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Board Member

NTSB National Transportation Safety Board

Creating an Organizational Culture of Safety

JetBlue Airways Corporation

New York

October 20, 2015

NTSB Mission

The NTSB is an independent U.S. Federal agency charged with determining the probable cause(s) of transportation accidents (aviation, rail, highway, marine & pipeline), making recommendations to prevent their recurrence, conducting special studies and investigations, and coordinating resources to assist victims and their families after an accident.

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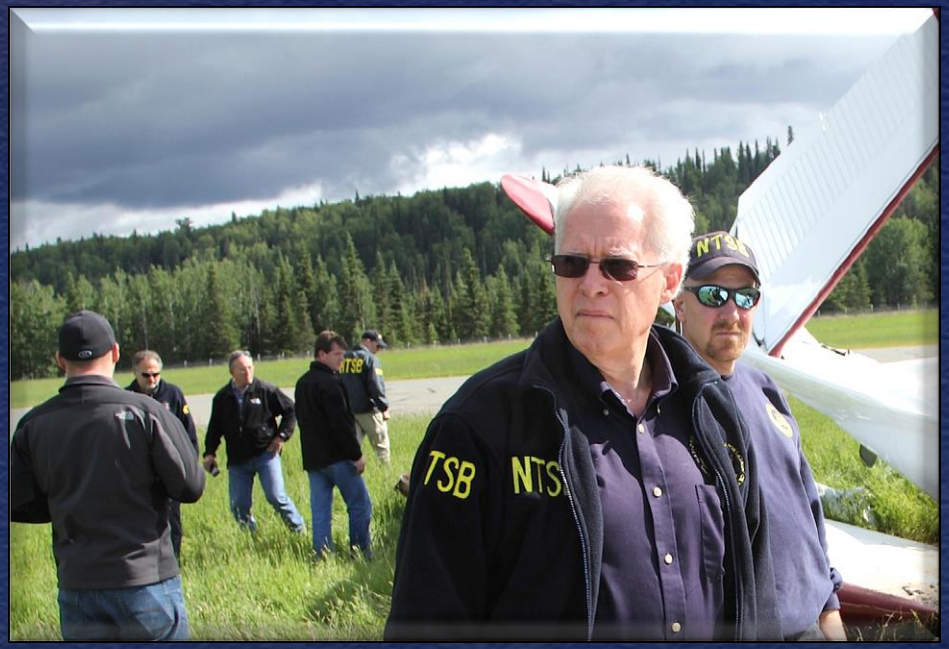
NTSB's Multi-Modal Mandate

- Maintain congressionally mandated independence/objectivity
- Conduct objective accident investigations and safety studies
- Perform fair & objective airman/mariner certification appeals
- Advocate safety – NTSB Most Wanted List, recommendations



Today's Presentation

- What the Lautman & Gallimore study can tell us about successful safety records
- Lessons learned from Metro-North
- Aviation organizational failures as seen in Gulfstream IV crash in Bedford, MA
- Characteristics of safety cultures

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Lautman & Gallimore Study:
Role of the Organization in Safety Operations

- **Moved from ‘chasing’ accident causation to studying airlines with strong safety records**

- **Found commonalities among airlines with best history of safe operation**

Lautman & Gallimore Study

- Emphasized safety from top down
- Expanded effort to understand incidents, BUT also worked to ANTICIPATE problems
- Monitored flight data recordings
- Enforced strict policies on go-arounds
- Created department dedicated to assisting other departments with safety
- Emphasized standardization and discipline
- Recognized need for recurrent training

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Safety Management System

Metro North Background

- Prior to May 2013, **last major accident (1 fatality) in 1988**
- Shifted focus to ‘on-time’ performance
- If morning trains late, afternoon track maintenance cancelled
- Safety lapses result in **5 accidents in less than one year**

