

From NOTECHS to LH Behaviour Markers An Implementation Case Study

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Overview

- **Principles of Behaviour Assessment in NOTECHS/JARTEL**
- **Development of Lufthansa's New Behaviour Marker System**
- **Crosslinking NOTECHS to LH Interpersonal Competences**
- **The Implementation Case: Lufthansa's Evaluation Method**
- **Usability Study**
- **Summary**



NOTECHS/JARTEL
Principles and Practice of Behaviour
Marker Application Europe

Hans-Juergen Hoermann, PhD
Boeing Research & Technology Europe
RAeS, April 30, 2004



Why NOTECHS?

JAR OPS (2001) 1.940, 1.945, 1.955, and 1.965,
asking for an evaluation of flight crews' CRM skills.

“the flight crew must be assessed on their CRM skills in accordance with a methodology acceptable to the Authority and published in the Operations Manual.” (1.965)

“The purpose of such an assessment is to: provide feedback to the crew collectively and individually and serve to identify retraining; and be used to improve the CRM training system.” (1.965).

NOTECHS/JARTEL Project Team



DERA



NOTECHS/JARTEL 1987-2008



Initial Setup of NOTECHS

For the purposes of the project, non-technical skills (NoTechS) were defined as...

“the cognitive and social skills of flight crew members in the cockpit, not directly related to aircraft control, system management, and standard operating procedures (SOPs)”
(Avermaete, 1996)

Requirements for NOTECHS...

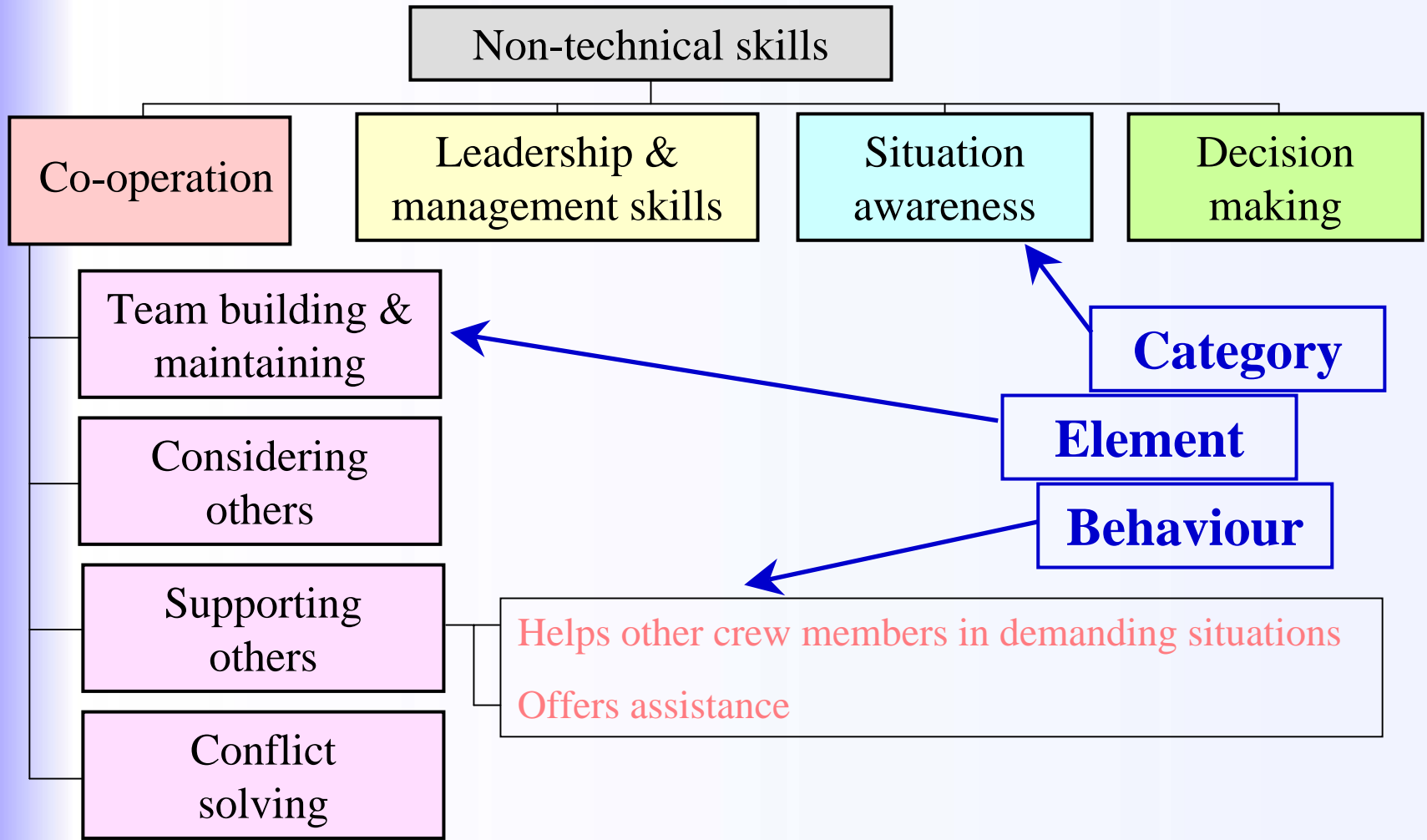
- to assess the skills of an **individual** pilot, rather than a crew
- assessments based on **observable** behaviours
- **precisely** defined, culturally **robust**, **reliable**, and **practicable**
- to be **suitable** for use **across Europe** by both large and small operators

