Safety Culture in Practice

Capt. Philippe Pilloud
Head of Operations Risk Management
easyJet Switzerland

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MOVIE TIME

easyJet since 1995

2 AOCs: Swiss & UK

+50 millions passengers per year

20 bases

+200 aircrafts

1 Takeoff / Landing

every 30 seconds

CRM

Cockpit Resource Management

Crew Resource Management

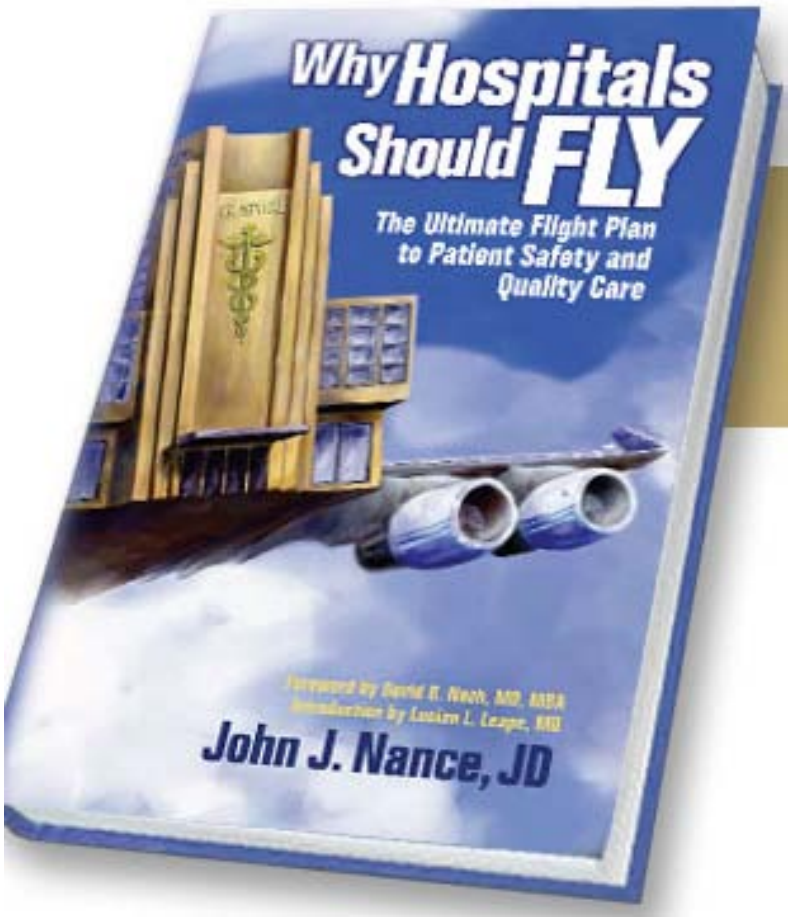
What is it about:
Leadership
Communication
Teamwork

Objectives:

Commitment	**to safety**
Competence	**for safety**
Cognizance	**of safety**

Company Resource Management?

Safety Culture



Safety Culture

Similarity

Highly qualified people must make a decision in a complex environment within a limited time

The decision made may be…

A clever decision

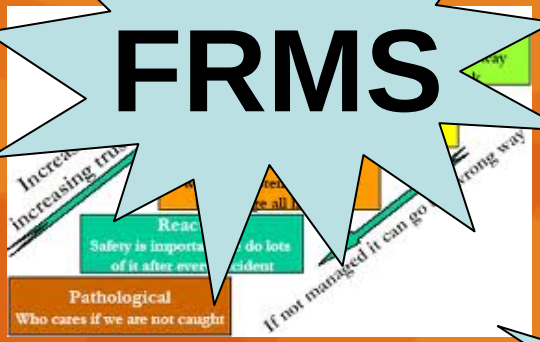
A less clever decision

Safety Culture

References -Infobesity

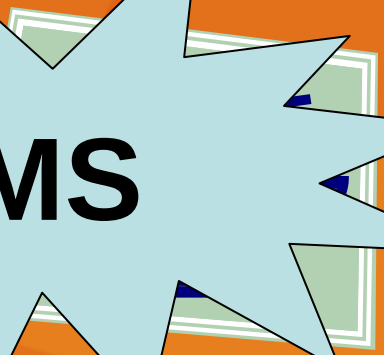
Google: **Safety Management System: 5 millions references**
Safety Culture: ½ million references

FRMS



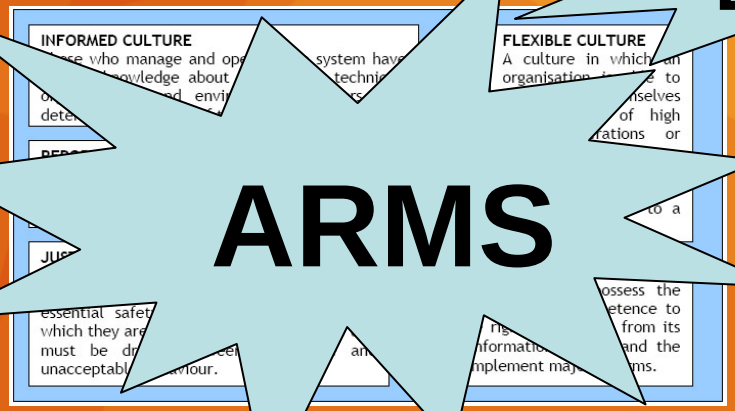
Evolution

SMS



Behaviour

ETC..



