

LEARNING EFFECT?

COMPETENCE BASED
TRAINING?

TECHNICAL TRAINING

– “*Not just a Tick Mark*”

SIMULATIONS?

Scenario-Based Training into the
Maintenance Environment

BY

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ASSESSMENT OF SKILLS

Agenda: A Short Introduction

Active Learning

Scenario-Based Training

Benefits

Way Forward



*“Tell me and I forget,
teach me and I may
remember,
involve me and I learn”*

- Benjamin Franklin

Human Error Management Strategies

- Understanding the nature and extent of error or risk
- Changing the conditions that induce the error
- Determining the behaviours that prevent or mitigate error



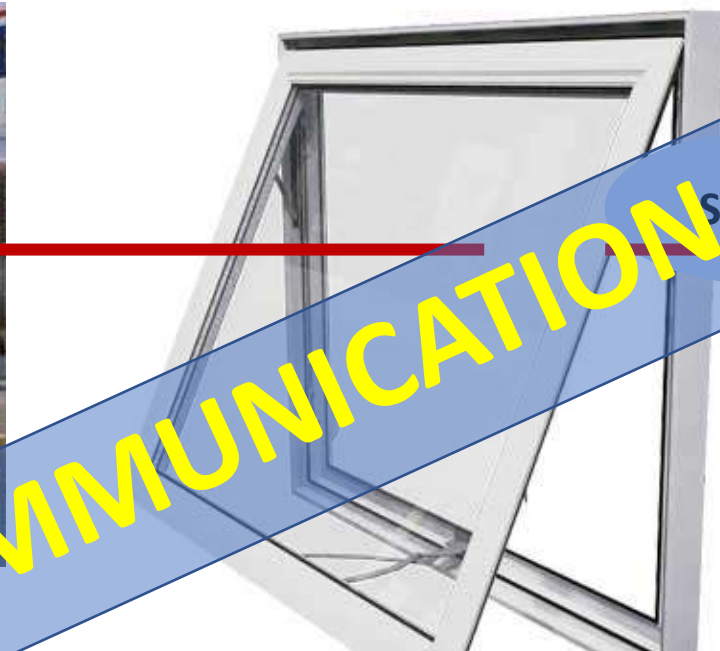
What is really happening

What are Human Factors Really?

What I think is really happening



REALITY



PERCEPTION OF REALITY

COMMUNICATION

SENSES

SITUATIONAL AWARENESS

INFORMATION PROCESSING

UNDERSTANDING

STARTLE EFFECT

RESILIENCE

STRESS

ASSERTIVENESS

TEAMWORK

We make decisions based on our
PERCEPTION of Reality

*"Education is NOT the learning of facts,
It is the training of the mind to THINK!"*

Albert Einstein

ACTIVE LEARNING

INTERACTIVE LEARNING of SKILLS

- ✈ Learning by Doing in a Simulated Reality
- ✈ It is **SAFE** and there is **No Inherent Risks**
- ✈ Individual learning of Skills
 - in a dynamic social environment
- ✈ Observation of Behaviours
- ✈ Easy Assessment of Non-Technical Skills



COMPETENCY-BASED TRAINING and ASSESSMENT

✈ Scenarios for Training and Assessments must be:

