



# Human Factors

From People to Processes –  
The NATS Experience

1 March 2010



# Our journey

*NATS Senior manager  
2002*

*'Human factors is no more than clever arm waving, we can use an arbitrary figure for the human and move on to more readily quantified analysis of machines and equipment'*

*Chief Exec 2008*

*'People are at the centre of everything NATS does. This presents us with great opportunities for taking control of our own future and will be a cornerstone for the delivery of safe growth in capacity over the next few decades. **Human Factors is the discipline that allows us to harness the fantastic capability within NATS'***



# Exploring Organisational change and Improvement

- A little background on NATS & ATC
- Why HF and Human Performance is so important to us
- How we address HF within the organisation
- What we would do again (if we had to)



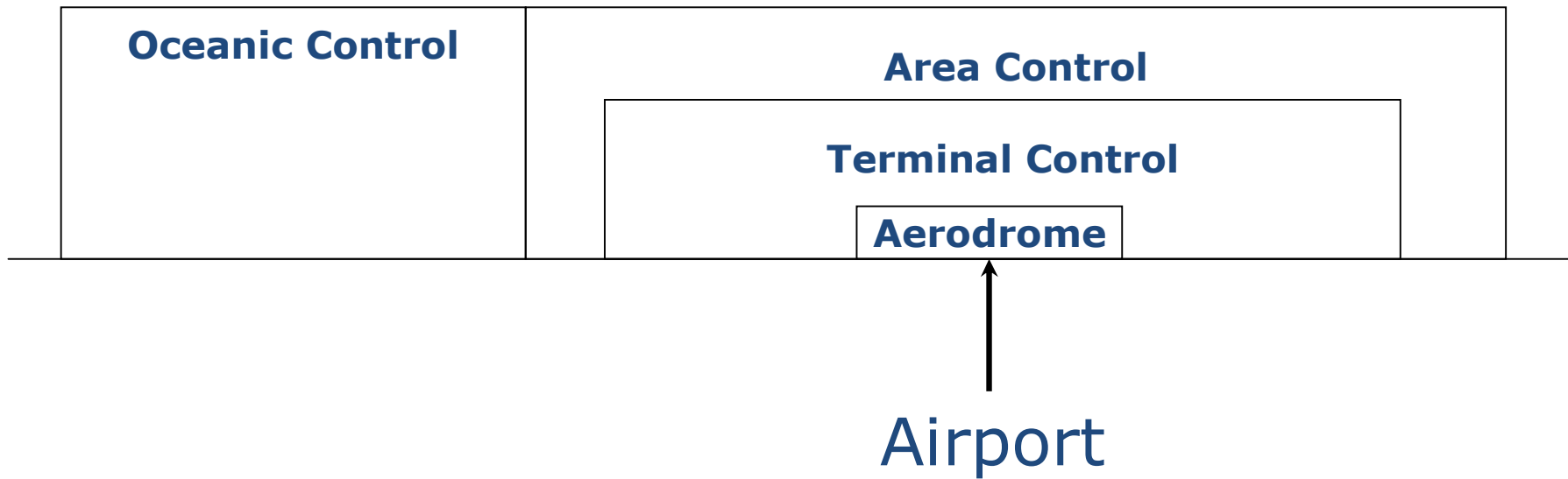
## What is NATS?

- Airports (16)
  - Ground Movement
  - Air Control
- Centres (3)
  - LATCC - Swanwick
  - ScOACC - Prestwick
  - MACC - Manchester