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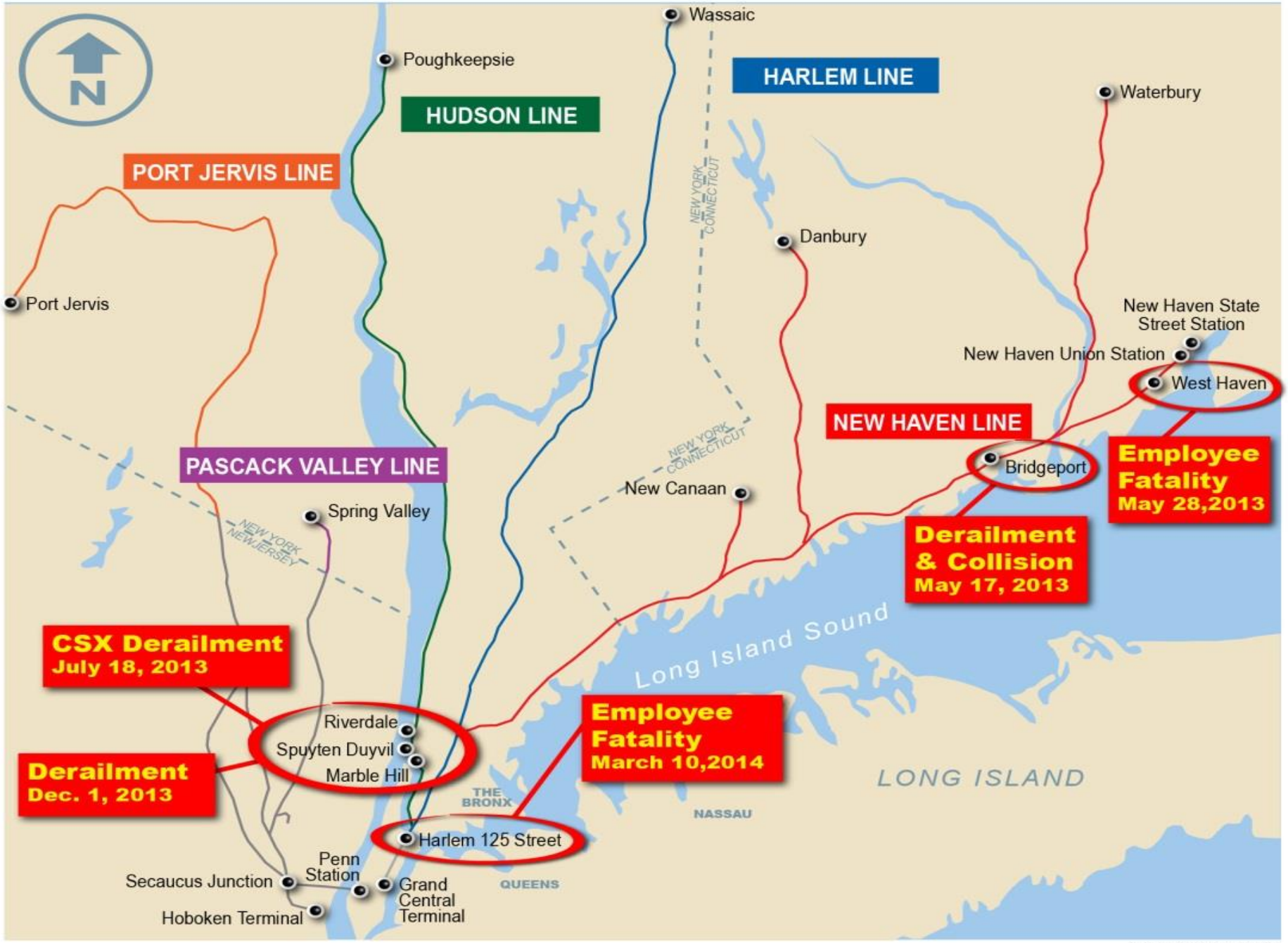

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Bridgeport - May 17, 2013

- Derailment of Metro-North train 1548 followed by subsequent collision with Metro-North passenger train 1581

