Implementing HF & NTS Training and Assessment in RPT Operations: A Regulator's Perspective

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CASA

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safe skies for all

Background

ICAO – SARPs - wef 1st Jan 2009

- Requirement for SMS; and

- Requirement for Human Factors training and assessment.
  - 'knowledge and skills related to human performance' relevant to duties.

- Annex 6, Part 1
  - Para 8.7.6.4 (maintenance personnel) – covered in CASA Part 145
  - Para 9.3.1 (flight crew),
  - Para 10.3 (flight operations officer/flight dispatcher), and
  - Para 12.4 (cabin crew)

- Guidance provided in the ICAO Human Factors Training Manual (Doc. 9683).

CASA Regulation Change Objectives

- Align with international standards by introducing the requirement for Human Factors (HF) training and competency assessment; and

- Provide guidance and advisory material through the publication of three Civil Aviation Advisory Publications (CAAPs) to support the proposed amendments.

Key Proposed Changes

- Requirement for Regular Public Transport (RPT) operators to have in place an SMS; and

- Requirement for RPT operators to provide Human Factors (HF) and Non-Technical Skills (NTS) Training and Assessment for Pilots, Cabin Crew & Dispatchers.

Timeline

- ## First Stage
  - 1 Oct 10   Implementation Plan Due
  - 1 Mar 11   Complete Program Lodged with CASA
  - 1 Jun 11   CASA Approved Program – Document level only

  (CAO 82.3/5 & CASA Instruments 277/10, 278/10)

- ## Second Stage
  - Jul 11 - Apr 12   Post Implementation Review
    - Two phases;
    1. *Mentoring - Identify risks and problems* (to Dec 11)
    2. *Formal capability assessment* (Jan to Mar 12)

First Stage

RPT AOC holders must:-

- Have a program, approved by CASA, to train and assess personnel in human factors and non-technical skills with the aim of minimising human error

(CAO 82.3/5)

Requirements for First Stage Approval

- HUMAN FACTORS AND NON TECHNICAL SKILLS POLICY AND OBJECTIVES
  - Management commitment and responsibility
  - Safety objectives
  - Just culture
- HF / NTS PROGRAM DEVELOPMENT
  - Training needs analysis
  - Relevant third party training relationships and interactions
  - Courseware development
  - NTS assessment process
- PROGRAM IMPLEMENTATION
  - NTS program implementation
  - Evaluation of the NTS training program
  - Maintain and continuously improve the NTS training program
- NTS RECORDS AND DOCUMENTATION
  - Training records and documentation
  - Incorporation of NTS program requirements into Safety, Training and Ops manuals

Course Development in Detail

- Human Factors Knowledge
  - Delivery
  - Assessment
- Non-Technical Skills
  - Development
  - Assessment
- Appropriate for operational context
  - Reflects organisations threat & error management history
  - Updated as context changes
  - Homegrown examples
  - Role specific
- Initial and Recurrent training program

Target Group

RPT AOC Holders (33)

- 16 Low Capacity
- 17 High Capacity

- ***high capacity aircraft*** means an aircraft that is certified as having a maximum seating capacity exceeding 38 seats or a maximum payload exceeding 4 200 kilograms

Occupations Covered

- Pilots

- Cabin Crew

- Flight Operation Officers/Dispatchers
  - ICAO – Licensed member/FAA
  - CASA - Not a specifically defined occupation
    - Safety sensitive members of operations
      - Flight planning, Load control, Crewing, Flight following, Maintenance watch etc.
   - Up to operator to define – SMS

Resources

- CAAPs
  - CAAP SMS-1(0) — Safety Management Systems for Regular Public Transport Operations;
  - CAAP SMS-2(0) — Integration of Human Factors (HF) into Safety Management Systems (SMS);
  - CAAP SMS-3(1) — Human Factors and Non-Technical Skills Training for Regular Public Transport Operations.
- <u>Self Assessment Checklist</u>
- Performance Standards
- CASA industry workshops