# What is ATC?





## What equipment is used?





# How much does Human Performance matter?

**More than 90% of our serious incidents occur while the technical system is operating as intended**





# How much does Human Performance matter?

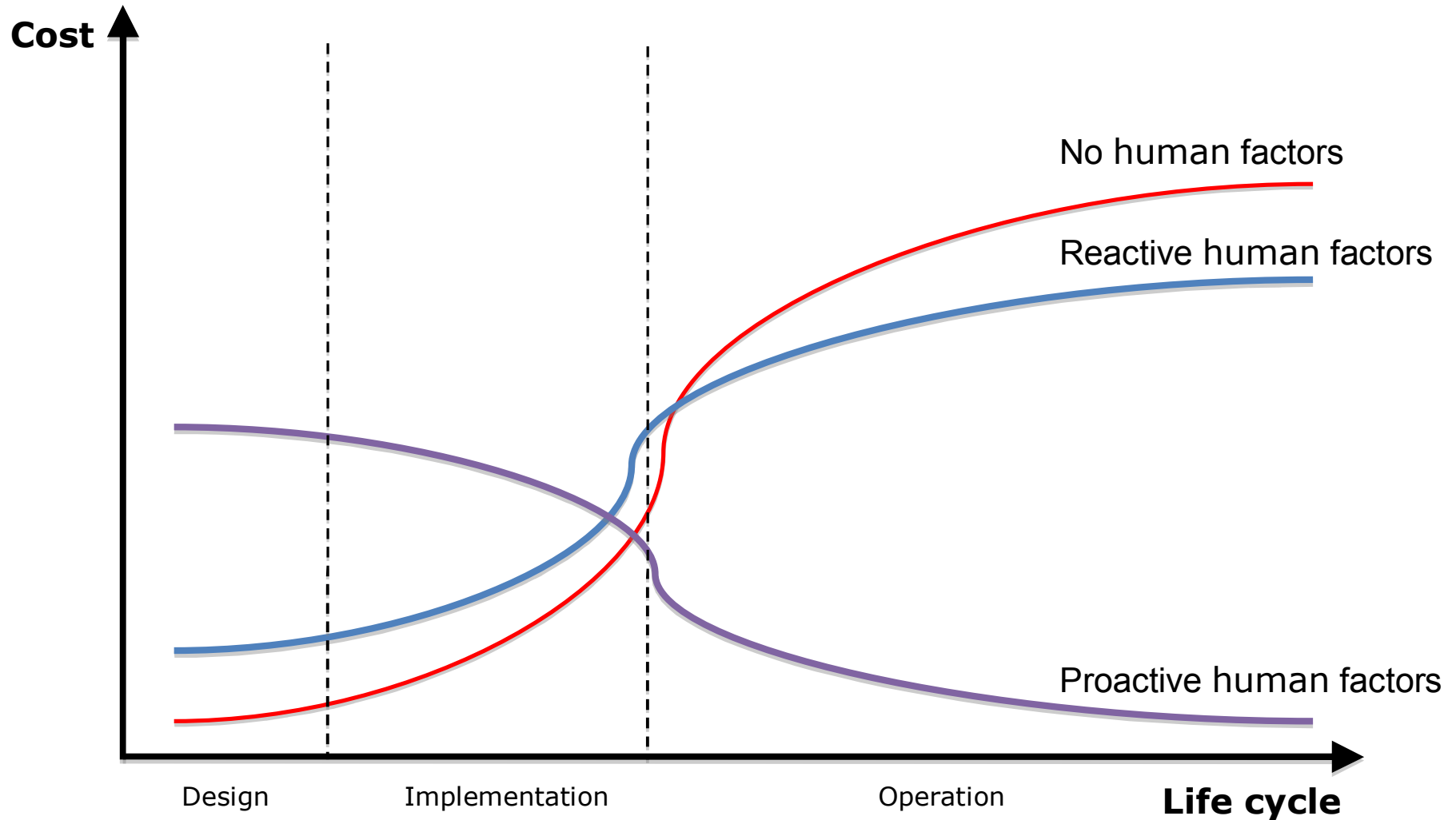
MOST software maintenance is needed to FIX unforeseen user problems...



