The EUROCONTROL Safety Culture Measurement Approach

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Outline

- What is safety culture?
- Objectives of the study
- Development of Safety Culture Measurement Tool (SCMT)
  - Phase 1 – Development of the Questionnaire
  - Phase 2 – Implementation of Questionnaire plus Workshops (full SCMT)
  - Phase 3 – Safety Culture Improvement Process
- Conclusions
- Further Work
What is safety culture?

• ‘Safety culture is the product of individual and group values, attitudes, competencies and patterns of behaviour that determine the commitment and proficiency of an organisation to health and safety management’ (Advisory Committee for Safety on Nuclear Installations, HSC, 1993, p. 23)

What is believed

What is said

What is done

Safety performance

Poor Safety Culture contributes to accidents
How can you operationalise safety culture?

- How safety is prioritised (Management commitment)
- How people are involved in safety (Employee involvement)
- How lessons about safety are learned and disseminated throughout the organization (Learning)
EUROCONTROL Safety Culture
Approach & Rationale

1. Understand Safety Culture in ATM
2. Measure it and Learn
3. Help ANSPs Measure / Improve

7 ANSPs participated; 1 measured in 2006; 3 measured in 2007; 4 more in 2008; developing best practices and guidance documentation
1. Development of Questionnaire

- Review of safety culture/safety climate literature to identify key themes
- Interviews with 4 European ANSPs to validate themes
  - N = 52 (managers; controllers; maintenance; supervisors)
- Identify specific statements to capture those themes
- Design and pilot questionnaire survey
Analysis of Interviews

1. **Transcription**
2. **Identified phrases with safety culture relevance**
3. **Categorized phrases according to SC themes**
   a) Management Commitment
   b) Employee Involvement
   c) Learning
4. **Identified stories that came from management and operations**
Stakeholder Feedback

- Groups (n=10-12) of ANSP managers and regulators evaluated 80 items
  - ‘Must have’
  - ‘OK’
  - ‘Prefer not to use’
  - ‘Remove’
  - Realistic?
  - Right issues?
  - Good examples?
  - Poor examples?
  - Relevant to all staff?
## Example items from the Questionnaire

### I. Commitment to Safety *(circle one)*

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ The organisation would always support me if I had a safety concern</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>✓ If I do something wrong, I can discuss it with my colleagues without worrying about the consequences</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>✓ The organisation’s number one goal is safety, in practice as well as in theory</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>✓ In practice, capacity is the main job of the ATCO</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>✓ Sometimes you have to bend the rules to cope with the traffic</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>
Questionnaire Survey

- Piloted in a European ANSP (n=119)
  - 51% controllers; 40% 41-50 years old; 83% male; Average experience 14 years
- 59 items evaluated on a 5 point scale (1='strongly disagree' to 5='strongly agree')
- Generally positive results – only 7 items had scores of <3
- Further tested in 3 other European ANSPs
- Analysed using statistical modelling (CFA)
  - Best model consisted of 3 main factors ‘How we Prioritise Safety’; ‘How we are Involved in Safety’ & ‘How we Learn’
  - Sub-themes of Involvement; Teaming; Learning & Reporting; Communication; Trust
SAFETY CULTURE

- Commitment
- Teaming
- Involvement
- Learning & Reporting
- Responsibility
- Communications & Trust
Phase 2: Implementation of SCMT

- SCMT applied in 2 parts
  - Analysis of Safety Culture Questionnaire highlights items/themes where there are ‘issues’ for respondents
  - IDENTIFIES WHAT IS HAPPENING; WHAT PEOPLE PERCEIVE GOING ON AROUND THEM

- Workshops to explore these issues in more detail & try and identify ‘good practice’
- DETERMINES WHY IT IS HAPPENING AND WHAT MIGHT BE DONE TO SOLVE THE PROBLEM
Bi-directional perspective