- 65 injured & $18.5 million damages

Bridgeport Safety issues include:

- Adequacy of FRA track inspection requirements
- Adequacy of Metro-North track maintenance programs
- Crashworthiness of Metro-North Kawasaki passenger cars

West Haven – May 28, 2013

- Metro-North passenger train 1559 struck and killed track foreman
- Primary safety issue: lack of redundant systems to protect work areas from train incursions

Bronx - July 18, 2013

- Derailment of CSX freight train on Metro-North tracks
- $828,000 damages
- Primary safety issue: adequacy of Metro-North track maintenance program

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Bronx – December 1, 2013

- Derailment of Metro-North train 8808
- 4 killed, 61 injured, $9 million damages
- Safety Issues: Inadequate crew medical screening/ monitoring & operational oversight; crashworthiness of passenger cars

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Manhattan – March 10, 2014

- Electrician struck and killed by Metro-North train 897
- Primary safety issue: Inadequate job briefings and oversight of Metro-North roadway worker programs

Overarching Safety Issues

- NTSB investigations revealed commonalities among accidents
- Adequacy of FRA external safety oversight
- Adequacy of Metro-North internal safety oversight
- Adequacy of MTA oversight

NTSB Findings

- Failures caused ***6 deaths***, ***126 injuries*** & over $28.3 million in damages
- Metro-North failed to identify & resolve safety issues
- FRA's inspections increased only ***after*** significant accidents
- Focused on personal injury & on-time instead of operational and infrastructure issues

Safety Management System???

Metro North – Safety Policy

- Safety Department
  - Focus on occupational safety & health
  - “Invisible”, “Printed posters & Brochures”
- System Safety Program Plan, SSPP
  - President, VP Ops, Chief Safety Officer
  - “Dusted off” every 2 to 3 years
- Priority One Program
  - Intended for safety reporting
  - Managed at highest level

Metro North – Safety Risk Management

Safety Department:

- Operational risk assessment lacking
- No history of risk assessment involvement
- No formal processes
- Depended on “intuitive” approach

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Metro North – Safety Assurance

Inadequate attention to incidents & close calls:

- Broken joint bars
- Pumping tracks
- Track block protection dropped
- Biannual track geometry inspection not fully used
- Event data records not monitored

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Metro North – Safety Promotion

