

# Psychological Safety

*It's not just about throwing chairs...*





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# Introduction



# How did we get here?





We're not here  
to talk about  
toxic  
workplaces...



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# Psychological Safety?

"A master class in navigating failure."

—ANGELA DUCKWORTH, #1 *New York Times* bestselling author of *Grit*

# Right Kind



THE SCIENCE OF  
FAILING WELL

AMY  
EDMONDSON



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# Experience reports



# Dangers





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# Risk of loss case study: The Columbia Accident



GMT

MET

032/14:15:04  
015:22:36:04

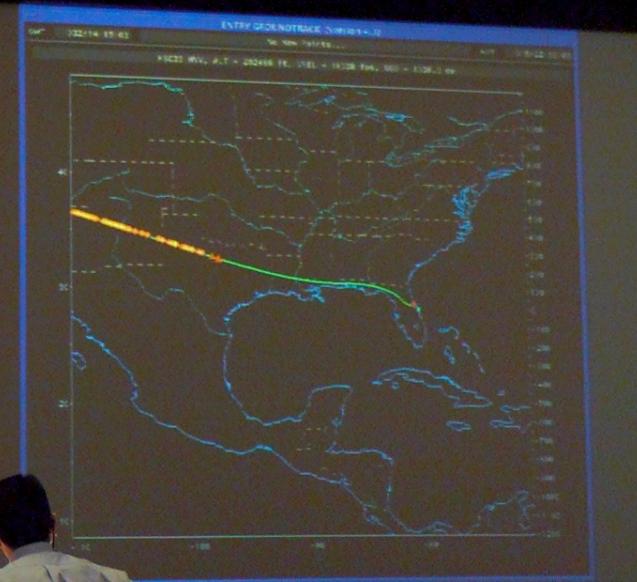
SEND TDRS-&gt;MILAN

00:00:00-



MISSION CONTROL CENTER

ENTRY DIGITALS (VERSION 2.1.3)					
MET	015/22:36:05		GMT 032/14:15:05		
RGO PHASE	ENTRY	TAEM	HAC	PRE-FINAL	APPR/LAND
ENTRY IPHASE	PASS	Temp Cntrl S	BFS	S	
GND	KSC33	KSC33	KSC33	TRK	PASS BFS
SITE	KSC33	KSC33	KSC33	RGO	**** 1035.85 0.0S
HACID	OVHD R	OVHD RS	OVHD RS	VREL	4931 18335S 16309E
HAC TURN	220	220S	219S	ALT	11643 207323S 205934S
NEP/MEP	NOM	---	---	ΔAZ	9 98
AIM PT	CLOSE	CLOSE	---	HDOT	-1767+ -143S -145S
DELTA-STATE	TRK-PASS	TRK-BFS		EAS	142S 142S
ΔX	-4743848-	-5237661-		HDG	110S 115S 081S
ΔY	3944439-	4858723-		HDGERR	0.95S 0.95S
ΔZ	-731629-	-694886-		QBAR	68S 68S
ΔXDOT	13838-	13872-		ROLL	-63S -63S
ΔYDOT	-6675-	-6659-		ROLLCMD	-59S -59S
ΔZDOT	5286-	5384-		ROLLREF	-61S
TRACKING RADAR ELEVATION & STATUS				ALPHA	39.1S 39.0S
C-BAND 1	PATC	12.5		ALPHACMD	39.2S 39.0S
C-BAND 2	MIMC	20.4		GAMMA	-20.1 0.0S
S-BAND		2		DRAG	0.0 20.0S 20.0S
MCC PREDICTOR AT	-06:31	-06:21		DRAG REF	20.0S 20.0S
SBPOS					0.0 0.0S
CDLIN					





Initiatives like Michoud's "This is Stupid" programs and the United Space Alliance's "Time Out" cards empower employees to halt any operation under way if they believe industrial safety is being compromised (see Figure 10.4-2). For example, the Time Out program encourages and even rewards workers who report suspected safety problems to management.

