AVISURE
MITIGATING BIRD STRIKE RISK

On the Catwalk: Industry Models for Bird Strike Mitigation

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Bird Strike Mitigation Models

We compare and contrast

THE ESTABLISHED AUSTRALIAN STRIKE MITIGATION MODEL

A NEW AUSTRALIAN STRIKE MITIGATION MODEL

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EXAMPLE: QUESTIONS TO ANY OPERATIONAL GROUP ?
What is it? What are the hazards to your operation? How do you mitigate?

CUMULONIMBUS?

70% participants & 100% aircrew can answer the questions

PTEROPUS ALECTO?

0% participants can answer the questions

ALMOST ALL SECTORS OF THE AVIATION INDUSTRY ARE WOEFULLY UNDERINFORMED ABOUT WILDLIFE HAZARDS TO THEIR OPERATIONS

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Situational Awareness

- July, 2007, B767, departing Rome.
- On taxi for departure the crew noticed the funny black cloud (birds) and discussed it. They did not report it or ask for advice.
- Just after liftoff underneath the funny black cloud (birds) the aircraft jumped around and was pelted with hail.
- Both engines began vibrating and one engine over-temped.
- The crew dumped and returned for a safe landing.

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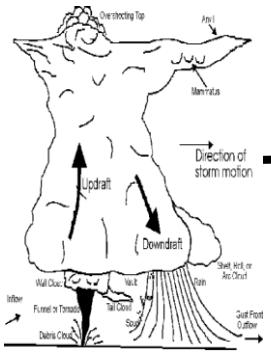
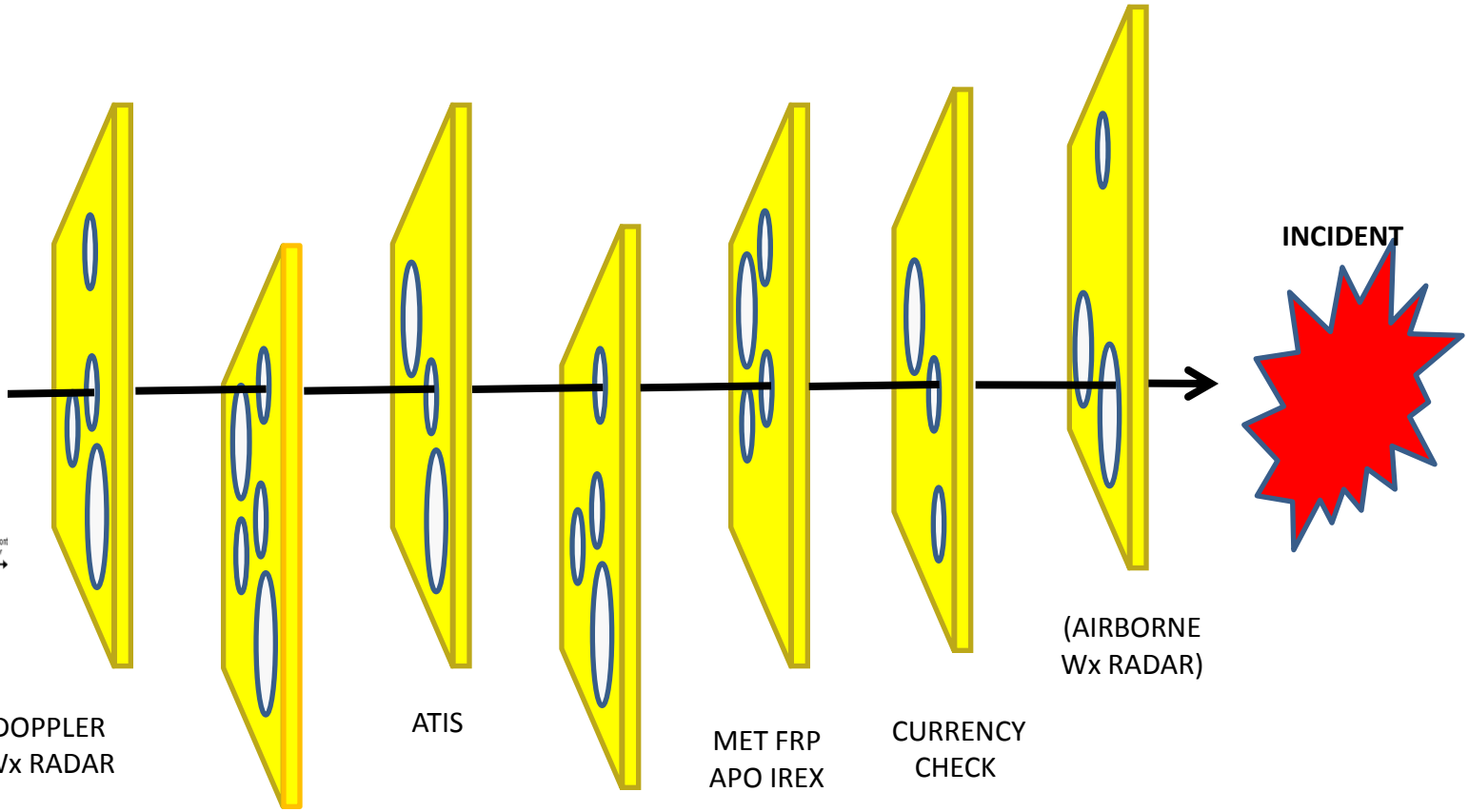
Weather Hazard Barriers





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Situational Awareness

- Similar episodes with birds
  - a 767 out of Melbourne 2006
  - A 757 out of Tampa FL 2010

- In no instance did the investigating authority recommend training for aircrew? One authority endorsed the lack of cross sector training, to quote:

  "The crew had no training regarding bird strikes, nor was any required. The operator had no bird strike policy other than to report strikes, nor was any required."

HOW IS IT POSSIBLE TO HAVE SITUATIONAL AWARENESS UNDER THESE CONDITIONS?

