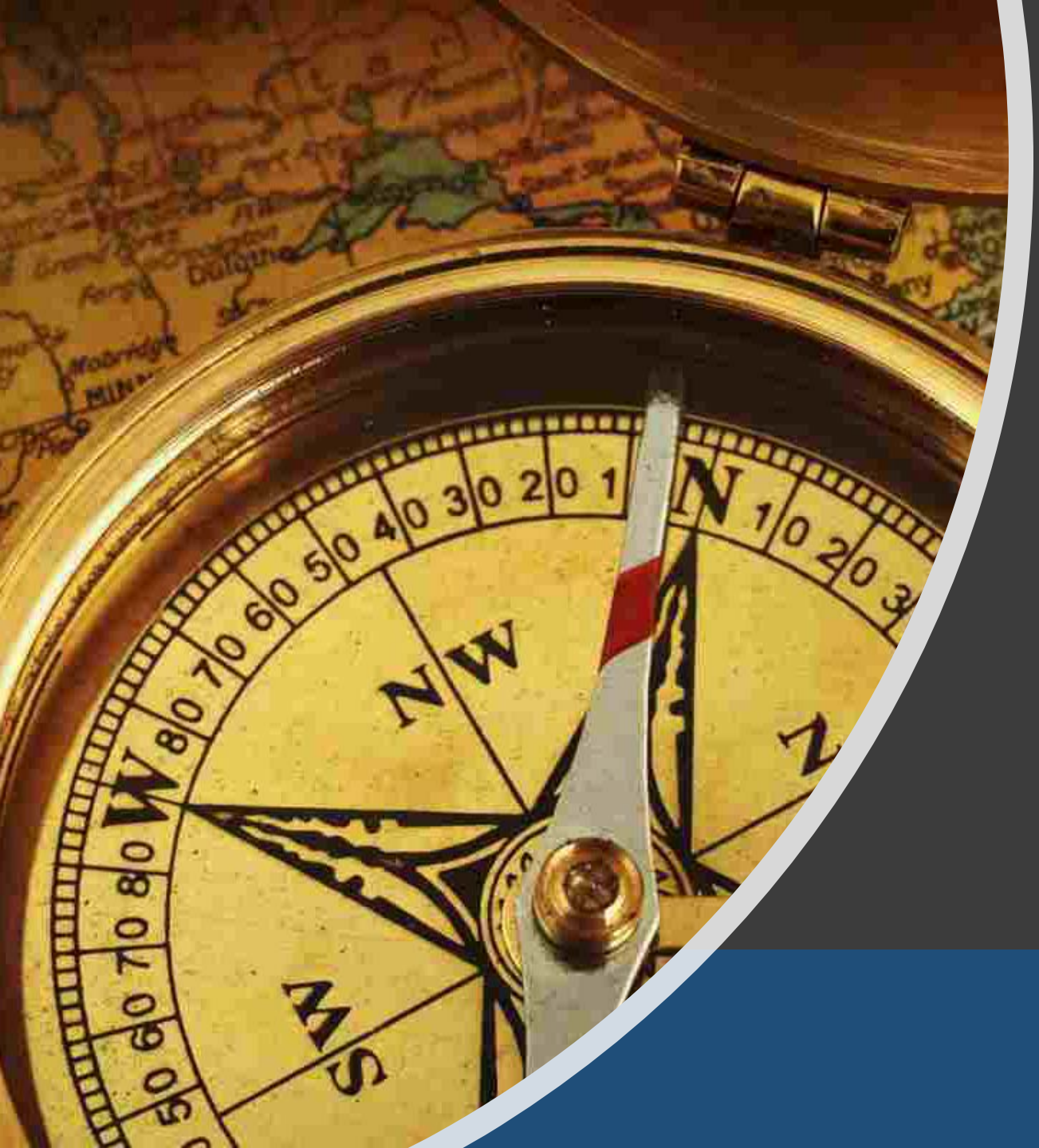


Safety Based Evolution of Procedures

Cpt. Christof-J. Kemény

Cpt. Richard Bakker

BRUSSELS, 4-5 JUNE 2019
SAFETY FORUM
SAFETY & PROCEDURES
Powered by SKYbrary

Past & Present -- Evolution

Evolution


STBY
OFF
ALIGN
NAV
ATT
READY
BAT
NAV
INS
MODE SELECT
HOLD
RE-
MOTE
INSERT
FROM
TO
WAY
PT
POS
XTK
TKE
HDG
DA
DIS/TIME
WIND
DSRTK/STS
AUTO
MAN
TK/GS
WY PT
CHG
GROUND OPERATIONS
TURN MANAGEMENT
TURN TIME
TIME REM
PLAN FUEL (KGS)
102500
UPLIFT FUEL (KGS)
19485
TIME REQ TO FUEL
<RETURN
SPEED
BRAKE
DSPL
CTRL
EICAS
EVENT RCD
AUTOBRAKE

