Safety Culture Transformation

Presented to: EUROCONTROL R&D Symposium
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Agenda

• Introduction
• Definitions: Culture and Safety Culture
• Safety Culture Measurement
• Intervention
• Roles and Responsibilities: Management and Employees
• Measurement of Success
• Conclusion
Introduction

• The Safety Culture Transformation research program was funded by the FAA Human Factors and Engineering Research and Development Group.

• This project depended heavily on the collaboration with several FAA Tech Ops employees and managers—from headquarters to field offices.

• The focus of this project was on TRANSFORMATION.
The evolution of safety thinking

1950s 1970s 1990s 2000s

• TECHNICAL FACTORS

• HUMAN FACTORS

• ORGANIZATIONAL FACTORS

• Image credit: ICAO
Definitions of Culture and Safety Culture

• Culture
  – *Culture* can be defined as the environment in which things grow.
  – *Safety Culture* represents environmental and psychosocial factors that influence attitudes and behaviors which impact risk and performance in high-consequence systems.
  – Most culture studies focus on the psychosocial aspects and most barriers are either environmental or organizational
  – Barriers include organizational structures, policies, procedures, practices, employee evaluation criteria, accounting methods, past experiences of the employees, etc.

Culture eats strategy for lunch!
Safety Culture Measurement

- **Focus Group Discussions**
  - Past experiences, current conditions, explicit examples of how the organization behaves

- **Periodic Snapshots**
  - Safety Climate Surveys

- **Longitudinal Studies**
  - Baseline, Pre-Intervention, and Post-Intervention Surveys
  - Field Interviews—What’s the residual knowledge and active/passive changes
  - Documentation of Specific Changes
  - Correlation with Performance Metrics—i..njury and damage statistics, undesirable events, etc.
  - Return on Investment Calculations
Focus Group Results

On the “secretive” side—farther left than blame end of the continuum

- There is talk of data manipulation to “meet the performance targets”—emphasis is clearly on reliability and availability statistics—the culture seems to be to do whatever it takes to keep up these numbers
- Even at some of the “better” facilities, the employee-management trust is questionable—“if errors/problems are reported, the system-wide version that is disseminated will often be a sanitized version with critical details removed for political reasons to protect management”
- Reporting systems such as the “Lessons Learned” database seem to be a one-way repository of information rather than a learning tool
- Employee evaluation systems do not explicitly consider safety performance; it is a “sat/unsat” system that does little to motivate the employees to improve their performance—not really connected with the performance or safety goals of the organizational unit
Interventions to Change Culture

- **Purpose**: Shift Safety Culture toward Just Culture
- **Alignment**: Align organizational structures, policies, procedures, practices, and incentives/evaluation systems to achieve the stated purpose.
- **Control**: Employees need to believe that their input will have an impact on the outcome—they have control over the future
- **Notes**: Culture develops over a long period of time; some claim that it takes one generation to change the culture
- **Threat**: Threat to the survival of the organization: this is a key motivator for cultural change; many examples can be found in business as well as anthropology
- **Efforts**: Efforts have to be both top-down (commitment of resources; accountability; and willingness to change established structures, policies, procedures, etc.) and bottom-up (willingness to engage in the efforts and change their own behaviors)

To change the culture, people must change.
Employee Generates ASAP Report

Saint Louis University
- Communicates the final implementation results to the reporter

Documentation Review:
- Logbooks, Maintenance Manuals/Tech Publications and Regulations

Environmental & External Factors
- Weather, Vendors, Service Providers

Training
- Content and Records

ERC Validation of Facts in ASAP Report

Hardware
- Parts, Tools, Service/Test Equipment Check

Organizational Factors
- Facility Design, Policies, Procedures, and Practices

Systemic Versus Individual
- ERC Decision

Honest Mistake
- Reckless

Report Accepted

Report not Accepted

Implementation Confirmed

Change Action Recommendation sent to the appropriate management representative

Saint Louis University
- Communicates the ERC decision and the reasoning to the reporter

Saint Louis University
- Communicates the final implementation results to the reporter

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Program Participation

- Three control sites, three demonstration sites, and one district participated in the project
- 60 individuals from a variety of professional groups and facilities participated in the focus group discussions
- Approximately 480 individuals attended the ASAP/Safety Culture briefings
- 248 responded to pre-ASAP survey and 164 responded to post-ASAP survey
- 11 ASAP reports were filed in 18 months
  - Impacts at local, district, and national levels
- Demonstration sites and control sites have similar attitudes and opinions regarding safety culture
Pre-Post Comparison of Organizational Factors
(Demonstration Sites Only)