Realistic – a simulation of reality

Simple – simple presentation of complex problems

Precise – clear and precise learning objective

Well-designed – focus on the *learning*, not technology

Measureable for the learning effect – i.e., Assessments



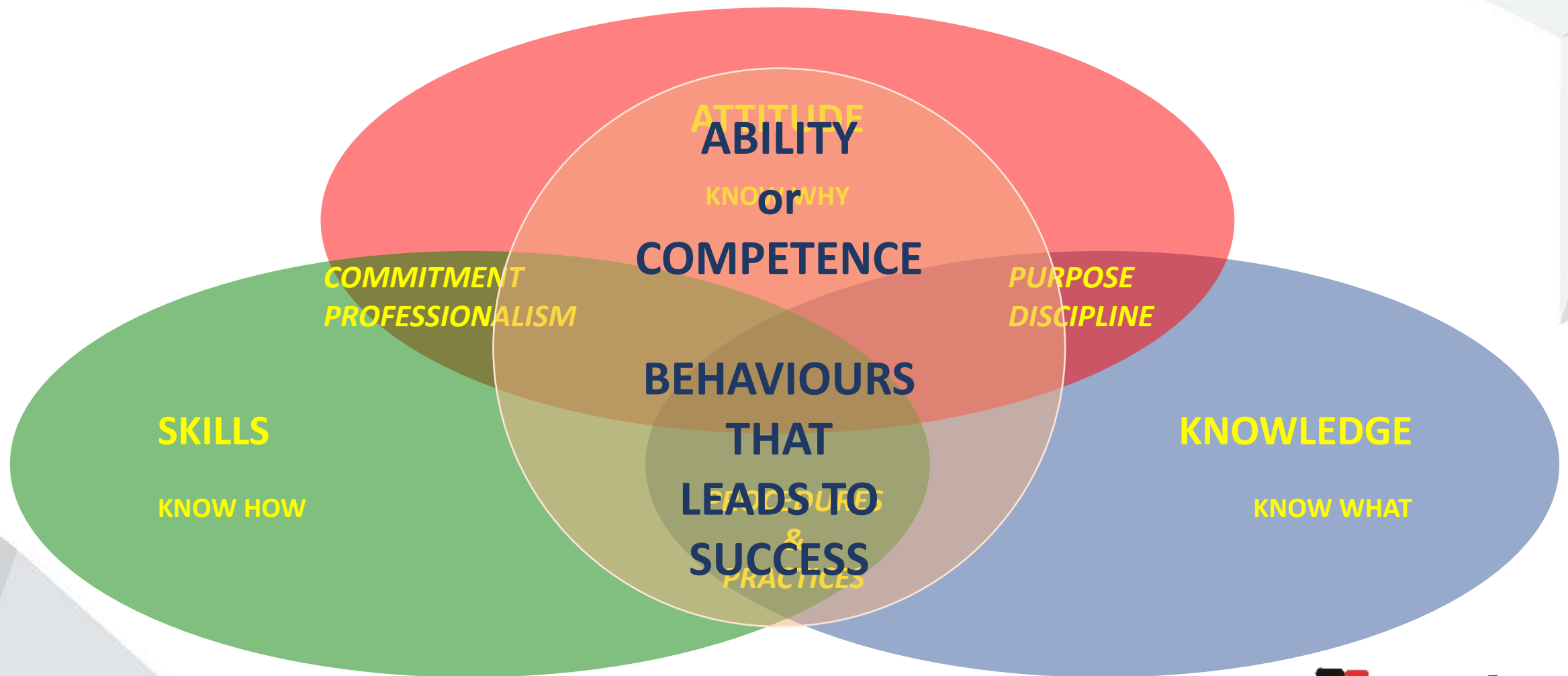
ANALOQUE or DIGITAL?



