

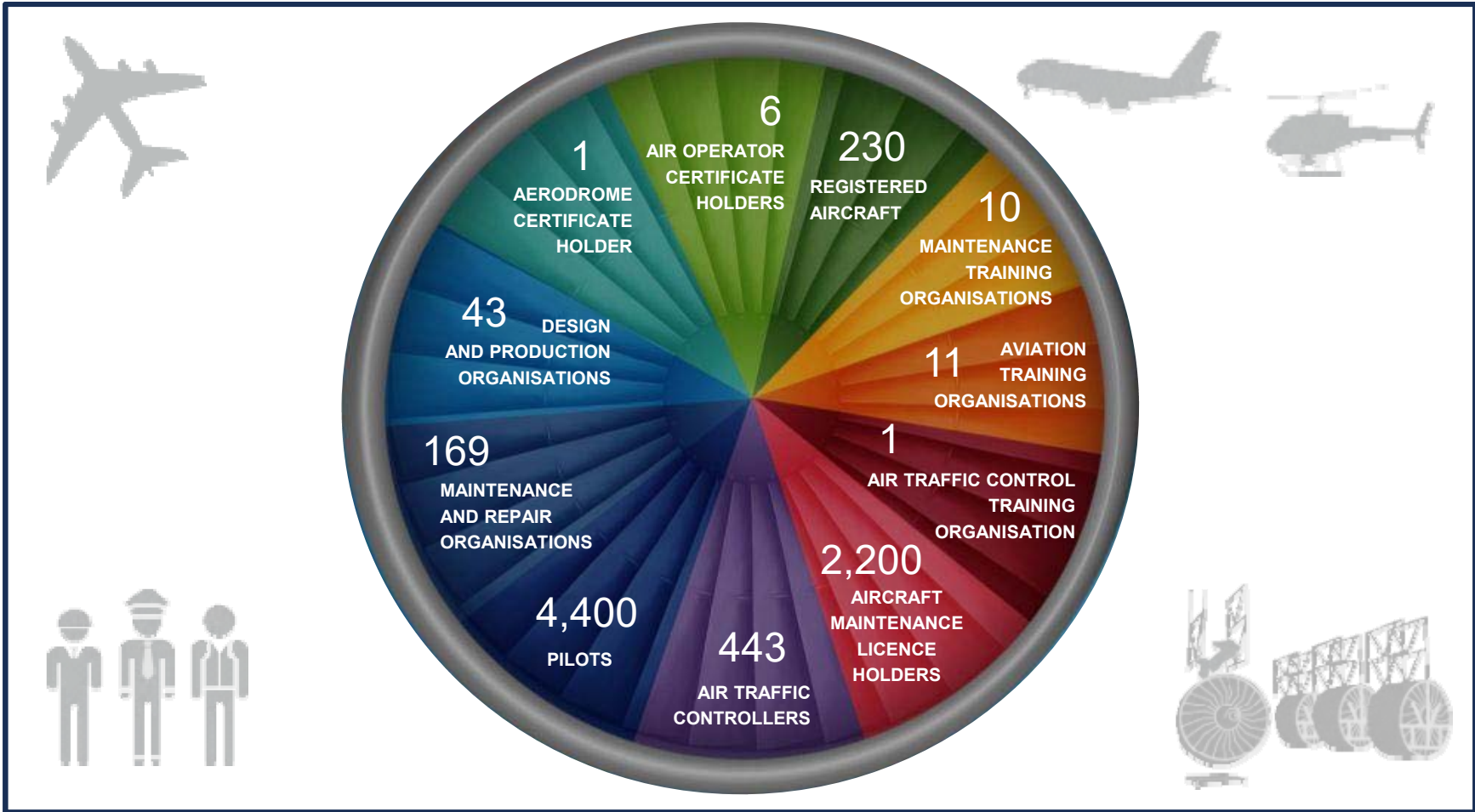
The background of the slide is a photograph of the Singapore Air Traffic Control Tower at night. The tower is illuminated with blue lights, and its top is lit with a bright yellow light. The sky is a deep red and purple, suggesting a sunset or sunrise. In the foreground, there is a blurred image of a runway or taxiway with a bright yellow light. The CAAS logo is in the bottom left corner.

