



DFC SAFETY SEMINAR

February 18, 2021

“There I Was. . .”

Scenario-based application of Risk
Management, ADM, and SRM

OVERVIEW

- **ADM, Risk Management, SRM review**
- **Examples of normal flight actions and application of ADM**
- **“There I was...” examples**

“There I was...”

Pilots love to tell stories.

“There I was, no lie, this is a true story... has been a common start to fighter pilot stories for generations.

You know the story is good when the hand gestures get more pronounced.

Note: saying it was true doesn't make it so, lol



Risk Management

References

- **Pilot's Handbook of Aeronautical Knowledge, Chapter 2**
- **FAA Risk Management Handbook**

Risk Management

PHAK Chapter 2, FAA Risk Management Handbook

What is Risk Management?

- A decision making process designed to identify hazards systematically, assess the degree of risk, and determine the best course of action**
- Risk management is all about accident prevention**
- Impossible to Fly an airplane without risk!!!!**

Principles of Risk Management

The 4 Principles of Risk Management :

- 1. Accept no unnecessary risk**
- 2. Make risk decisions at the appropriate level**
- 3. Accept risk when benefits outweigh the costs**
- 4. Integrate risk management into planning at all levels**

Principles of Risk Management

1. **ACCEPT NO UNNECESSARY RISK**

-- That which gives no commensurate return in benefits and opportunities

-- Accept only the risk required for the operation to be successful

Principles of Risk Management

2. MAKE RISK DECISIONS AT THE APPROPRIATE LEVEL

- Anyone can make a risk decision**
- The decision maker (PIC) must be authorized to accept levels of risk required for the operation**

Principles of Risk Management

3. ACCEPT RISK WHEN BENEFITS OUTWEIGH THE COSTS

- All identified benefits should be compared against all identified costs**
- High risk endeavors may be undertaken when there is knowledge that benefits outweigh the costs**

Principles of Risk Management

4. INTEGRATE RISK MANAGEMENT INTO PLANNING

AT

ALL LEVELS

- Risks are more easily assessed and managed in the planning stage**
- The later changes are made in planning, the more time-consuming and expensive they become**

Risk Management Process

The 3 steps in the Risk Management Process:

- 1. Identify the Hazard**
- 2. Assess the Risk**
- 3. Mitigate the Risk**

Risk Management Process

1. IDENTIFY THE HAZARDS

- Start looking at big picture before pre-flight begins
- Examine all stages of flight
- Experience, **common sense**, and specific analytical tools help

Risk Management Process

2. **ASSESS THE RISK**

- **The application of quantitative and qualitative measures to determine the level of risk associated with specific hazards**
- **Define the **probability and severity** of an accident that could result from a hazard based upon exposure**

Risk Management Process

3. MITIGATE THE RISK

-- Investigate specific strategies and tools to reduce, mitigate, or eliminate the risk:

--- High risk may be mitigated by taking steps to lower the likelihood or severity

--- Medium and low risk may not need mitigation

-- Effective control measures can eliminate and control most

risk

Risk Management Process

- To get maximum benefit:**
 - Apply the steps in sequence**
 - Maintain balance in the process**
 - Apply process in a cycle -- look for new hazards**
 - Involve people in the process**

Level of Risk

- **Risk posed by a hazard is measured in terms of three components:**
 - **Probability** (likelihood that a hazard will cause loss)
 - **Severity** (extent of possible loss)
 - **Exposure** (size of the group affected)

Level of Risk

PROBABILITY

Categorized as:

Probable - an event will occur several times

Occasional - an event will probably occur sometime

Remote - an event is unlikely to occur, but possible

Improbable - an event is highly unlikely to occur

Level of Risk

SEVERITY

Categorized as:

Catastrophic - results in fatalities, total loss

Critical - severe injury, major damage

Marginal - minor injury, minor damage

Negligible - less than minor injury, less than minor system damage

Assessment of Risk

- **Assessment of risk is the most important part of risk management**
- **Every flight has hazards -- need to learn in advance what is high risk versus low risk; starting as student pilots**
- **Single pilots have challenges assessing their own hazards (fatigue, proficiency, weather, pressures)**

Assessment of Risk

Risk Assessment Matrix				
Likelihood	Severity			
	Catastrophic	Critical	Marginal	Negligible
Probable	High	High	Serious	
Occasional	High	Serious		
Remote	Serious	Medium		Low
Improbable				

Mitigation of Risk

- **After assessment, comes mitigation (or reduction)**
- **There are many ways for a pilot to mitigate risk:**
 - **PAVE Checklist (perceived risks)**
 - **IMSAFE Checklist (physical/mental)**
 - **3P Model**
 - **DECIDE Model**
 - **5P Checklist**

PAVE Checklist

- **Allows pilots to perceive risks associated with their flight**
- **The risks of flight are broken into four categories and assist the pilot with decision making**
 - 1. Pilot (P)**
 - 2. Aircraft (A)**
 - 3. enVironment (V)**
 - 4. External Pressures (E)**

IMSAFE Checklist

I - Illness - Do I have any symptoms?