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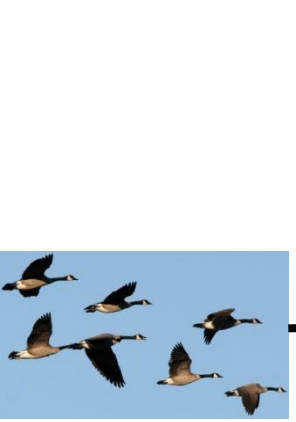
Wildlife Hazard Barriers



REGIONAL BIRD RADAR

NOTAM

ATIS

ATC

BIRD ID & HAZARD TRNG

CURRENCY CHECK

ASO BIRD DISPERSAL PATROLS

BIRD SEPARATION RADAR LOCAL & AIRBORNE

Accident

HOW IS IT POSSIBLE TO AVOID INCIDENTS AND ACCIDENTS WITH SO FEW INTEGRATED SAFETY BARRIERS IN PLACE?

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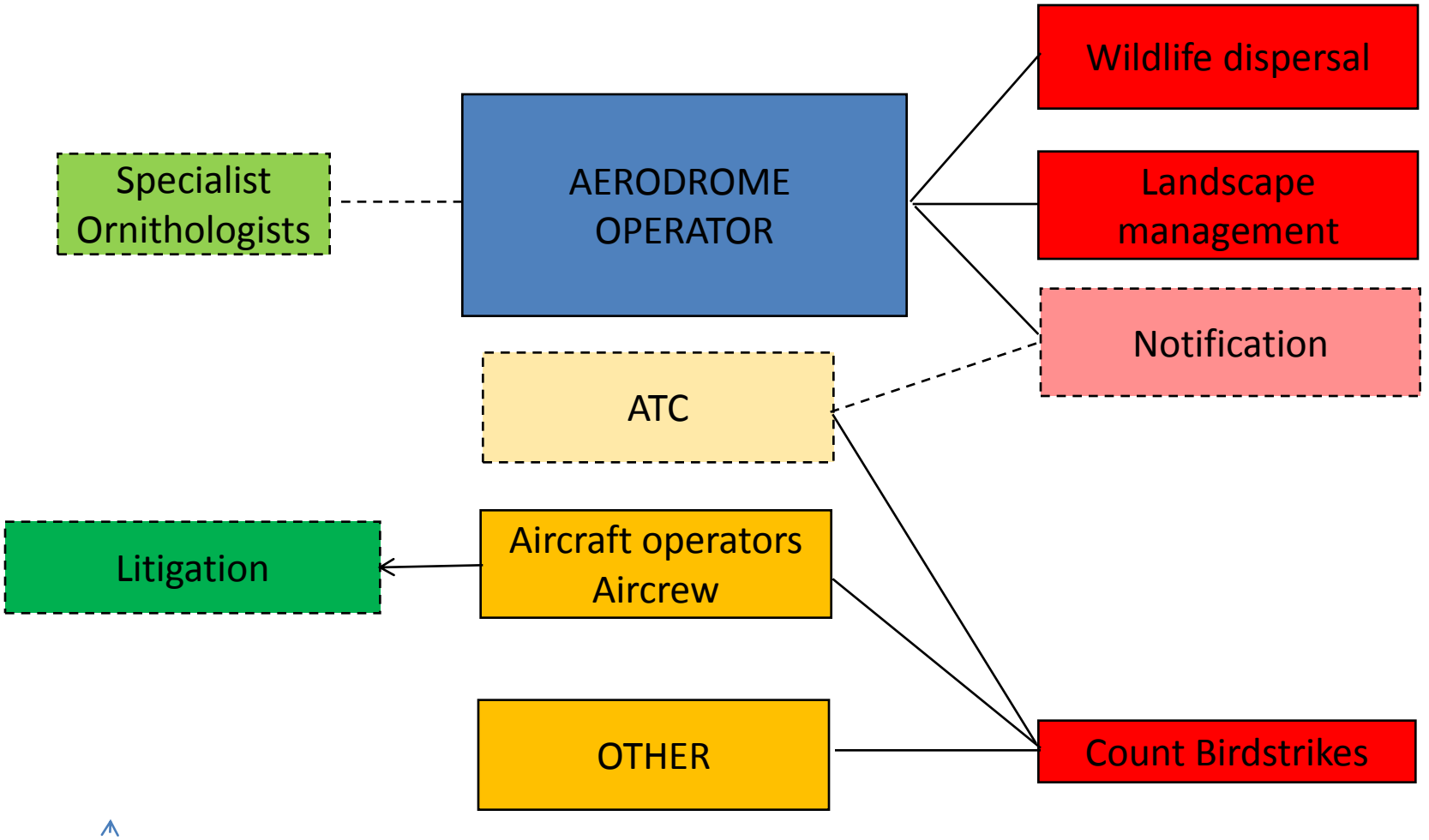
Established Aviation Wildlife Management Model



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This is the model we use to prevent collisions between fast moving objects

In an open, dynamic, three dimensional system?

Is it any wonder?