Singapore CAAS Risk Based Surveillance

ICAO Risk Based Surveillance Workshop
Lima, Peru
19-20 March 2018

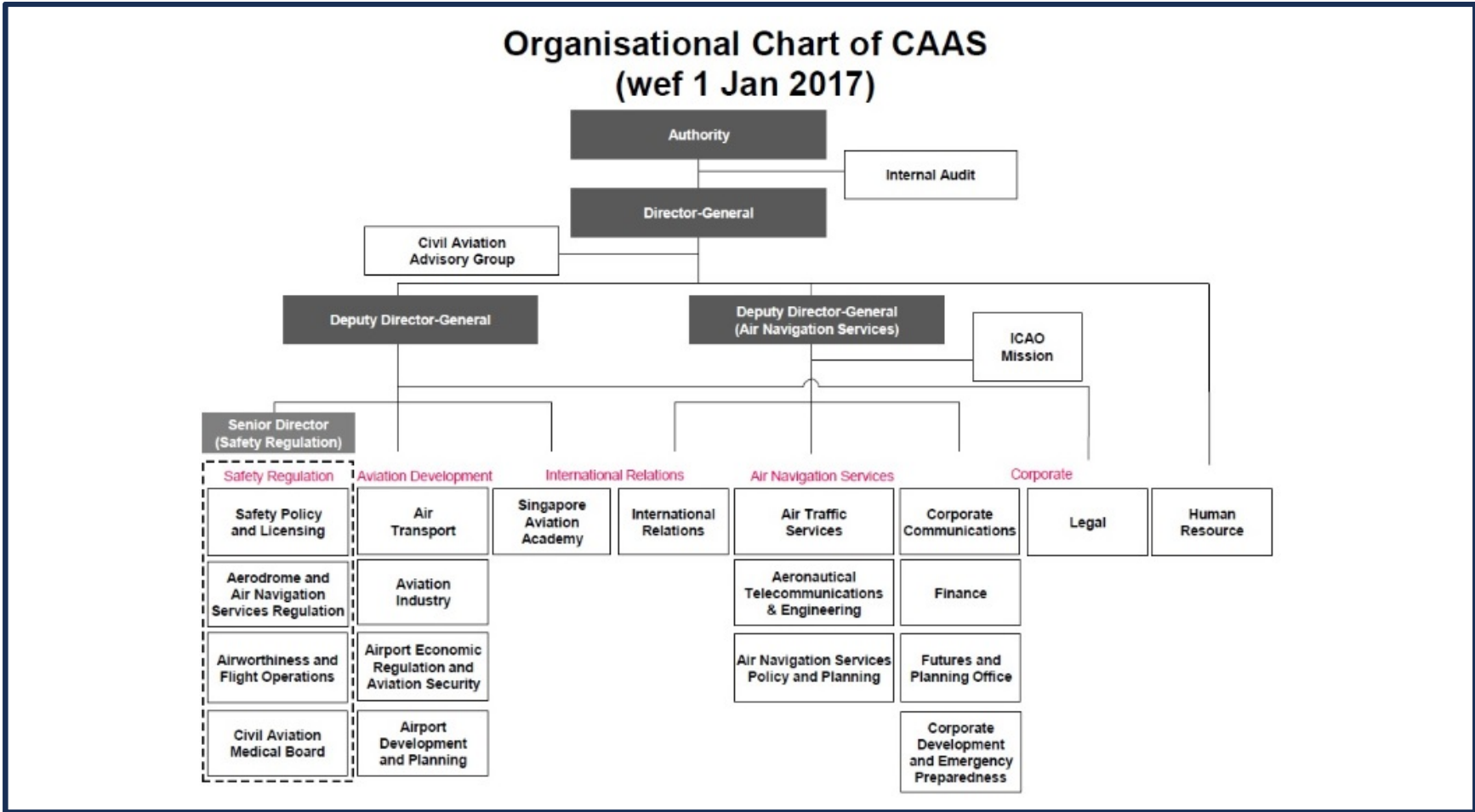
Industry Overview

Diverse group of aviation safety approval holders



CAAS Overview

3 mandates: safety regulation, aviation development, and ANS provision



The Need for Enhanced Risk-Based Surveillance

eRBS as part of CAAS' drive for efficient and effective surveillance

Basic RBS	eRBS
<ul style="list-style-type: none">• Qualitative assessments of 'severity'	<ul style="list-style-type: none">• Standardised assessments of 'severity' and 'likelihood'
<ul style="list-style-type: none">• Inspectors' judgement to determine risk levels	<ul style="list-style-type: none">• Formal framework calibrated by inspectors' judgement to determine risk levels
<ul style="list-style-type: none">• Sector-specific (e.g airlines, MROs, design organisations)	<ul style="list-style-type: none">• Sector- and activity-specific (e.g audits on MROs, inspections on aircraft)
<ul style="list-style-type: none">• Risk levels determine resources allocated and surveillance frequency (for some)	<ul style="list-style-type: none">• Risk levels determine resources allocated, surveillance frequency (for some), and depth of surveillance

eRBS was developed to help CAAS allocate the right amount of surveillance resources to the right entity at the right time