ARMS

Concept

LOSA

Concept

Practical View

Safety Culture Communication

Safety Culture basics belong to All Safety Meetings and Communication

Safety Bird

We want to learn from reporting

A healthy reporting culture will only be achieved when an atmosphere of trust is implemented, in which people are encouraged (even rewarded) for providing essential safety-related information

James Reason

1. Organisational Climate

Objective:
Learn from our errors and errors from others

Challenge:
How can we make highly qualified people
With sometimes a well developed ego
Reporting their mistakes

Create Organisational climate where People are prepared to report their errors or near-misses

Bad news is not only part of life, it is part of leadership.

2. Do not shoot the messenger

Otherwise
It won't be long
Until you do not get any message

3. Make sure that nobody else will shoot the messenger

Colleagues

Line Managers

Senior Managers

Authorities

Climate of TRUST

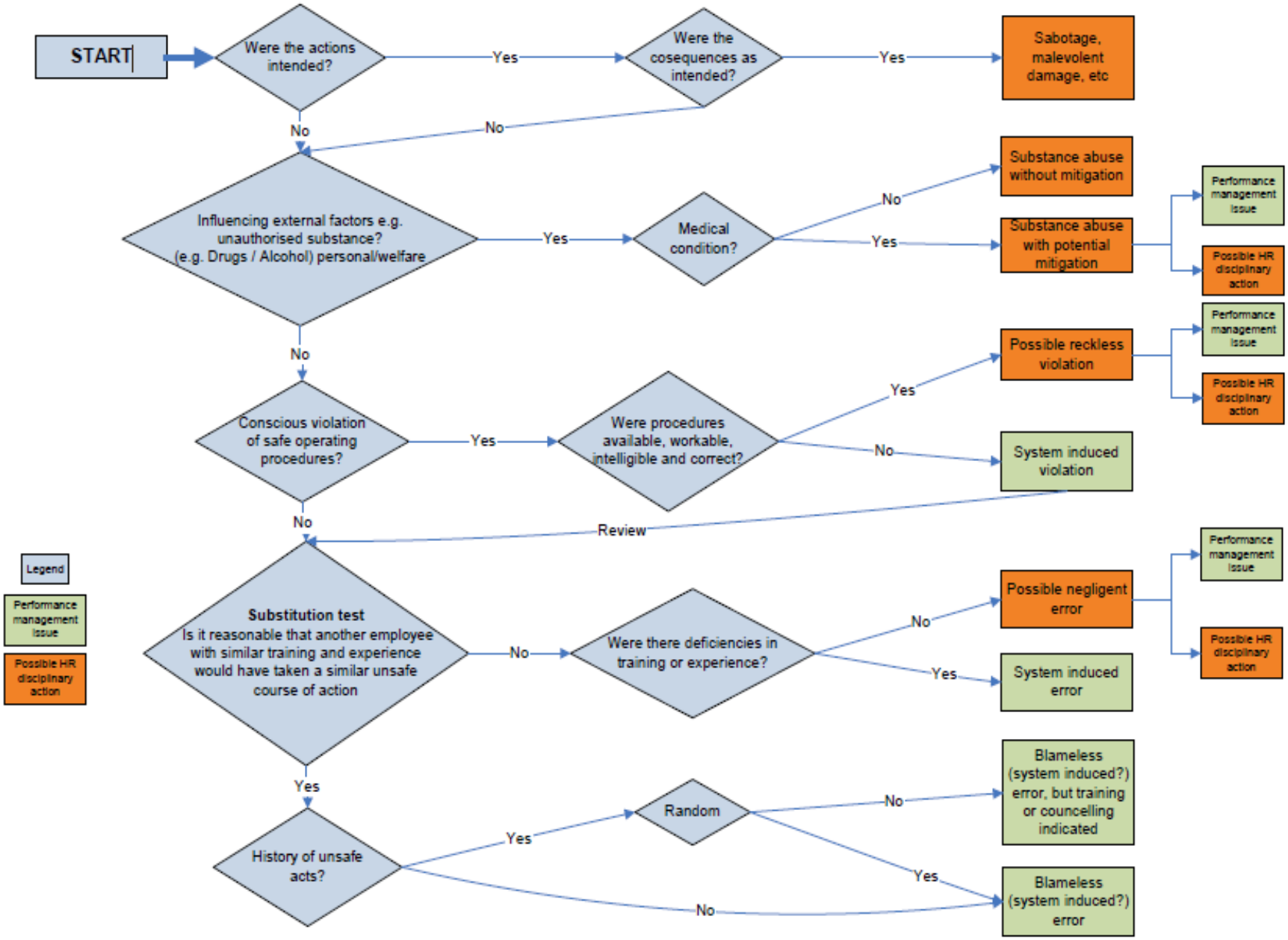
4. Just culture

People must also be clear about where the line is drawn between acceptable and unacceptable behaviour