M - Medication - Have I been taking prescription or over the counter drugs

S - Stress - Am I under psychological pressure?

A - Alcohol - Have I been drinking in last 8 hrs? 24 hrs?

F - Fatigue - Am I tired and not adequately rested?

E - Eating - Am I adequately nourished?



First officer had a cold,
probably fatigued

AP

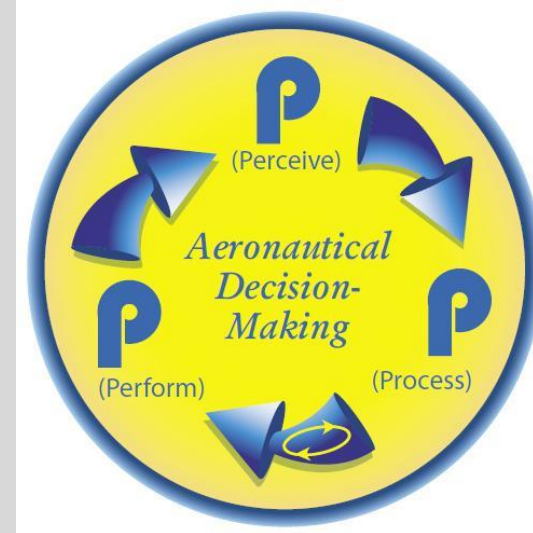
3P MODEL

- Another tool for Risk Management is the 3P model for aeronautical decision making:
- Ties in the previous checklists (IMSAFE, PAVE)
- Comprised of three main parts:

Perceive

Process

Perform



3P MODEL

PERCEIVE

- **Perceive the given set of circumstances for a flight**

(Situational Awareness)

- **Identifying Hazards**

- **Use the IMSAFE and PAVE Checklists**

3P MODEL

PROCESS

- **Why do I CARE?** Assess the risk of each hazard

Consequences - is pilot fatigued after work?

Alternatives - delay, reschedule, cancel

Reality - dangers and distractions of fatigue

External Pressure - business meeting influences

3P MODEL

PERFORM

- Use the TEAM checklist to Choose and Implement

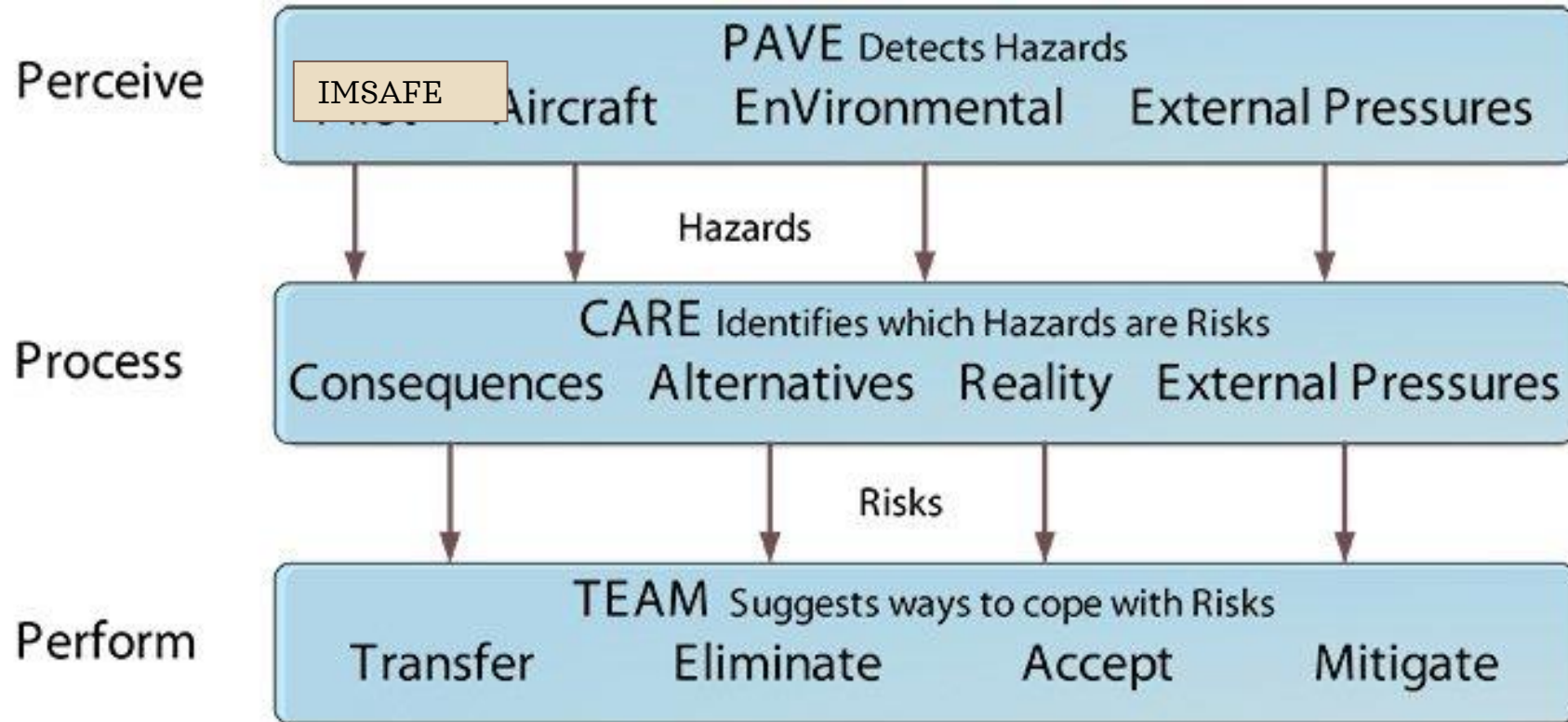
Transfer - Transfer risk to someone else?