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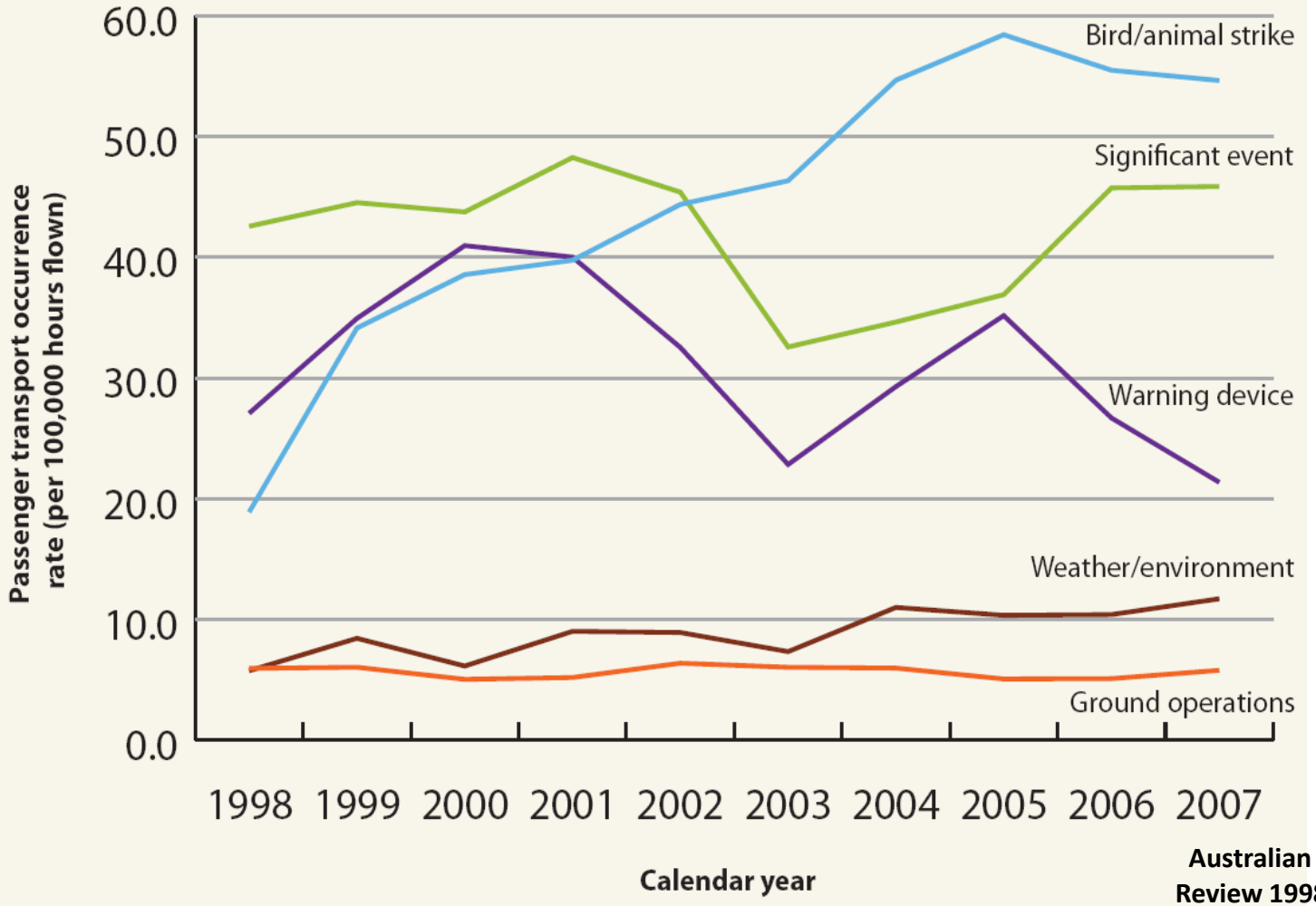
Operational Occurrences 1998 -2007

Figure 43: Passenger transport operational-related occurrence rate (per 100,000 hours flown), Top 5 event types, 1998 to 2007



Australian Aviation Safety in Review 1998-2007 ATSB 2008

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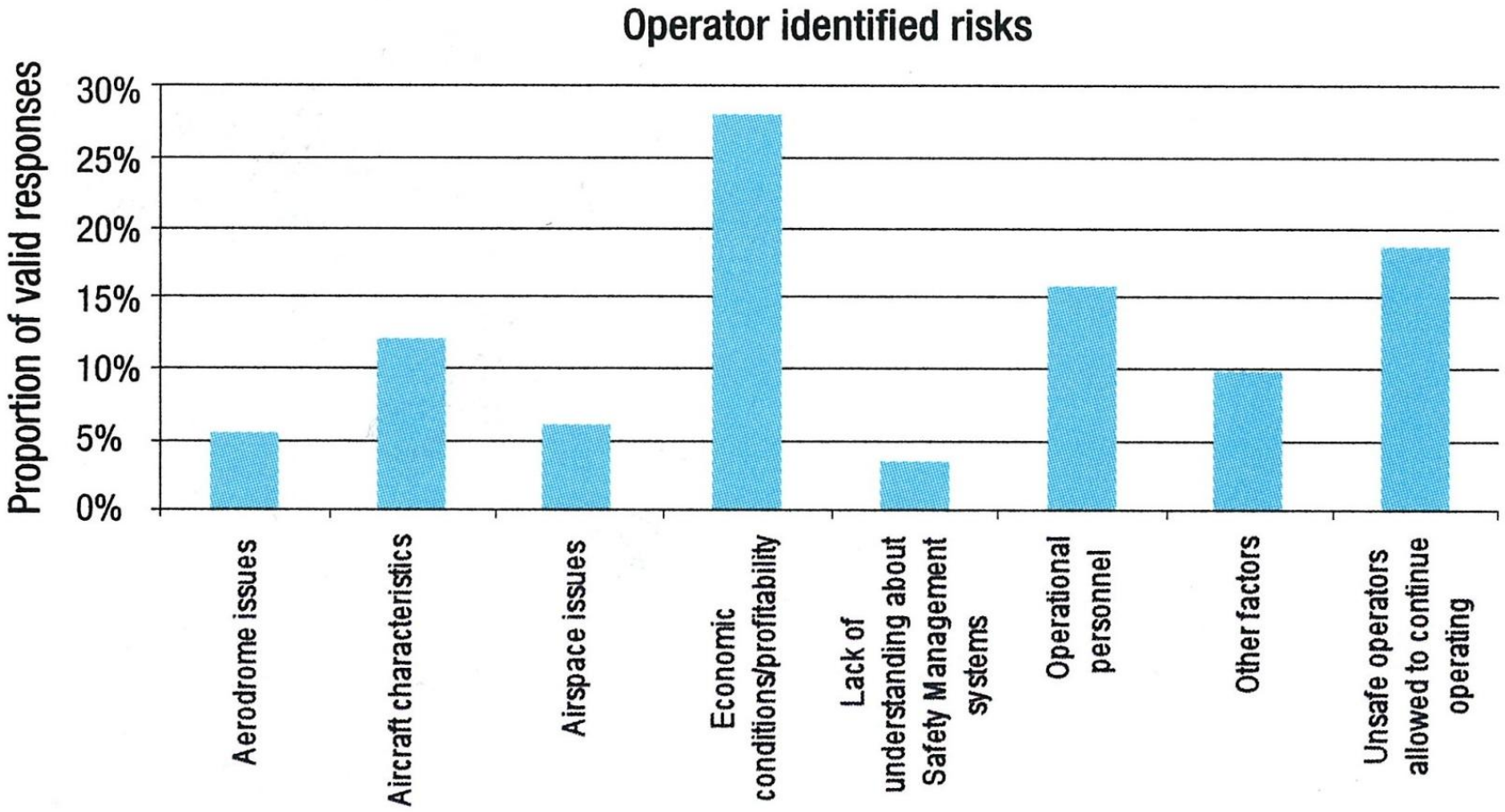
Operator Perceived Safety Risks

