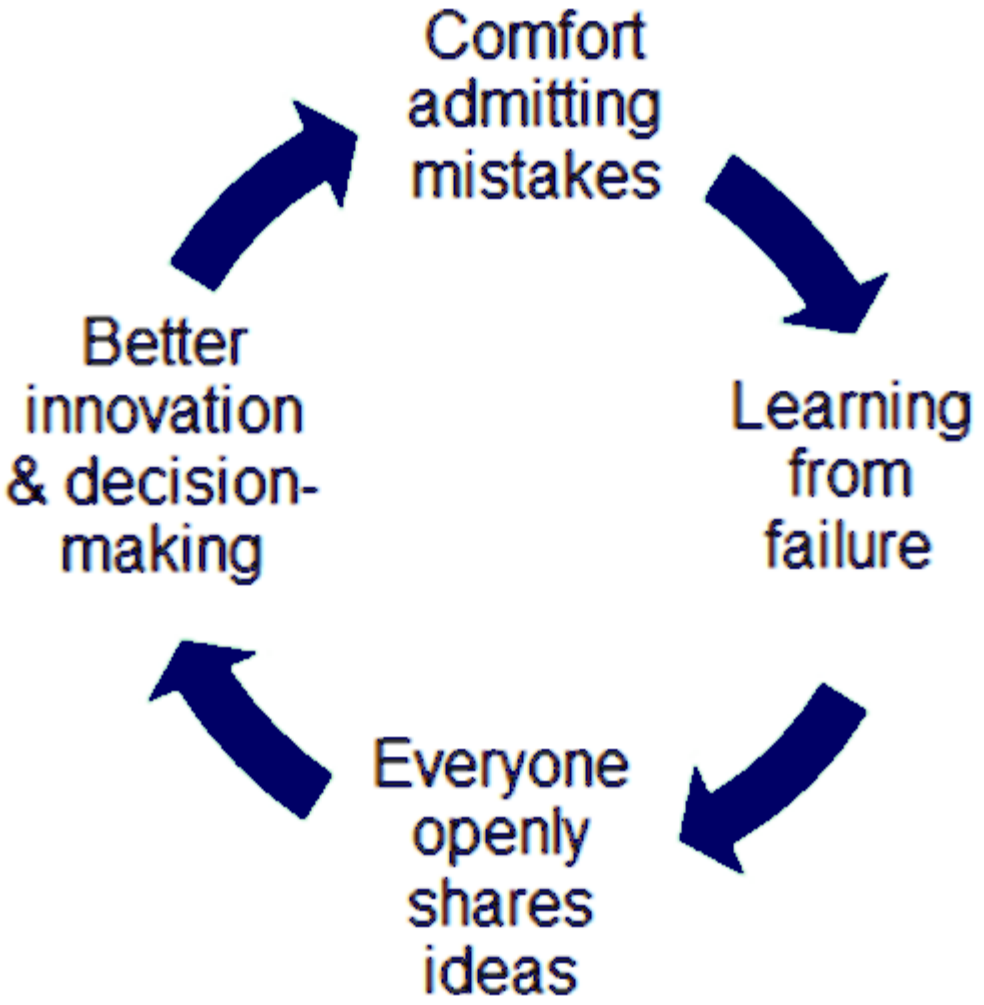
Factors determining team effectiveness at Google

Identified relevant factors for effective team interaction

in order of importance

Source: https://rework.withgoogle.com/guides/understanding-team-effectiveness retrieved 03.09.2020

The basic principle



Did the swiss pilots learn from their error?