...FIXING user problems is 100 times MORE EXPENSIVE than defining the right user requirement in the first place

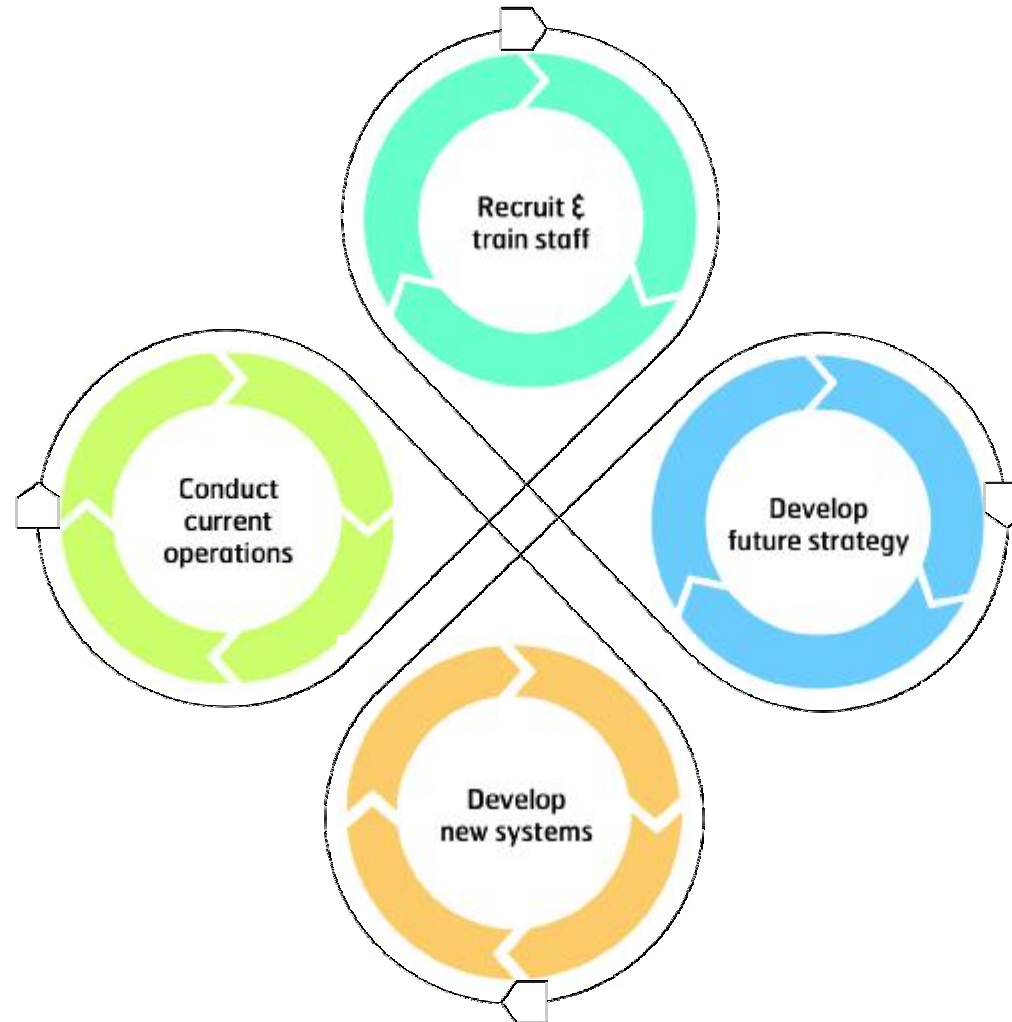
# How much does Human Performance matter?

Eurocontrol research (1999)