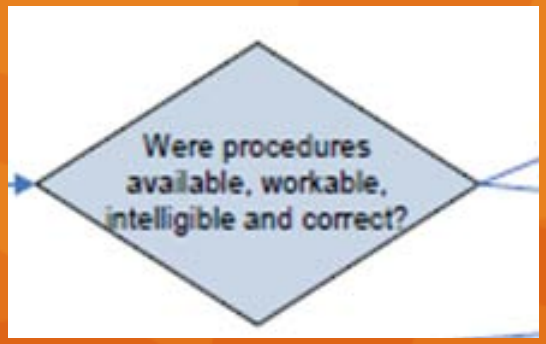
James Reason, just culture

Just a clear line

Culpability test (James Reason)

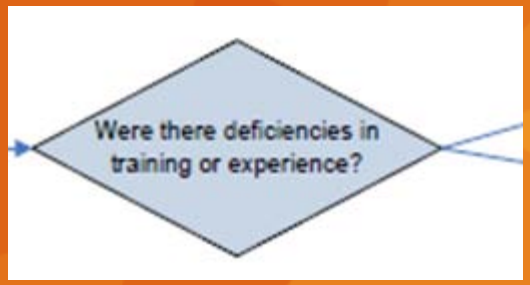


Culpability test ambiguity

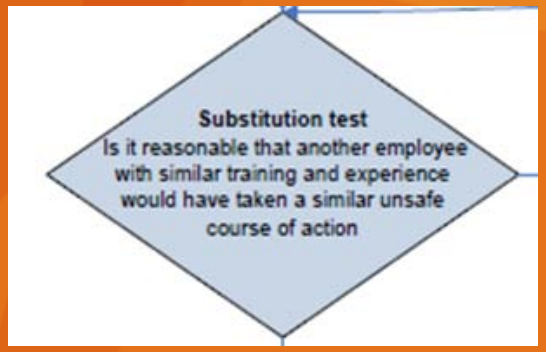


Who will decide if the error was coming from the system (e.g. procedure) or from the person?

The Management



And who has line responsibility for the system? The Management



Who will the Management tend to blame? Not himself

➔Management education

Every one make mistakes

Safety Bird

There are 2 types of people in life

Those who
make mistakes

Those who
make lies

Give the example: Tell about your mistakes as well (yes you, the Management)

Additional basics

5. Be Informed

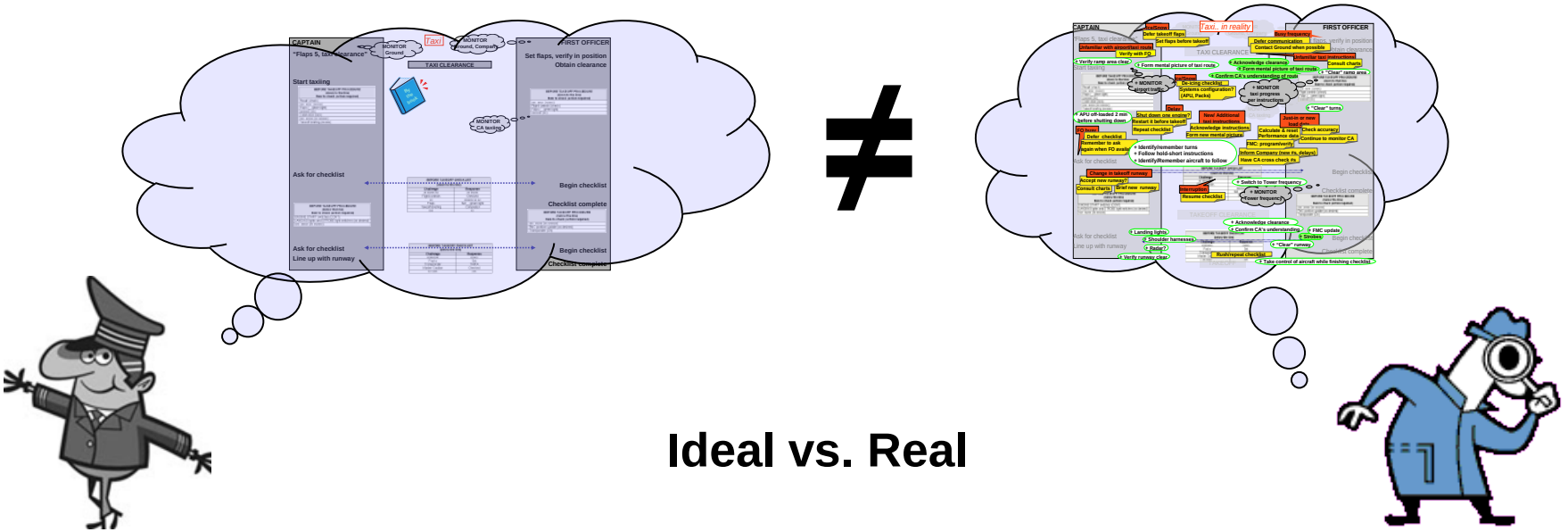
6. Keep Learning

7. Be Flexible

Lets look at the research study from Mrs. Loukia D. Loukopoulos NASA Ames Research Center
San Jose State University Research Foundation

Organisational informed culture

- 3 Basic assumptions to operational safety design
  - Technology
  - Training
  - Procedures
- Provides baseline (ideal) system performance
- Operational system performance drifts from compliance (baseline) performance as a consequence of real-life operations – practical drift is inevitable



Ideal vs. Real

Taxi

CAPTAIN

MONITOR Ground

"Flaps 5, taxi clearance"

