Proactive Safety Culture & Analysis in a Regional Airline

A Case Study over 5 Years

based on a 2023 paper by Dr. Alois Farthofer and capt. ret. Peter Beer
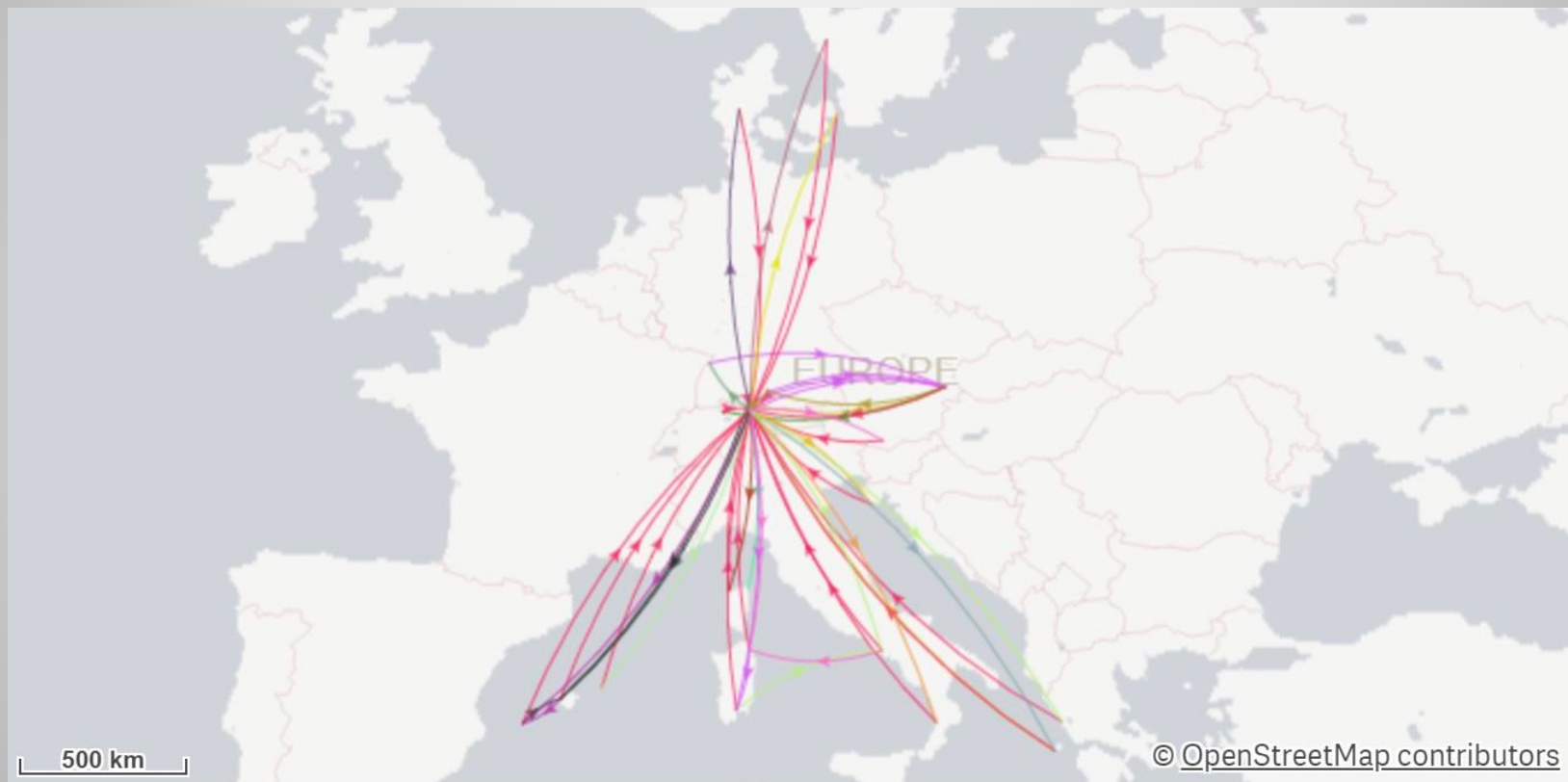
… Airport Altenrhein/St. Gallen–Switzerland