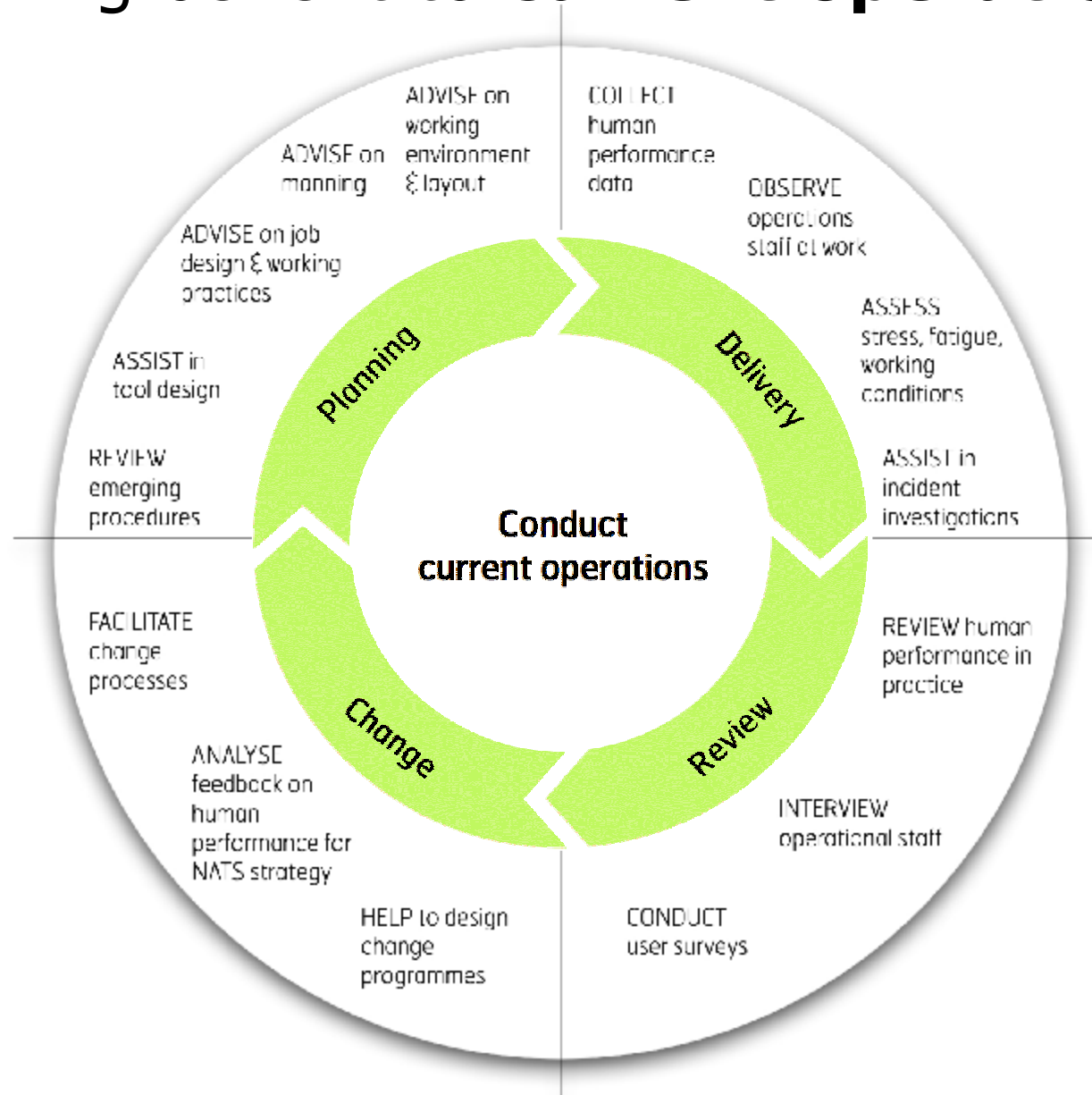




# Where does Human Factors fit in NATS?



# Delivering benefit to **current operations**





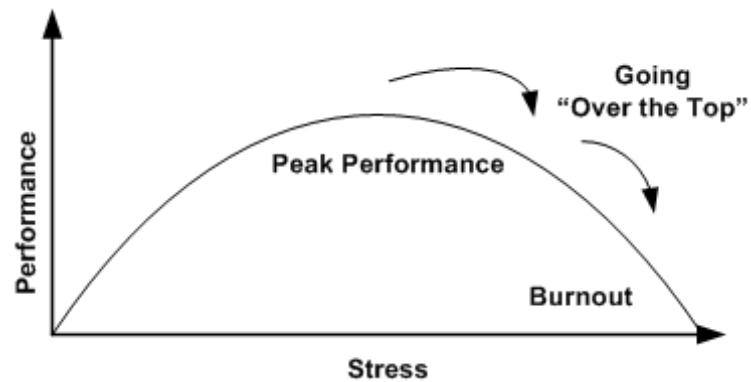
# Day to day Safety measures

- A new way to measure how safe we are
- It is a proactive approach not reactive
- It looks at the positive things people do to keep us safe
- A way of knowing if improvement actions are effective and successful
- They facilitate a higher awareness of risks
- They are an indication of whether we are getting safer



