

AVEM insight

Wildlife and aviation don't mix



AVEM insight

Who are we?



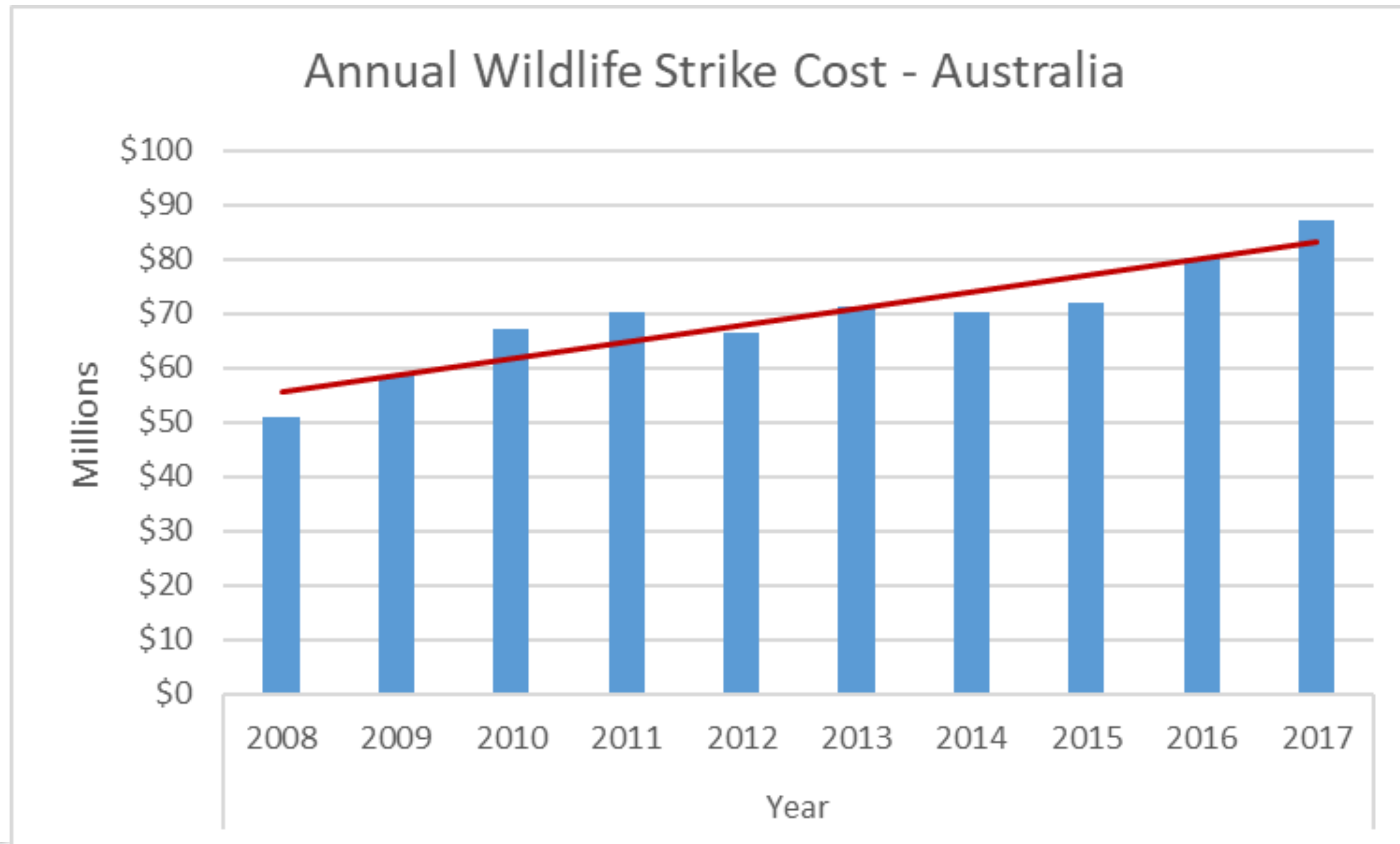
Stu McGraw



David Geil

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Wildlife hazards represent a significant and rising risk to aviation stakeholders



Source: Allen & Orosz 2001 & ATSB 2017

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1,900+ bird strikes annually



13,000+ bird strikes annually

Estimates from 8 Airlines

Presented at the World Bird Strike and Engineering conference, Tokyo 2016 (Dr Jeff McKee)

Airline	Area of Operation	Fleet Size	Data Years	Estimated Average total Cost /Strike (USD 2016)	Data Reliability
A	Global	>300	2	\$54,758	****
B	Europe	<100	2	\$ 33,681	***
C	South America	100-300	4	\$26,348	*
D	Global	100-300	2	\$8,813	*
E	Global	100-300	10	\$69,883	****
F	Global	>300	10	\$110,752	**
G	Global	>300	10	\$7987	**
H	Global	>300	10	\$70555	**

