Global Aviation Information Network (gainweb.org)

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Outline

• Goal: Develop Tools and Processes for Aviation Community to Make Data-Driven Decisions Using Data Beyond Accidents or Incidents
  – Data-Driven Decisions for Safety Management System

• Challenges and Solutions

• Participants

• Significant Immediate Savings

• Applicable to Many Industries – Other Transportation Modes, Health Care, National Security, Others
The Hands-On “Front Line” Folks:

“We All Knew About That Problem”
Benefits of Routine FDR Use

Hull Losses as a Percent of Total Turbine Fleet
Flight Data Recorder Users vs. U.S. vs. World

Sources: Total U.S. - FAA  NASDAC
Other - Skandia  Insurance Co. Ltd.
Norwegian Rail Experience

- Lost Time: 37 % reduction
- Accidents: 40 % reduction
- Total number of reported and analyzed events
- Number of reported and analyzed near-misses

Source: Pride AS
Almost all Data is Lost Forever

Currently Only a Minute Portion of Data is Collected and Analyzed
Heinrich Pyramid

ACCIDENTS

INCIDENTS

UNREPORTED OCCURRENCES
“The aviation community must look deeper than accidents and incidents to identify latent and emerging problems and fix them before a mishap occurs.”

Avoiding Aviation Gridlock & Reducing the Accident Rate, Dec. 1997, p. III-20

* Chair: Hon. Norman Y. Mineta, now Secretary, U.S. Department of Transportation
Common Characteristics

• Inadvertent

• Could Be A Link
  In An Accident Chain

• Happens Repeatedly
So Should We...

- Regulate More?
- Punish More?
- Increase Training?

OR...

Share Information to Fix the System?
Fix the Person or the System?

Is the Person Clumsy?

Or Is the Problem . . .

The Step???
GAIN is:

• A network – **NOT A BIG CENTRAL DATABASE**

• Privately owned and operated

• An international cooperative effort

• Voluntary
Former FAA Administrator Jane Garvey:

“GAIN is one of our best hopes for enhancing aviation safety in the next century.”

GAIN III World Conference
November 1998
Information:
The Fuel for Our Engine

Information

Improved Safety
Concerns That Discourage Collection and Analysis

- Public Disclosure
- Job Sanctions and/or Enforcement
- Criminal Sanctions
- Civil Litigation
Addressing Legal Concerns

• Public Disclosure
  – 1996 FAA Reauthorization
  – Part 193
  – Prohibits Public Disclosure of Voluntarily Provided Aviation Safety Information

• Enforcement
  – Some Began Collecting and Analyzing Information Without Protection From Enforcement
  – FOQA Rule, 2001, A Foundation for GAIN
Shifting the Paradigm

**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!

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**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!
Legal Concerns (con’t)

- Criminal:
  - Watching Developments Carefully

- Civil Litigation:
  - Evolving From

Concern About Collecting and Analyzing

To

Concern About *Not* Collecting and Analyzing
International Responses

• ICAO 32nd Assembly, 1998
  - Resolution to improve safety through enhanced collection, analysis, and dissemination of safety information

• ICAO AIG, 1999
  - Approved recommendation to Annex 13 that States should establish non-punitive incident reporting systems, promote establishment of safety information sharing networks, and facilitate free exchange of information on potential safety deficiencies
As we begin to get over the first hurdle, we must start working on the second.
Is This Light Random?
Accidents Result From a Combination of Events
Information Overload

“EUREKA! MORE INFORMATION!”

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GAIN Provides:

Tools and Processes to Help Aviation Community Members Use Their Data Better

Data Sources
- FOQA
- ASAP
- LOSA
- ASRS
- ATC
- Maint.
- Other
  (Future Sources)

Useful Information

Safety

Analysts

Smart Decisions
- Identify Issues
- Prioritize
- Develop Solutions
- Evaluate Effectiveness

Analytical Tools, e.g., Sharing
Increasing Acceptance

• Domestic
  – FAA Administrator as Luncheon Speaker, GAIN III, 1998
  – FAA/AVR-1 as Luncheon Speaker, GAIN V, 2000
  – Use of Operator’s Flight Safety Handbook (including by AFS)
  – ATA Endorsement, 2002

• International
  – Participation of ICAO, Governments in GST
  – IATA Participation in Steering Committee
  – Translation of Operator’s Flight Safety Handbook into Japanese, Spanish, and other languages
  – Asia-Pacific Regional Conference sponsored by JCAB, Tokyo, 2002
Industry Taking Charge

First Two GAIN Conferences:
• Sponsored by FAA, UK CAA, Royal Aeronautical Society (UK)

Industry Has Taken the Lead:
• Conference Hosts – Airbus Industrie (twice), Delta Airlines, Air France, United Airlines
• GAIN Steering Committee – Led by Industry
• Working Groups – Mostly Industry
GAIN Organization

Steering Committee

Working Groups

Program Office (FAA/ASY)

Government Support Team
Steering Committee

• Airlines
  – jetBlue (Chair)
  – Alaska Airlines
  – American Airlines
  – Middle East Airlines
  – Japan Airlines
  – Air Transport Association
  – Int’l Air Transport Association
  – Regional Airline Association

• Manufacturers
  – Airbus
  – Boeing

• Labor
  – Air Line Pilots Association
  – Int’l Association of Machinists & Aerospace Workers
  – National Air Traffic Controllers Association

• General Aviation
  – National Business Aviation Association
  – Helicopter Association Int’l

• U.S. Military

• Flight Safety Foundation
Working Groups

- Working Group A
  - Aviation Operator Safety Practices
- Working Group B
  - Analytical Methods and Tools
- Working Group C
  - Global Information Sharing Prototypes
- Government Support Team (GST)
  - Several Countries, JAA, European Commission, ICAO
- Working Group E
  - Flight Ops/ATC Ops Safety Information Sharing
GST Members

- Australia
- Canada
- France
- Italy
- Japan
- New Zealand
- United Kingdom
- United States
- European Commission
- International Civil Aviation Organization
- Joint Aviation Authorities
- The Nordic Group (rep. by Sweden)
Developing Products

- Operator’s Flight Safety Handbook (WG A)
- Cabin Safety Compendium (WG A)
- Guide to Methods and Tools for Airline Flight Safety Analysis (WG B)
- Two prototype systems for near-real time sharing of airline safety events (WG C), four initial airlines
- List of legal impediments to collecting and sharing safety information, and initial list of solutions to those impediments (GST)
- Thousands distributed and downloaded from the Internet (www.gainweb.org)
Many Have Already Begun The Process

- Airlines
- Manufacturers
- Unions
- Government
Three Domains For GAIN

Flight Deck

ATC

Maintenance
Others Who Are Interested

Transportation Department
- Coast Guard, MARAD (IMISS)
- Highway Administration
- Railroad Administration
- Pipeline Safety
Others (con’t)

• Critical Infrastructure Assurance Office (CIAO)
• Nuclear Power
• Chemical Manufacturing
• Public Utilities
• Firefighters
• Health Care Industry
The Health Care Industry

To Err Is Human:
Building a Better Health Care 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
Developing Data Mining Tools:

Defense – $35 Million
CIA – $27 Million
Healthcare – $??
Others?
Role of GAIN
In Security???
Want To Get Involved?

Next GAIN World Conference:
Rome, June 18-19, 2003
Sponsored by

www.gainweb.org