Not a lot to say…

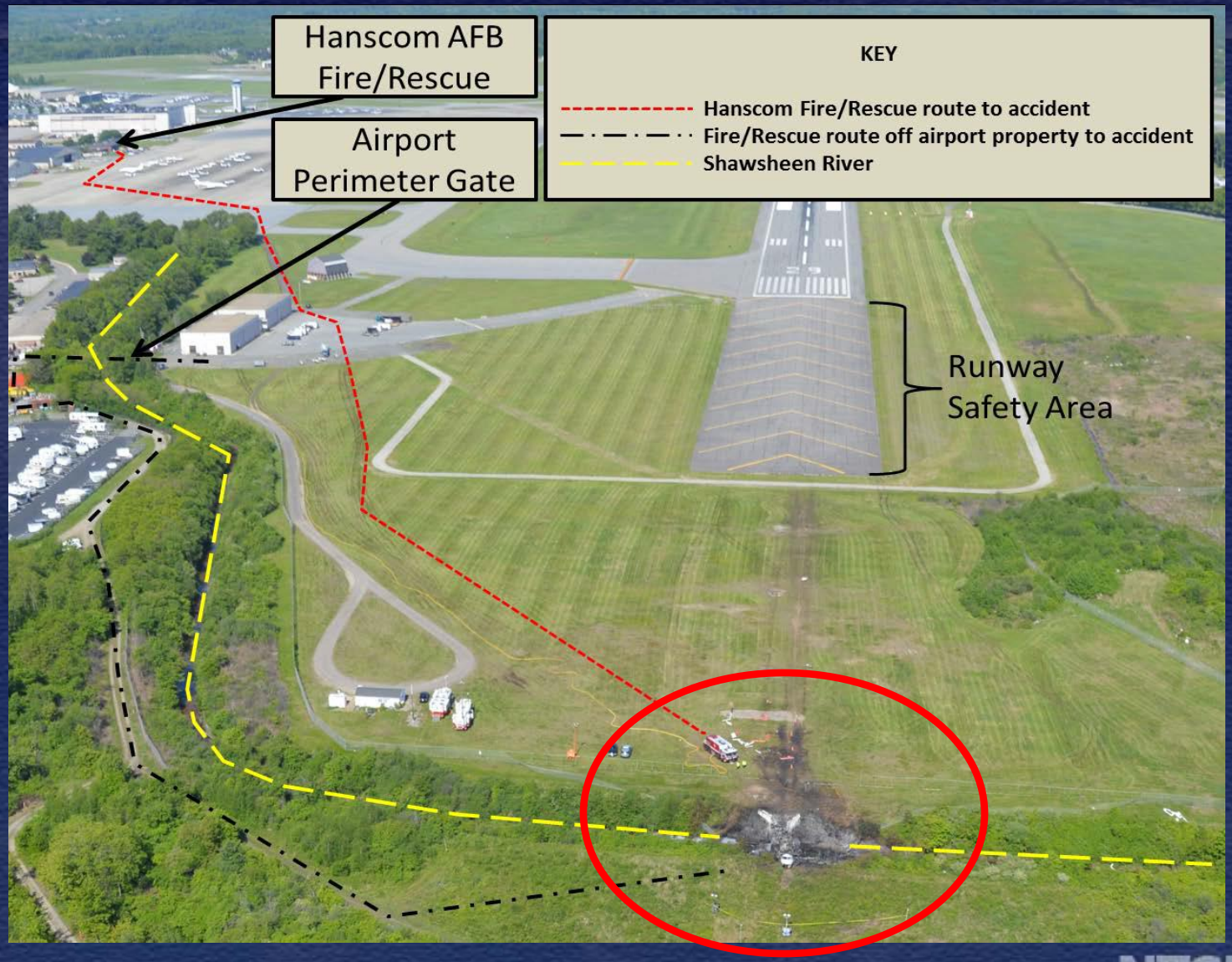
Survey of Management and Rank and File diverged on variety of factors

- Commitment to workplace safety
- Participation in safety events
- Pressure to maintain service or operations

Gulfstream Crash: Bedford, MA

- May 31, 2014; Gulfstream Aerospace Corporation G-IV
- Runway overrun during rejected takeoff
- 7 Fatalities: 3 crew, 4 passengers
- Failure to complete pre-flight checklist lead attempted take-off with gust lock engaged

Gulfstream Crash: Bedford, MA



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Failure of Organizational Safeguards

Runway Overrun During Rejected Takeoff
Gulfstream Aerospace Corporation G-IV, N121JM
Bedford, Massachusetts
May 31, 2014

Accident Report

NTSB/AAR-15/03
PB2015-105492

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- G-IV gust lock/throttle interlock system based on previously certificated Gulfstream airplane systems
- Compliance with the certification regulation demonstrated by review of engineering drawings
- NO functional test of the design of the G-IV gust lock/throttle interlock system