Photo: ©Wikicommon

Main Route ACH – VIE vv

picture: ©Wikicommon

Holiday Charter Routes

© OpenStreetMap contributors

500 km

picture: ©Wikicommon

Special Challenges

- Short Runway   (1500 m x 30 m)

- ILS only for RWY 10   (GP 4º and 10º offset)

- Mainly Westerly Winds

- Windphenomena: *Foen Winds*

- Bird Conservation Area on Short Final RWY 28

- Frequent Fog in Winter

Photo: ©Wikicommon

… in 2018

- New Management

- New Safety Manager

- A Number of 'Occurences'

→ hiring of consultants:

1 Aviation Psychologist

1 Safety Expert & CRM Trainer

Photo: ©Wikicommon

special attention should be paid to:

- Organizational Culture   (Commitment)

- Just Culture   (Behaviour/Justness)

- Reporting Culture   (Information)

- Learning Culture   (Awareness)

- Informed Culture   (Adaptability)

In line with EASA (EU) 96572012 ORO.GEN.200 (b)

Photo: ©Wikicommon
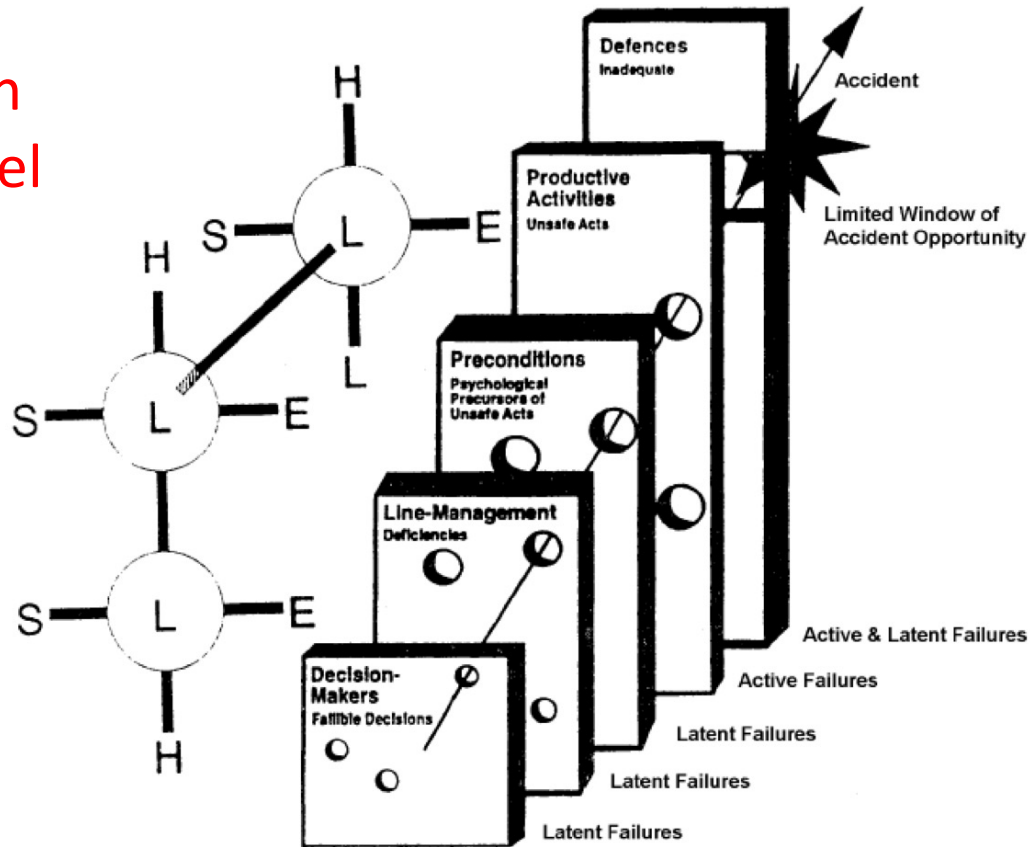
Aviation Psychologist