BONUS: Assessment of Non-technical Skills

ABILITY or COMPETENCE

SYNERGY OF YOUR ATTITUDE, KNOWLEDGE AND SKILLS



Non-Technical Skills Categories

TEAMWORK

LEADERSHIP & MANAGERIAL SKILLS

SOCIAL SKILLS



COMMUNICATION

WORKLOAD
MANAGEMENT

THREAT & ERROR
MANAGEMENT



SITUATIONAL AWARENESS

DECISION MAKING SKILLS

COGNITIVE SKILLS



TRAINING



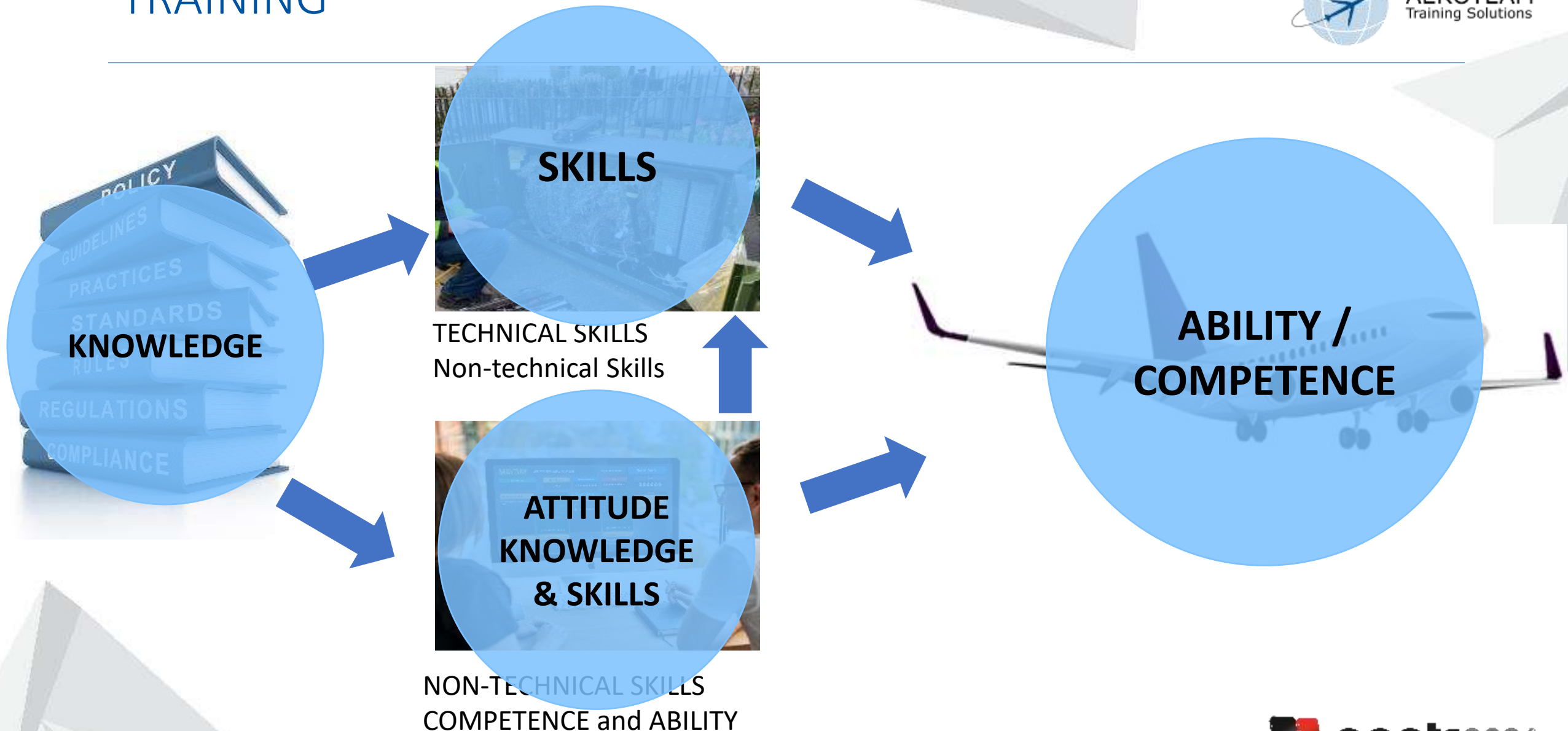
TECHNICAL SKILLS
Non-technical Skills



NON-TECHNICAL SKILLS
COMPETENCE and ABILITY



TRAINING



FACILITATION – HOW DOES IT WORK?



- Realistic Training Scenarios →
- Dilemmas to Create Discussions
- Give a few solutions – All plausible for discussions
- Highlight Possible Consequences
- Define Focus Areas

STAFF SELECTION



**CERTIFYING
STAFF**

BO, 47

Bo has spent many years working for different companies on line stations at airports abroad. His basic work philosophy is: "If it flew in, it can fly out". He is always the one handing over jobs to the new shift.