MEAN USD \$47847

**** Complete cross referenced internal data sets supplied. Clearly well maintained database with only a few minor anomalies or incomplete fields

*** Incomplete dataset or a presentation summarising the data in a relatively comprehensive and logical fashion

** Poorly maintained data sets with large gaps and incomplete fields where approximations and assumptions were made to help normalise

* Unsupported statement about costs but presented by an airline in a formal setting

AVISURE australia AusALPA Brisbane Airport Perth Airport



- Number & rate of bird strikes per 10,000 movements is increasing globally
- Global aviation wildlife related costs exceeded US\$2.5b in 2017 (and increasing)

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Why are the numbers rising?



Environmental
encroachment



Increase in total
flights



Increasing wildlife
populations



Quieter faster 2-
engine aircraft

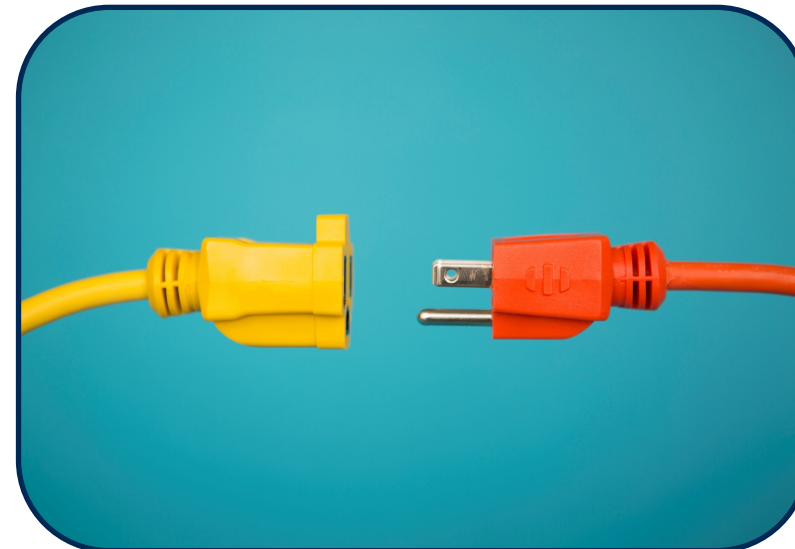
NOTE: These are universal UNCONTROLLABLE factors

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Why hasn't tech stopped the increase?



Low reporting %



Disparity of systems



Siloed vision
(tribalism)



Reactive /
unfocused
management

NOTE: These are human-centric **CONTROLLABLE** factors

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How do we turn the tide?

Airlines & airports need to control three elements:

 **RISK**

 **COST**

 **BRAND**

Each is inter-connected, a change in one will influence the others.


AVEM is about **controlling risk** and **lowering costs** by addressing the factors that CAN BE CONTROLLED. Your BRAND can then flourish.

Let us show you...

REPORTING - CURRENT

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- Web-based
- Time consuming
- Overly complex
- Not intuitive



Australian Government
Australian Transport Safety Bureau

ATSB

HomeAbout the ATSBAviationMarineRail

Search

Aviation

About

Aviation safety

About aviation investigations

Investigations

Aviation safety investigations and reports

Active investigations map

Aviation occurrence briefs

Aviation safety issues and actions

Safety Advisory Notice

Aviation REPCON

Statistics

Aviation statistics

Aviation occurrence database

Procedures

Investigation procedures, terminology and deciding whether to investigate

The investigation process

Terminology used

Hazards at aviation accident sites: Guidance for police and emergency personnel

Research and Analysis

Aviation research reports

Aviation publications

Avoidable accidents

Reporting

Mandatory - Aviation accident or incident notification

Voluntary - REPCON Aviation Confidential Reporting Scheme

Aviation Self-Reporting (ASRS)

AIRS

Aviation Incident Reporting Summary

CASA Flight Crew Licence Check

Historical archive

Aviation Safety Digest

Other

Create a flight path for Google Earth

Home > Aviation > Aviation accident or incident notification form

Aviation accident or incident notification form

Accidents and serious incidents (commonly called Immediately Reportable Matters), which affect the safety of aircraft must, in the first instance, be notified to the ATSB by telephone toll-free call (24 hour) 1800 011 034. If telephoning from outside Australia, please use +61 2 6230 4470.

24h

Notify the ATSB by telephone toll-free
1800 011 034

Important information about making a notification and information disclosed to CASA.