SHEL-Reason
Hybrid Model

Figure III-16-6. SHEL and Reason hybrid model

Abbildung 3 SHEL und Reason Hybrid Modell
(Quelle: ICAO Doc 9859 AN/474, 2013; Part III; Investigation Chapter 16; Investigating Human Factors III-16-15)

Safety Expert & CRM Trainer

SWOT Analysis

SWOT-schematic	S - detected strength	W - detected weaknesses
O - realized chances (opportunities)	S - O area *action: strengthen*	W - O area *action: catch up*
T - list of detected risks (threats)	S - T strategies *action: hedge, secure*	W - T strategies *action: avoid, replace*

SWOT is based on Steward et al, Stanford Research Institute, 1965

First Action

What do we have? (resources, documentation, regulations etc)

What do the humans say? (semi structured interviews with all FC and CC members)

Photo: ©Wikicommon

Results of Hybrid SHEL-Reason & SWOT Model

- Establish common notion of SAFETY

- Adaption of SOP's

- Implementation of changed SOP's

- Monitoring of change

- Establish feedback loop on changes respecting 'just culture'

- Adaption of CRM training, importance on: safety attitude, communication, trust & respect, feedback & critique, conflict management

Photo: ©P. Beer

Actions I

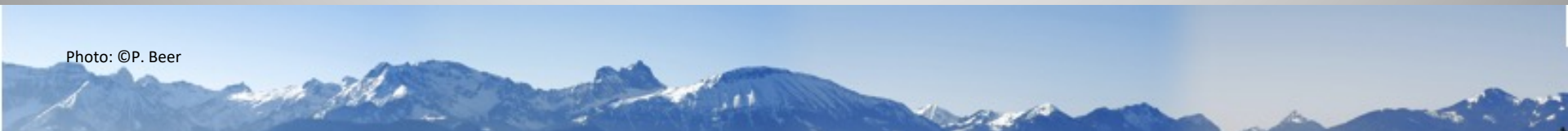Setup of **Company Working Groups**

Tasks:

All manuals and internal regulations had to be reviewed.

Internal narrowing of operational borders and measurement by 'flight data monitoring'.

Promotion of the 'stabilized approach concept' to a larger extent, compared to certification of the aircraft type.

Promotion of safety reporting.

Photo: ©P. Beer

Actions II

Changes in **operational management structures**, **internal communication and rostering.**

New CRM Training and more time allocated.

'Persons of Trust' – external to company organization – were installed.