**CERTIFYING
STAFF**

CHARLOTTE, 38

Charlotte has been with the company since she was an apprentice. She is loyal and ambitious and rarely makes any mistakes. She recently divorced and is now a single mom.

DILEMMA

TASKS

5

THE PASSENGER SEAT

You are asked to contact a captain who has reported a problem with a cabin seat reclining mechanism. A repair normally takes 25 minutes. The aircraft has been boarded at full capacity. No spare aircraft are available.

This is only a job for certifying staff

Option A

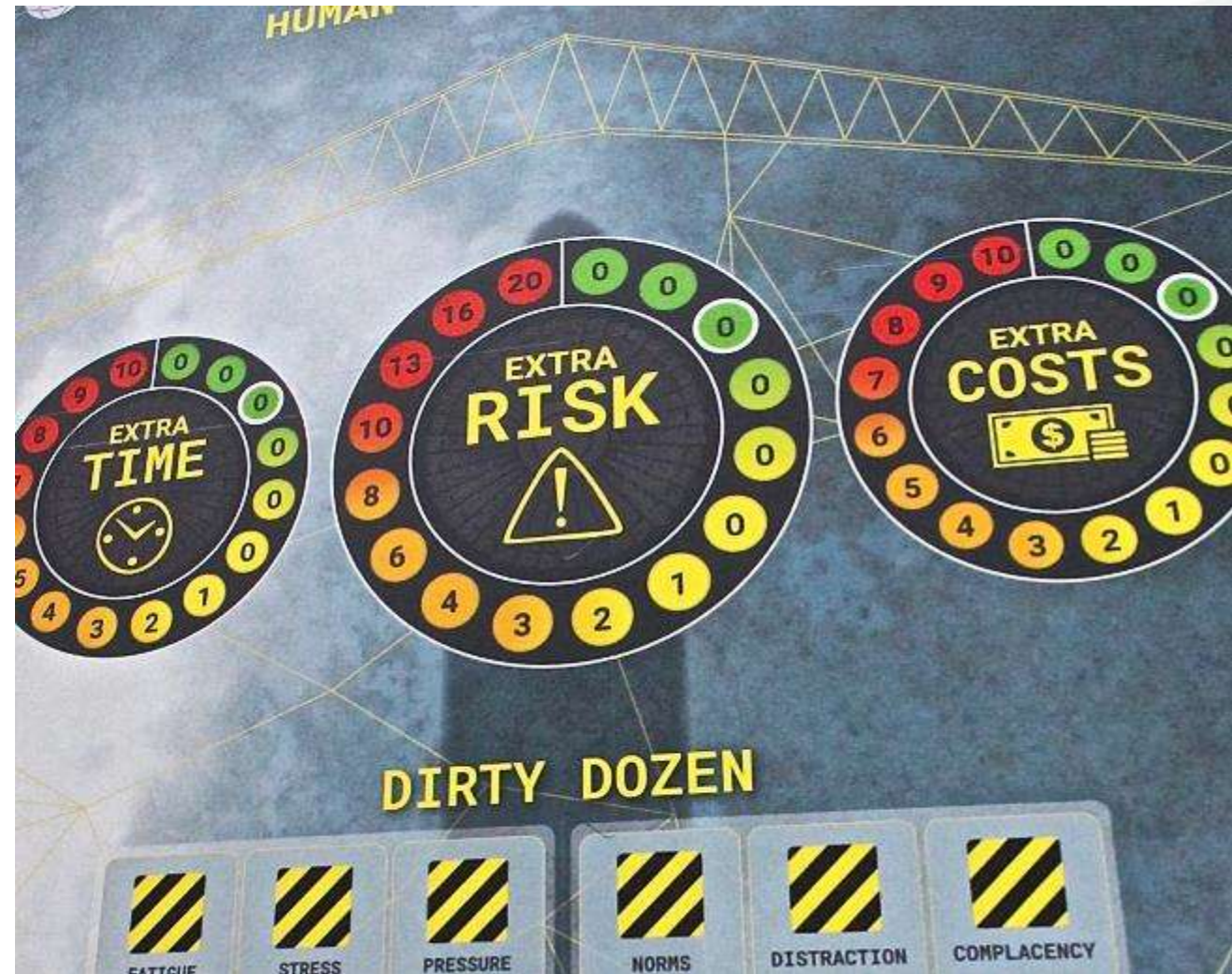
You replace the actuator straight away while the passengers wait in the aisle.