Information Sources

- Flin & Martin (1998, 2001) review of existing BM systems
- In-depth literature study on selected NTS concepts
- Airlines' current practices
 - Air France
 - KLM (WILSC / SHAPE)
 - Dutch CAA (RLD)
 - University of Texas Line-LOS Checklist
 - Lufthansa (Quick Reference List)



The NOTECHS System



(Avermaete & Kruijsen, 1998)





The NOTECHS Framework



Categories




Elements

| | |
|--------------------------------|--------------------------------|
| Co-operation | Team building and maintaining |
| | Consideration of others |
| | Supporting others |
| | Conflict solving |
| Leadership & Management skills | Use of authority/assertiveness |
| | Maintaining standards |
| | Planning and co-operation |
| | Workload management |
| Situation Awareness | System awareness |
| | Environmental awareness |
| | Anticipation |
| Decision Making | Problem definition/diagnosis |
| | Option generation |
| | Risk assessment/option choice |
| | Outcome review |

(Rhona Flin et al., 2003)



JARTEL – The NOTECHS Health Check

- Influence of cultural differences on the use of NOTECHS across Europe 
- Inter-rater agreement and consistency when assessing the same scenarios 
- Applicability and usefulness in real check situations 

Study 1: Experimental approach

- N = 105 IPs from all over Europe assessing eight recorded scenarios with good and bad examples of NTS behaviours after a half day familiarization course

Study 2: Operational approach

- N = 25 IPs from five airlines participated in the feasibility check of applying NOTECHS in real training and check situations

The 5 principles of NOTECHS application in practice:

- Only observable behaviour is to be assessed
- Need for a technical consequence
- Repetition required
- Rating shall distinguish between acceptable and unacceptable NTS
- Explanation required

Behaviour is defined in the dictionary as
action or reaction of something under specified circumstances.

● **Overt behaviours**

- Actions that others can directly observe, like activities, movements, postures, gestures, positions, facial expressions, speech, or social interactions