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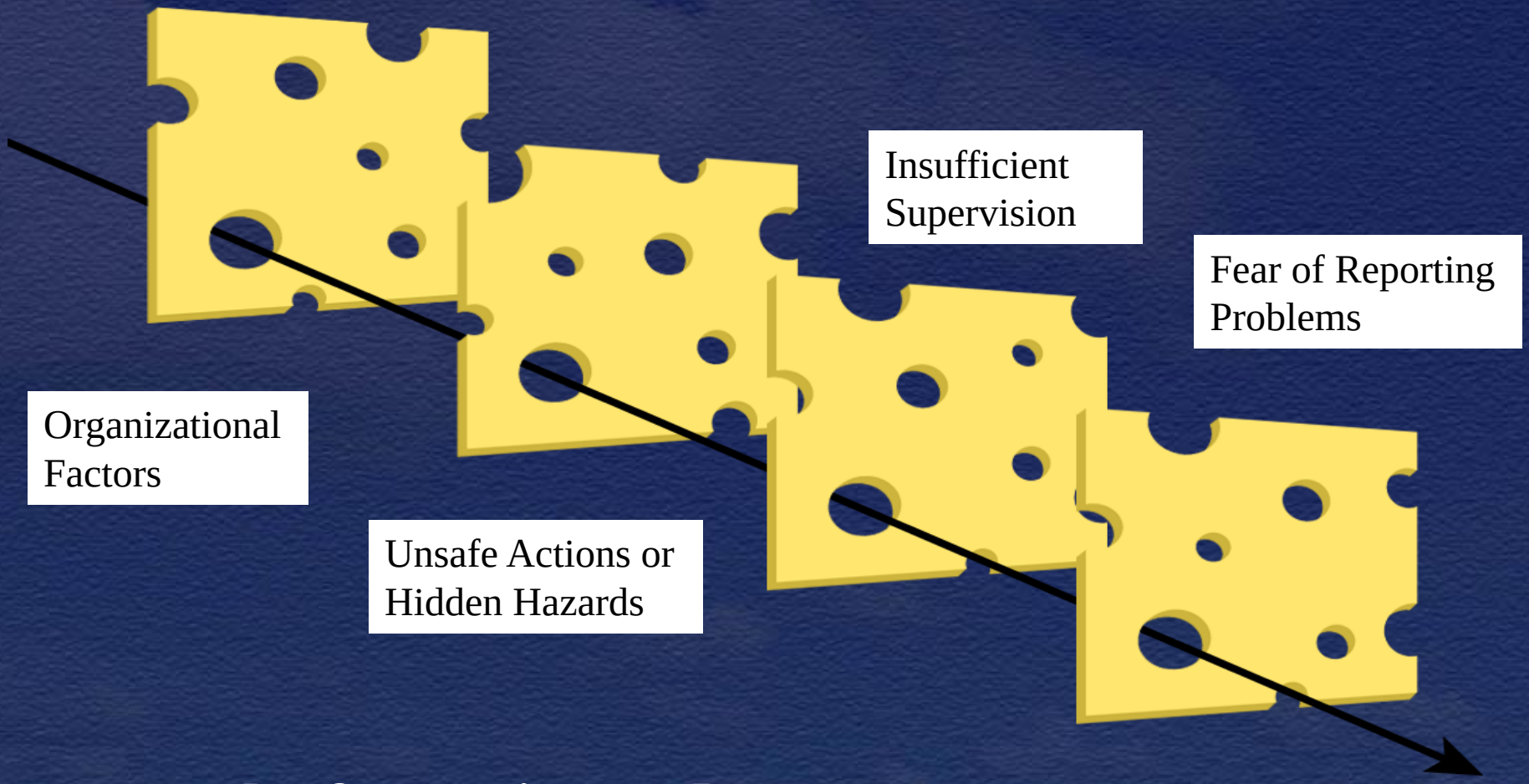
Swiss Cheese Model of Accident Causation



Professor James Reason

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Different Safety Cultures

Reactive & Forensic	vs	Risk-based & Predictive
• Whack-a-mole management		• Risk management
• Crisis safety management		• Change management
• Silos of knowledge		• Data analysis and information sharing
• Data is collected		• Data answers questions

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Changing Safety Management

Reactive & Forensic	Risk-based & Predictive
• "Off with their heads"	• Just culture
• Safety organization responsible for safety	• Everyone responsible for safety
• Regulator is dictatorial and despised	• Regulator is collaborative and respected
• Safety expected by regulations	• Safety enhanced via voluntary initiatives

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QUESTIONS OR COMMENTS?

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