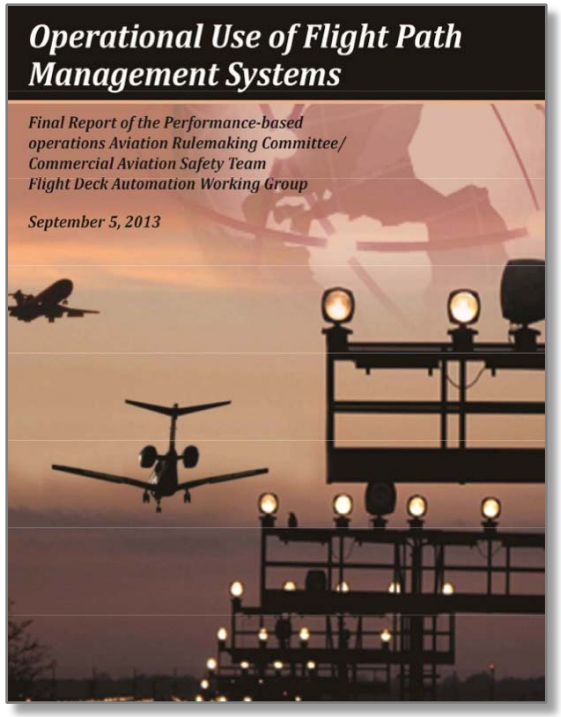
Evolution

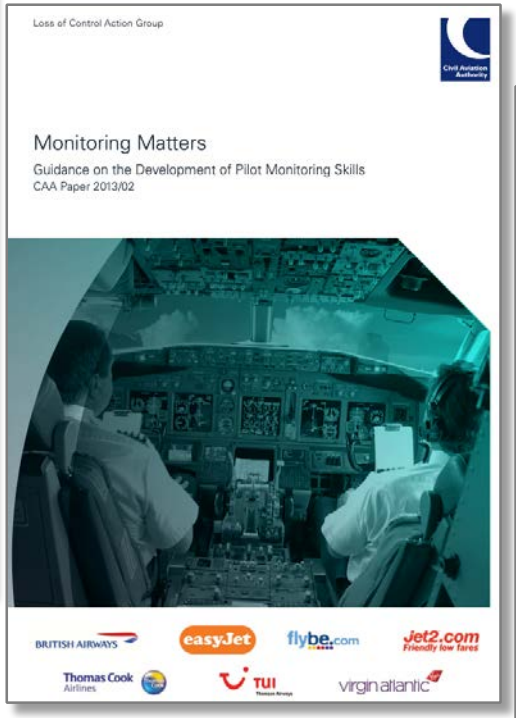
Evolution

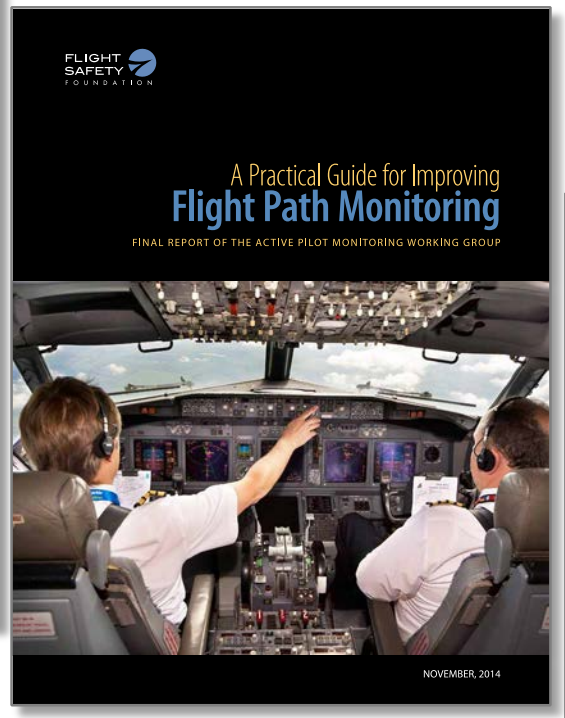

PF
PM
Communication
Cross Checking
Leadership
Crew Resource Management
Monitoring
Decision Making
Situation Awareness