Option B

You ask the captain to send the passengers back to the terminal while you perform the repair job.


Option C

You inform the captain that you will defer the defect in accordance with the Minimum Equipment List.





CONSEQUENCES



THE PASSENGER SEAT

If the employee is Experienced: 



A
Passengers may distract you and create pressure, so you may feel compelled to select a "quick fix".

STRESS If the employee has LACK OF AWARENESS, DISTRACTION, COMPLACENCY, LACK OF TEAMWORK, LACK OF COMMUNICATION or LACK OF ASSERTIVENESS:  

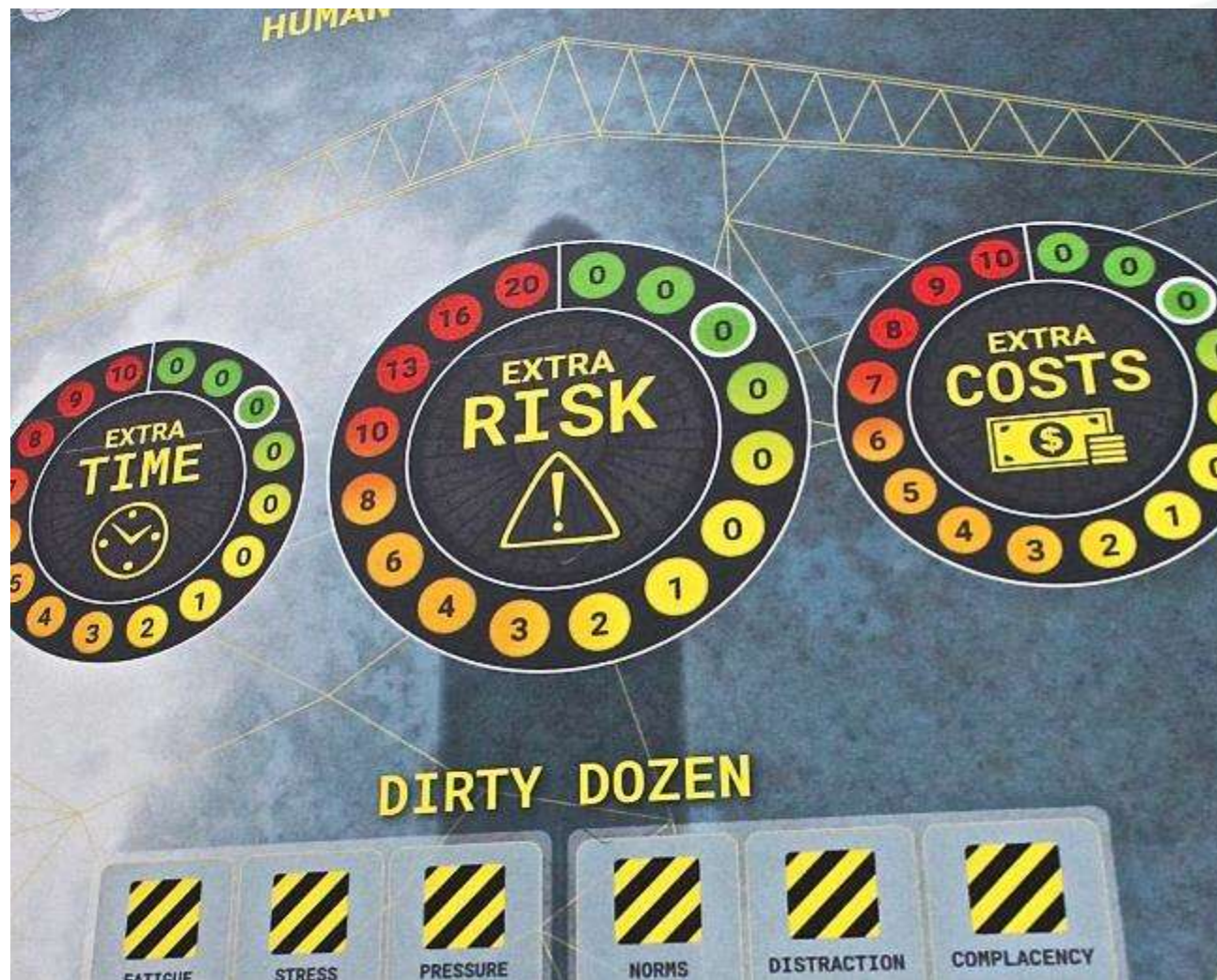
B
This puts a lot of operational pressure on both aircraft and ground crew.