Next page >>

Resume progress

Save progress

0%

Summary

Person reporting

Name *

eg. John Smith

Phone *

eg. +61 (0) 999 9999

Email *

eg. johnsmith@organisation.com

Role:

Not Answered

Type of event

These questions help to determine how much information to ask you for. We will not ask you to supply more information than necessary.

Did the event involve?:

☐ Bird/animal strike

☐ Mechanical system problem

☐ Near collision between two aircraft

Summary of event

Date *

ddMM/yyyy

Local Time (24hr) *

eg. 0154

State *

Not Answered

Location *

eg. Airport

Damage to aircraft *

Not Answered

Most serious injury *

Not Answered

Please provide an overall summary of what happened. *

Please enter summary...


You can come back to this screen to make changes. On the following screens we will ask for more information based on the type of event

Next page >>

Resume progress

Save progress

0%



Federal Aviation
Administration

FAA HomeWildlifeLogin

HomeReport a StrikeUpdate/Print a Strike ReportSearch the Database

OMB CONTROL NUMBER: 2120-0045
EXPIRATION DATE: 09/31/2013

Paperwork Reduction Act Burden Statement

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120-0045. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information.

All responses to this collection of information are voluntary. 14 CFR 1.16.137. Wildlife Hazard Management requires the FAA to collect wildlife strike data. No assurances of confidentiality are given. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Office, Federal Aviation Administration, 12151 Hillwood Parkway, Fort Worth, TX 76177-1524.

Report a Strike Report

Incident Date and Time

Date * and Time

2022-09-30

Time Of Day:

Airport Information

Airport Name

OR Airport ID

Location, if en route/nearest Town/Reference and State/Report

Runway/Taxiway Used

Distance (nm) from Airport/nearest Town/Reference and State/Airport

Operator/Aircraft Information

Operator Name

OR Operator ID

Aircraft Registration

Flight Number

Aircraft Make/Model

Engine Make/Model

Phase of Flight

Speed (knots) (IAS)

Height (feet) (AGL)

Environment Conditions

Sky Condition

Precipitation

☐ Fog☐ Rain☐ Snow☐ None

Damage/Cost Information

Aircraft Time Out of Service (hours)

Estimated cost of Repairs or Replacement (US \$)

Estimated other costs (US \$) (e.g., revenue loss)

Impact And Damage Information

Aircraft Part(s)	Struck	Damaged	Ingested
Radome	<input type="checkbox"/>	<input type="checkbox"/>	
Windshield	<input type="checkbox"/>	<input type="checkbox"/>	
Nose	<input type="checkbox"/>	<input type="checkbox"/>	
Engine #1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine #2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine #3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine #4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Propeller	<input type="checkbox"/>	<input type="checkbox"/>	
Wing/Rotor	<input type="checkbox"/>	<input type="checkbox"/>	
Fuselage	<input type="checkbox"/>	<input type="checkbox"/>	
Landing Gear	<input type="checkbox"/>	<input type="checkbox"/>	
Tail	<input type="checkbox"/>	<input type="checkbox"/>	
Lights	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Specify part struck/damaged/ingested if "Other" is checked

Effect on Flight

☐ None

☐ Aborted Take-Off

☐ Precautionary Landing

☐ Engine Shutdown

☐ Other

Specify effect on flight if "Other" is checked:

Wildlife Information

* If you are reporting a wildlife strike, and you are not certain of the species, please submit wildlife remains for identification. Please [click here](#) for instructions on how to collect remains.

Bird/ Wildlife Remains

☐ Collected☐ Sent to Smithsonian

Pilot Warned of Bird/ Wildlife?

Unknown

Bird Band Number:

Bird/Other Wildlife Species

Remarks (Describe damage, injuries, and other pertinent information such as fuel jetisons) 4000/4000 characters remaining

Number of Wildlife Seen

Size of Bird(s)

Number of Wildlife Struck

Report Information

Save my information

REPORTINGconfirm

AVEM insight

1

Multiple report types supported: bird strike, mechanical issue, air incident, etc. (increased utility = higher uptake)