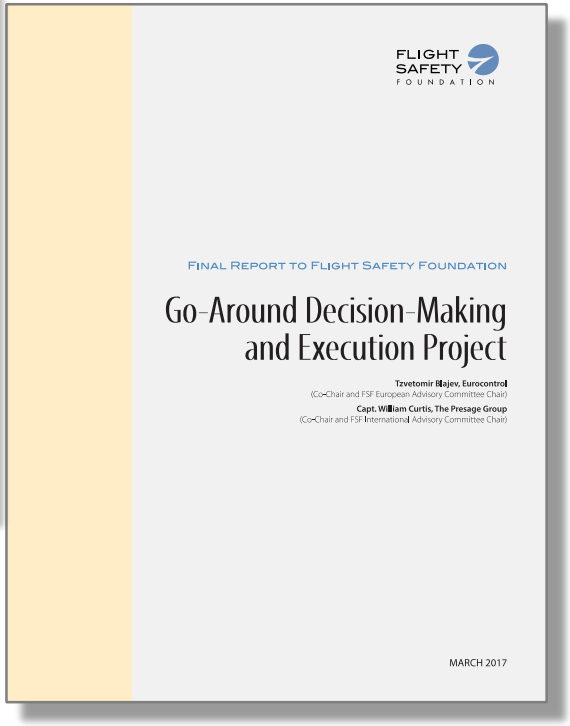
Evolution

Industry Research









- **We know procedures are a critical safety and operational topic for successful flight path management**

Dr. Kathy Abbott, Yesterday Afternoon

Crew Performance & Procedure Design

Cpt. Dr. Christian Popp (Ph.D), JetBlue Airways
Co-Founder

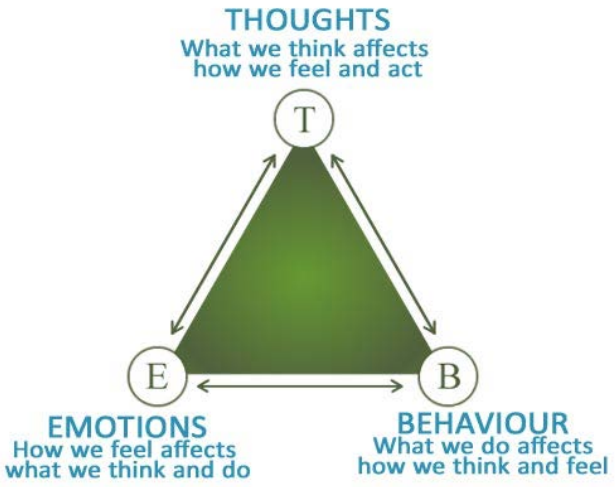
Based on existing Scientific Research & Industry Findings

- Human Performance based Procedure Design
- Teamwork integral part
- Team Building Elements
- Linguistic Relevance