Eliminate - Can you eliminate the risk?

Accept - Do benefits outweigh the costs?

Mitigate - What can be done to reduce the risk?

3P MODEL



1. Identify Hazards
2. Assess Risk of each Hazard
3. Analyze Risk Control Measures
4. Make Control Decisions
5. Implement Risk Control
6. Supervise and Review

Aeronautical Decision Making

The Decision Making Process

DETECT

ESTIMATE

CHOOSE

IDENTIFY

DO

EVALUATE

D-E-C-I-D-E

Aeronautical Decision Making

Aeronautical Decision Making is a systemic approach to the mental process used by pilots to consistently determine the best course of action to a given set of circumstances



Aeronautical Decision Making

Risk Management - a decision making process designed to identify hazards, risk, and best course of action

Situational Awareness - The accurate understanding and perception of all factors and conditions

SRM - The art and science of managing resources, both on board the aircraft and outside available to single pilot

Aeronautical Decision Making

Teaching learner pilots to make sound decisions is key to safety -- 80% of accidents are human factor related

-- Key is understanding to act in a safe manner, not a rote manner (Engine Fire scenario)

The training process should interweave ADM with piloting skills and knowledge

Aeronautical Decision Making

Factors Affecting Decision Making

- **Being familiar with the decision making process does not mean good judgement necessarily**
 - **Some circumstances are beyond the pilot's control**
 - **Must recognize the circumstances that can be managed**