2

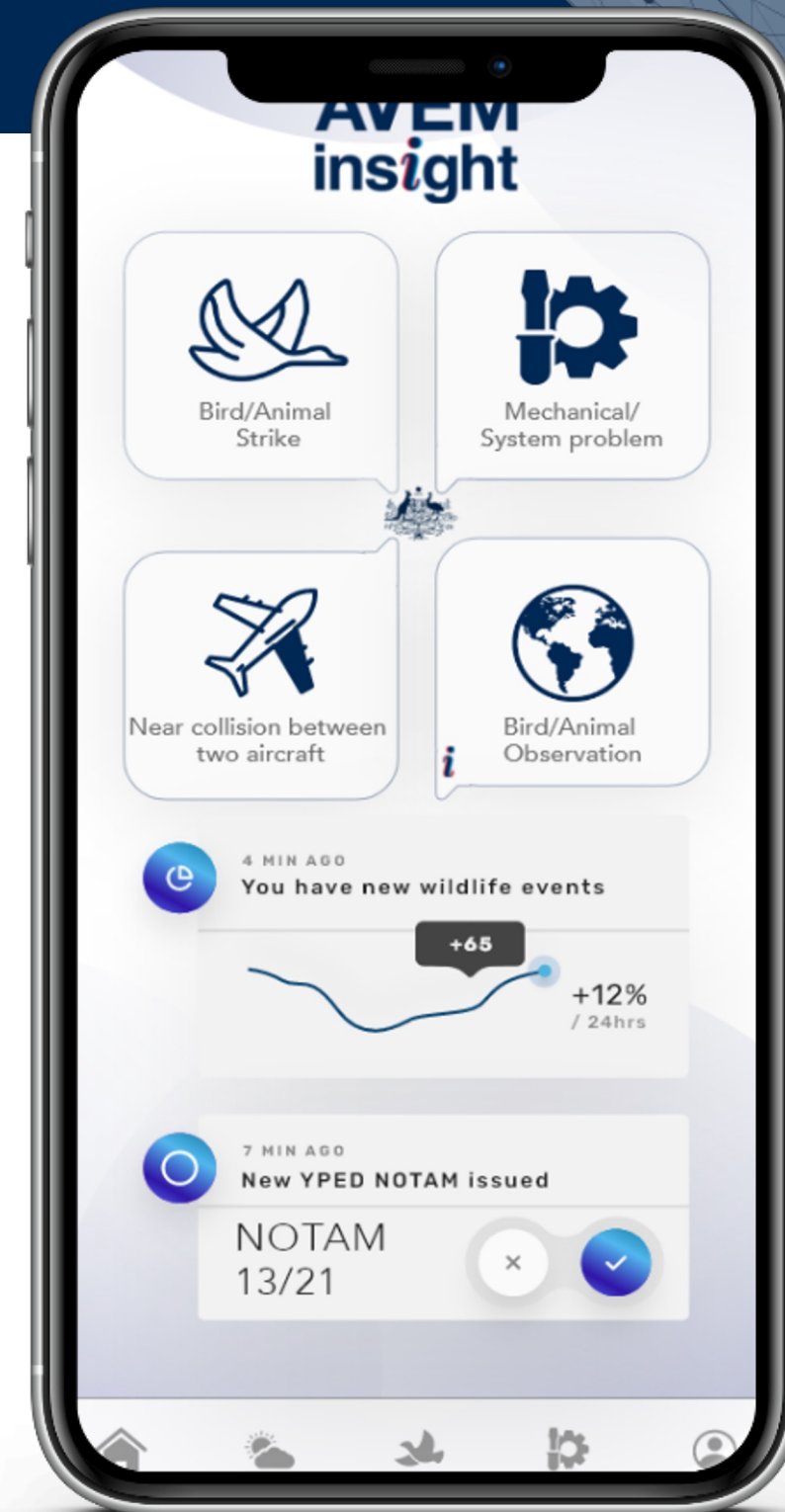
Includes valuable supplementary data (weather, NOTAMs, etc) to further increase utility

