

# NATS Research and Development An Overview

Colin Smith  
Head R&D, NATS



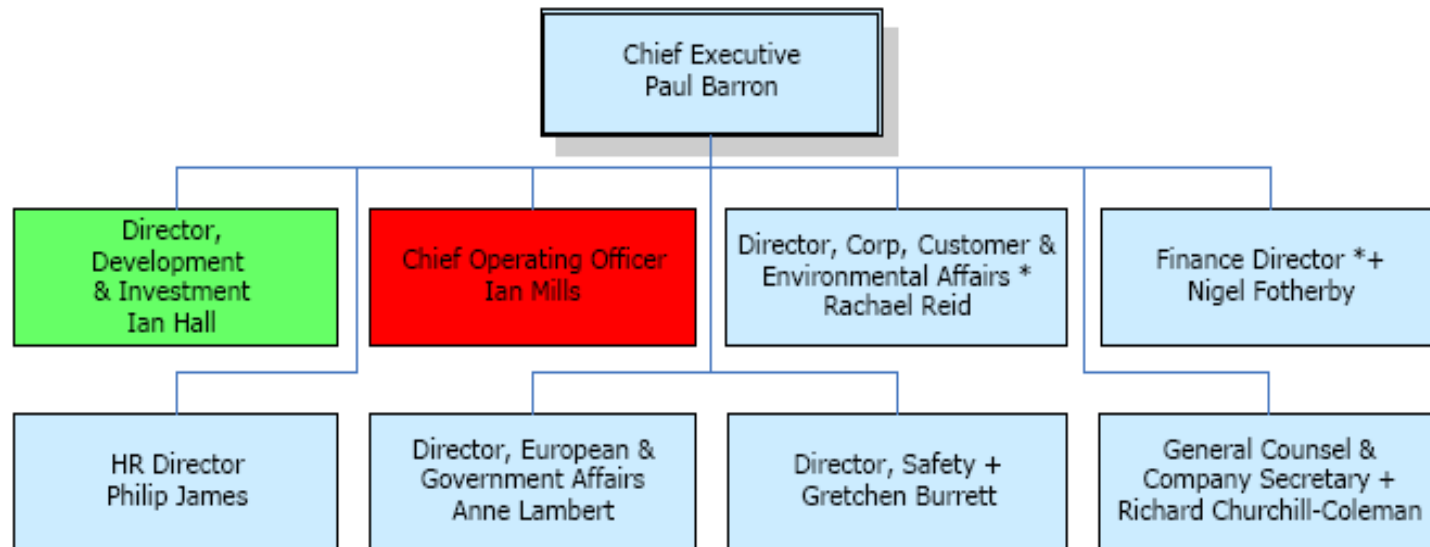
# NATS



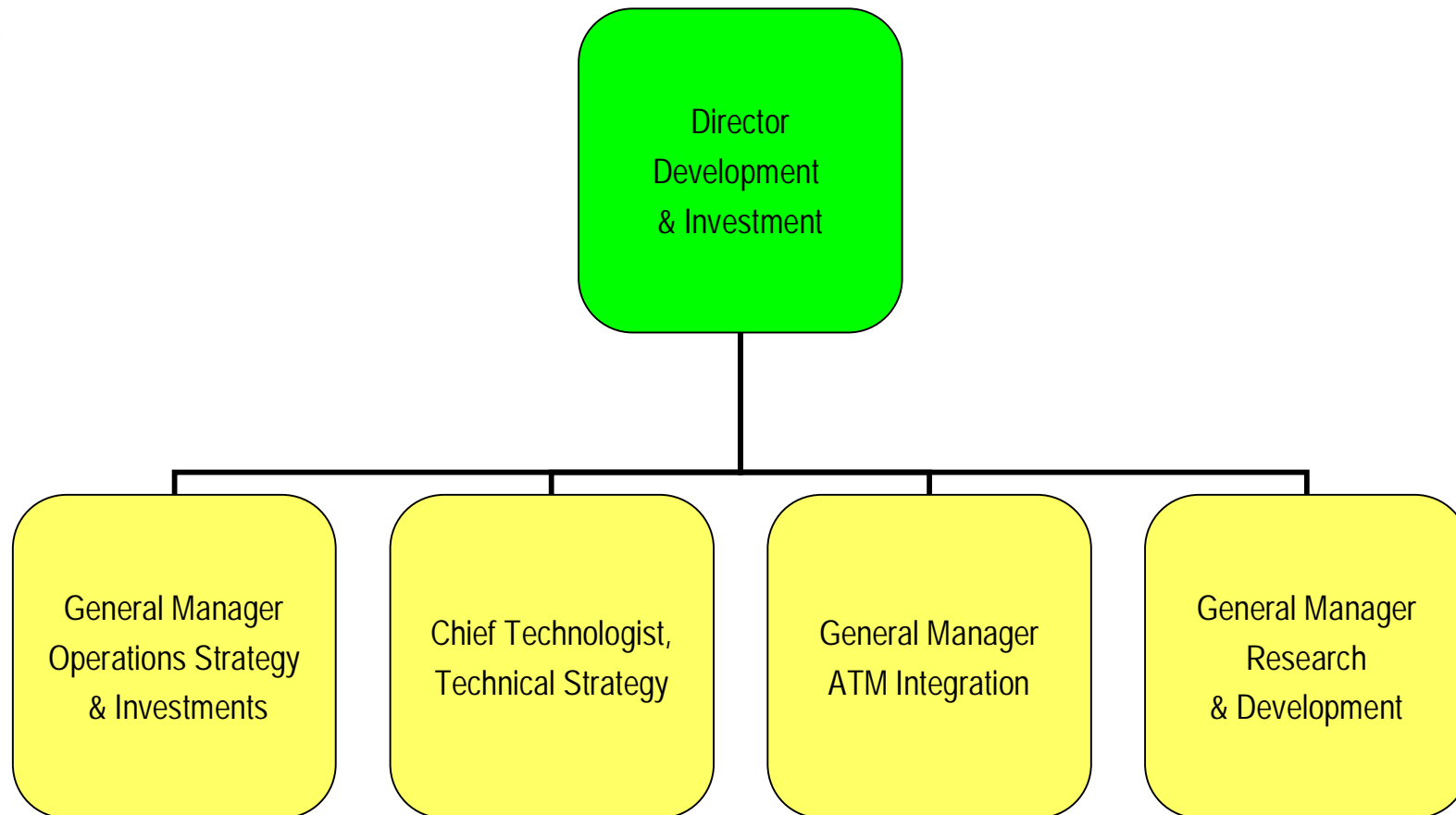
## R&D within NATS

- » Our Organisation and objectives
- » Key skills
- » Scope of NATS R&D
- » SESAR
- » UK research
- » Objectives for today