Enhanced Risk-Based Surveillance Development

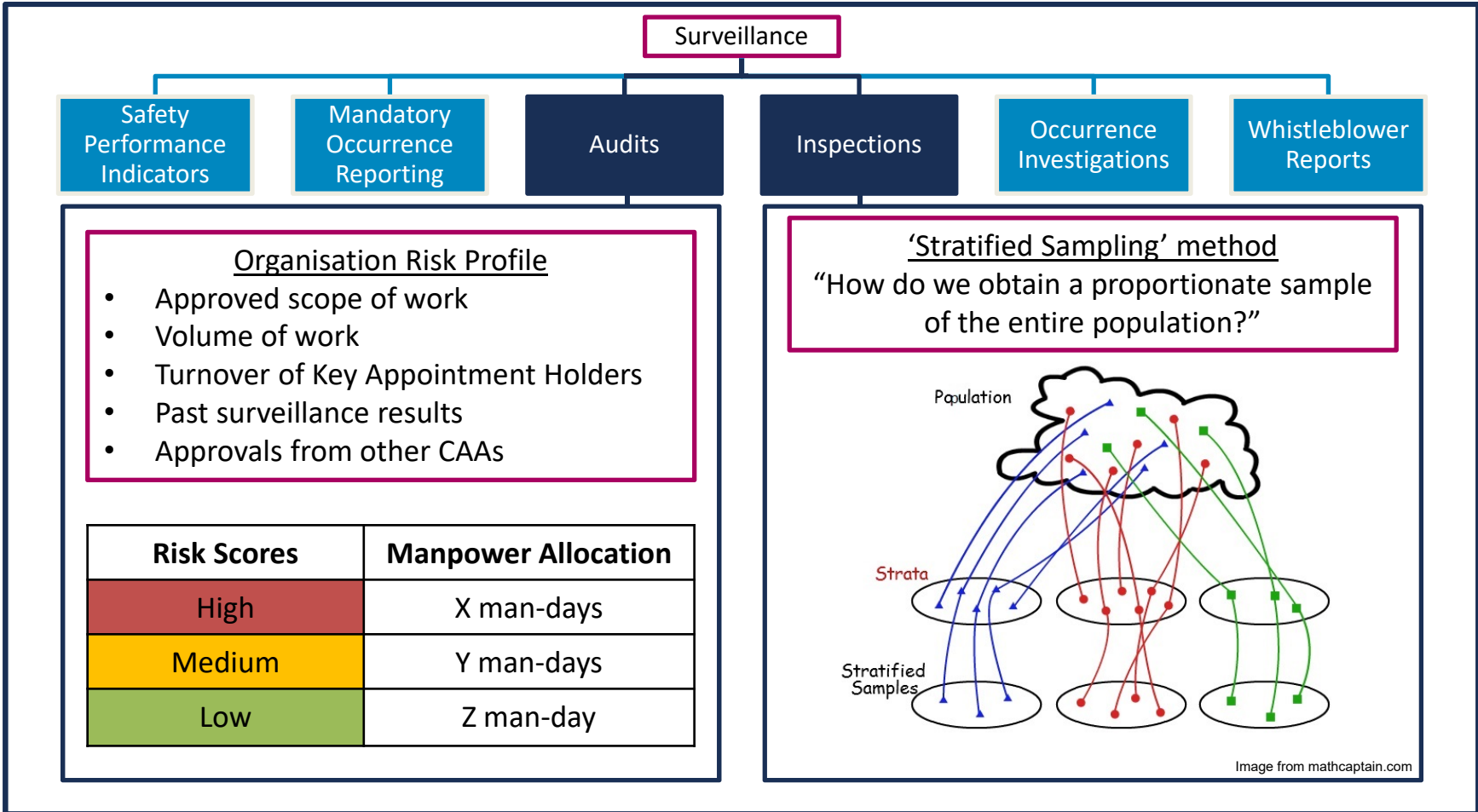
Building on the good work of others

The collage features six document covers:

- ICAO Safety Management Manual (SMM):** A dark blue cover with the ICAO logo and text: "Doc 9859 AN/474", "Safety Management Manual (SMM)", "Approved by the Secretary General and published under his authority", "Third Edition — 2013", and "International Civil Aviation Organization".
- Australian Government Civil Aviation Safety Authority (CASA) Surveillance Manual:** A white cover with the Australian coat of arms and text: "Australian Government Civil Aviation Safety Authority", "CASA Surveillance Manual", and "Version 2.3 - January 2015".
- EASA Practices for risk-based oversight:** A white cover with the EASA logo and text: "EASA European Aviation Safety Agency", "Flight Standards Directorate", and "Practices for risk-based oversight".
- Singapore Standards Council Risk management - Principles and guidelines:** A white cover with the Singapore Standards Council logo and text: "SS ISO 31000 : 2011 ISO 31000 : 2009, IDT", "SINGAPORE STANDARDS", and "Risk management - Principles and guidelines".
- Transport Canada's Risk Based Surveillance and Planning System:** A cover with a photograph of an aircraft and text: "TRANSPORT CANADA'S RISK BASED SURVEILLANCE AND PLANNING SYSTEM" and the "Canada" logo.
- ICAO iSTARS 3.0 Integrated Safety Trend Analysis and Reporting System:** A cover with the ICAO logo and text: "iSTARS 3.0 Integrated Safety Trend Analysis and Reporting System", "ADREP et al. Statistics and Data on Accidents and Incidents", and the "SPRING" logo.