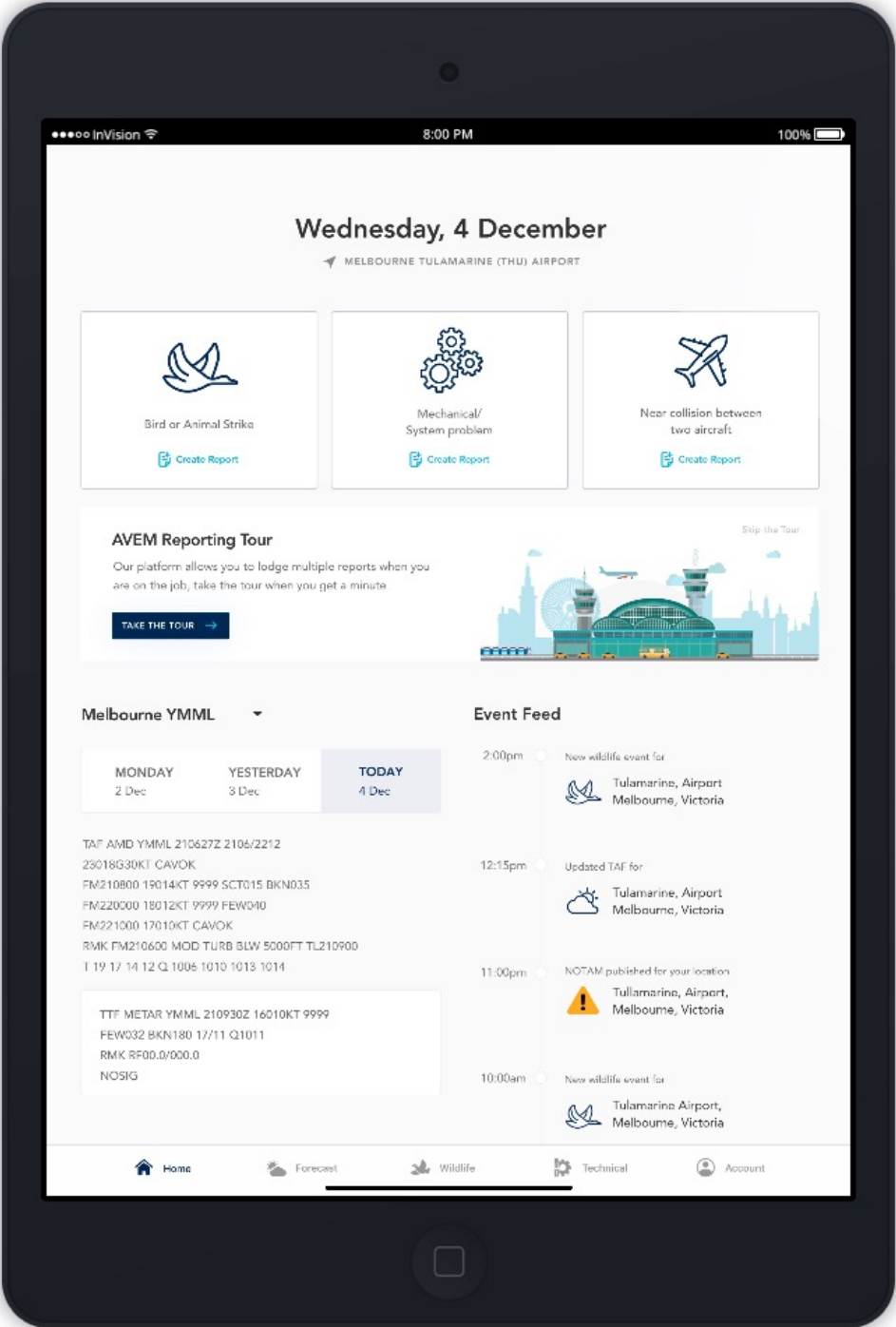
3

Significant portion of mandatory reporting fields are pre-populated (simplification = higher uptake)

4

Automates mandatory reporting data flow into Gov't database/s (reduced overhead = higher uptake)





Can be integrated with corporate enterprise systems for Group level reporting alignment 5

Multiple form factors: mobile, tablet (leverage existing devices = higher uptake) 6

Dashboard for users to increase awareness of recent events at subscribed locations (increased value = higher uptake) 7

Form content tailored to your local Regulator/Corporate requirements 8

SYSTEM DISPARITY - CURRENT

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1

Multiple systems for multiple tasks – wildlife observation tool, risk assurance tool, ATC mgmt.,
flight planning, EFB, etc, etc.