***How hot is the water?***

# Human Performance – Errant behaviours



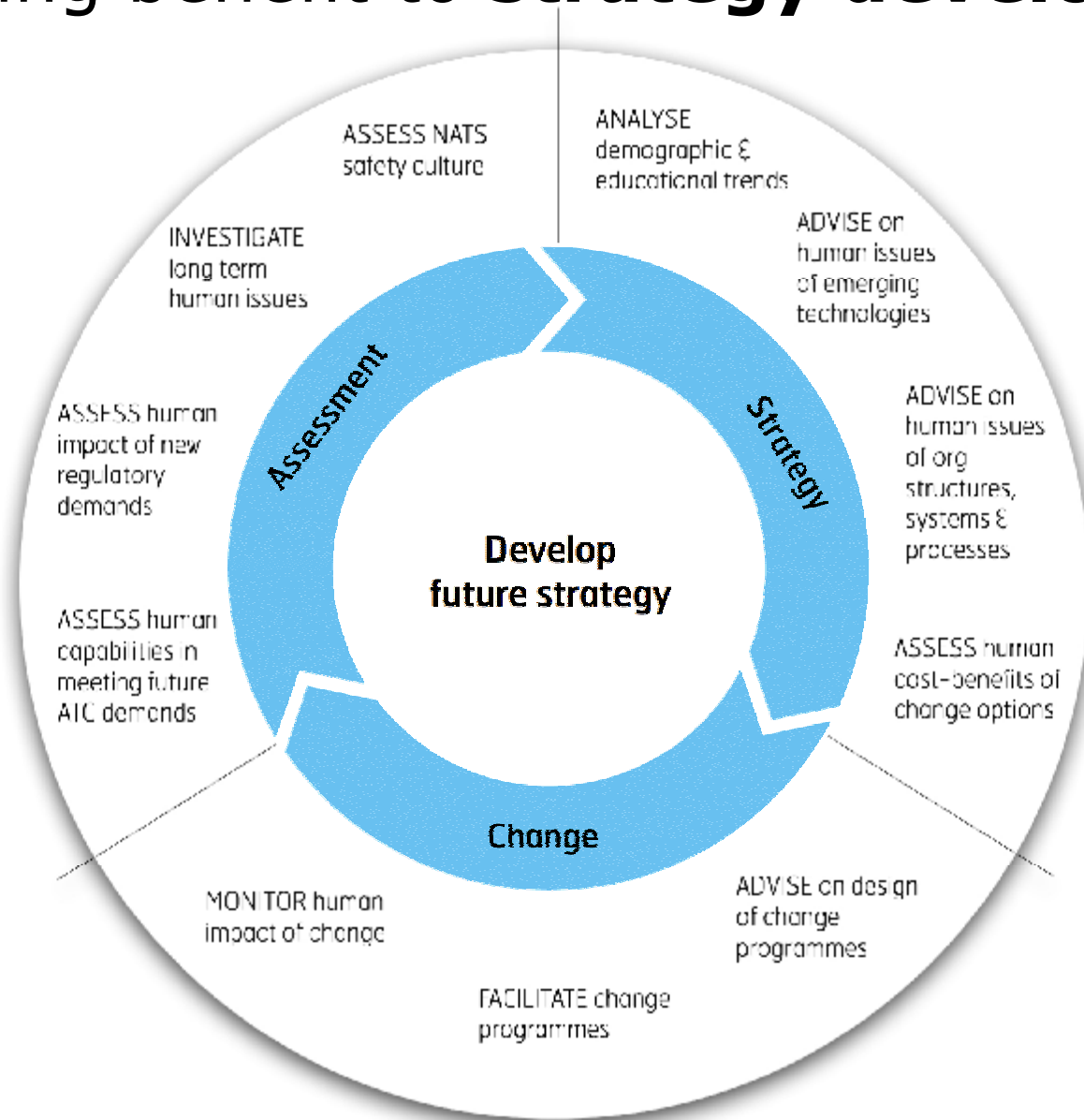
- Decision Making
- Distraction
- Handover/Communication
- OJT