CASA AOC holders survey 2010



THERE IS A CLEAR DISCORDANCE BETWEEN INDUSTRY PERCEPTION AND OPERATIONAL REALITY WITH RESPECT TO WILDLIFE HAZARDS

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Bird strike resolved to its simplest elements

- SEPARATION PROBLEM
  - Analogous to avoiding collision between A/C
- ENVIRONMENTAL PROBLEM
  - Analogous to avoiding weather hazards

Strike mitigation can be effectively managed using the same tools and systems that are used to manage aircraft separation and weather hazard mitigation

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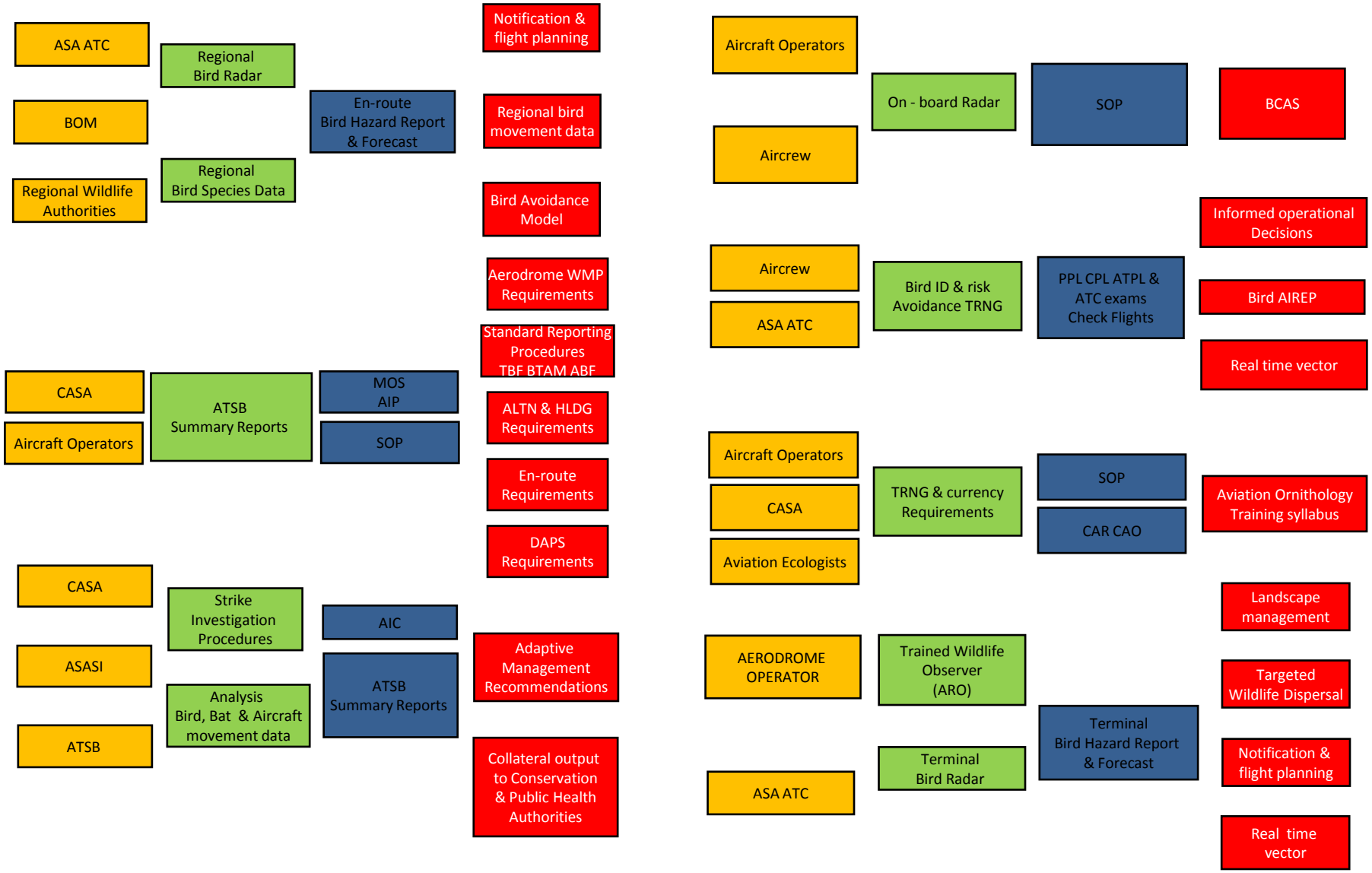
A New Strike Mitigation Model