As a principle no 'instant solutions' were recommended, but involvement of the staff was seen as key factor. However clear, measurable goals were defined.
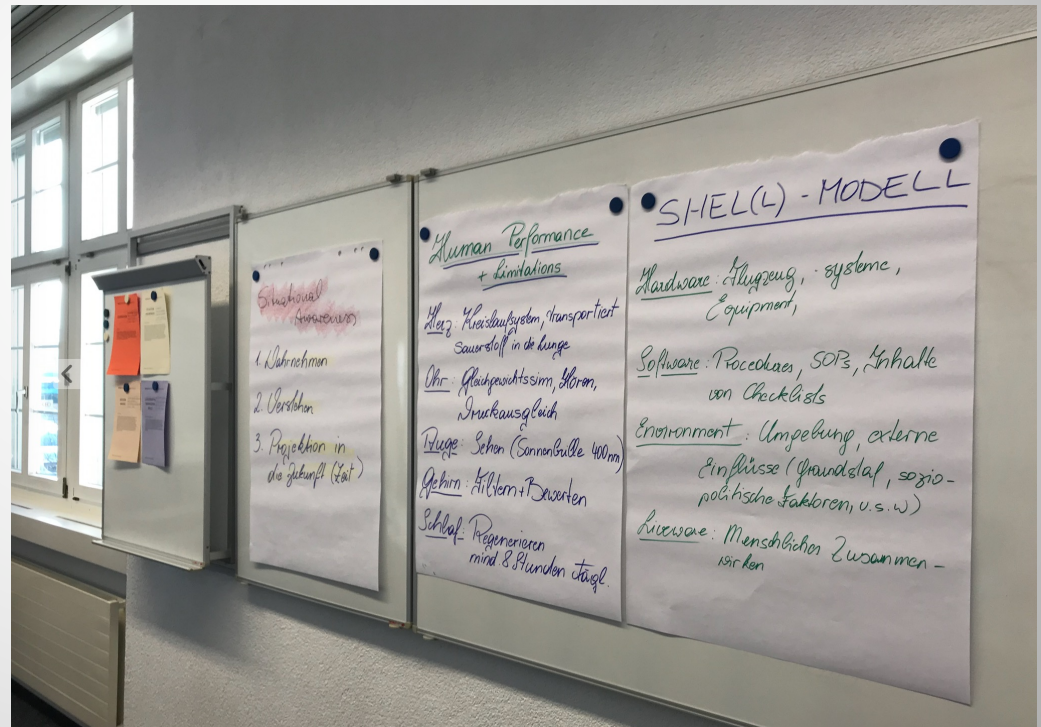
Photo: ©P. Beer

Reactions

Changes generally **well received**. CEO backup for all safety measures.

Flight-deck working groups reviewed the operational manuals and company procedures. To a lesser extent changes in cabin operation were incorporated.

Photo: ©P. Beer

CRM Trainings

Recurrent CRM Training a full day each year. Cockpit and Cabin Crewmembers 4 hrs together and 3 hrs separated (2 CRM Moderators).

Photo: ©P. Beer

excerpt:
training
Manual
crm.eu
Austria

	year 1	year 2	year 3
	19	20	21
General Principles:			
001 Human Factors in aviation			x
002 General instructions on CRM principles and objectives		x	
003 Human performance and limitations		x	
004 Threat and Error management	x		
Relevant to the individual flight crew member:			
010 011 013 Personality awareness, human error and reliability, attitudes and behaviours, self-assessment and self-critique	x		
014 Stress and stress management	x		
015 Fatigue and vigilance			x
016 017 018 Assertiveness, situation awareness, info acquisition and processing		x	
Relevant to the flight crew:			
020 Automation and philosophy on the use of automation			x
021 Specific type related differences		x	
022 Monitoring and intervention		x	
Relevant to the entire aircraft crew:			
030 Shared situation awareness, shared information acquisition and processing		x	
032 Workload management			x
033a Effective communication and coordination inside and outside the flight crew compartment	x		
034 035 036 Leadership, cooperation, synergy, delegation, decision making, actions			x
037 Surprise and startle effect			x
038 Cultural differences		x	
039a Resilience Development		x	
Relevant to the operator and the organization:			
040 041 Operator safety culture and company culture, standard operating procedures (SOPs)	x		
042 Organisational factors, factors linked to the type of operations			x
044a Effective communication and coordination with other operational personnel and ground services			x
045 Case studies	x	x	x

In depth = dark red	Required = light red	Not required = white

excerpt: training Manual crm.eu Austria

	year 1 22	year 2 23	year 3 24
General Principles:			
001 Human Factors in aviation			
002 General instructions on CRM principles and objectives			
003 Human performance and limitations		X	
004 Threat and Error management	x		
Relevant to the individual flight crew member:			
010 011 013 Personality awareness, human error and reliability, attitudes and behaviours, self-assessment and self-critique			
014 Stress and stress management		X	
015 Fatigue and vigilance		X	
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In depth = dark red	Required = light red	Not required = white

Examples CRM Training (joined part)

