Human Factors in Safety Survey

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Plan

- What to survey from a Human Factors perspective
- How to survey HF best practice
What to survey

A HF Specialist would survey

any aspect of a job
that may impact

Human Performance/Safety
What to survey

Human Factors in SMS

Organisation

External environment

Operational Environment

Individual

Inter-individual

Task Demand
## What to survey

<table>
<thead>
<tr>
<th>Category</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>Human Capabilities and limitations, Attitudes – Behaviours - Skills</td>
</tr>
<tr>
<td>Inter-individual</td>
<td>Interaction - Cooperation - Communication, Support to others - Peer pressure .....</td>
</tr>
<tr>
<td>Task Demand</td>
<td>Workload - Roles and responsibilities, Performance standard - Task interruption</td>
</tr>
<tr>
<td>Operational environment</td>
<td>Physical env. - Working methods, Workplace design - Supervision</td>
</tr>
<tr>
<td>Organisation</td>
<td>HR Management - Organisational Management Culture</td>
</tr>
<tr>
<td>External Environment</td>
<td>International regulations - Political pressure, Commercial/economical pressure</td>
</tr>
</tbody>
</table>
What to survey

Safety Survey in SMS

- Risk assessment and mitigation
- Safety occurrences
- Safety improvement
- Safety surveys
- Safety records
- Lesson dissemination
- Safety monitoring
What to survey

Where to find survey object?

- Incident investigation
  - Contextual conditions
  - Human contribution to incident
- Volunteering reporting
- Ops room Log book
- Safety Risk assessments
How to survey

HF principles in SMS

1. Place the people at the centre of the system.

2. Adopt a holistic and integrated approach.

3. Take account of social and organisational influences.


5. Ensure transparency of organisational processes and actions, and ensure fairness of treatment.

6. Involve staff, respect and value their input, and provide feedback.
How to survey

HF Methods

- Interviews
- Questionnaires
- Observations
- Focus group/workshop
### How to survey

<table>
<thead>
<tr>
<th>Method</th>
<th>Advantage</th>
<th>Disadvantage</th>
<th>Constrains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview</td>
<td>• Can obtain detailed information • Flexible</td>
<td>• Limited sample • Could be stressful for interviewees</td>
<td>• Well Trained interviewers • Well prepared content</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>• Obtain a lot of data detailed or generic • Big sample • Easy to pass</td>
<td>• Time consuming for the preparation • Level of return low</td>
<td>• Well built questionnaire • Reliable media</td>
</tr>
</tbody>
</table>
# How to survey

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<tr>
<td>Focus group</td>
<td>• Buy-in</td>
<td>• Release a group of staff from ops</td>
<td>• Well prepared session</td>
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<tr>
<td></td>
<td>• Very efficient to cover all facets of a specific subject</td>
<td>• Some “big mouth” may reduce benefit</td>
<td>• Qualified facilitator</td>
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<tr>
<td></td>
<td>• Improvements can be tackled on the spot</td>
<td>• Sensitive to cultural aspects</td>
<td>• Adequate facility and material</td>
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<tr>
<td>Observation</td>
<td>• Snapshot of real operation</td>
<td>• Focus only on observable aspects</td>
<td>• Acceptability</td>
</tr>
<tr>
<td></td>
<td>• Allow quantification of informal practice</td>
<td>• Intrusion on the task being performed,</td>
<td>• Qualified observers</td>
</tr>
<tr>
<td></td>
<td>• Detailed data</td>
<td>• Limited sample</td>
<td>• Qualified analysts</td>
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</table>
## How to survey

### Resource demand

<table>
<thead>
<tr>
<th>Method /Resource</th>
<th>Training</th>
<th>Preparation</th>
<th>Data collection</th>
<th>Analysis</th>
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</thead>
<tbody>
<tr>
<td>Interview</td>
<td>++</td>
<td>+</td>
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<tr>
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<tr>
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<tr>
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<tr>
<td>7</td>
</tr>
<tr>
<td>11</td>
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<tr>
<td>7</td>
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How to survey

Existing HF Tools

Observations:
- NOSS (ICAO), (Normal Operation Safety Survey)
- Day to day (NATS)
- EUROSS (MUAC) EUROCONTROL Routine Observation Safety Survey
- BOOM (EUROCONTROL) (Behavioral Oriented Observation Method)

Focus group/workshop: TRM
How to survey

A few tips

➔ Interview
  ➔ PREPARE, PREPARE, PREPARE,
  ➔ Make sure the interview will not be interrupted
  ➔ Clearly explain the purpose of the interview and what will be done with the results
  ➔ Take your time to make the interviewee at ease
  ➔ Stick as much as possible to your interview structure
  ➔ Keep in control
  ➔ Never express your opinion
How to survey

A few tips

Questionnaire preparation

- Clearly define the aim of the questionnaire
- Clearly identify who are the respondents
- Interview a few persons on your subject before developing the questionnaire
- Decide how the data will be analysed beforehand
- Pre-test your questionnaire
How to survey

A few tips

- **Questionnaire**
  - Give information about the purpose of the survey, how the data will be analysed and what will be done with the results.
  - Provide instruction on how to answer.
  - Ask only relevant questions concerning the person profile.
  - Prefer close questions (easier to analyse).
  - Use the appropriate wording, simple but specific questions.
  - Give a logical structure/flow.
  - Start with easier questions.
  - Address important items at the beginning.
How to survey

A few tips

Focus group - preparation

- Clearly know what you want to achieve
- Choose the right participants (8-12) based on their profile, ensure good sampling
- Define the process step by step
- Make sure people will stay for the whole exercise
- Inform participants before the event