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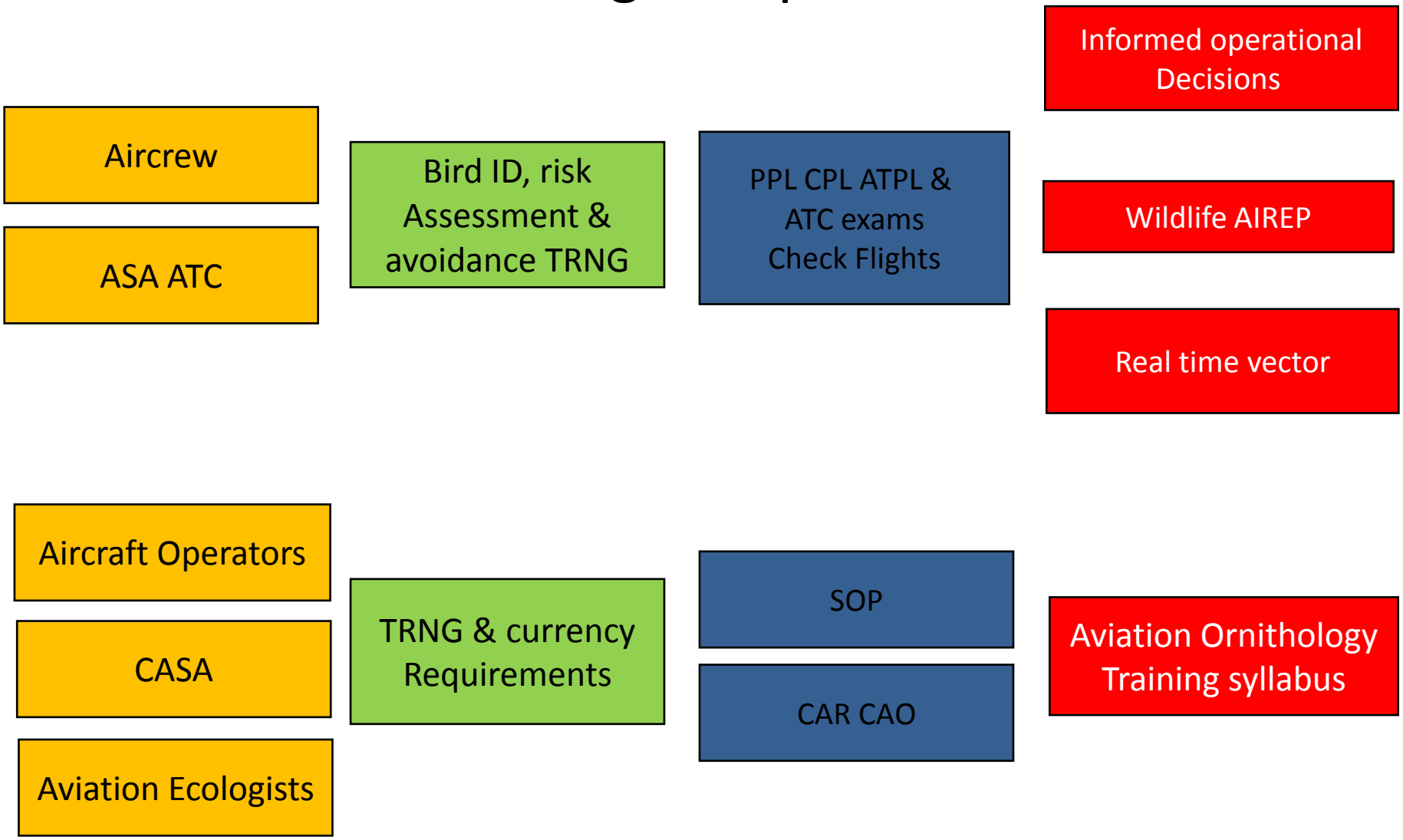
Ideal Strike Mitigation Model Training Component



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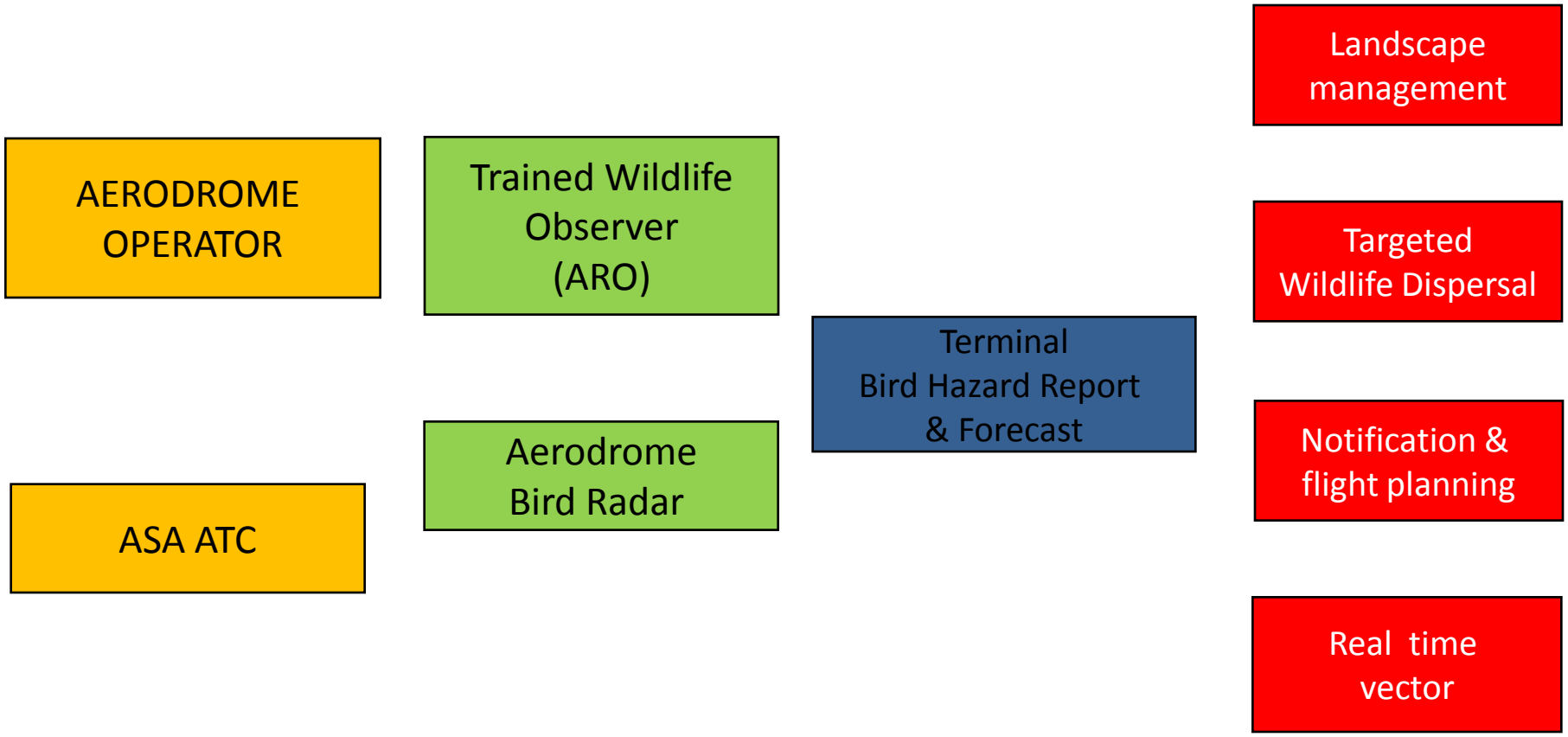
Ideal Strike Mitigation Model
Terminal Component



