What Can We Learn from Error Management in Aviation?

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We aim to make mistakes faster than anyone else.

Daniel Ek
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

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

© 8 July 2019

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.

Error avoidance is not that easy

<table>
<thead>
<tr>
<th>Category</th>
<th>MTBF*</th>
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</thead>
<tbody>
<tr>
<td>Simple and repetitively executed tasks at low stress</td>
<td>~ 30 min</td>
</tr>
<tr>
<td>Complex, repetitively executed tasks in normal situations with no time pressure</td>
<td>~ 5 min</td>
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<tr>
<td>Complex tasks in non-normal situations with <strong>high stress</strong> and/or <strong>time pressure</strong></td>
<td>~ 30 sec</td>
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*Mean time between failures

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

Aviation learned that aircraft accidents are primarily caused by captains.

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.

Sounds great!
Are there limits for psychological safety?

Psychological Safety  ?  Accountability

Psychological safety and accountability

The concept is embraced by HROs – but does it work for corporations?
Google launched a big data analytics project to answer the question: What makes a Google team effective?

**Project Aristotle**

The scope 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

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

1. Psychological safety
   Team members feel safe to take risks and be vulnerable in front of each other

2. Dependability
   Team members get things done on time and meet Google’s high bar for excellence

3. Structure & Clarity
   Team members have clear roles, plans, and goals

4. Meaning
   Work is personally important to team members

5. Impact
   Team members think their matters and creates change

Source: [https://rework.withgoogle.com/guides/understanding-team-effectiveness](https://rework.withgoogle.com/guides/understanding-team-effectiveness) retrieved 03.09.2020
The basic principle:

- Comfort admitting mistakes
- Learning from failure
- Better innovation & decision-making
- Everyone openly shares ideas
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?

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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