PRESSURE If the employee has LACK OF TEAMWORK, LACK OF COMMUNICATION or LACK OF ASSERTIVENESS:  

C
Some passengers must be off-loaded.

PRESSURE If the employee has LACK OF TEAMWORK, LACK OF COMMUNICATION or LACK OF ASSERTIVENESS:  

5



BEST PRACTICES – Input from training sessions

Discuss which of these
Management tools that will help
create a more robust SAFETY
CULTURE.

Pick the 2 you think will help the
most in your organisation!

How could they be implemented
in your organisation?

☐ SAFETY SURVEY

☐ TOOLBOX MEETINGS

☐ TECHNICAL TRAINING

☐ MINIMUM STOCK LIST

ASSESSMENTS



FORMATIVE ASSESSMENT

- **Help students** identify their strengths and weaknesses and target areas that need work
- **Help faculty (Instructors)** recognize where students are struggling and address problems immediately and improve the training

SUMMATIVE ASSESSMENT

- **Evaluate student learning** at the end of an instructional unit by comparing against some standards or benchmark.

Competency Assessment Matrix

CBTA Assessment Matrix														
Formative assessment			COMPETENCY MAP											
			Competency to be assessed in the specific task											
MAYDAY Training Tool				1	2	3	4	5	6	7	8	9	10	11
TASK	Description	Desired outcome		Oral / Written	Application of Procedures	Work Management	Situational Awareness	Technical Expertise	System Thinking	Coordination and Handover	Risk Management	Teamwork	Problem-Solving and Decision-Making	Self-Management and continuous Learning
	[Description of the task or MM reference]	[what do you expect to see] [What behavioural markers is expected] [Questions and answers to specific subjects]	[O]	[X]	[X]		[X]							
Example	Job interruption	Complete appropriate documentation	[W]	X					X					X

PERFORMANCE INDICATORS

COMPETENCY	TEAMWORK	
PERFORMANCE INDICATOR(S)	LEARNING OBJECTIVE – Operates safely and efficiently as a team member	
TEAMWORK # 8.1	Fosters an atmosphere of open communication	✓
TEAMWORK # 8.2	Encourages team participation and cooperation	✓
TEAMWORK # 8.3	Uses feedback to improve overall team performance	✗
TEAMWORK # 8.4	Provide feedback constructively	✗
TEAMWORK # 8.5	Shows respect and tolerance to other people	✓
TEAMWORK # 8.9	Accepts feedback constructively	✗
TEAMWORK # 8.13	Demonstrates integrity and honesty	✓