● **Covert behaviours**

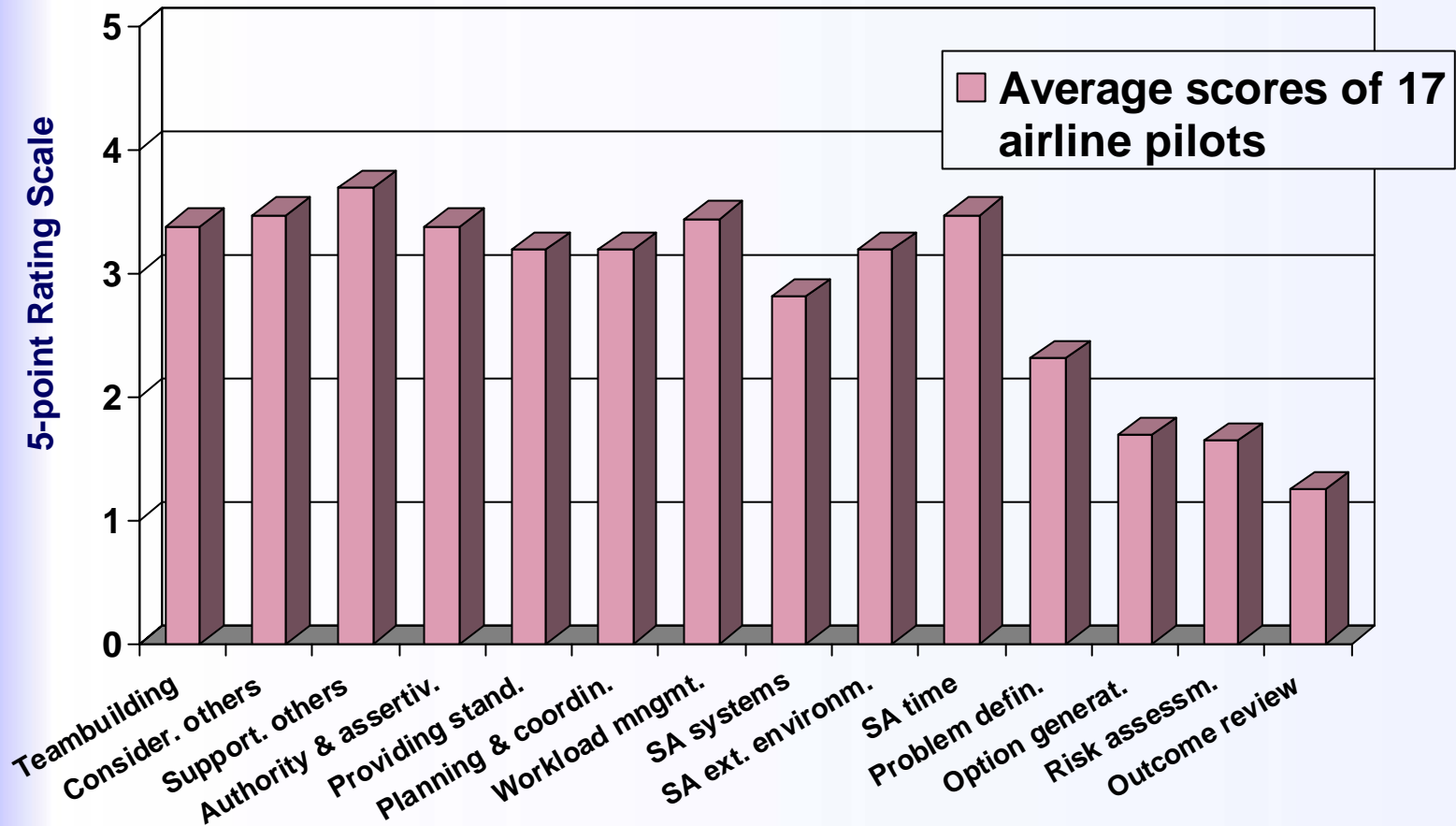
- Processes, that cannot be directly observed, like thoughts, cognition, feelings, physiological responses

Behaviour observation is the planned collection of behavioural data while subjects are engaged in various activities in certain situations with the intention to assess the collected behavioural data against specified standards.