CASA Web Site

- CASA Case Manager Assigned

10 Main Challenges

1. SMS Interaction
2. Communication requirements across different areas
3. Resource constraints for smaller operators
4. Understanding and applying Outcome Based Legislation
5. Level of knowledge of industry – Extent and standard of education material provided
6. CASA approval of updates to Training Courses – Level of detail approved
7. Who is required to be trained – Dispatchers?
8. 3rd party providers – how oversight and how to communicate effectively
9. Harnessing home-grown talent within staff pool
10. Tailoring HF & NTS Training and Assessment program for different employment groups – Pilot, Cabin Crew, & Dispatcher

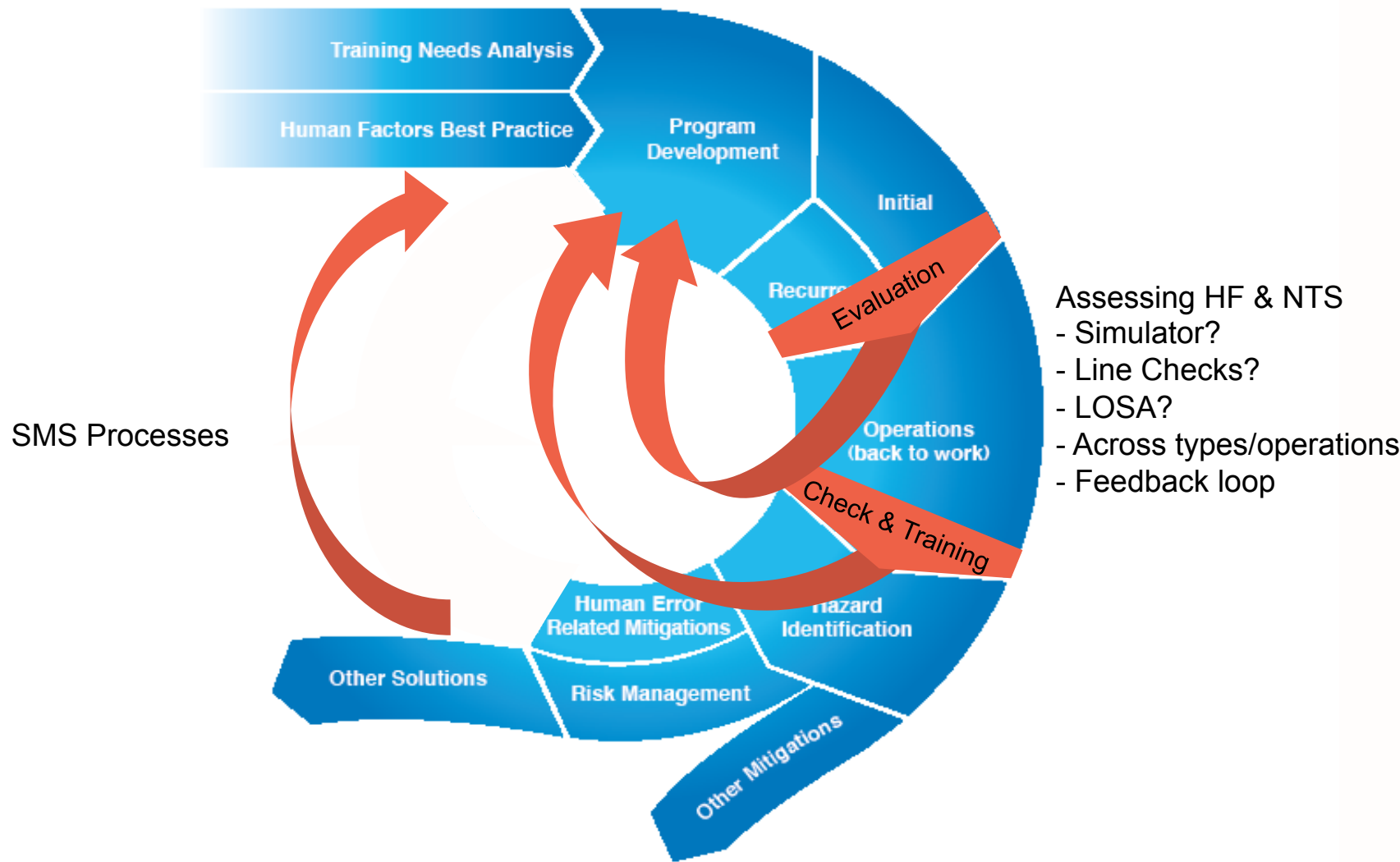# Incorporation into SMS
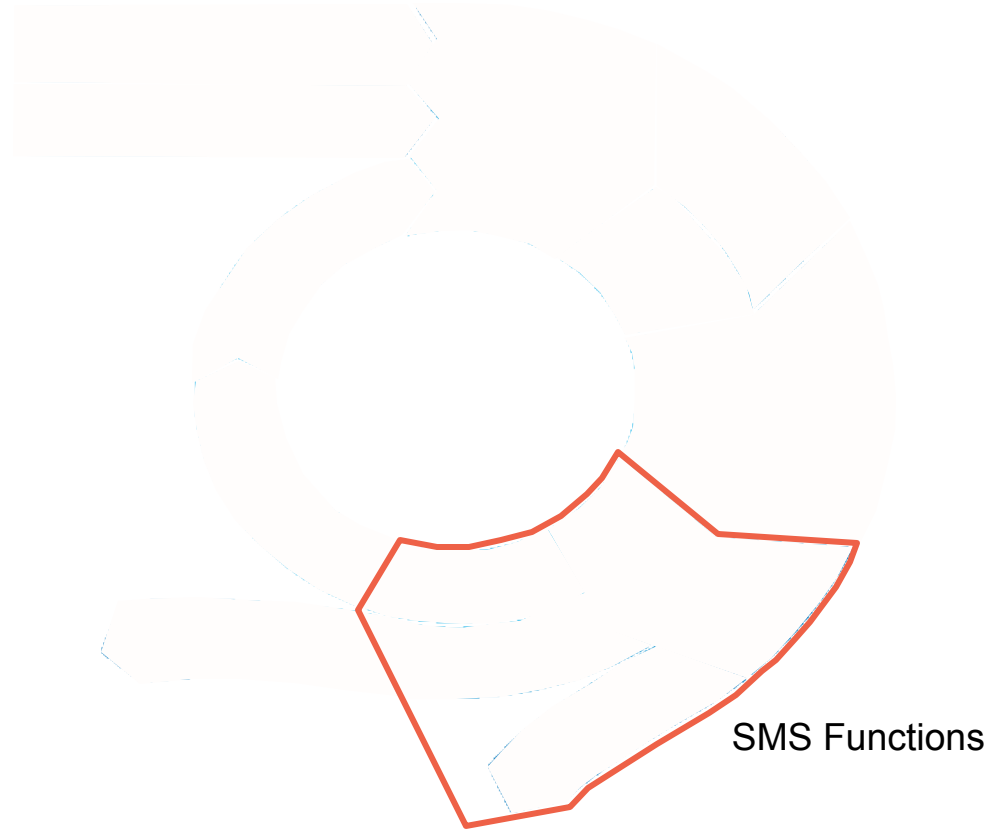
SMS Functions