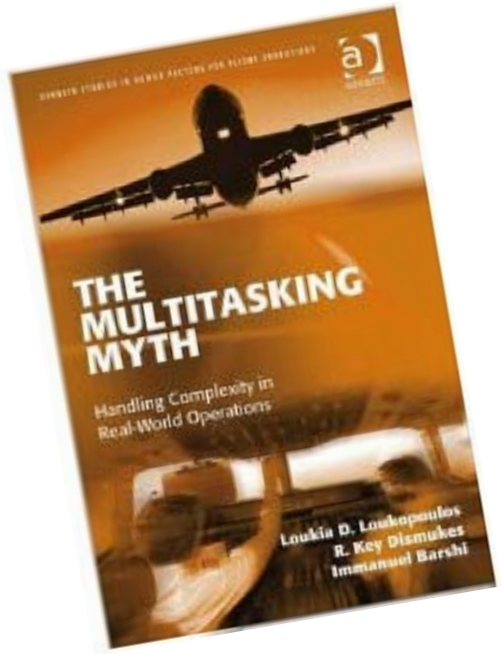
Discrepancy

Brain Research & Cognitive Performance

The Cognitive Triangle



The way we perceive the world

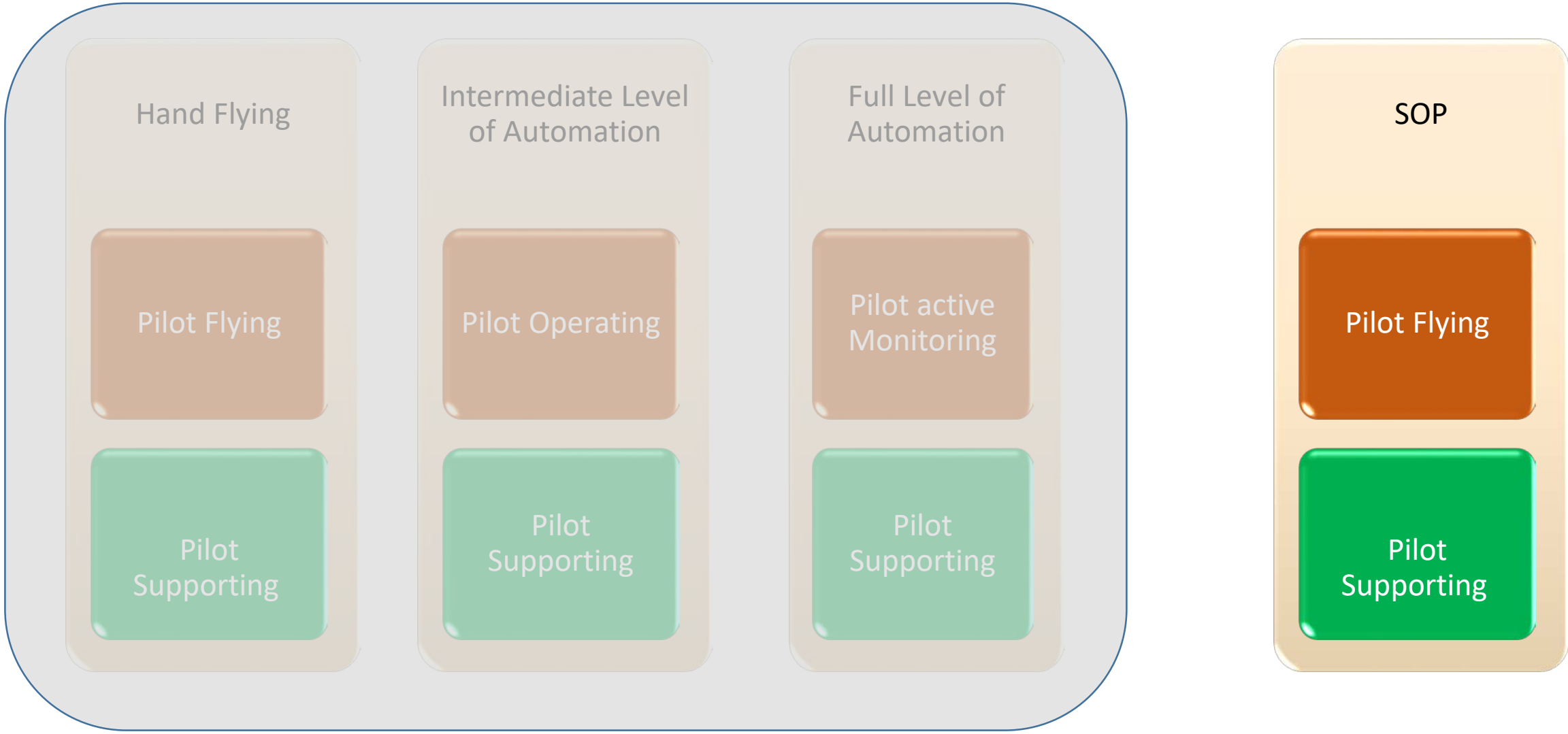


Pilot Monitoring

Latin *„monere“*

Warning
Reminding
Advising
Complaining

Brain Research & Cognitive Performance



Supporting Action – Normal Ops

When accelerating through F-speed:

FLAPS . . . . . **RETRACT** **B**

"CLIMB SEQUENCE". . . . . COMMAND PF

"FLAPS ....." . . . . . CALL PM

At “F” speed PM will call out next lower flap setting than actual flap position by "Flaps ....." **before** selecting the flaps lever to this position.