MONITOR Ground, Company

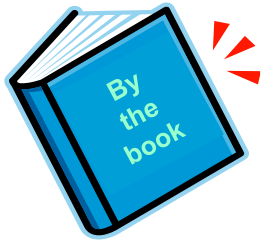
FIRST OFFICER

Set flaps, verify in position

Obtain clearance

TAXI CLEARANCE

Start taxiing



Follow SOPs

BEFORE TAKEOFF PROCEDURE (down to the line) Item to check (action required)
Recall (check)
xxx xxxx (xxxxx)
Flaps (_, green light)
xxxxxxx (xx)
Cabin door (lock)
xxx xxxxx (xx xxxxxx)
Takeoff briefing (review)

BEFORE TAKEOFF PROCEDURE (down to the line) Item to check (action required)
xxx xxxx (xxxxx)
Flight controls (check)
Flaps (_, green light)
xxxxxxx (xx)

MONITOR taxiing

Ask for checklist

BEFORE TAKEOFF CHECKLIST (down to the line)	
Challenge	**Response**
xx xxxxx xx	xx xxxxx
Flight controls	Checked
xx	xxxxxx xx xx
Flaps	Set _, green light
Takeoff Briefing	Completed
xxx	xx

Begin checklist

Checklist complete

BEFORE TAKEOFF PROCEDURE (below the line) Item to check (action required)
ENGINE START switches (CONT)
LANDING lights and STROBE light switches (as desired)
xxx xxxxx (xx xxxxxx)

BEFORE TAKEOFF PROCEDURE (below the line) Item to check (action required)
xxx xxxxx (xx xxxxxx)
FMC position update (as desired)
Transponder (On)

Ask for checklist

Line up with runway

BEFORE TAKEOFF CHECKLIST (below the line)	
Challenge	**Response**
xxxxxxxx	xxxxx
Packs	Set
Transponder	TA/RA
Master Caution	Checked
xx xxxx	xxx

Begin checklist

Checklist complete

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Taxi.. in reality

CAPTAIN

"Flaps 5, taxi clearance"

Ice/Snow
Defer takeoff flaps
Set flaps before takeoff

Unfamiliar with airport/taxi route
Verify with FO

+ Verify ramp area clear

Start taxiing

+ Form mental picture of taxi route

BEFORE TAKEOFF PROCEDURE
(down to the line)
Item to check (action required)

Recall (check)
xxx xxxx (xxxxx)
Flaps (_, green light)
xxxxxxx (xx)
Cabin door (lock)
xxx xxxxx (xx xxxxxx)
Takeoff briefing (review)

+ MONITOR airport traffic

Ice/Snow
De-icing checklist
Systems configuration? (APU, Packs)

Delay
Defer second eng.start
Repeat checklist

+ APU off-loaded 2 min before shutting down

FO busy
Defer checklist
Remember to ask again when FO availa

Ask for checklist

+ Identify/remember turns
+ Follow hold-short instructions
+ Identify/Remember aircraft to follow

Change in takeoff runway
Accept new runway?
Consult charts
Brief new runway

BEFORE TAKEOFF PROCEDURE
(below the line)
Item to check (action required)

ENGINE START switches (CONT)
LANDING lights and STROBE light switches (as desired)
xxx xxxxx (xx xxxxxx)

Ask for checklist

Line up with runway

+ Landing lights
+ Shoulder harnesses
+ Radar?
+ Verify runway clear

FIRST OFFICER

Busy frequency
Defer communication
Contact Ground when possible

Unfamiliar taxi instructions
Consult charts

+ Acknowledge clearance
+ Form mental picture of taxi route
+ Confirm CA's understanding of route

+ "Clear" ramp area

BEFORE TAKEOFF PROCEDURE
(down to the line)
Item to check (action required)

xxx xxxx (xxxxx)
Flight controls (check)
Flaps (_, green light)
xxxxxxx (xx)

+ MONITOR taxi progress per instructions

+ "Clear" turns

New/ Additional taxi instructions
Acknowledge instructions
Form new mental picture

Just-in or new load data
Calculate & reset Performance data
Check accuracy
Continue to monitor CA

FMC: program/verify
Inform Company (new #s, delays)
Have CA cross check #s

Begin checklist

BEFORE TAKEOFF CHECKLIST
(down to the line)

Challenge	Response
xx xxxxx xx	
Flight controls	
	xxxxxx x
	Set _, gr
	C

+ Switch to Tower frequency

Interruption
Resume checklist

+ MONITOR Tower frequency

Checklist complete

BEFORE TAKEOFF PROCEDURE
(below the line)
Item to check (action required)

xxx xxxxx (xx xxxxxx)
FMC position update (as desired)
Transponder (On)

TAKEOFF CLEARANCE

+ Acknowledge clearance
+ Confirm CA's understanding

+ FMC update
+ Strobes

Begin checklist

BEFORE TAKEOFF CHECKLIST
(below the line)

Challenge	Response
xxxxxxxx	xxxxx
Packs	Set
Transponder	TA/RA
Master Ca	
xx xxxx	xxx