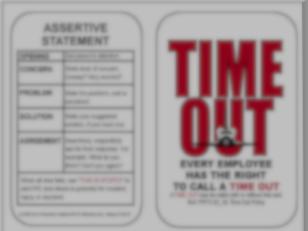


Figure 10.4-2. The "This is Stupid" card from the Michoud Assembly Facility and the "Time Out" card from United Space Alliance.

NASA similarly maintains the Safety Reporting System, which creates lines of communication through which anonymous inputs are forwarded directly to headquarters (see Figure 10.4-3). The NASA Shuttle Logistics Depot focus on safety has been recognized as an Occupational Safety and Health Administration Star Site for its participation in the Voluntary Protection Program. After the Shuttle Logistics Depot was recertified in 2002, employees worked more than 750 days without a lost-time mishap.

#### Quality Assurance

Quality Assurance programs – encompassing steps to encourage error-free work, as well as inspections and assessments of that work – have evolved considerably in scope over the past five years, transitioning from intensive, comprehensive inspection regimens to much smaller programs based on just risk analysis.

As described in Part Two, after the Space Flight Operations Contract was established, NASA's quality assurance role at Kennedy Space Center was significantly reduced. In the course of this transition, Kennedy reduced its inspections – called Government Mandatory Inspection Points – by more than 80 percent. Marshall Space Flight Center cut its inspection workload from 49,000 government inspection points and 821,000 contractor inspections in 1990 to 13,700 and 461,000, respectively, in 2002. Similar cutbacks were made at most NASA centers.

Inspection requirements are specified in the Quality Planning Requirements Document (also called the Mandatory Inspec-

tions Document). Under Space Alliances document an estimated 750,000 tasks Shuttle maintenance flow at Kennedy, every task assigned in Criticality Code 2 is checked, inspected, or any system automated checks or tests, prior to final op-

erations. Recently, investigations of Kennedy inspection processes both expanded and intensified. One finding required to add a major engine transporting the engine to the Orbiter Assembly Facility. This inspection was first at the launch of STS-107 and has been to understand all of the places since it conducted a full and total assessment inspection task. It concluded that the status quo is based on strong should need no adjustment. This kind of Quality Assurance is respond to an ing work force dynamics, and improve

The Quality Planning Requirements Document inspection requirements, was modified to be less burdensome. NASA is referring to the inspection requirements as the QPP. The QPP is designed to identify potential problems and prevent them before they become serious. The QPP is a tool to help ensure that the inspection process is effective and efficient. It also helps to ensure that the inspection process is consistent across all inspection sites.

The NASA/United Space Alliance QPPs of Kennedy are not fully integrated with Safety, Health, and Independence Engineering. The Surveillance Programs play a vital role in the control and audit as it comes together in the Orbiter Processing Vehicle Assembly Building. Were the integrated, these programs could attain a higher quality control process. Marshall has

**TIME  
OUT**

EVERY EMPLOYEE  
HAS THE RIGHT  
TO CALL A **TIME OUT**

A **TIME OUT** may be called with or without this card

Ref: FPP E-02\_18, Time-Out Policy

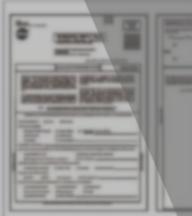


Figure 10.4-3. NASA Safety Reporting System



# A More Subtle Example: Software Incident



# Missed Opportunity case study: Team Project



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# What can you do about it?