Supporting Action – Normal Ops

DESCRIPTION OF "LANDING SEQUENCE" AS A CALLOUT

During approach for landing, when ready for continuous deceleration to V_{REF} (typically from FLAP 2/gear up configuration), the PF calls **"Gear down, landing sequence"**. In this case the PM will:

- Select landing gear down and extend the flaps as the aircraft decelerates, according to the recommended speeds

Windshear

GoAround Alt 2.000ft

High Risk:

- Altitude Bust
- Flap Overspeed

Windshear

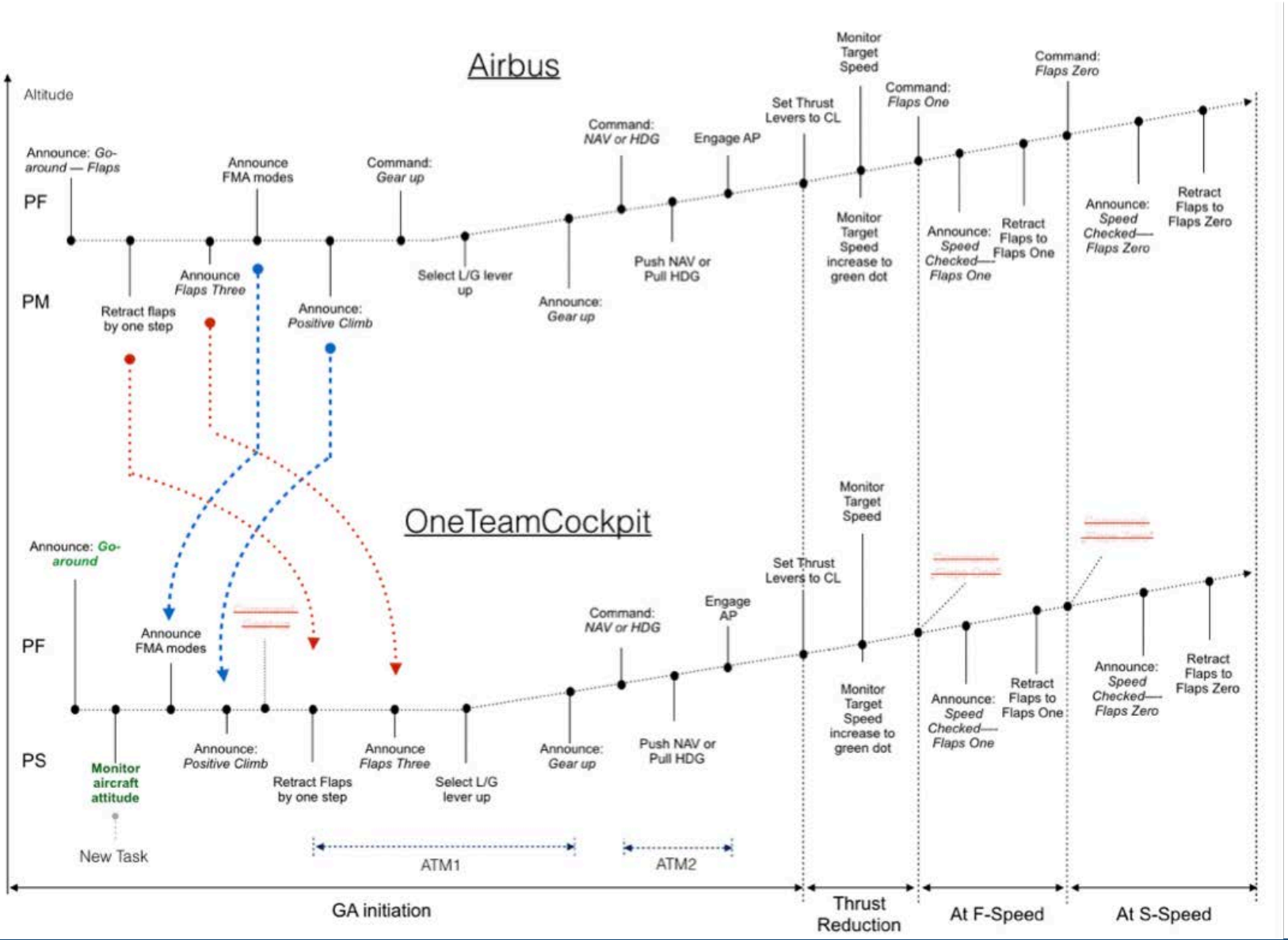
POST WINDSHEAR PROCEDURE APPROACH		
	PF	**PM**
	"OUT OF WINDSHEAR".	
When flight path is under control	• When ready to restore the appropriate modes on the GP, calls: **"RESTORE".**	• Presses FLCH. • Engages AT. • Selects HDG. • Engages AP.