*'I was sure I said 230 until I heard the tape – I have no idea why I said 210'*

*Highly skilled, highly competent  
Inexplicable wrong behaviours*



# Delivering benefit to **strategy development**



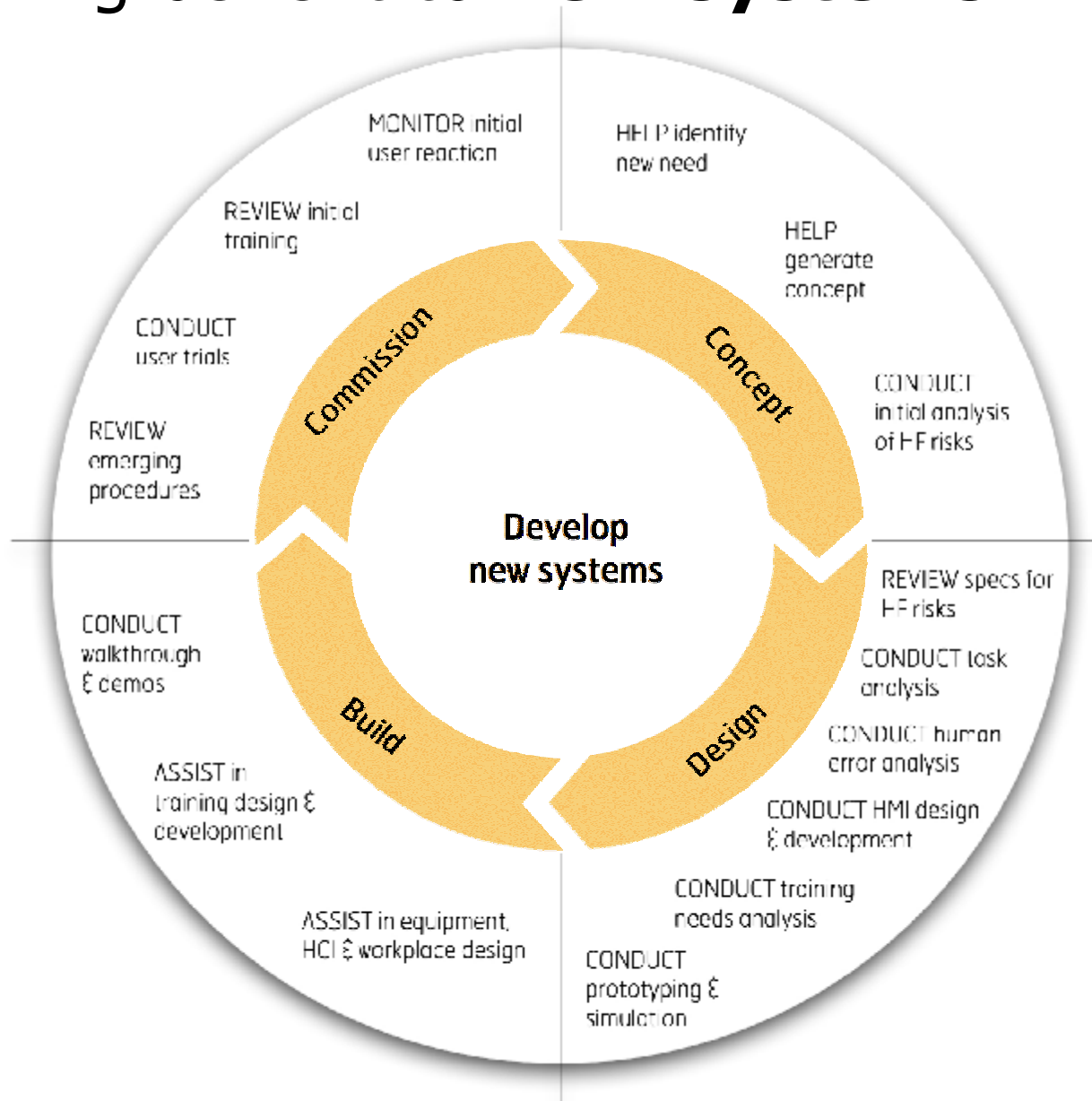


# Strategic Plan for Human Performance

- *Manage HP as an asset*
- *Select & Train people the right people to do operational jobs*