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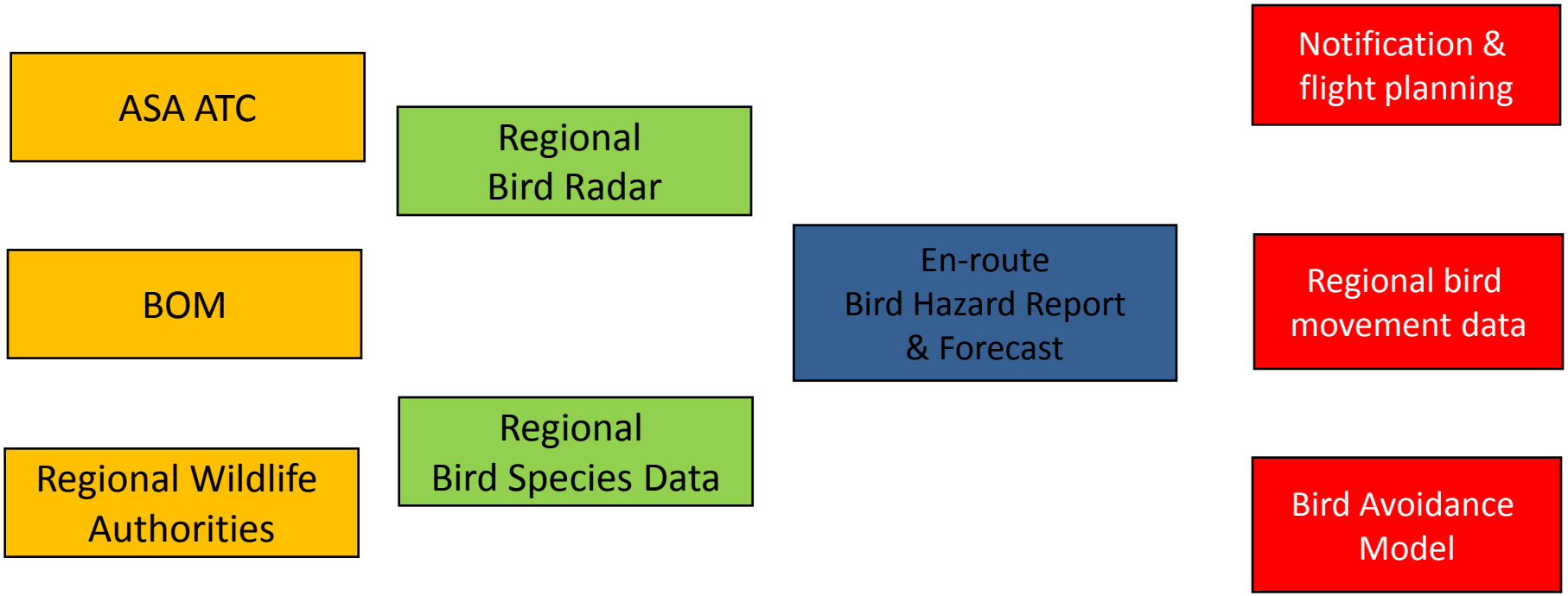
Ideal Strike Mitigation Model
Training & En-route Components



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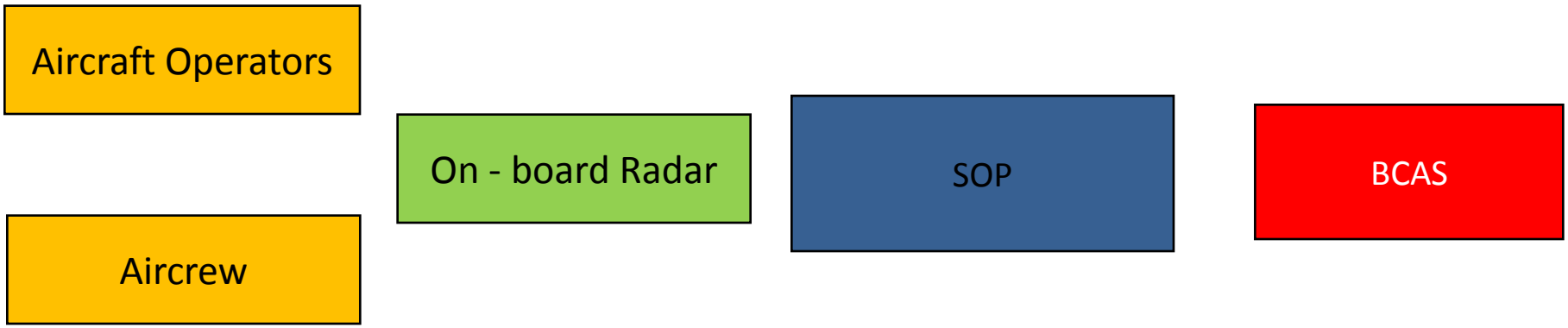
Ideal Strike Mitigation Model
Training & En-route Components