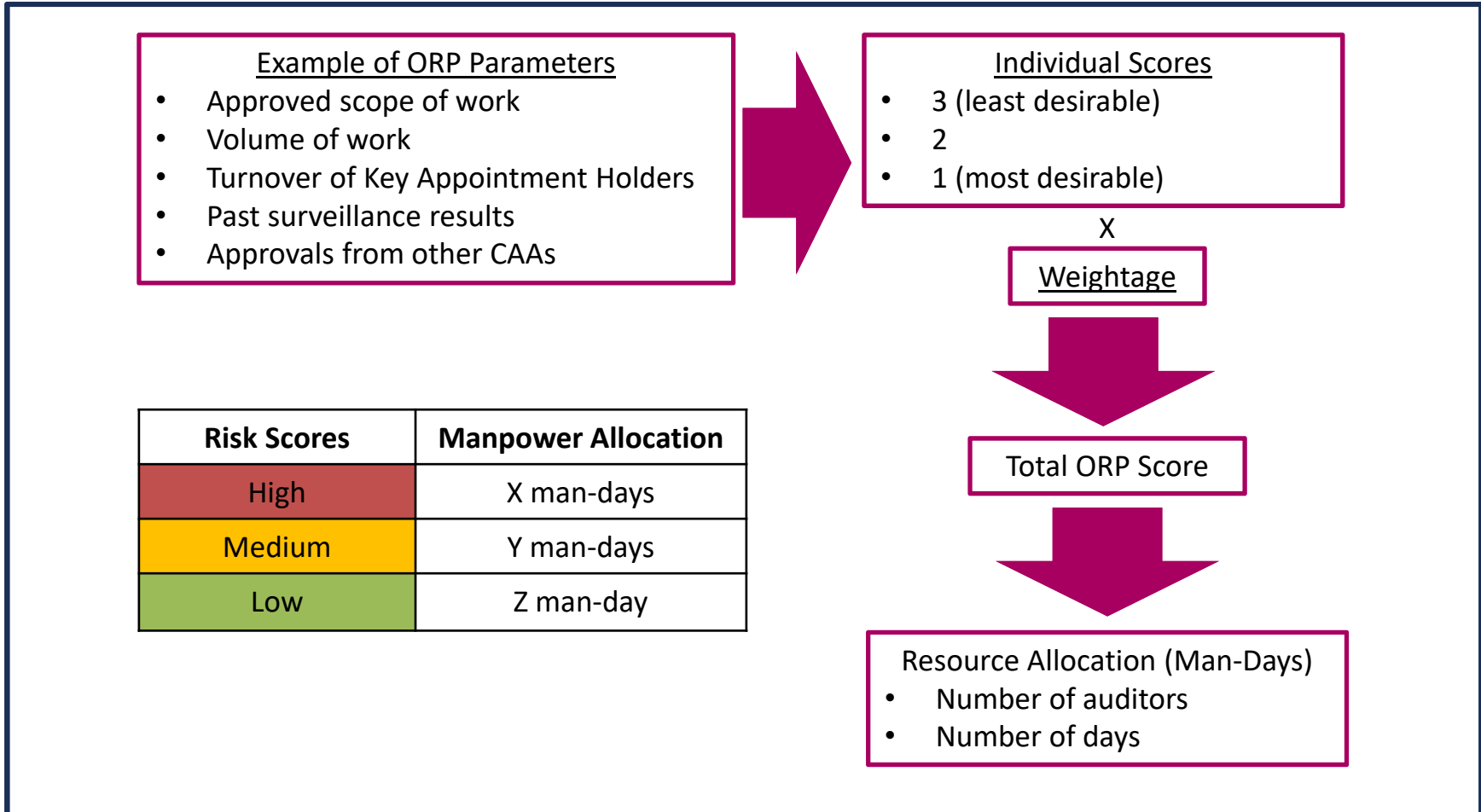
Enhanced Risk-Based Surveillance Development