Challenges

SMS

- Initial submissions tended not to document connections between the SMS and the HF & NTS training and assessment program

- Requires SMS aspects to be functioning in a mature and healthy manner – safety assurance, communication, etc

- Requires safety analysis with a HF/NTS training perspective

- Organic process – NTS program should move toward reflecting organisation's operational context

- Approving initial course content and processes for reflecting future HF & NTS threats and maintaining operational relevance.

Challenges

Communication required across internal AOC areas

- Safety systems – Human Factors - Training – checking & training – safety analysis
- Link training to assessment and then to feedback

Communication Pathways

Training Needs Analysis

Human Factors Best Practice

Program Development

Initial

Recurrent

Evaluation

Operations (back to work)

Check & Training

Human Error Related Mitigations

Hazard Identification

Other Solutions

Risk Management

Other Mitigations

SMS Processes

Assessing HF & NTS
- Simulator?
- Line Checks?
- LOSA?
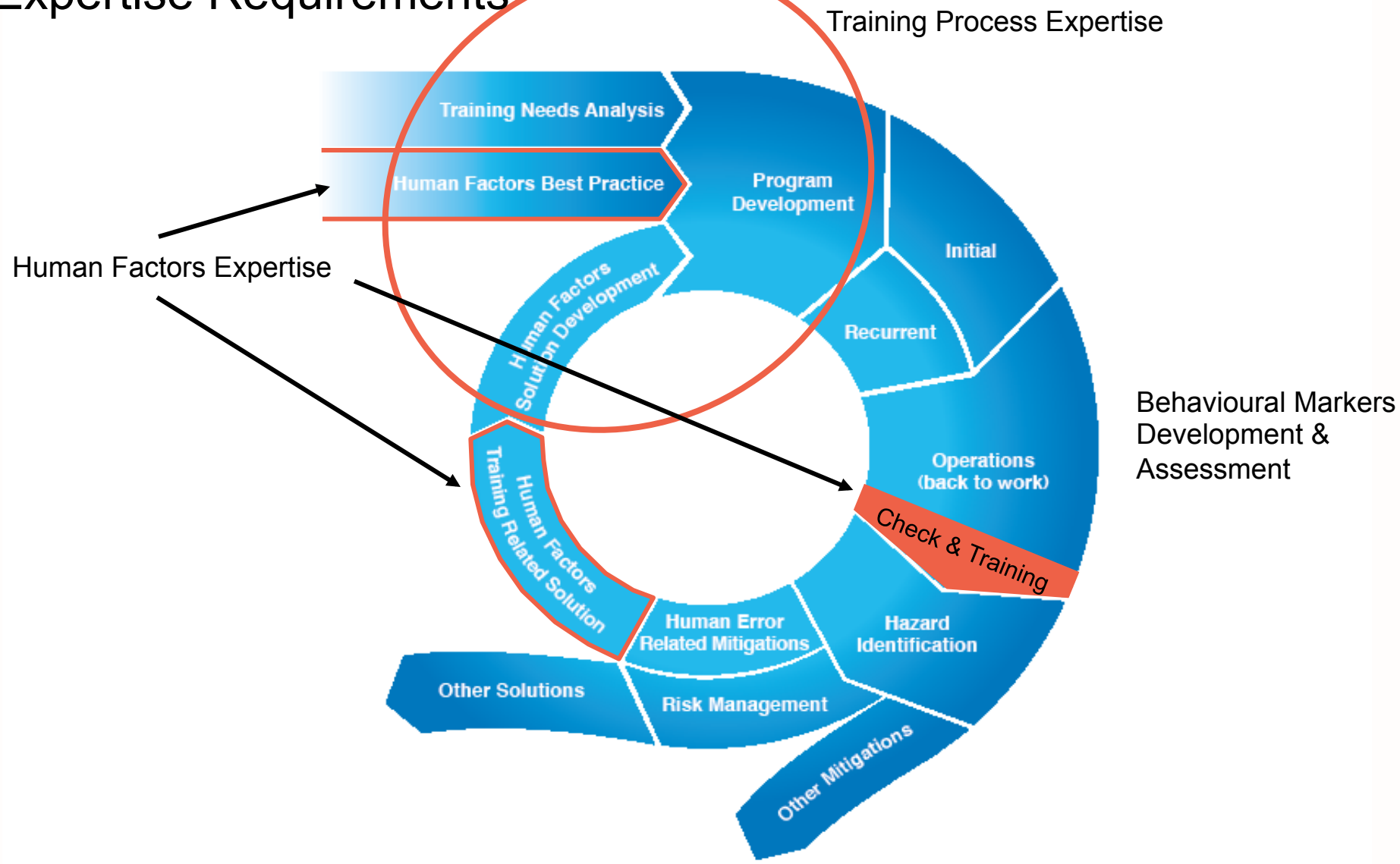- Across types/operations
- Feedback loop