OneTeamCockpit – Enhancing the Flexibility of Flight Deck Procedures during the Go-around

Tim André Schmidt (Airbus Defence and Space GmbH), Dr Jim Nixon (Cranfield University), Houda Kerkoub Kourdali (George Mason University), Christof Kemény (Lufthansa Cityline), Dr Christian Popp (JetBlue)

DLR
Deutsches Zentrum
für Luft- und Raumfahrt
German Aerospace Center

OneTeamCockpit – Research

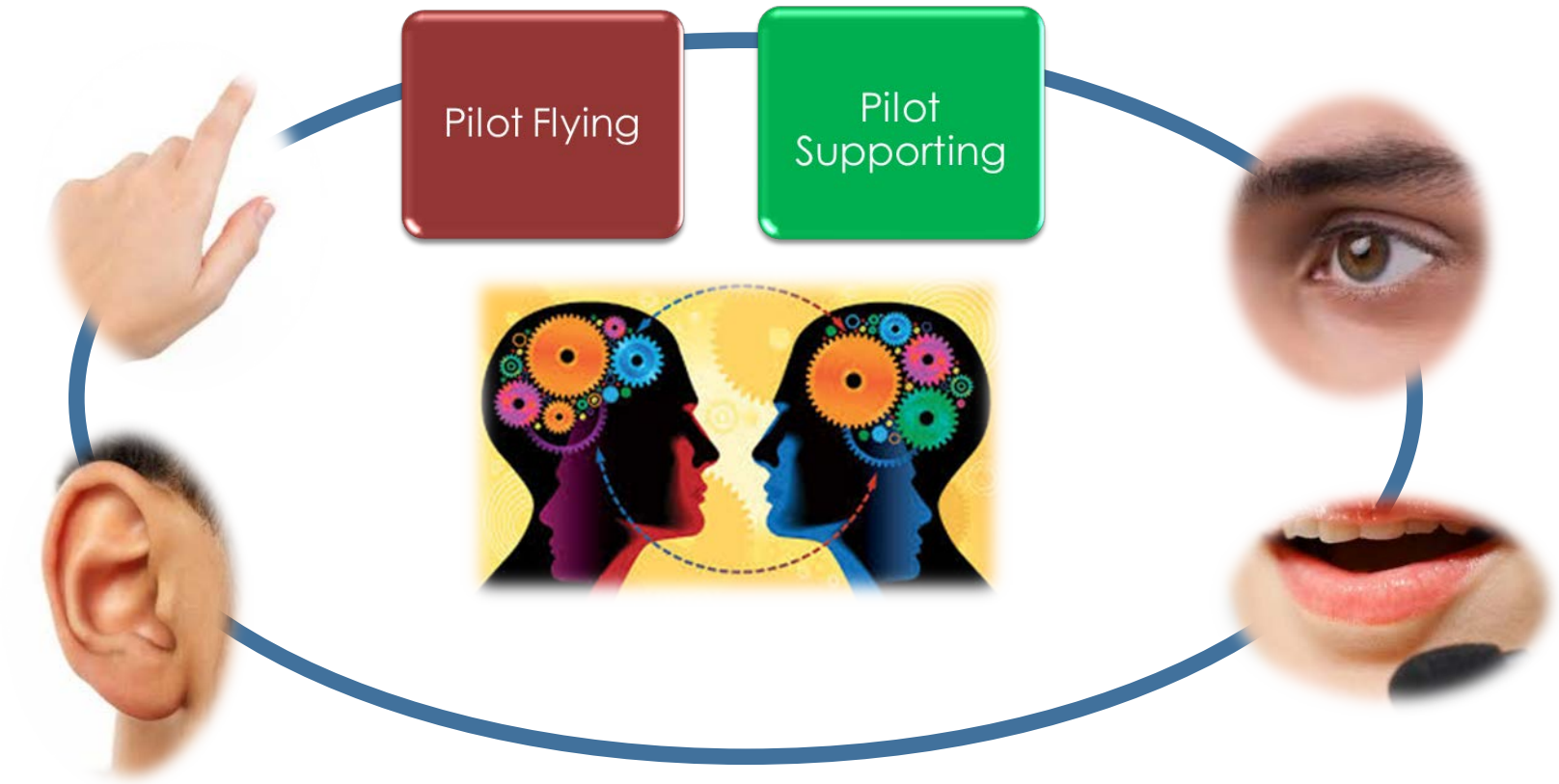


In conclusion the participating crew members reported that the OneTeamCockpit Concept improved their workload balancing and subsequently enabled them to effectively manage the Flight Path in complex flight maneuvers.

Supporting Action – Scientific Based

Programing and Setup

Reviews and Initiates Briefs



Network Manager
nominated by
the European Commission

BRUSSELS, 29-30/05 2018
SAFETY FORUM
Powered by SKYbrary

FLIGHT SAFETY FOUNDATION · era · EUROCONTROL

Q. What do you think of our briefings?

Relevance is lacking

Too long!

Items continually being added