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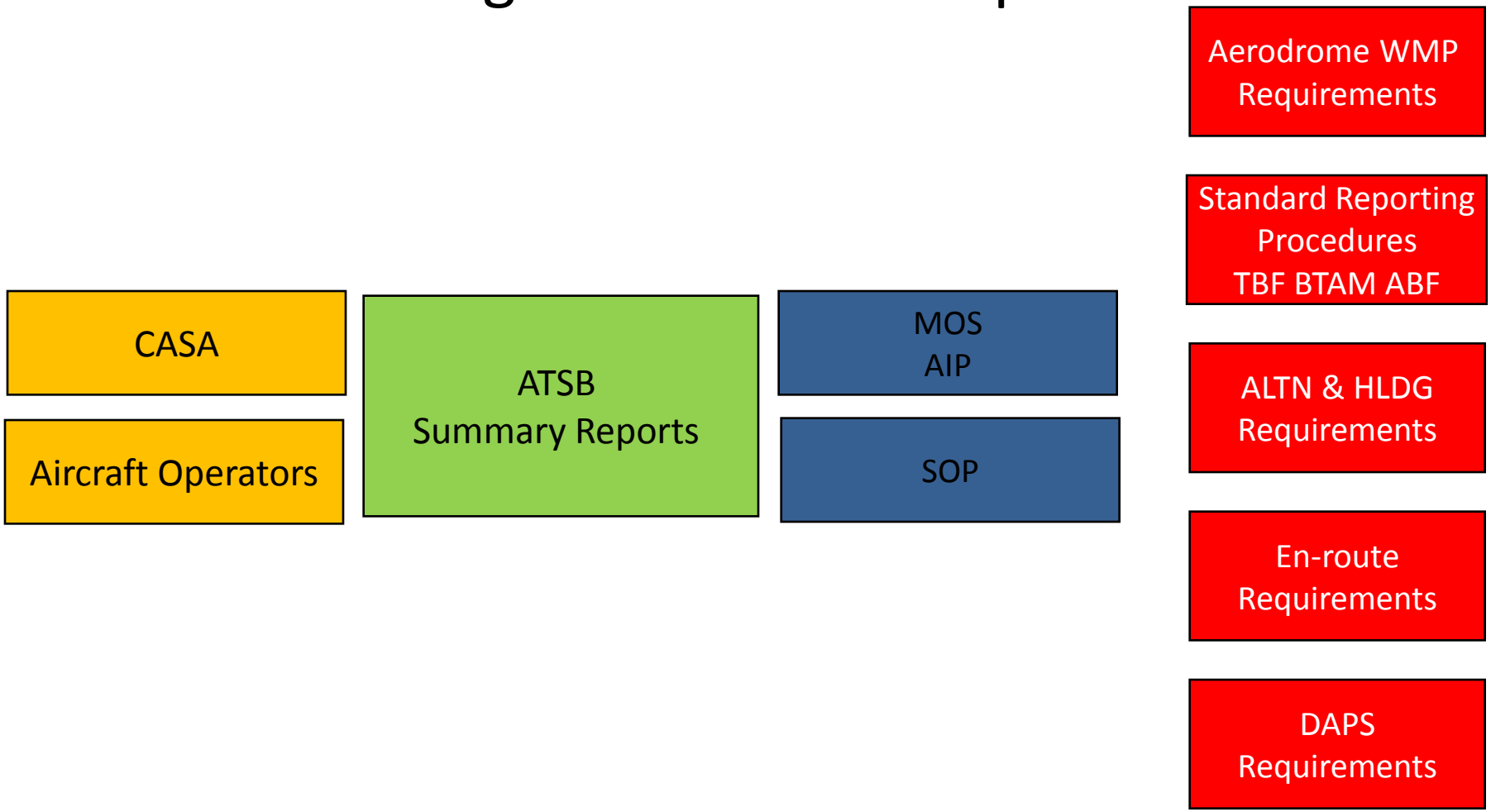
Ideal Strike Mitigation Model
Training & En-route Components



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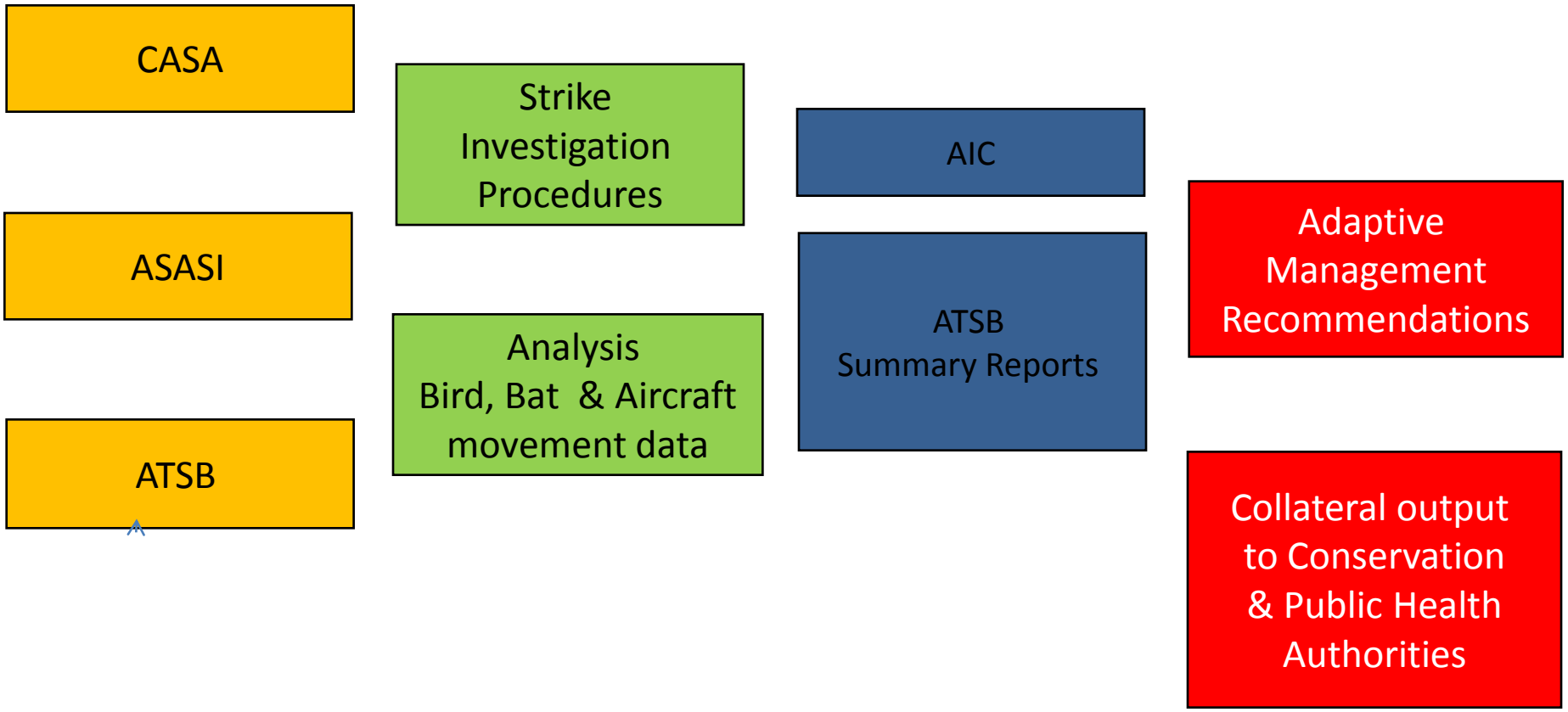
Ideal Strike Mitigation Model Support Component