Photo: ©P. Beer

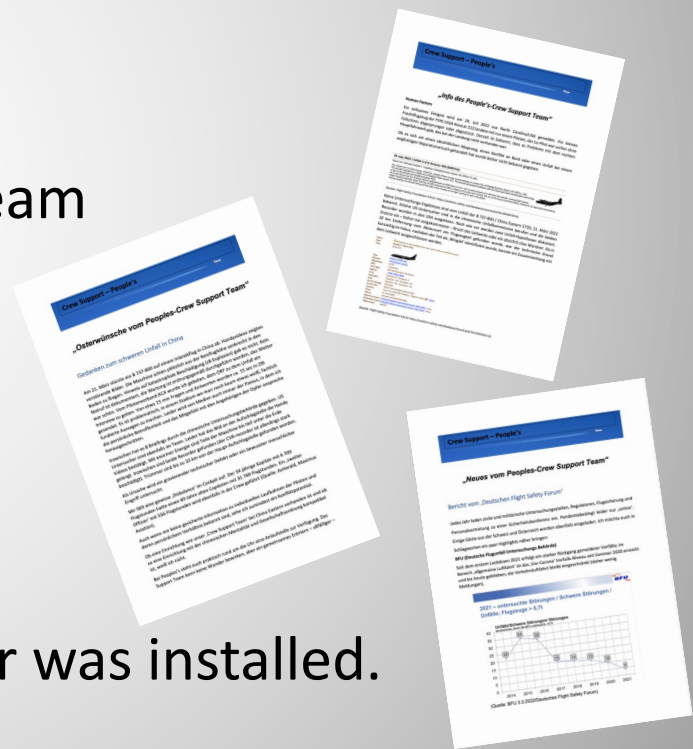# Examples CRM Training (joined part)

Photo: ©P. Beer

Crew Support

In 2021 the 'Persons of Trust' were replaced by an – in the meantime – compulsory 'Crew Support Programme' (incl. addiction prevention).
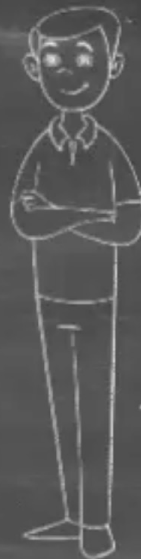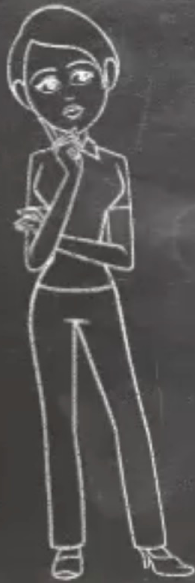
2 – 3 monthly info-letters of the support team

In 2023 an – external – trained female peer was installed.

Crew Support

... verlangt EASA ein formales " *Support Programme*"!

Peer

Aeromedical Doctor

Aviation Psychologist

Photo: ©P. Beer

Pilot (Crew) Support Programme 2021+

Training overview

Ψ
human factors

Time	Content		Content
09.00 – 09:15	Welcome and Introduction		training & discussion I
09:15 – 10:45	Part I: • Overall aims of the support program • Code of practice and ethics • Importance of confidentiality • Function and limits of the role and c...		
10:45 – 11:00	Coffee Break		

11:00 – 12:00	Part II:
	• Basics of psychology
	• Mental health first aid principles and in...
	  techniques
	• Signs of mental ill-health including recognition of 'red flag...
	    requiring escalation and urgent professional assistance
	- Discussion of case studies
		15:45	

		15.45 – 16.45	Case stud...
12:00 – 13:00	Lunch Break	16:45 – 17:00	Summary and Feedback

PE Peer Training - 23. August 2023   A. Farthofer   2

Photo: ©A. Farthofer

Pilot (Crew) Support Programme 2021+

Knowledge, Skills and Abilities (KSA) for Peers

Ψ
human factors

Authority regulations, Professional requirements
(EASA, ACG, Professional law)

Operators Operations-Manual (OM)