- Learning from Errors: Post-ASAP 3.08, Pre-ASAP 2.95
- Evaluation: Post-ASAP 3.04, Pre-ASAP 2.93
- Leadership: Post-ASAP 3.31, Pre-ASAP 3.11
- Relationships: Post-ASAP 3.51, Pre-ASAP 3.32
- Information Flow: Post-ASAP 3.43, Pre-ASAP 3.16
- Identity: Post-ASAP 3.48, Pre-ASAP 3.18
Pre-Post Comparison

Pre-Post Comparison of Team Factors
(Demonstration Sites Only)

Professionalism  3.92  3.91
Supervisor Trust  3.87  3.66
Goal Sharing      3.81  3.82
Adapatability    2.92  2.78
Adequate Resources 2.92  2.78
Error Reporting  2.69  2.62

Error Reporting
Adequate Resources
Supervisor Trust
Goal Sharing
Adapatability
Professionalism

0.00  0.50  1.00  1.50  2.00  2.50  3.00  3.50  4.00  4.50

Post-ASAP  Pre-ASAP
Pre-Post Comparison of Outcome Factors
(Demonstration Sites Only)

- Employee Satisfaction
  - Post-ASAP: 3.84
  - Pre-ASAP: 3.65

- Customer Satisfaction
  - Post-ASAP: 3.72
  - Pre-ASAP: 3.52

- Safety Performance
  - Post-ASAP: 3.61
  - Pre-ASAP: 3.48

- Technical Standards
  - Post-ASAP: 3.25
  - Pre-ASAP: 3.5

- Stakeholder Value
  - Post-ASAP: 3.84
  - Pre-ASAP: 3.61

Pre-Post Comparison
Program Findings

- Fifteen of the seventeen scales showed improvement; two of them showed some deterioration. The following differences were statistically significant:
  - Identity ($p<.05$)
  - Information Flow ($p<.05$)
  - Technical Standards ($p<.005$).

- The pre-post comparisons are consistent with the expectations of the Purpose-Alignment-Control Model as follows:
  - Strengthening of the safety message by leadership—from local through HQ levels—strengthened “Purpose” and thereby improved the understanding of the Identity of the organization.
  - Provision of information regarding the ASAP program increased information flow about a specific way to improve safety culture and gave the employees a tool to improve the safety culture. Provision of such resources impacts the “Alignment” aspect of the PAC Model and the increased sense of ownership felt by the employees improves the “Control” aspect of the PAC Model.
  - Regression analysis of post-ASAP survey indicates a strong belief by the employees and managers that the ASAP program would have a positive impact on safety culture. This impacts the “Control” aspect of the PAC Model.
  - The Technical Standards scores decreased in the post-ASAP survey. One possible explanation is that the ASAP briefings may have increased awareness of the hazards posed by the lack of sufficient equipment compatibility and the abundance of workarounds.
Safety Culture Index

Improvement in Safety Culture Index at Demonstration Sites

-0.82 Pre-ASAP
-0.39 Post-ASAP

Secretive  Blame  Reporting  Just

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Roles and Responsibilities

• Management
  – Effective and efficient management of fiscal, technical, and human resources
  – Role model the espoused behaviors
  – Managers are responsible for:
    • Thorough investigation of incidents
    • Addressing systemic changes to prevent recurrence of incidents

• Employees
  – Self-report errors and hazards
  – Develop a peer-driven performance standard

Safety is Not for Negotiation
Measures of Success for Error Reporting Systems

• Increased participation in the error reporting system
• Changes resulting from the reports
  – System/Organization/National Level: typically 1-5% of the reports
  – Unit Level: typically 20-25% of the reports
  – Task Level: typically 70-75% of the reports
• Employee satisfaction with the reporting system
• Correlation with performance metrics
  – Error/Injury data
  – Delays, cancellations, outages
• Financial impact: Return on Investment
• Shift in Safety Culture Index
Keys to Successful Implementation of Tech Ops ASAP

• **Genuine Attempt to Improve Safety Culture**
  – Clear written documentation providing protection against self-incrimination
  – On-site management and employee champions
  – Error-reporting is a professional responsibility of employees and managers; taking action on such reports is a professional expectation

• **Prompt Responses to ASAP Reports**
  – Timely acknowledgment and status updates
  – Meaningful feedback from the ERC

• **Employee-Management Trust**
  – Consistency in words and action
  – Publicity of success achieved by ASAP reports

• **Confidentiality of Reporters**
  – ASAP data should be protected from disciplinary actions
  – Identifying information should be protected by the Program Manager
  – As the employee-management trust builds, the reporters will self-identify
ASAP Helps Build a Safety Culture

Robust Safety Culture

Safety Management System

ASAP

Non-Punitive Reporting
Conclusion

- Anatomy of a typical Culture Change process
  - Clear threat for organizational survival
  - Top management commitment
  - Critical mass of champions with critical connections
  - Employee engagement
  - Interpersonal Communication
  - Demonstrated benefits of the new culture