2

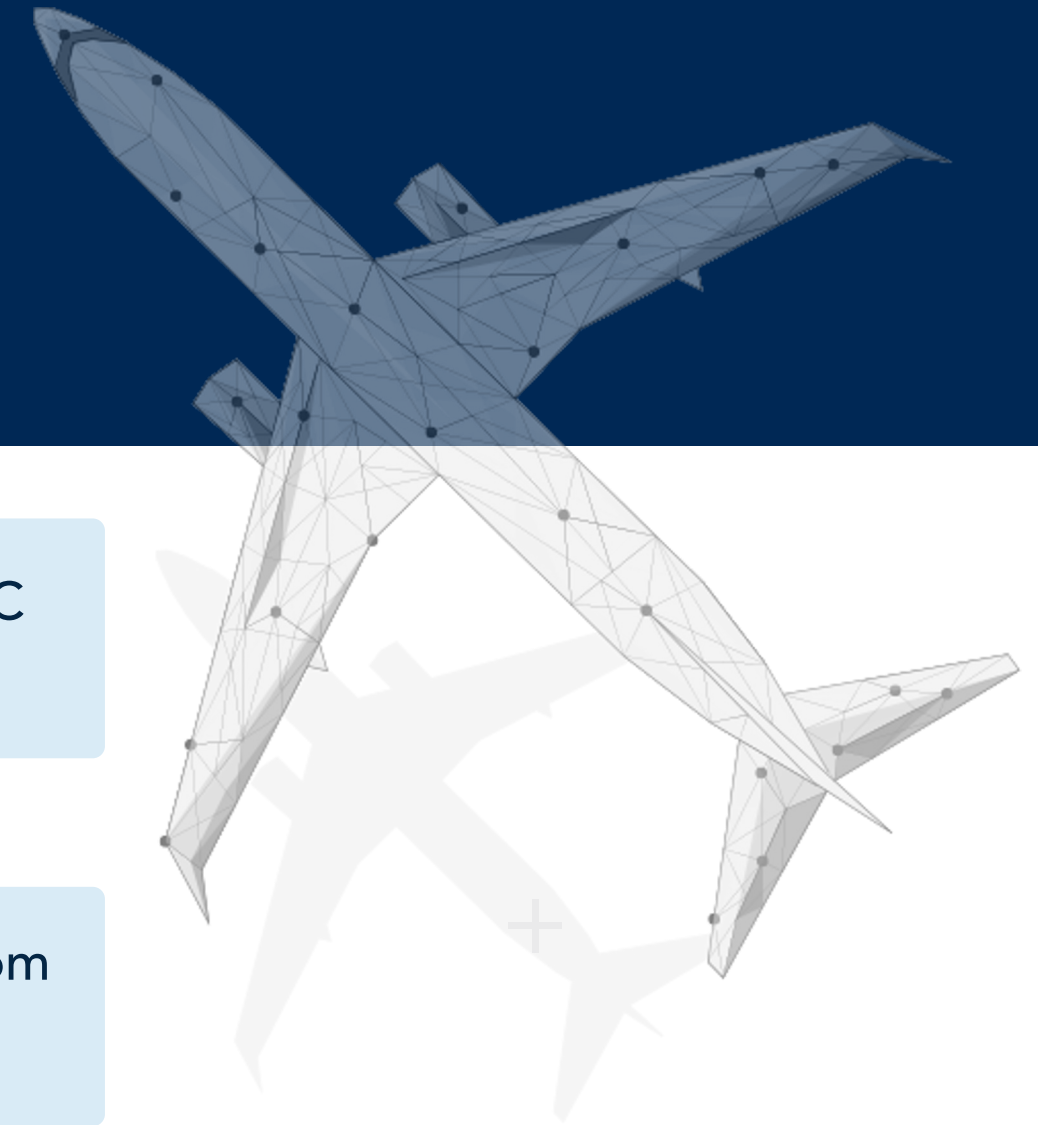
The total view of wildlife risk is limited to your own airfield – no collaboration/data from other sites that may be experiencing similar trends/issues

3

3rd party stakeholders (airlines, private aviation, insurers, national ATC) have extremely limited view of wildlife risk (NOTAM: CAUTION BIRDS ON APPROACH)

4

No ability to share data and/or leverage multi-systems data to provide valuable predictive analysis



SYSTEM DISPARITY^{maxim}

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1

Observation data is fused with historical event data

2

The resulting data set is assessed by A.I. to provide a view of future potential risk

3

The A.I. considers extant factors – active runway/s, approach/departure paths

4

Specific risk thresholds are set by the system owner



5

MAXIM then provides an ongoing prognostic assessment of when/where specific risks will occur that require remediation. This information can be used in planning wildlife management activities more efficiently

6

This de-identified forecast data can then also be shared with airport users via CONFIRM or with enterprise planning systems via avianAPI