Learning is based on reflection

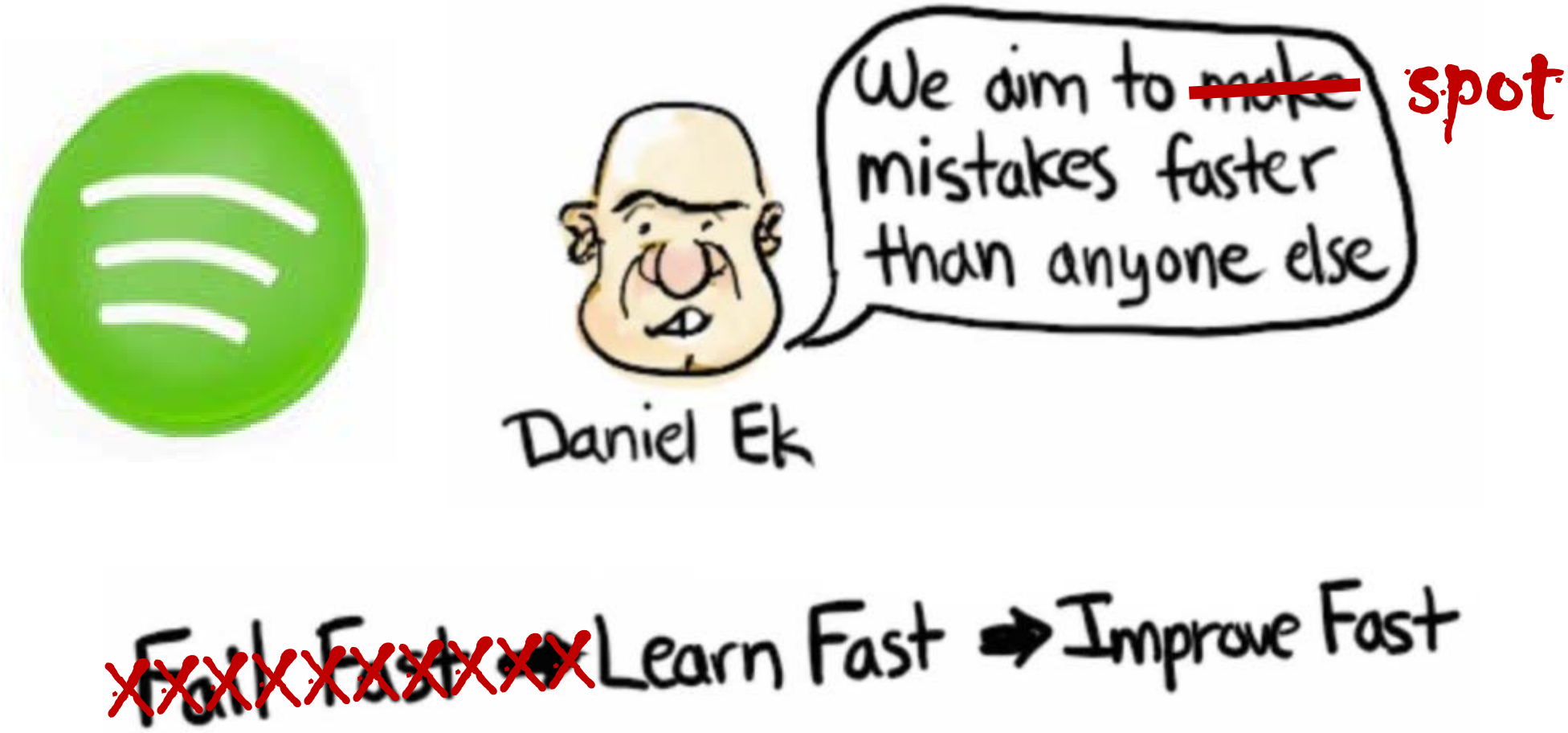
Practice regular debriefings

- What did we intend to do?
- What actually happened?
- What is the difference and why?
- What will we do going forward?
- Did we do the right things?
- Did we do the right things right?
- What will we do going forward?

Source: Allen, J. et al (2010). After-action reviews: A venue for the promotion of safety climate. Accident Analysis & Prevention, 42(2), 750-757.

So high-risk organizations and start-ups are closer aligned than we think

…and other organizations may learn from both



Source: https://vimeo.com/94950270 accessed on 8.9.2020

Thank you

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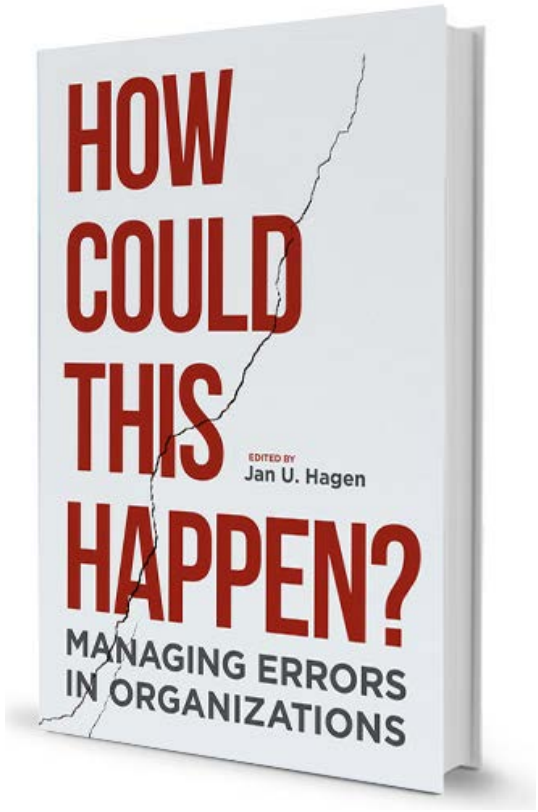

2018

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