NOTECHS Application – An Example

- Results of an airline audit - NOTECHS to identify training needs

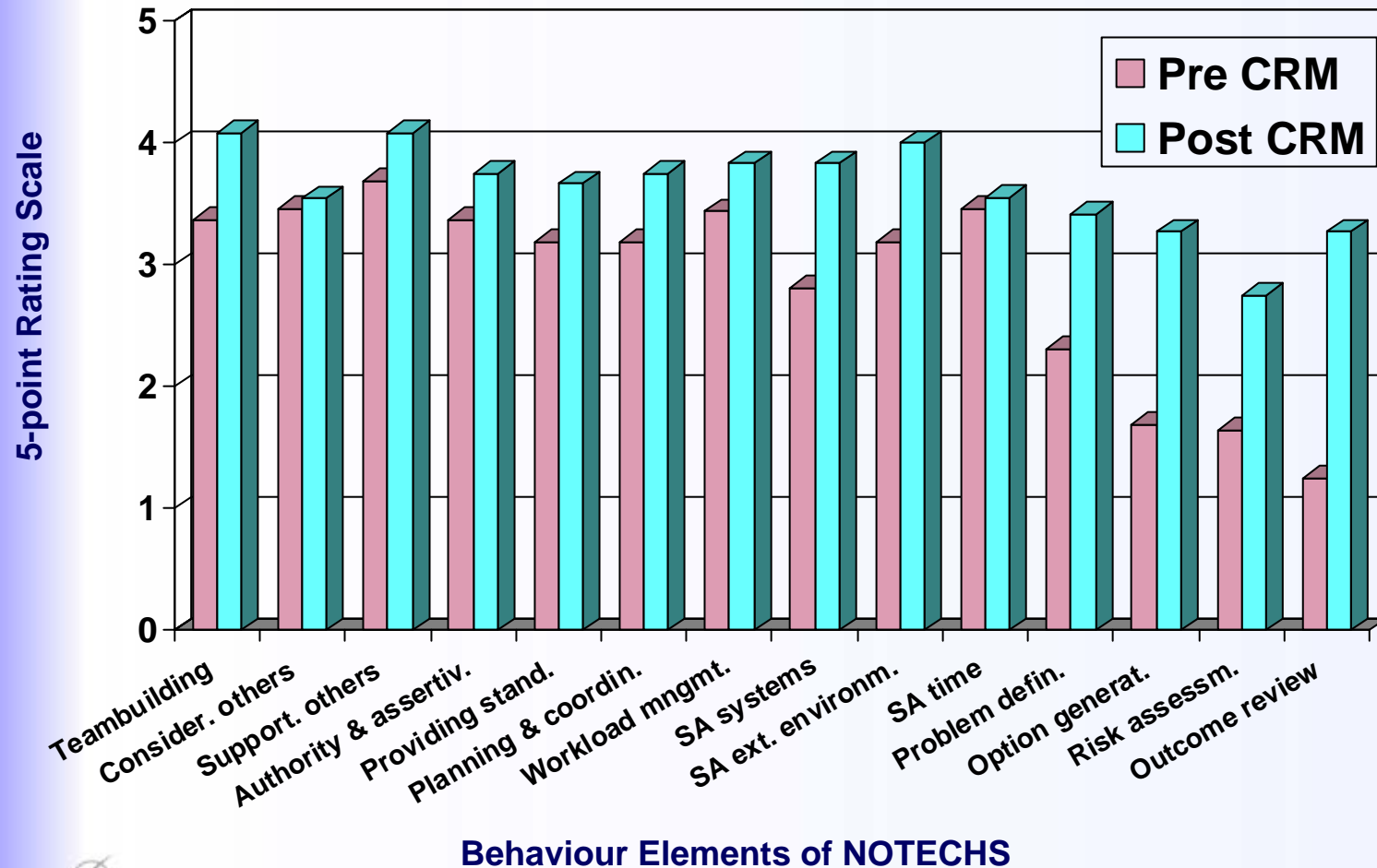
(Study conducted by German Aerospace Center (DLR), 02/2000)