PERFORMANCE INDICATORS

COMPETENCY	SITUATIONAL AWARENESS (SA)	
PERFORMANCE INDICATOR(S)	LEARNING OBJECTIVE – Recognises and understands the maintenance environment and relevant information; anticipates future events	
Situational Awareness # 3.1	Maintains awareness of the maintenance environment	✓
Situational Awareness # 3.1	Did not recognize hazardous situations	✗
Situational Awareness # 3.3	Recognises future operational situations	✓
Situational Awareness # 3.4	Verifies that information is accurate, and assumptions are correct	✓
Situational Awareness # 3.5	Is cognisant of ongoing concurrent activities	✓
Situational Awareness # 3.6	Assesses situations and reports deviations	✗

ASSESSMENT – General Rating Scale

LEVEL 1 UNSATISFACTORY	LEVEL 2 SATISFACTORY	LEVEL 3 GOOD	LEVEL 4 VERY GOOD	LEVEL 5 EXCELLENT
The student's performance was ineffective or inadequate, and had a neutral or negative effect on others or on the outcome of the exercise	The student's performance was satisfactory, which had a slightly positive effect on others or on the outcome of the exercise	The student's performance was effective and had a good effect on others and significantly contributed to the overall outcome of the exercise	The student's performance was very effective and had a very good effect on others and significantly enhanced the overall outcome of the exercise	The student's performance was exemplary and had an excellent effect on others and an outstanding effect on overall outcome of the exercise
Showed none or few relevant Performance Indicators (PI)	Showed some* of the relevant Performance Indicators (PI) * min 35%	Showed most of the relevant Performance Indicators (PI) to a good standard	Showed most or all of the relevant Performance Indicators (PI) to a very good standard	Showed all of the relevant Performance Indicators (PI) to an excellent standard

OBSERVATIONS

- Staff behaviour
- Listening skills
- Do they disagree?
- How do they solve that?
- Is there a “leader”?
- Is someone very passive?
- How do they receive feedback?
- How do they give feedback?
- Do they follow Procedures?
- Non-verbal Communication
- Can they foresee the consequences?
- Does everyone give inputs?
- How do they reach a solution?
- Is someone dominant / controlling?



ASSESSMENTS in Practice

- It is behaviours that are observable and not the actual skills!
- Instructor knowledge of the NOTECHs Observable Behavioural markers is essential!
- Definition of effective Human factor behaviour is visible to the crew
 - Helps staff to compare own performance
- You ***MUST*** be ***OBJECTIVE*** in your assessment