# Recognizing the problem





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# Warnings signs: Too quiet



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# Warnings signs: Perfectionism



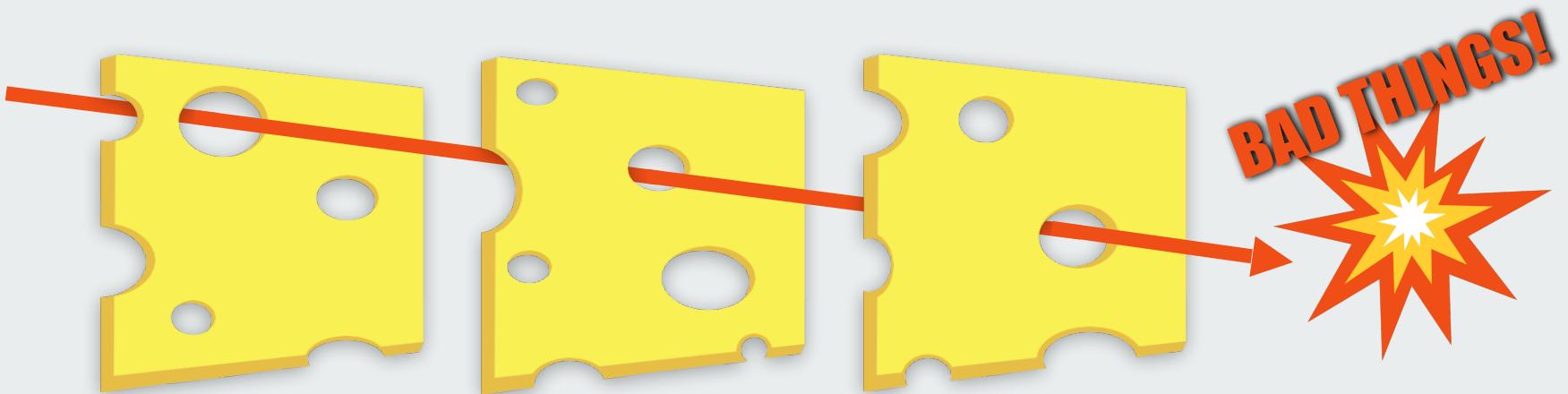
# How it happens





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# How it happens: The subtle things



The Swiss Cheese Model



# Implementing change





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# Vulnerability



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# Be Intentional

01 | Warning Signs

02 | Be self aware

03 | Reframe your thinking



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# Model

01 | Normalize **Vulnerability**

02 | Be **Inclusive**

03 | Invite **Discourse**



# Reinforce

01 | Training

02 | Feedback

03 | Iteration

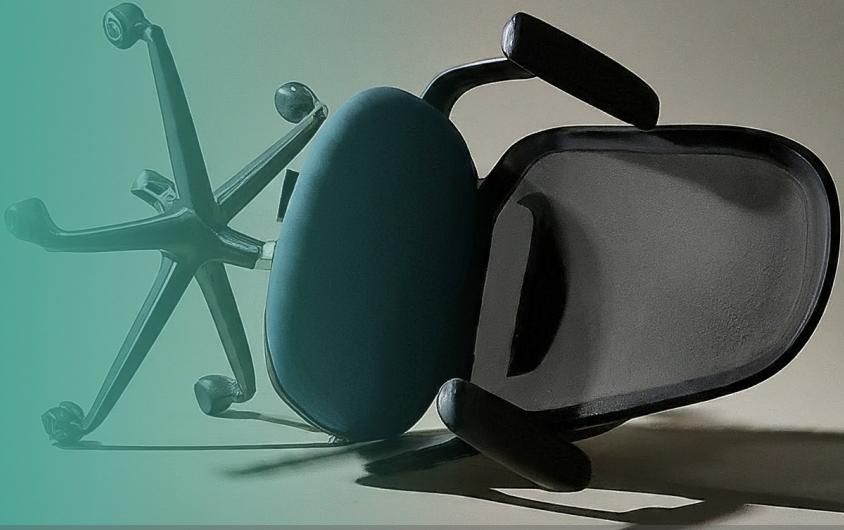
# Key Takeaways

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- 01 | Psychological safety == high performance
  
- 02 | Reframing failure
  
- 03 | Minor actions or inactions can harm it
  
- 04 | Leaders must model



# Thank you!



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