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Expected outputs of the new model

	EXISTING ANALOGUE
Ab initio and integrated risk awareness training (Aircrew ATC)	Met, APO & NAV
Currency and testing procedures	Yes for all levels
Standardised wildlife risk forecasting system - flight planning	TAF, AFOR
Standardised real time risk reporting system	METAR TTF ATIS
Established operational procedures for forecast or actual risks	INTER, TEMPO
Real time vectoring where applicable	Separation, sequencing
Established forensic and investigation procedures	ISASI
Accurate, current and meaningful data collection and analysis	-
Time site specific bird movement and avoidance models	BOM
Regional radar en-route hazard detection	SSR
Terminal and on board hazard detection and avoidance systems	SSR, TCAS
DAPS design	GIS GPS
Collateral output to conservation and public health	BOM output to others

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Combined AS-WCAS
Airside Security – Wildlife Collision Avoidance Model

SHARED FUNCTIONS

- Protect the safety of public, aircrew and aircraft
- Patrol and monitor the perimeter and airside area
- Report, deter and mitigate airside intrusions and hazards
- Use dogs and weapons
- Emerging technologies (terminal radar) have application in both arenas

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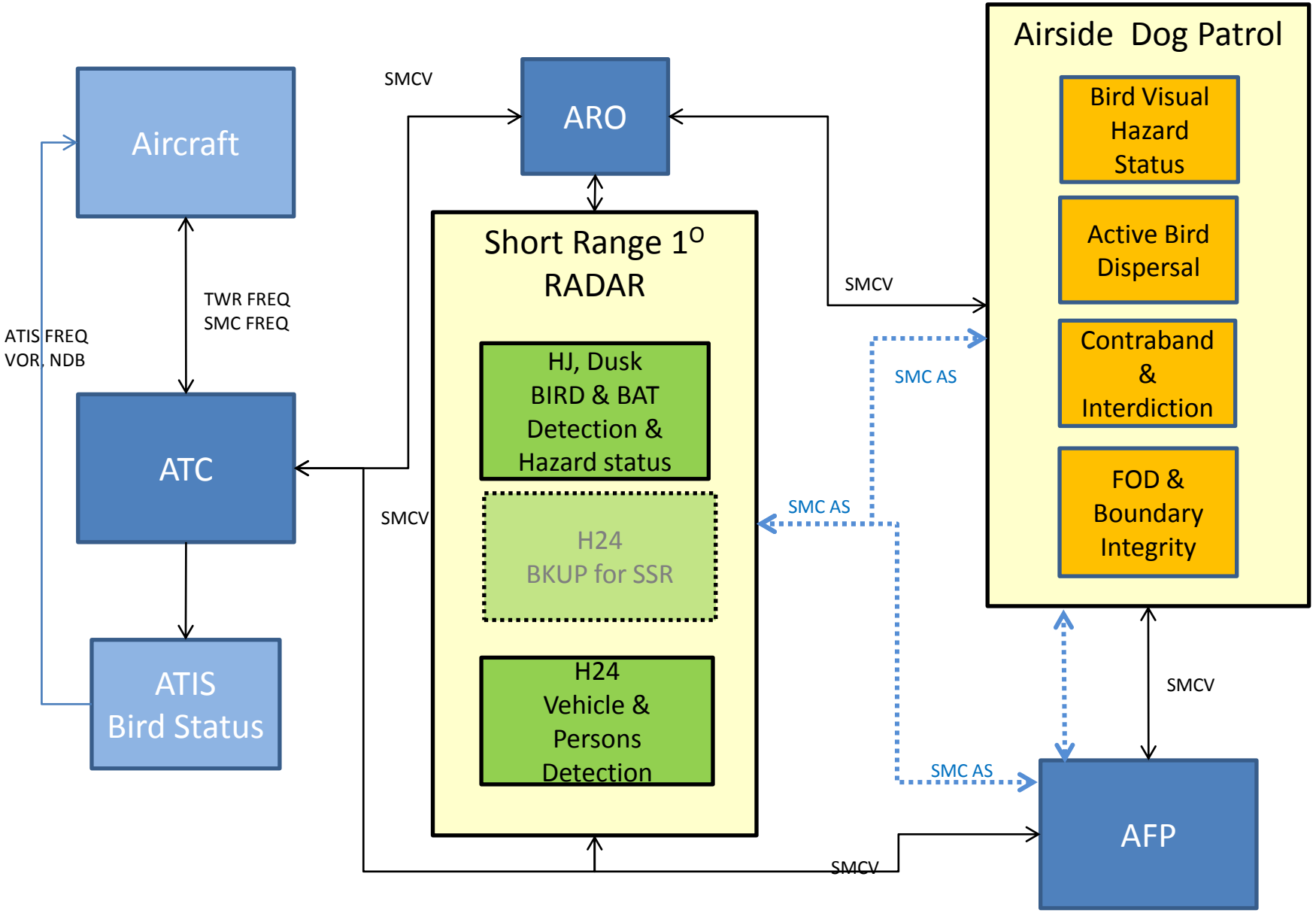
AS-WCAS for 1O CTZ



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Combined AS-WCAS
Airside Security – Wildlife Collision Avoidance Model

RAAF - Airfield Defence Guard
MIL SECPOL

In Australia the ADF aviation sector is ideal for establishing new mitigation models for a number of reasons

1. the authority, responsibility, consequences and costs associated with strike and strike mitigation all reside with a single entity; this greatly simplifies the management and implementation processes.
2. Many ADF bases have relatively low aircraft movement rates
3. Many ADF operations have more scheduling flexibility than domestic RPT operations
4. ADF operations have high capability requirement which warrants stringent strike mitigation