- *Provide operational staff with the right tools and the right environment*
- *Manage operational workload*
- *Monitor the level of HP risk within the organisation And provide feedback*



# Delivering benefit to **new systems**





# Total Systems Approach

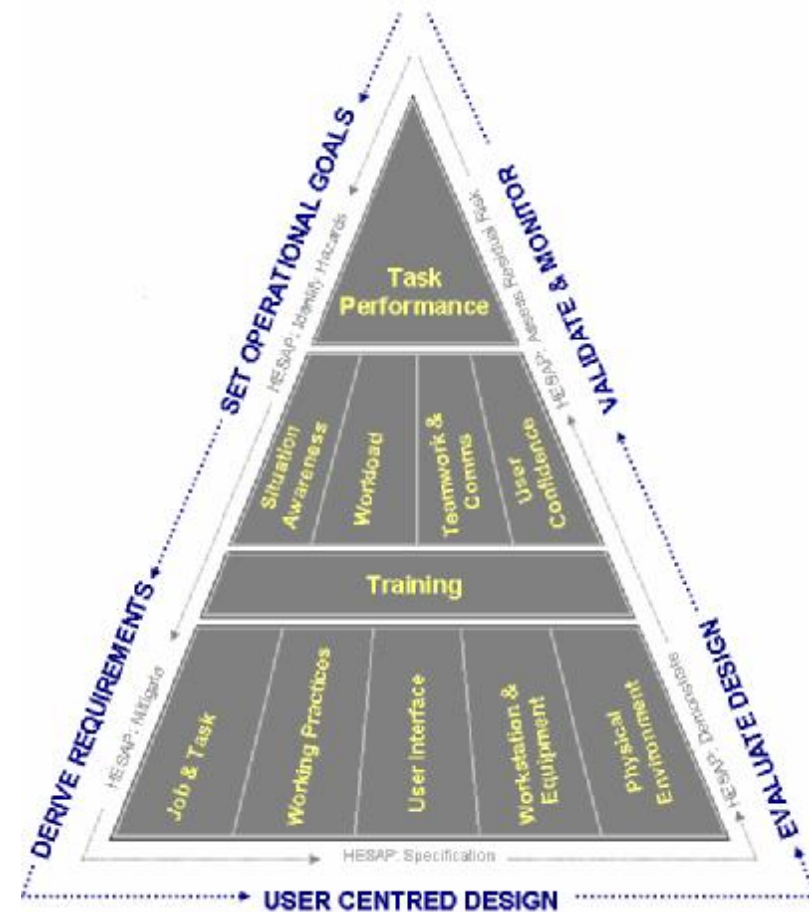
- Total Systems Approach

- User Centred Design
- Proactive Design
- Clarity of Purpose
- Change management
- Test ATCO
- Governance