+ "Clear" runway

Rush/repeat checklist

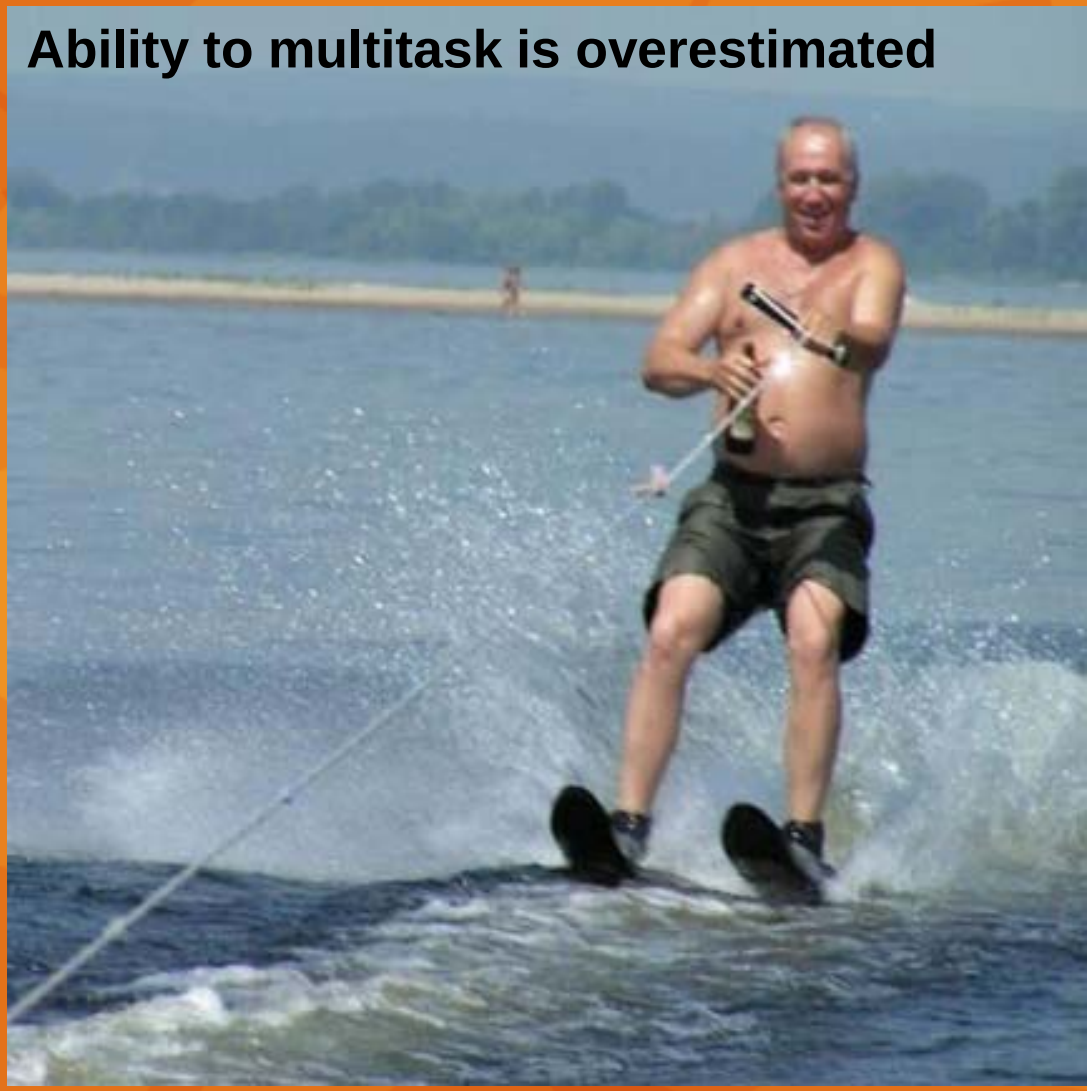
Checklist complete

+ Take control of aircraft while finishing checklist

TAKEOFF

The multitasking myth

- Dispel the Myth of multitasking
- Multitasking substantially increase our vulnerability to errors
- Recognize risk of vulnerability to unintentional omissions
- Design Procedures accordingly



8. Focus on the right issues

Speed limit on high way for
1,5 tons car:

Km/h

Take Off speed for a
600 tons acft:

250 Km/h

Risk Management:

- Know them
- Understand them
- Control them

Subject Matter Experts (SME)

9. Safety First, keep it alive

The Big Boss says:
Safety is our number one prioprity

The less big boss thinks:
Safety is our n. 1 priority & I want to please my boss too

The even less big boss:
My 1st priorities are safety and to please my chief

The front line guy: I have to please my chief if I want to keep my job

Safety is our N 1 priority
This reminder belongs to every safety meeting and communication

Safety Bird

10. Keep it Credible

It is hard to convince someone to spend money for something which should ideally never happen

A Safety Manager will always spend too much money when nothing happens

A Safety Manager will always not have spent enough money when something happened

➔Draw the right conclusions and actions

(ALARP concept)

➔ Prefer the first case, even if it is a hard mission

Safety Bird

If you believe that safety is expensive…

What are the costs of an aircraft accident? How do we measure the value of hundreds of people's lives?

Can we ever calculate the millions of CHF worth of damage?