Manuals / Guides
IFALPA PAM / EPPSI-Guide

Scientific studies
regarding Peers

Psych.Theory

Peer

Crew

PE Peer Training - 23. August 2023   A. Farthofer   4
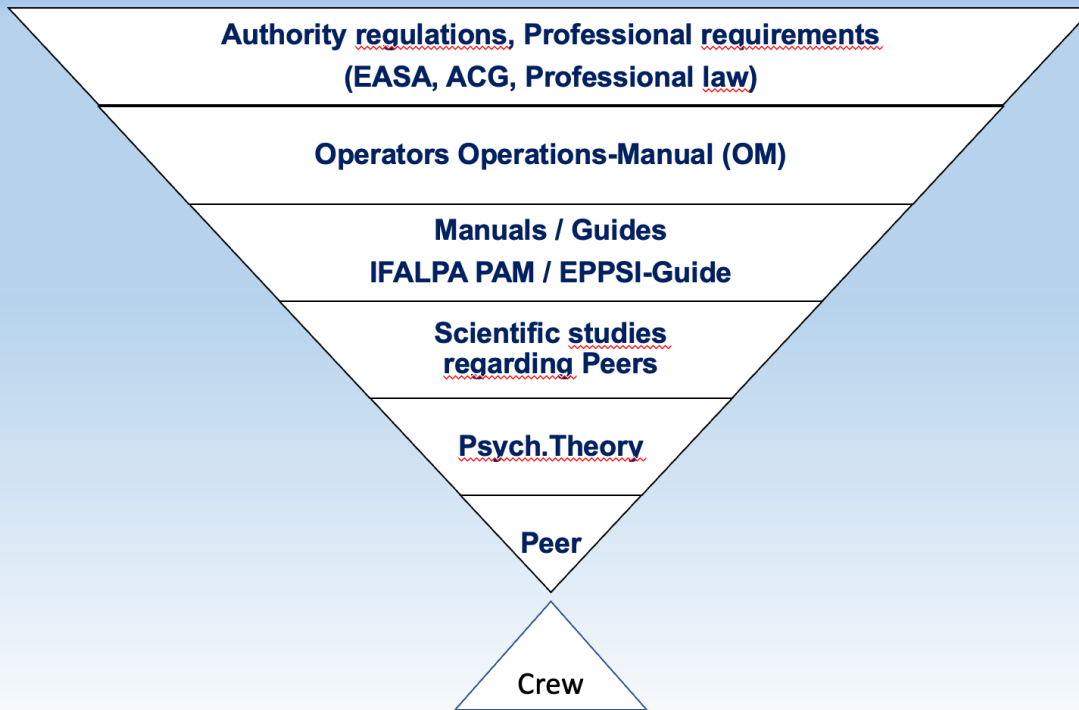
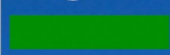# Pilot's wellbeing