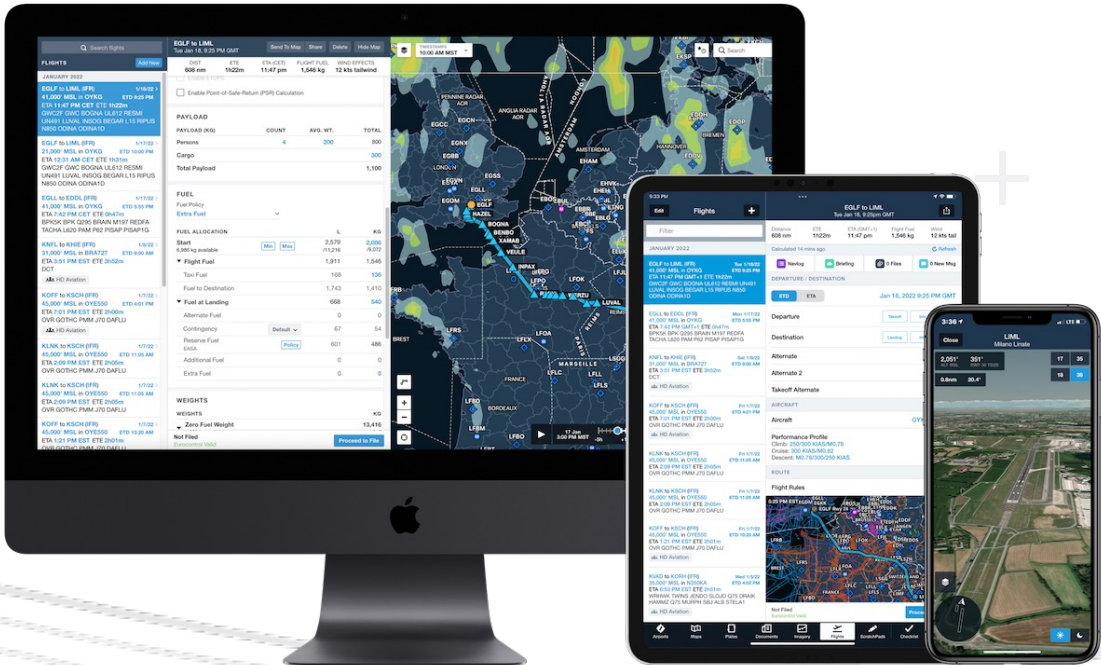




TRIBALISMavianAPI

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MAXIM prognostic data can also be provided to external interested parties via API (airlines, etc.) for native integration into flight planning tools (when it is actually actionable!), EFBs (simple wildlife risk overlay), databases (ATC, Insurance), etc.

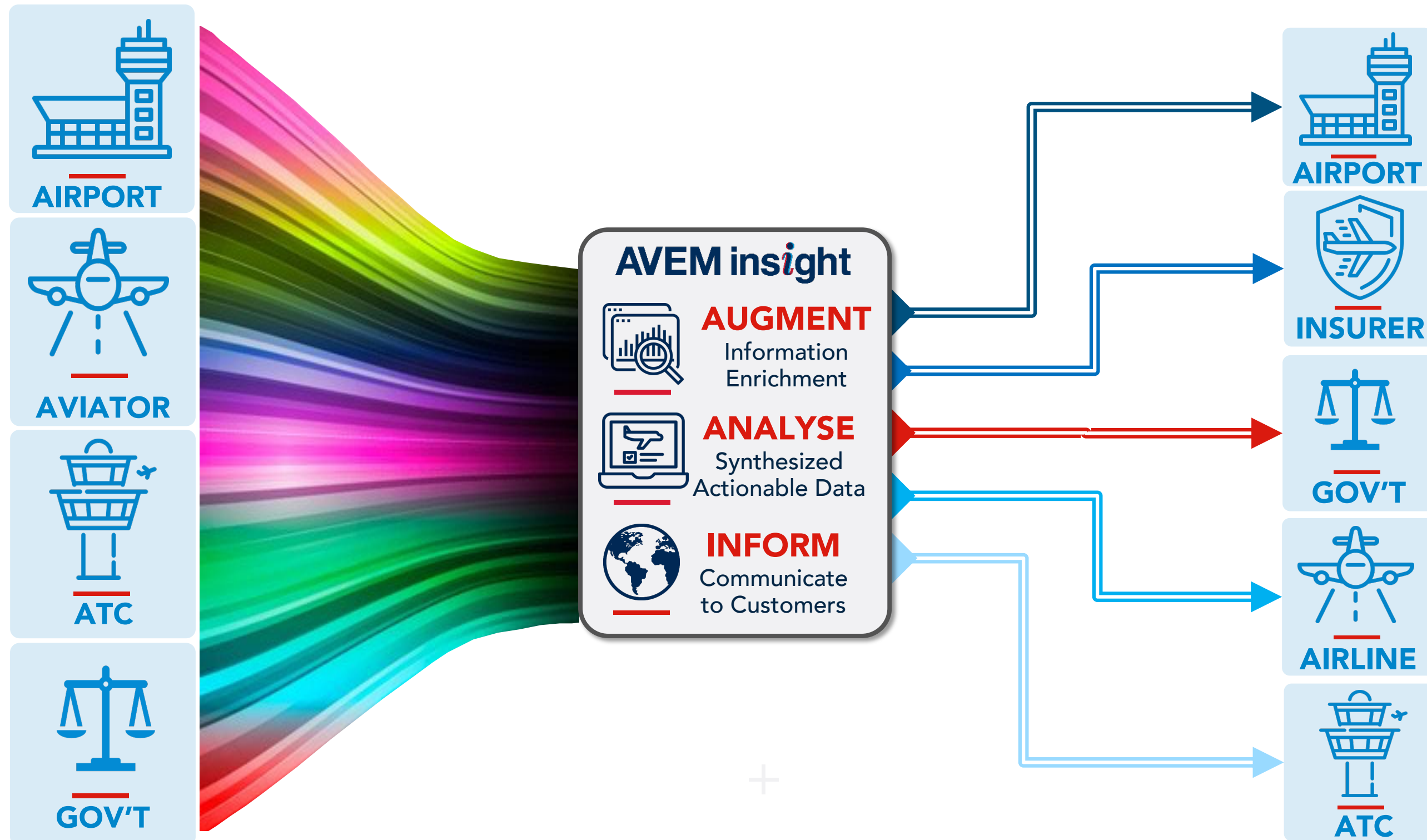


avian
API



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THE GOAL – To deliver tailored, actionable, wildlife threat data to enable greater focus in overall risk management