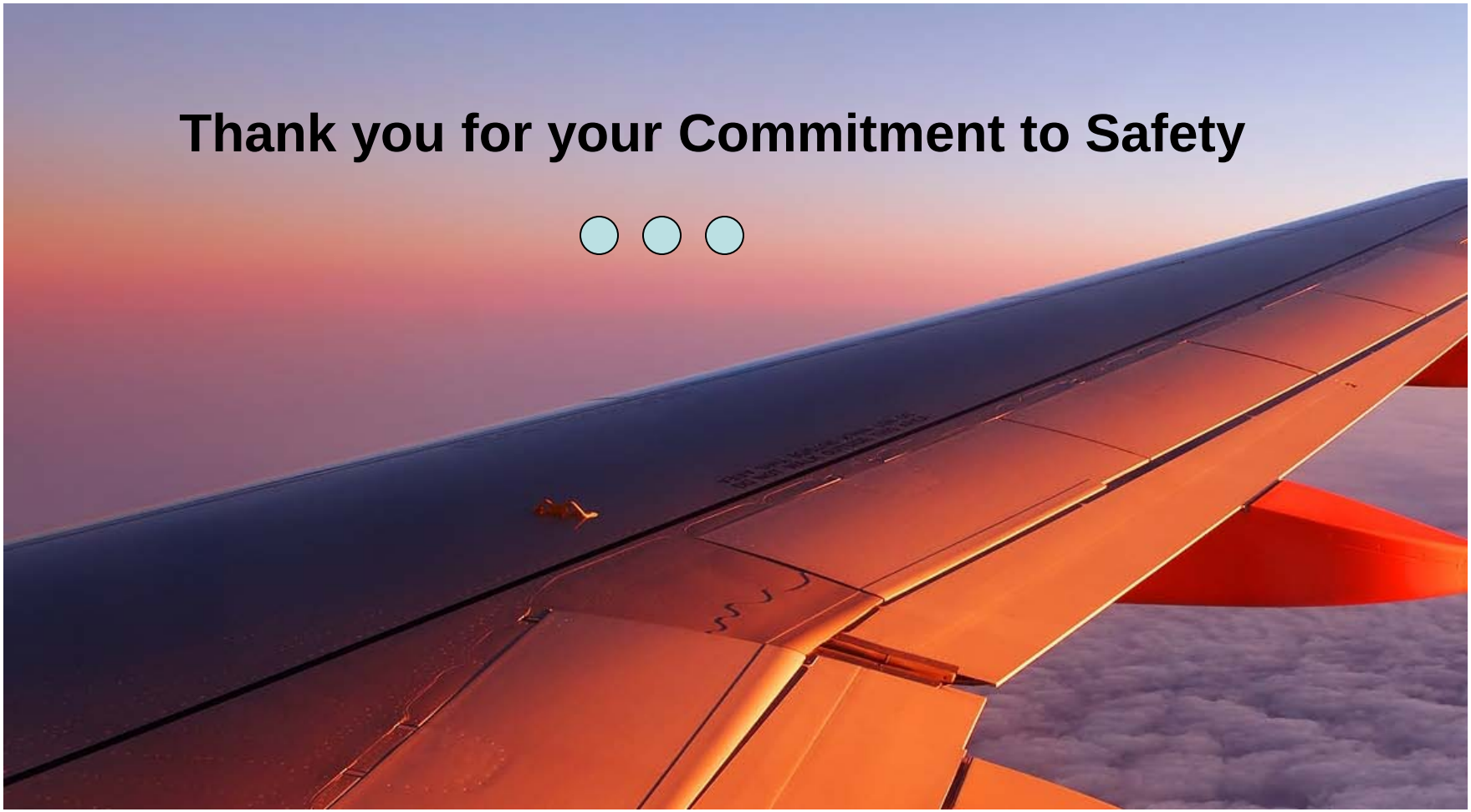
How should we calculate that cost and set it against the inevitable commercial cost of the investments necessary to avoid the tragedy in the first place?

Aircraft physical damage
Possible loss of resale value
Aircraft loss of use
Aircraft loss of investment return
Passenger and crew fatalities and/or serious injuries
Site contamination and clearance
Airline costs for delay
Airport closure
Loss of staff investment
Loss of cargo and/or mail and/or passenger baggage
Search and rescue and cost of emergency services
Airline immediate response
Cost of accident investigation
Third party damage
loss of airline income/value/reputation
Societal costs
Emergency inspections
Fines, punitive damages, criminal proceedings

