Improving Safety Through Collaboration: The Safety Regulator’s Role

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Outline

- The Context
- Collaboration Success in Aviation
- Role of Leadership
- Regulator’s Challenges
NTSB 101

- Independent federal agency, investigate transportation mishaps, all modes
- Determine probable cause(s) and make recommendations to prevent recurrences
- Primary product: Safety recommendations
  - Favorable response > 80%
- SINGLE FOCUS IS SAFETY
- Independence
  - Political: Findings and recommendations based upon evidence rather than politics
  - Functional: No “dog in the fight”
The Context: Increasing Complexity

• More System Interdependencies
  – Large, complex, interactive system
  – Often tightly coupled
  – Hi-tech components
  – Continuous innovation
  – Ongoing evolution

• Safety Issues Are More Likely to Involve Interactions Between Parts of the System
Effects of Increasing Complexity:

More “Human Error” Because

- System More Likely to be Error Prone
- Operators More Likely to Encounter Unanticipated Situations
- Operators More Likely to Encounter Situations in Which “By the Book” May Not Be Optimal ("workarounds")
The Result:

Front-Line Staff Who Are
- Highly Trained
- Competent
- Experienced,
- Trying to Do the Right Thing, and
- Proud of Doing It Well

. . . Yet They Still Commit

Inadvertent Human Errors
When Things Go Wrong

*How It Is Now . . .*

You are highly trained

*and*

If you did as trained, you would not make mistakes

*so*

You weren’t careful enough

*so*

You should be **PUNISHED**!

*How It Should Be . . .*

You are human

*and*

Humans make mistakes

*so*

Let’s **also** explore why the system allowed, or failed to accommodate, your mistake

*and*

Let’s **IMPROVE THE SYSTEM**!
Fix the Person or the System?

Is the Person Clumsy?

Or Is the Problem . . .

The Step???
Enhance Understanding of Person/System Interactions By:

- Collecting,
- Analyzing, and
- Sharing

Information
The Solution: System Think

Understanding how a change in one subsystem of a complex system may affect other subsystems within that system
“System Think” via Collaboration

Bringing all parts of a complex system together to collaboratively

• Identify potential issues

• PRIORITIZE the issues

• Develop solutions for the prioritized issues

• Evaluate whether the solutions are
  – Accomplishing the desired result, and
  – Not creating unintended consequences
Objectives:
Make the System

(a) Less Error Prone
and

(b) More Error Tolerant
The Health Care Industry

To Err Is Human:

Building a Safer Health System

“The focus must shift from blaming individuals for past errors to a focus on preventing future errors by designing safety into the system.”

Institute of Medicine, Committee on Quality of Health Care in America, 1999
Major Source of Information: Hands-On “Front-Line” Employees

“We Knew About That Problem”

(and we knew it might hurt someone sooner or later)
As we begin to get over the first hurdle, we must start working on the next one . . .
Information Overload

"EUREKA! MORE INFORMATION!"
Tools and processes to convert large quantities of data into useful information

Data Sources
- Info from front line staff and other sources

Smart Decisions
- Identify issues
- PRIORITIZE!!!
- Develop solutions
- Evaluate interventions

Analysts

Tools

Processes

From Data to Information

USEFUL

INFORMATION
Aviation Success Story

83% Decrease in Fatal Accident Rate, 1997 - 2007

largely because of System Think

fueled by Proactive Safety Information Programs

P.S. Aviation was already considered VERY SAFE in 1997!!
Aviation “System Think” Success

Engage *All* Participants In Identifying Problems and Developing and Evaluating Remedies

- Airlines
- Manufacturers
  - *With the systemwide effort*
  - *With their own end users*
- Air Traffic Organizations
- Labor
  - Pilots
  - Mechanics
  - Air traffic controllers
- Regulator(s)
Moral of the Story

Anyone who is involved in the *problem* should be involved in the *solution*
Major Paradigm Shift

– Old: The regulator identifies a problem, develops solutions
  • Industry skeptical of regulator’s understanding of the problem
  • Industry fights regulator’s solution and/or implements it begrudgingly

– New: Collaborative “System Think”
  • Industry involved in identifying problem
  • Industry “buy-in” re interventions because everyone had input, everyone’s interests considered
  • Prompt and willing implementation
  • Interventions evaluated . . . and tweaked as needed
  • Solutions probably more effective and efficient
  • Unintended consequences much less likely
Challenges of Collaboration

– Human nature: “I’m doing great . . . the problem is everyone else”

– Participants may have competing interests, e.g.,
  • Labor/management issues
  • May be potential co-defendants

– Regulator probably not welcome

– Not a democracy
  • Regulator must regulate

– Requires all to be willing, *in their enlightened self-interest*, to leave their “comfort zone” and think of the System
The Role of Leadership

- Demonstrate Safety Commitment . . .

But Acknowledge That Mistakes Will Happen

- Include “Us” (e.g., System) Issues,
Not Just “You” (e.g., Training) Issues

- Make Safety a Middle Management Metric
  - Engage Labor Early
  - Include the System --
Manufacturers, Operators, Regulator(s), and Others

- Encourage and Facilitate Reporting
  - Provide Feedback
  - Provide Adequate Resources
  - Follow Through With Action
How the Regulator Can Help: Challenge No. 1

Recognize that

*compliance* is very important,

but the regulator’s objective should be

*reducing systemic risk*
Regulator Challenge No. 2

Emphasize the importance of System issues in addition to (not instead of) worker issues

Encourage and participate in industry-wide “System Think”
Regulator Challenge No. 3

Facilitate better collection and analysis of information by:

• Establishing clear policies
  
  *re protecting information and those who provide it*

• Encouraging other industry participants to do the same
Suggested Beta Test

- Select troublesome area
  - Nagging problem for many years
  - Many interventions have been tried, not successful
  - Likelihood that problems are systemic, not just people
  - Collaboration as effort to address the system problems
  - Less defensiveness because not focused on single event

- Select collaborative corrective action group
  - All who have a hand in the process
  - Manufacturers?
  - Operators?
  - Regulators?
  - Others?
System Think at Other Levels

• “System Think” can be successful at any macro/micro level, including
  – Company (some or all)
  – Type of activity
  – Facility
  – Team

• “System Think” for a persistent workplace safety issue?
Manufacturer “System Think” Success

Aircraft Manufacturers are Increasingly Seeking Input, Throughout the Design Process, From

- **Pilots** (User Friendly)
- **Mechanics** (Maintenance Friendly)
- **Air Traffic Services** (System Friendly)
Conclusions

– **Collaboration is an excellent way to apply System Think to improve safety in complex potentially hazardous industries**

– *Everyone who has a “dog in the fight,” including the regulator(s), must participate in order for the collaboration to be effective*
Thank You!!!

Questions?