Pilot's population

Pilot Peer Support

AME, Health System …

Legend

■ Healthy and well
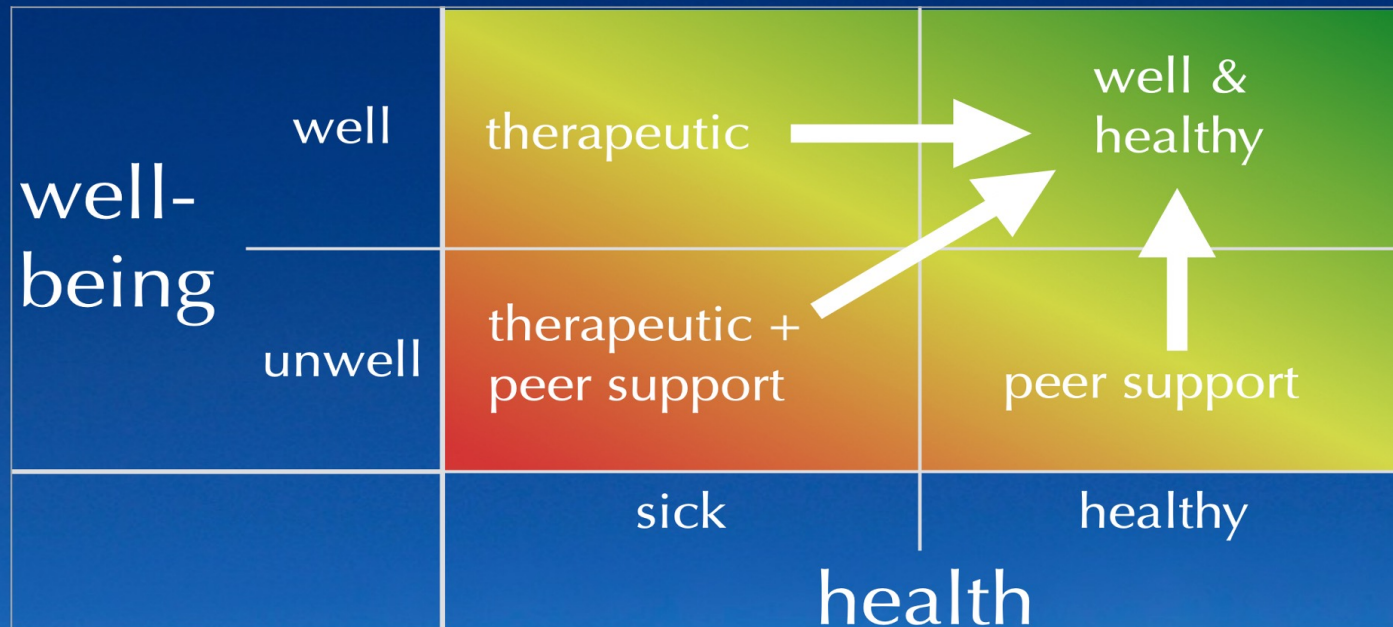■ Questions, complex life situations, problems
■ Physically and/or mentally sick

Fahnenbruck 2020 Stiftung Mayday

Pilot (Crew) Support Programme 2021+

Recovering well-being

well-being: well / unwell

health: sick / healthy

therapeutic → well & healthy

therapeutic + peer support

peer support

Fahnenbruck 2020 Stiftung Mayday

Modified from Keyes, 2010
Santilhano, 2018

Long Term Impact

Safety·Objectives¶

People`s Safety Objectives

> **Improvement of our management system by** increased number of internal safety reports and decrease personal fluctuation

> **Improvement of compliance oversight by** decreasing number of findings during internal and external inspections

> **Improvement of mental health (avoiding fatigue) of all employees by** decreasing number of flight planning related instability of the crew roster related to crew factor and adapt the personnel resources to perform all administrative tasks.

> **Improvement of the competency of all employees by** promoting training to increase the competency in their field of work.
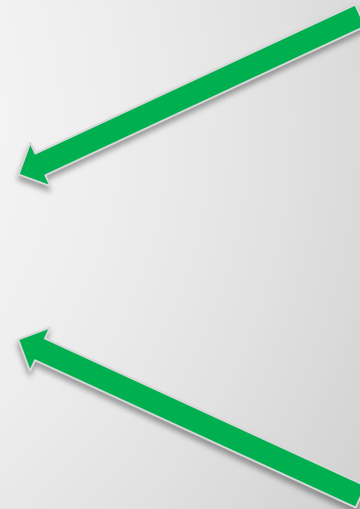
Safety Manager People's Airline

Long Term Impact
increased number of (safety-) reports

- figures removed for data protection reason

Safety Manager People's Airline

Long Term Impact
decreased fluctuation of personal

- figures removed for data protection reason

Increased number of (safety-) reports

Safety Manager People's Airline

crew-resource-management.eu

Long Term Impact
flight data monitoring
significant reduction of events

- figures removed for data protection reason

Increased number of (safety-) reports

Safety Manager People's Airline

Thank You

- Dr. Alois Farthofer   a.farthofer@aon.at

- Capt. ret. Peter Beer   peer.support@peter-beer.at

Photos: left ©Wikicommon, right ©P. Beer

sources

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