Behavioural Elements of NOTECHS

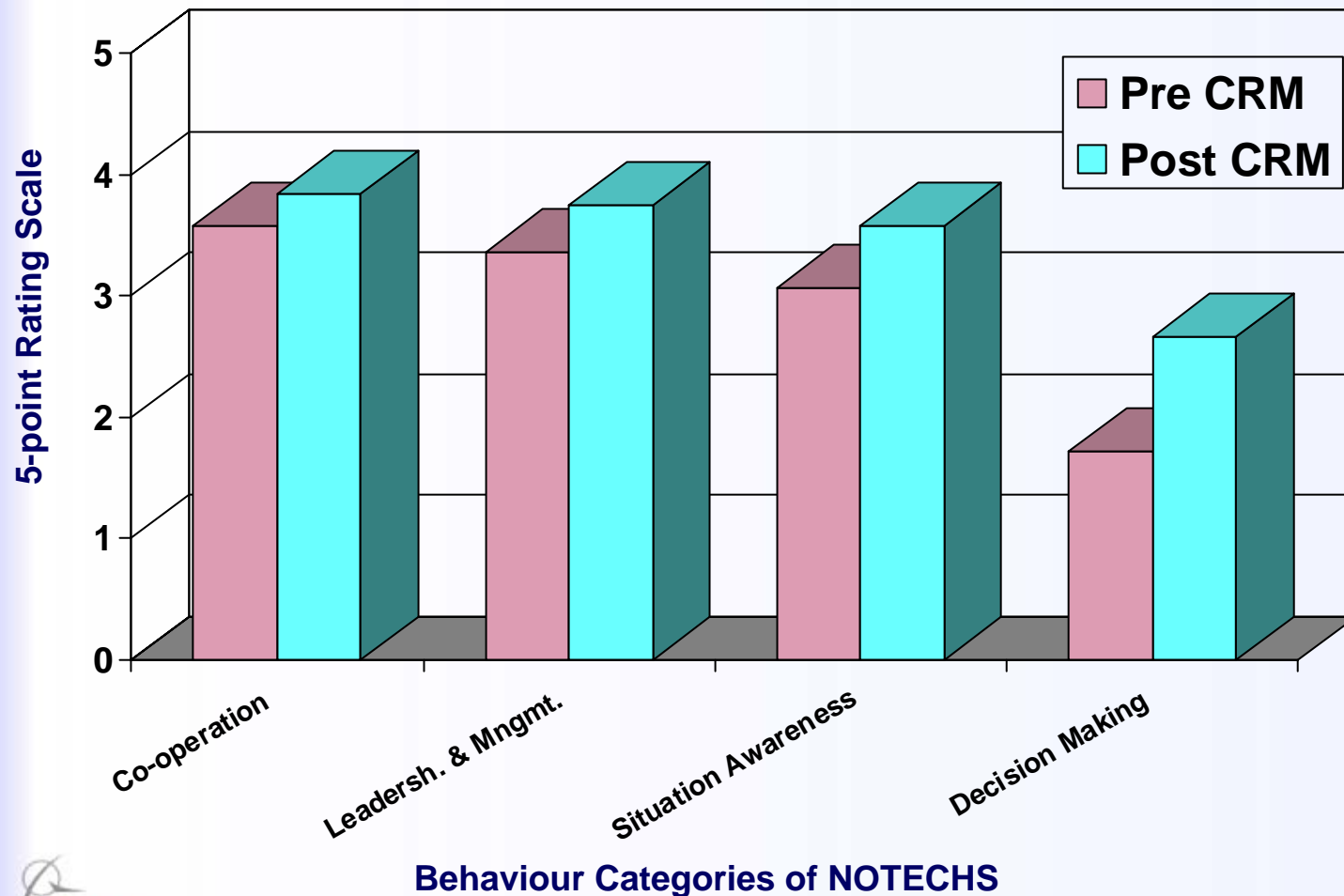
NOTECHS Application – An Example

- Results of an airline audit - NOTECHS to examine training effects
(Study conducted by German Aerospace Center (DLR), 02/2000)



NOTECHS Application – An Example

- Results of an airline audit - NOTECHS to identify training needs
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References

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What Next?

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