Challenges

Resource constraints for smaller operators

- Tend to look for direction from CASA – wanted more guidance material

- SME Availability

  - Availability of Expertise: Training Process; and HF & NTS

  - Facilitator availability

  - Retention of internal expertise – single point of failure

- Looking for 3rd party provider

- NTS Development process

- NTS Assessment process

Expertise Requirements

Training Process Expertise

Human Factors Expertise

Behavioural Markers Development & Assessment

Training Needs Analysis

Human Factors Best Practice

Program Development

Initial

Recurrent

Human Factors Solution Development

Human Factors Training Related Solution

Operations (back to work)

Check & Training

Human Error Related Mitigations

Hazard Identification

Other Solutions

Risk Management

Other Mitigations

Challenges

- Level of knowledge of industry
  - Big end of town versus small end of town
  - Extent and standard of education material provided by CASA
  - Harnessing home-grown talent (degrees, HF subjects) within staff pool?

Challenges

Understanding and applying Outcome Based Legislation

- Level of knowledge amongst inspectors
  - Training process knowledge – TNA, Gap analysis, media/methods analysis
  - HF & NTS knowledge – Symptom based analysis
  - Communication & Standardisation between inspectors

- Supported by toolbox
  - Double edged sword – encouraged compliance based approach by operators and inspectors alike

Challenges

Approval of updates to Training Courses

- Level of approval – what requires CASA approval to change?

- Intent

  - Encourage content to change to reflect changing threats and operational requirements

  - Allow tailoring of content

    - Use of current examples - internal and external

    - Reflect facilitators approach/technique

Challenges

- Who is required to be trained?
    - Operational Staff/Dispatchers?
    - Safety sensitive – not unlike AOD policy
    - Connect to SMS – Cleaners?
- Tailoring program for different employment groups – Pilot, Cabin Crew, & Dispatcher
    - Contextually relevant examples
    - NTS development methods
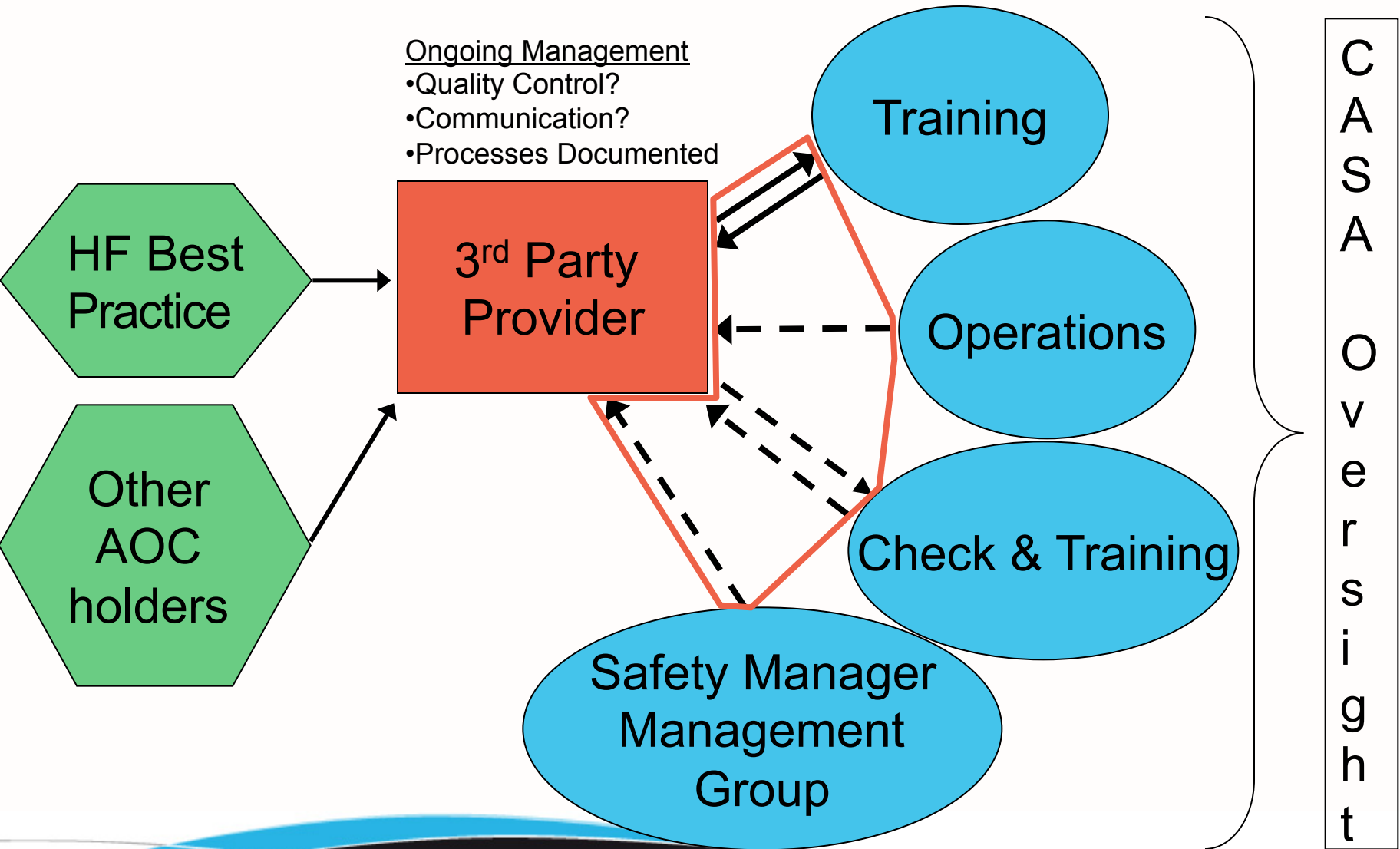   - NTS assessment methods