Equal attention shouldn't be given to all items

Alaska AIRLINES

Threats

Plan

Considerations

My leg, your leg…

OUR LEG

▲ **DEPARTURE BRIEFING**

Threats (PM, PF)

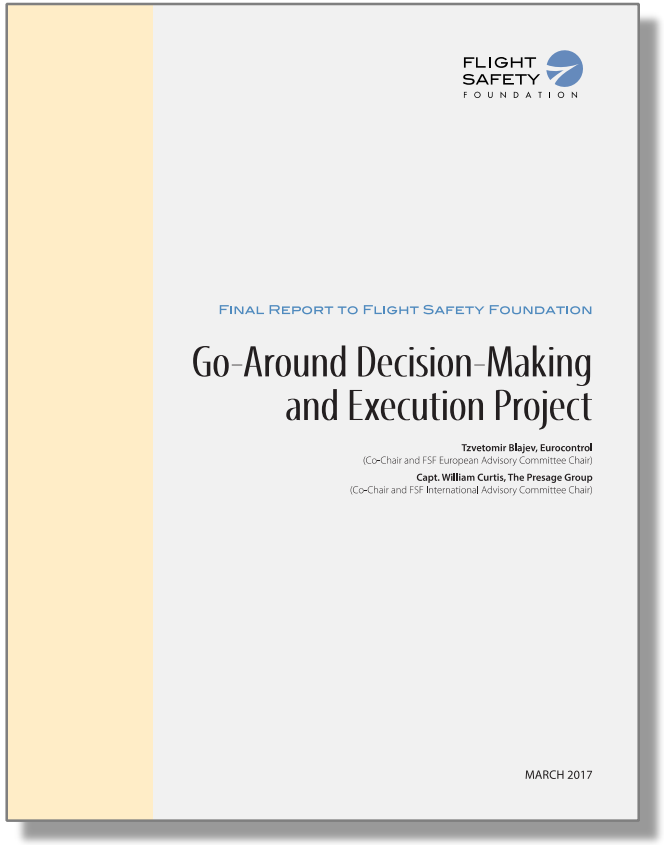
Plan

- Taxi, Dept Rwy
- Route (Clearance/Flight Plan – FMC RTE crosscheck)
- Return (emerg, T/O alt)
- T/O perf valid, perf/config issues

Considerations

- Any specific PM duties, other considerations
- Recap as needed

Supporting Action – Go Around



FLIGHT SAFETY FOUNDATION

21 Go-Around Decision Making Recommendations

21 Go-Around Execution Recommendation

presage

Supporting Action – Go Around

porter

presage

1.000 ft

Configuration Gate

Stable Approach Zone

500 ft

Stable Gate

100 ft

Go Around Decision Gate

Conclusion

Procedure Design to include

- **Scientific Research (Brain Science) & Industry Work to address human limitations**
- **Best Industry Practice**
- **Teamwork Building Concept**
- **Tailored Linguistic Nomenclature**

To Enhance Flight Safety