Aeronautical Decision Making

Situational Awareness

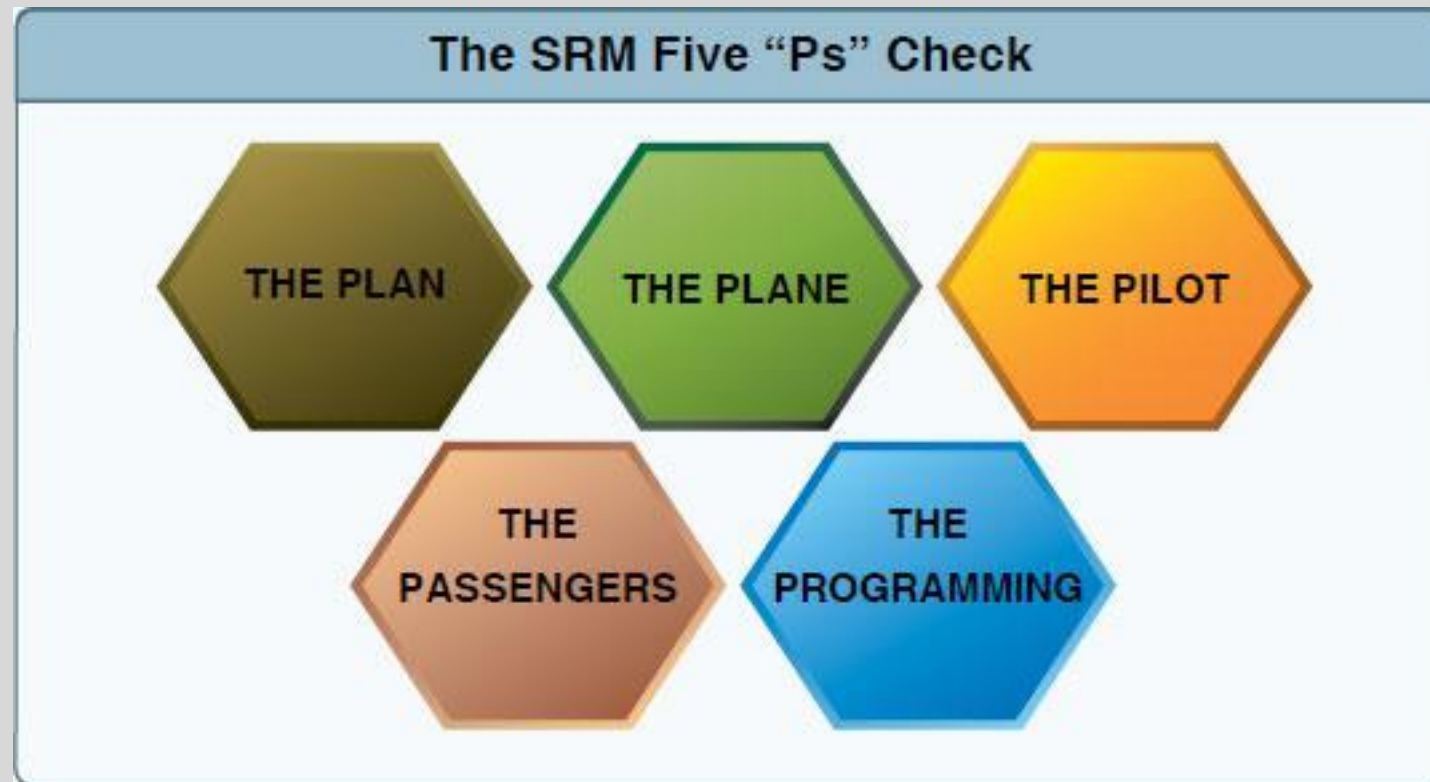
Situational awareness is the accurate perception and understanding of all the factors and conditions within the five fundamental risk elements (flight, pilot, aircraft, environment, and type of operation that comprise any given aviation situation) that affect safety before, during, and after the flight.

The 5Ps

- In aeronautical decision making there is no one right answer -- based on experience, readiness
- Single Pilot Resource Management (SRM) is the art of managing all onboard and outside resources available to a pilot before and during a flight to ensure a safe and successful outcome.

The 5 Ps

- **SRM can be applied by pilots using the 5Ps**



The 5 Ps

Decision Points in a Flight (5P checkpoints):

- 1. During Preflight - before passengers board**
- 2. Before Take off**
- 3. Midpoint of the Flight**
- 4. Just Prior to Descent**
- 5. Just Prior to Final Approach (or entering pattern)**

Aeronautical Decision Making

Recognizing Hazardous Attitudes

- ADM Does not eliminate errors, it helps the pilot recognize errors**
- Identification of hazardous attitudes and how to modify them is the key to safe flight**
- Attitude is the personal motivational predisposition to respond to persons, situations, or events**

Aeronautical Decision Making

Hazardous Attitudes

- Anti-authority**
- Impulsivity**
- Invulnerability**
- Macho**
- Resignation**

Application

Let's apply to flight situations

Note: please use chat feature to answer, we'll try to incorporate responses, but please understand if we don't include all

- **Preflight – planning, airplane**
- **Run-up - pre-take-off brief**
- **Pattern entries, landing checks**

Tools – Air Safety Institute

www.airsafetyinstitute.org

- Lots of good information
- Can get WINGS credit from here – links to

<https://www.faasafety.gov/>

Podcasts



Never Again

Pilots share first-person accounts of frightening experiences in the cockpit so that others can learn from their mistakes.



There I Was...

The AOPA Air Safety Institute invites you into the cockpit with pilots as they encounter unpredictable scenarios and fly safely out of them.



There I was...

Host - Richard McSpadden –

- Senior Vice President, AOPA Air Safety Institute**
- Former F-15 Demo pilot and USAF**
- Thunderbird commander**

There I was...

There I was examples. . .

Don't forget to seek WINGS credits to help DFC lead the valley in safety!

All attendees to this safety meeting will get credit

https://www.faaafety.gov/WINGS/pub/learn_more.aspx

YOU could be a winner in the DFC 2021 WINGS Challenge!!

Your DFC Safety Team

Lauren Scott

Fernando Molina

Alan Zwick

Reach out and say hi on Facebook or around the clubhouse!

Any thoughts or questions? Please email safety@desertflyingclub.com

We all receive these emails

The End