VALUE PROPOSITION

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Cost Reduction

Reduction in direct/indirect costs due to decreasing wildlife interactions

Risk Reduction

Uncertainty lowered by reducing the number and impact of unexpected events

Brand Value

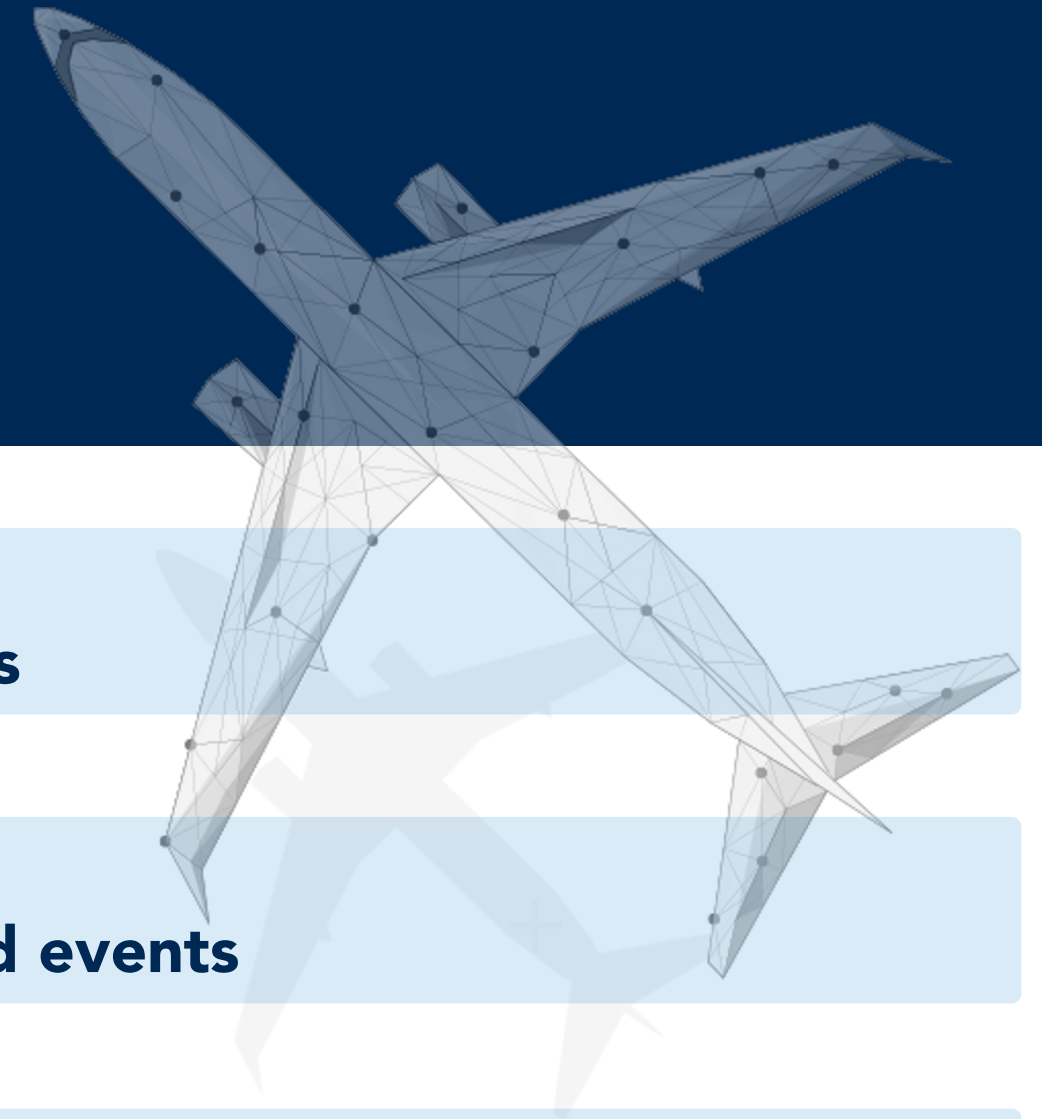
Brand protection from negative press events – Market against an innovative conservation mindset

Operational Efficiency

Target existing assets in a more efficient manner to ensure better outcomes

Insurance Savings

Leverage richer heuristic data sets that underpin indemnity negotiations



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MORE INFO



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