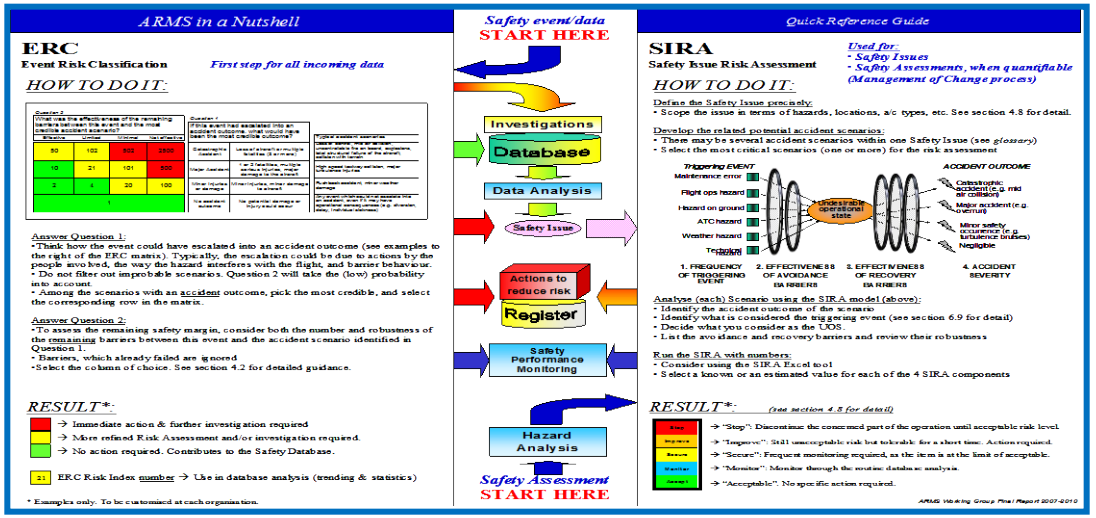
Source:NLR, Netherlands

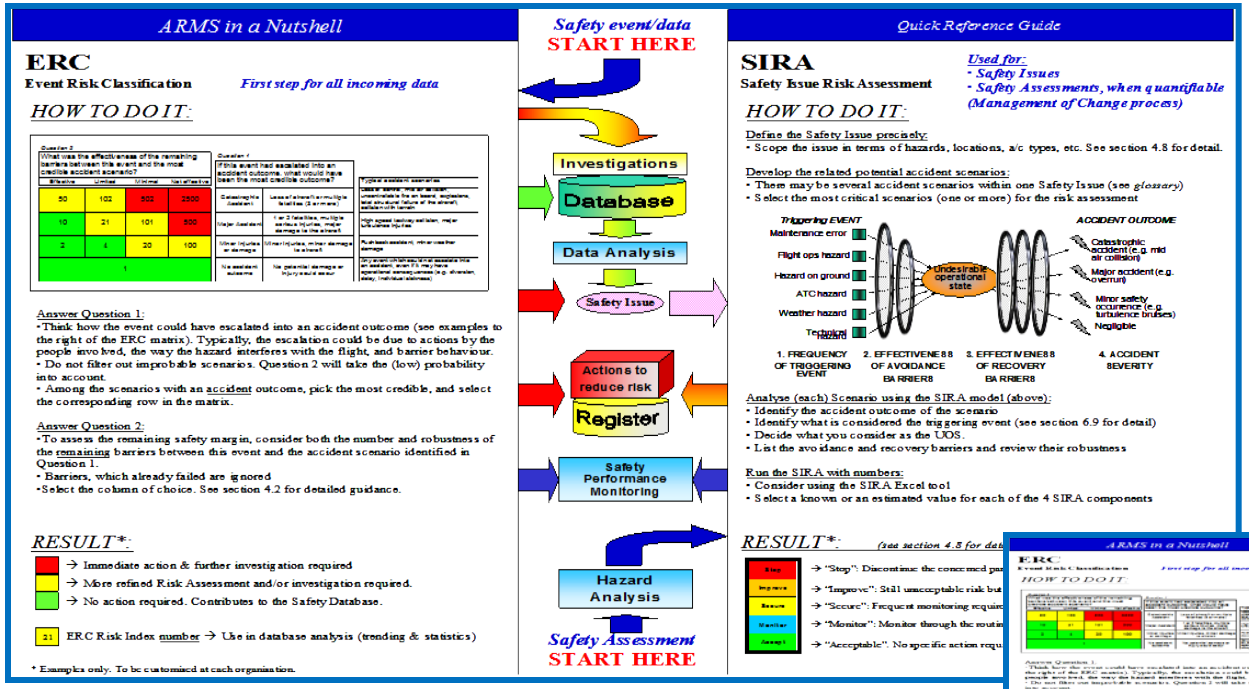
Hangar 89, easyJet Headquarter

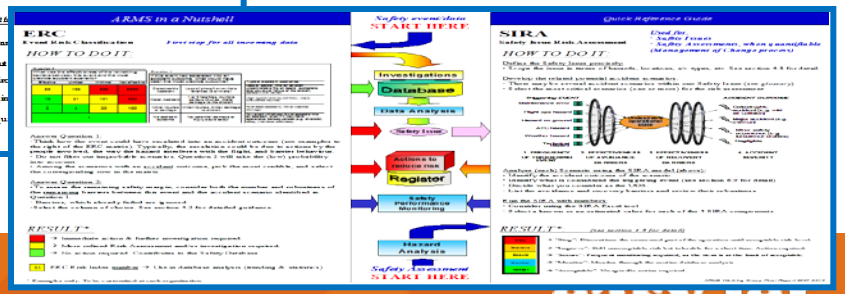
Safety Building


Thank you for your Commitment to Safety

ERC Event Risk Classification process





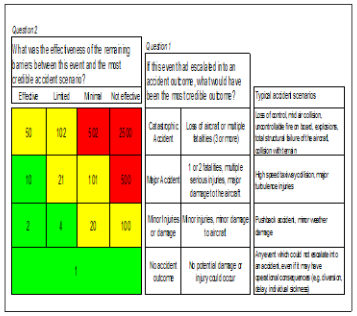


ARMS in a Nutshell

ERC

Event Risk Classification — *First step for all incoming data*

HOW TO DO IT:



Answer Question 1:

- Think how the event could have escalated into an accident outcome (see examples to the right of the ERC matrix). Typically, the escalation could be due to actions by the people involved, the way the hazard interferes with the flight, and barrier behaviour.
- Do not filter out improbable scenarios. Question 2 will take the (low) probability into account.
- Among the scenarios with an accident outcome, pick the most credible, and select the corresponding row in the matrix.