Focus on surveillance activities within our control – Audits and Inspections



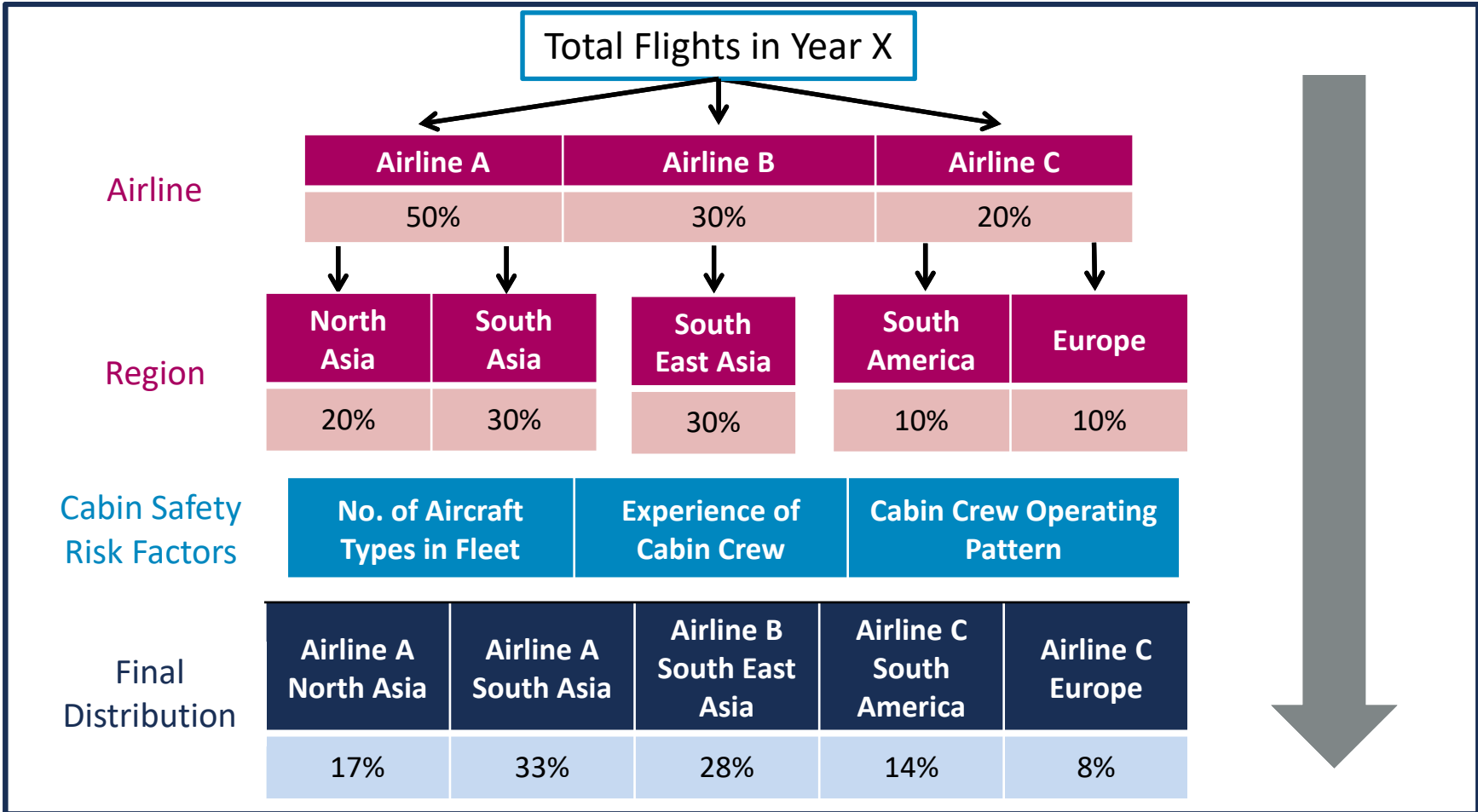
Enhanced Risk-Based Surveillance Development