# NATS Organisation



# Development and Investment





## NATS R&D Objectives

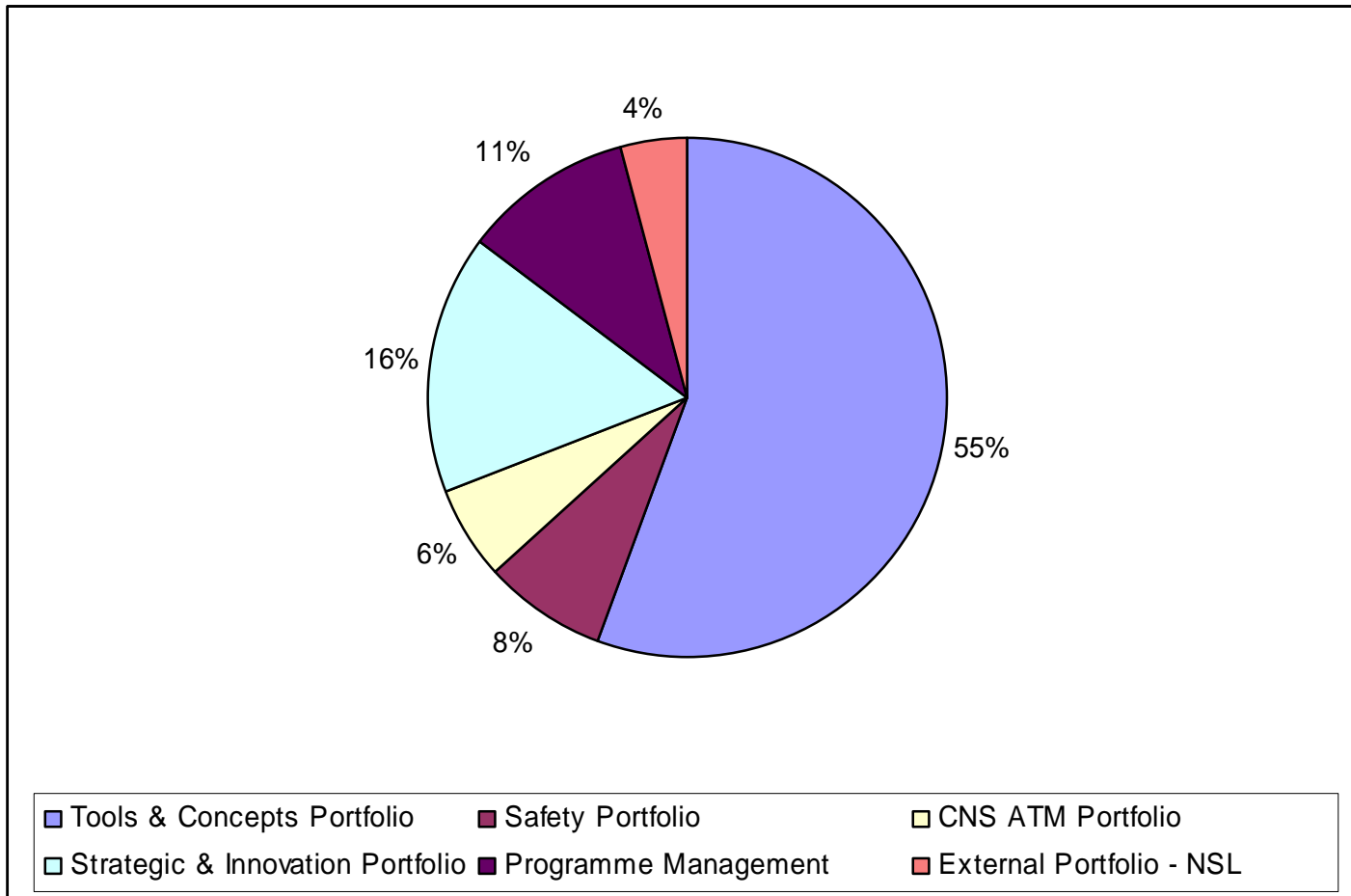
- » To research, validate and specify new operational concepts, tools and supporting technologies, covering all aspects of NERL service.
- » To focus on identifying and developing innovative solutions that can be effectively linked into NATS' strategic plans, and supporting the subsequent development particularly during their early development and validation.



## R&D Programme Overview

- » R&D Programme has been divided into portfolios, with defined customers for each.
  - » Tools and Concepts Safety
  - » Safety Portfolio
  - » CNS ATM
  - » Innovative and Strategic Research

## R&D Activity Summary





## Key Successes and Capability

### » We delivered

- » Mode S Tools
- » CAIT
- » FACTS (including iFACTS, Multi sector planning)
  - » Core Engine specifications and verification

### » We have

- » World leading ATC tools development capability
  - » NB Medium Term Conflict Detection and Trajectory Prediction
- » Successfully positioned R&D to enable operational change
- » Track record of delivery

### » Current commitments

- » iFACTS validation and verification
- » SESAR planning and negotiation
- » R&D programme (core to NATS SESAR submission)



## SESAR (Single European Sky ATM Research)

- » Bid based on negotiated work share between 6 ANSPs,
- » NATS is bidding to Lead WP4 (TMA development) and be a key contributor to WP5 (En-Route Development)
- » NATS will look to maximise the value SESAR
- » We foresee:
  - » SESAR will not do everything
  - » Limited funding for long term research

Important for NATS to continue work with UK universities



## Role of Strategic and Innovative Research

### » Exploratory R&D

- » Addresses business needs but research not associated with a specific tool or concept
- » Long term issues
- » Novel solutions to operational constraints or inefficiencies in the system
- » Applications for novel technology

### » R&D capability

- » Accelerating or improving outcomes of R&D
- » New methodologies



## Current Issues for Strategic and Innovative Research

- » Controller workload
  - » Arrival Metering
- » Deployment of controllers
  - » Validation by Toolset
- » Capacity constraints of airspace or safety
  - » Changes to separation standards
  - » Use of future FMS data
- » Environmental impact
  - » Increased angle of approach
  - » Airframe optimal approach speeds
- » Future security



## Outcomes

- » Better insight of UK academic areas of interest and capabilities
- » Identify current research of benefit to NATS
  
- » What we can offer...
  - » Industrial support
  - » Sponsored MSc or PhD students
  - » Collaborative research
  - » Funded studies

The background of the image consists of a series of wavy, overlapping lines in shades of blue and purple, creating a dynamic, abstract pattern. The lines flow from the top left towards the bottom right, with some lines curving and overlapping to create a sense of depth and movement.

NATS