Answer Question 2:

- To assess the remaining safety margin, consider both the number and robustness of the remaining barriers between this event and the accident scenario identified in Question 1.
- Barriers, which already failed are ignored
- Select the column of choice. See section 4.2 for detailed guidance.

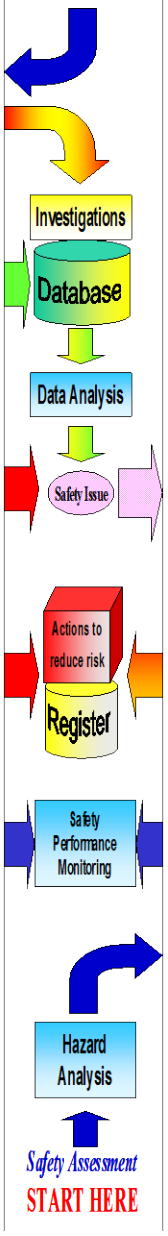
RESULT:*

- → Immediate action & further investigation required
- → More refined Risk Assessment and/or investigation required.
- → No action required. Contributes to the Safety Database.

21 ERC Risk Index number → Use in database analysis (trending & statistics)

* Examples only. To be customised at each organisation.

Safety event/data
START HERE



Safety Assessment
START HERE

Quick Reference Guide

SIRA

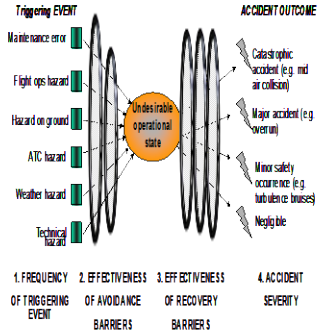
Safety Issue Risk Assessment

Used for:
- *Safety Issues*
- *Safety Assessments, when quantifiable (Management of Change process)*

HOW TO DO IT:

Define the Safety Issue precisely:
- Scope the issue in terms of hazards, locations, a/c types, etc. See section 4.8 for detail.

Develop the related potential accident scenarios:
- There may be several accident scenarios within one Safety Issue (see *glossary*)
- Select the most critical scenarios (one or more) for the risk assessment



Analyse (each) Scenario using the SIRA model (above):
- Identify the accident outcome of the scenario
- Identify what is considered the triggering event (see section 6.9 for detail)
- Decide what you consider as the UOS.
- List the avoidance and recovery barriers and review their robustness

Run the SIRA with numbers:
- Consider using the SIRA Excel tool
- Select a known or an estimated value for each of the 4 SIRA components

RESULT:* *(see section 4.8 for detail)*

- Stop → "Stop": Discontinue the concerned part of the operation until acceptable risk level
- Improve → "Improve": Still unacceptable risk but tolerable for a short time. Action required.
- Secure → "Secure": Frequent monitoring required, as the item is at the limit of acceptable.
- Monitor → "Monitor": Monitor through the routine database analysis
- Accept → "Acceptable": No specific action required

Sira
Safety Issue
Risk
Assessment
process

europe by easyJet

ARMS in a Nutshell

ERC

Event Risk Classification

First step for all incoming data

HOW TO DO IT:

Question 2

What was the effectiveness of the remaining barriers between this event and the most credible accident scenario?

Effective	Limited	Minimal	Not effective
50	102	502	2500
10	21	101	500
2	4	20	100
1			

Question 1

If this event had escalated into an accident outcome, what would have been the most credible outcome?

		Typical accident scenarios
Catastrophic Accident	Loss of aircraft or multiple fatalities (3 or more)	Loss of control, mid air collision, uncontrollable fire on board, explosions, total structural failure of the aircraft, collision with terrain
Major Accident	1 or 2 fatalities, multiple serious injuries, major damage to the aircraft	High speed taxiway collision, major turbulence injuries
Minor Injuries or damage	Minor injuries, minor damage to aircraft	Pushback accident, minor weather damage
No accident outcome	No potential damage or injury could occur	Any event which could not escalate into an accident, even if it may have operational consequences (e.g. diversion, delay, individual sickness)

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Safety event/data

START HERE

Investigations

Database

Data Analysis

Safety Issue

Actions to reduce risk

Register

Safety Performance Monitoring

Hazard Analysis

Safety Assessment

START HERE

Quick Reference Guide

SIRA

Safety Issue Risk Assessment

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- *(Management of Change proce*

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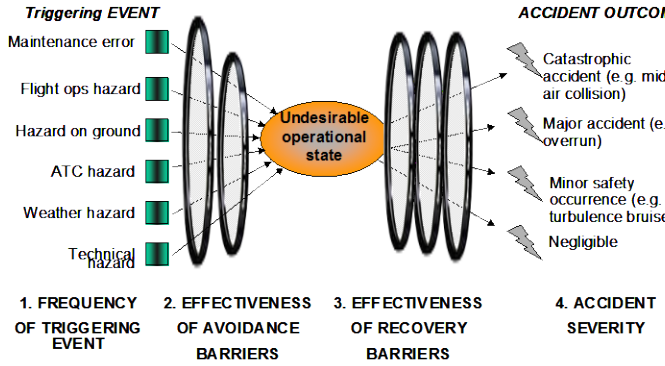

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