Challenges

- 3rd party providers
  - CASA contact point is AOC holder
  - How AOC holder manages quality assurance
  - Linking program
    - With skill development process
    - With assessment process
    - With SMS
    - With changing operational context
  - Internal expertise requirements?
    - Quality Assurance

Types of Course Development & Management

1. Internally developed program

2. Externally Sourced – Off-the-Shelf with modifications
   - Updated and managed internally

3. 3rd Party Provider – ongoing relationship
   - Quality assurance remains internal

3rd Party Providers

Ongoing Management
- Quality Control?
- Communication?
- Processes Documented

HF Best Practice

Other AOC holders

3rd Party Provider

Training

Operations

Check & Training

Safety Manager Management Group

CASA Oversight

Methods & Media

- ## Outcome based

  - ### Show how it works – 'minimising human error'

    - Face Validity – Is it logical and reasonably reflects the purpose
    - Post course feedback
    - Training reports
    - LOSA data
    - Safety reporting outcomes

Currency Requirements

- Outcome based
  - Risk managed - Should reflect safety sensitive nature of role
  - Current research is already available on retention of knowledge
  - Past experience of the AOC holder and/or other operators
  - Recommend start with a base line and adjust

Next Phase

- Jul 2011 - Apr 2012
  - Post Implementation Review
    - Two phases;
    - *Identify risks and problems* (to Dec 2011)
    - *Formal capability assessment* (Jan to Mar 2012)

Challenges in a Nutshell

1. Incorporation into SMS
2. Skill development & assessment – Role specific
3. Resource constraints of smaller RPT AOC holders
4. Need for sufficient resources in the Regulator

Questions?

Questions?

- 2.7 In this paragraph:

- *human factors* or *HF* means the minimisation of human error and its consequences by optimising the relationships within systems between people, activities and equipment.

- *non-technical skills* means specific human competencies, including critical decision making, team communication, situational awareness and workload management, which may minimise human error in aviation.