OBJECTIVE versus SUBJECTIVE



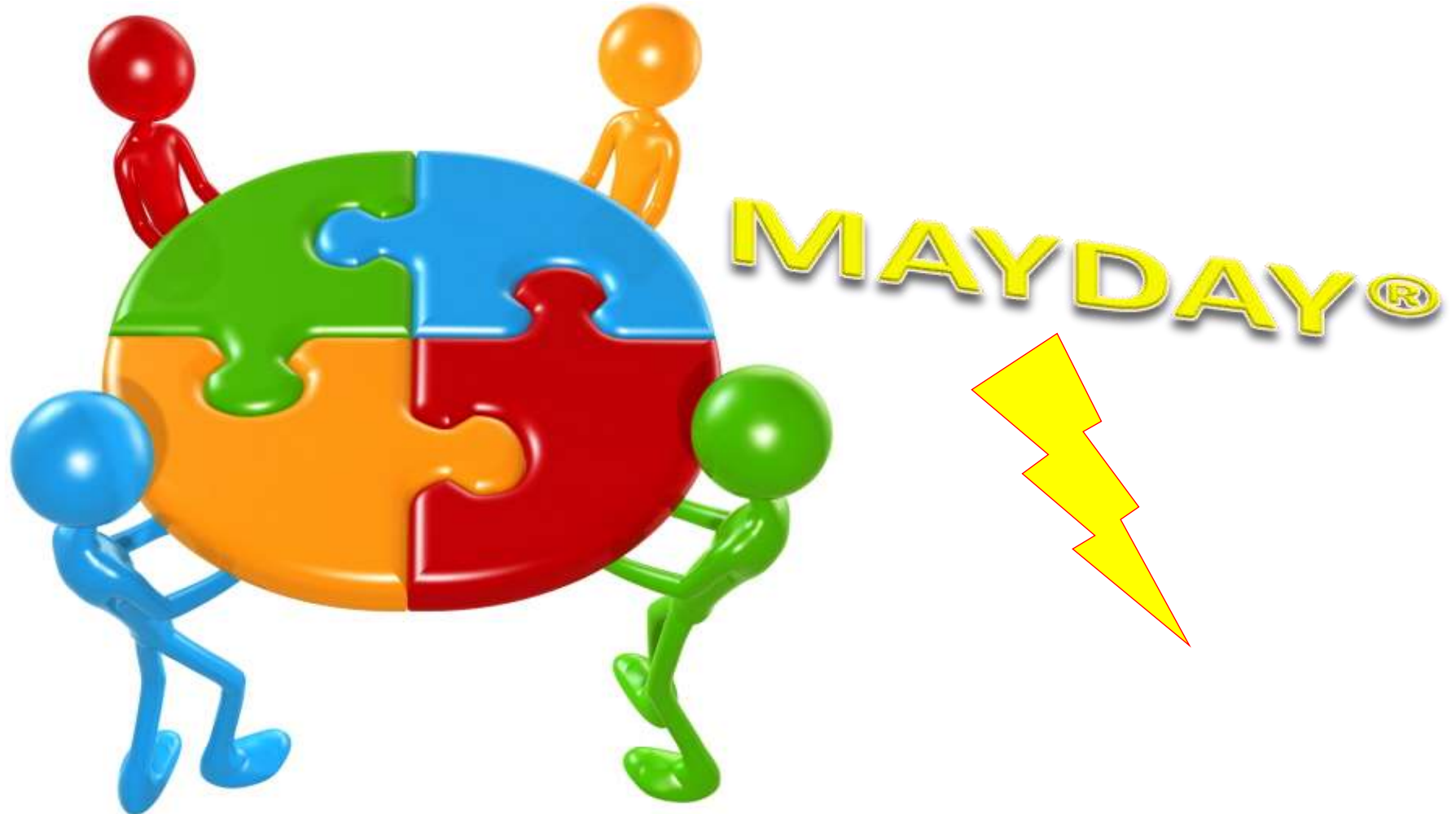
OBJECTIVE	SUBJECTIVE
OBJECTIVE information is FACTUAL information based on OBSERVATIONS and MEASUREMENTS	SUBJECTIVE information is anything that is based on PERSONAL OPINIONS, JUDGMENT, FEELINGS, or POINTS of VIEW
VERIFIED with EVIDENCE	CANNOT be PROVED by EVIDENCE
UN-BIASED	BIASED
DOES NOT CHANGE	CHANGES depending on different PEOPLE

LIMITATION of Assessment

- Not every aspect of performance and behaviour can be captured:
- Not possible to Assess everything all the time
- Limited occurrence of some behaviours
 - i.e., Conflict resolution
- Limitation of human observers
 - Distractions
 - Overload
 - Large groups
 - Lack of knowledge of NOTECHS and Performance Indicators
 - Own perception of Level of Performance
 - Assessor Standardization



“ACTIVE LEARNING”



WHO WAS THIS GUY?

Søren Seindal Agner, CEO – AEROTEAM Training Solutions®

- ✈️ Tour Guide, Cabin Crew, Operations
- ✈️ Pilot
 - ✈️ Danish Air Transport (Short 7)
 - ✈️ Scandinavian Airlines (MD 80)
- ✈️ Ground Instructor – ATPL
- ✈️ CRM and Human Factors Trainer / Examiner
- ✈️ Multi Crew Course Instructor (MCCI)
- ✈️ Training Manager EASA Part 147
- ✈️ Member of The Danish Flight Safety Council since 2010
 - ✈️ Position – Human Factors in Civil Aviation
- ✈️ INVENTOR of the MAYDAY Training Concept



PLEASE REMEMBER



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THANK YOU FOR YOUR ATTENTION