Organisation Risk Profile (ORP) Trial on Design Organisations



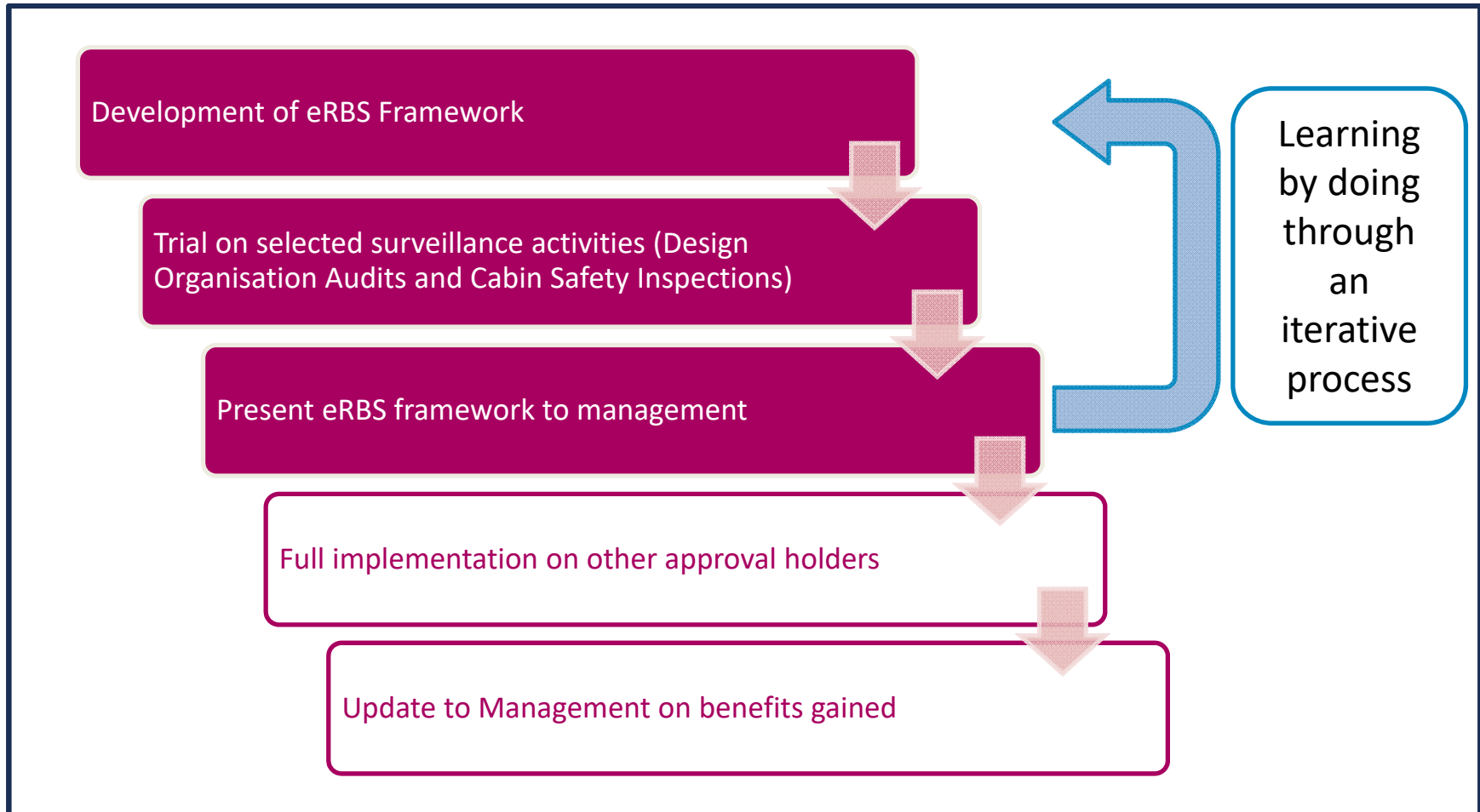
Enhanced Risk-Based Surveillance Development

Weighted Stratified Sampling Trial on Cabin Safety Inspections



Enhanced Risk-Based Surveillance Development

Getting colleagues and management on board eRBS was crucial



Envisioned Benefits of eRBS

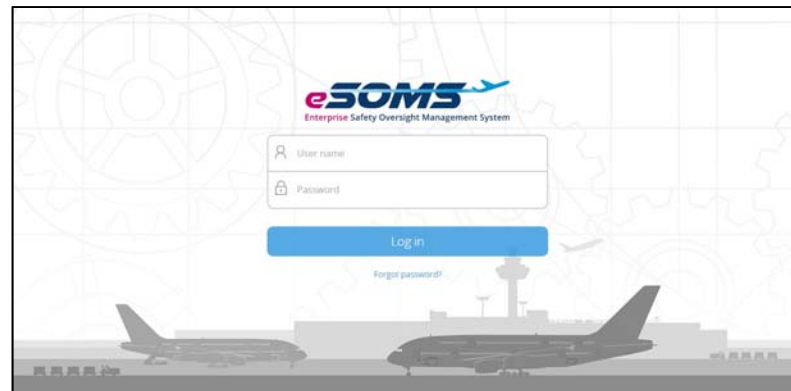
Clarity on envisioned benefits is important for engaging with CAA management and industry

- CAAS
 - Standardised framework for risk assessment
 - Systematically identify areas of greater concern
 - More efficient manpower deployment
 - “Do more with the same resources”
- Industry
 - ‘Nudge’ organisations towards desired behaviour
 - Help promote stronger safety culture

Further Work

Expanding implementation and leveraging IT enhancements

- Roll-out of eRBS to all other surveillance activities
- Integrate eRBS with the rest of CAAS' safety oversight activities through enhanced IT solutions
 - Improve efficiency
 - Fuse data from different sources to gain more accurate picture



Thank you