Insider looking out

Outsider looking in
No ‘us vs. them’ – everyone has a valid opinion
Top 5 items

- I have confidence in the people that I interact with in my normal working situation
- If I do something wrong, I can discuss it with my colleagues without worrying about the consequences
- Each member of staff has a responsibility to keep up with changes to procedures
- Only the Safety Department has responsibility for safety
- Only my manager has responsibility for safety

% of respondents

- % unfavourable
- % neutral
- % favourable
We have sufficient safety experts and support staff in house

Even if the system fails, we are still expected to achieve the targets that are set for us

There is a lack of feedback on the results of safety initiatives that we have participated in

The other people in the organization do not understand our job and the safety roles we fulfil

Feedback from incidents comes months or years later with few recommendations

Even if the system fails, we are still expected to achieve the targets that are set for us

% of respondents
Workshop Process

Questionnaire Analysis

- Identify Key Issues
- Understanding the Issues
  - Analysing the Issues
  - Prioritising the Issues
  - Solving the Issues
- Feedback to Management

Before this workshop

During this workshop

After this workshop
• Consequences
• Urgency
• Trend (increasing or decreasing)

• Potential solution paths
• Key ways forward

• Mode: Facilitated Process
INCIDENT REPORTING & FEEDBACK

✓ I only report minor incidents if I think they will be noticed (28% agreed)
✓ Team meetings are used to communicate concerns and collect ideas for improvements (27% disagree)
✓ Feedback from incidents comes months or years later with few recommendations (53% agreed)
✓ There is a lack of feedback on the results of safety initiatives that we have participated in (35% agreed)
Incident Reporting & Feedback

Prioritised Causes

✓ Lack of team feeling
✓ Team meetings few and one-way
✓ Rostering problems prevent team meetings
✓ Staff on projects half-time lose skills to do high traffic
✓ Contingency training (simulator) biased to operational scenarios not technical faults – limited by simulator

Prioritised Solutions

✓ TEAMSTEAMS
✓ Think in ‘teams’; plan for it (roster); build team feeling
✓ SMARTER STAFFING
✓ Split needs to be 60% operational 40% admin/specialist to maintain ability to handle high traffic – two people sharing project – net increase
✓ FROM RESULTS TO TRAINING
✓ Need more practice of emergency and technical faults
✓ Technician ‘voice’/input into the emergency training schedule
Safety Culture Improvement Process

Questionnaire Analysis

1. Survey the population
   - General section
   - Controllers/Assistants
   - Maintenance/Engineering
   - Managers

2. Identify Key Issues

3. Understanding the Issues

4. Analysing the Issues

5. Prioritising the Issues

6. Solution proposals

7. Feedback to Management & Staff

8. Improvement Strategy

9. Workshops

After the workshop
Timescale of the Survey Process

- Launch
- Analysis
- Focus groups
- Improvement Strategy
- Mid-term Review
- 2 ANSPs
- 3 ANSPs
- 1 ANSP
- 1 ANSP
- Strategic review
- 2nd Measurement

0 1m 3m 6m 1yr 3 years
Timescale for the Programme

Per Year

06 07 08 09 10 11 12 13

Cumulative
Future Work

- 4 more ANSPs surveyed in 2008
  - inclusion of airports (ATC) in the study
  - administration of the questionnaire using intranet;
  - segregated questions for maintenance/technical, ATCOs, and Management;
  - using combinations of interviews and workshops.

- Other European ANSPs have been conducting their own safety culture interventions

- Realisation that safety culture proceeds best from the top down
  - CEO safety culture conference in December 2008
EUROPEAN ATM SAFETY
SAFETY CULTURE CONFERENCE

Unleashing the Power of Safety Culture

December, 2008
Rome

Opening Address
Mr. Nadio Di Rienzo, ENAV SpA DG

Mr. David McMillan, Eurocontrol DG

Keynote Speakers
Mr. Paul Barron
NATS UK CEO

Mr. Sverre Quale
Avinor CEO

Mr. Jose La Cerda
NAV-P CEO

Prof. Rhona Flin
Aberdeen

Mr. David Prior
Easyjet
Questions?