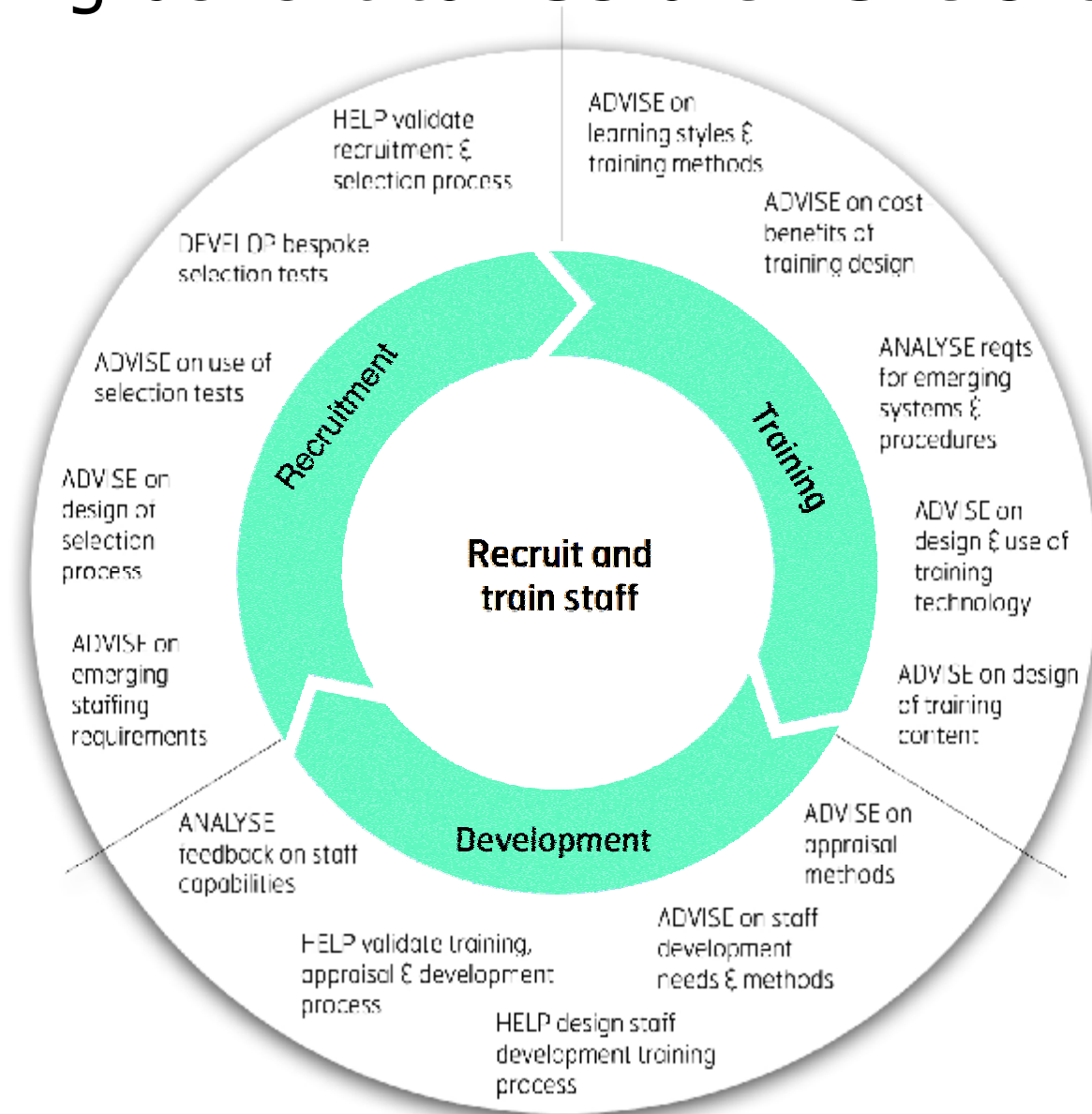


# Human Factors Assurance

- Setting the standard
- Build an assurance argument
  - Design
  - Simulation
  - Analysis



# Delivering benefit to **recruitment & training**





# The right capability

- End to
- end Pipeline
- Advanced training skills
- Training and learning culture



fig. 07  
Crowson Brain



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# Exploring Organisational change and Improvement

- We need to address the whole organisation
  - Organisation
  - Team
  - Individual
- We need to be engaged with the business processes
  - Development of New Systems
  - Business strategy
  - Selection & Training
  - The operation (service delivery)
- We need to be engaged with the customer
  - Be part of the solution/don't make 'threats'
  - Generous listening'
- Have a simple process



**Any Questions?**

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