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# Get With The Programme – Achieving Coherence Through Capability Systems Engineering

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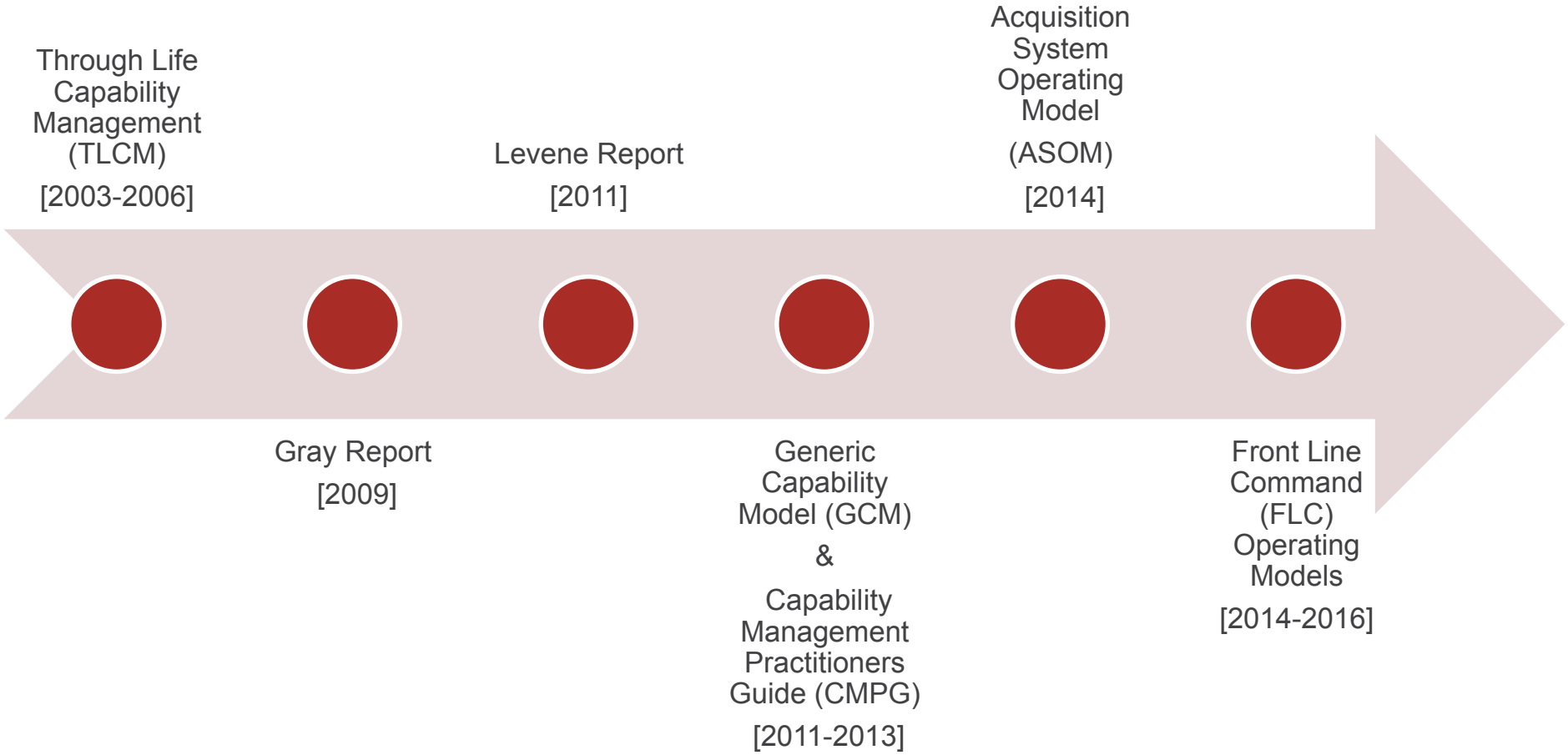
# Programme Definition is too important to be left up to programme managers…

# Overview

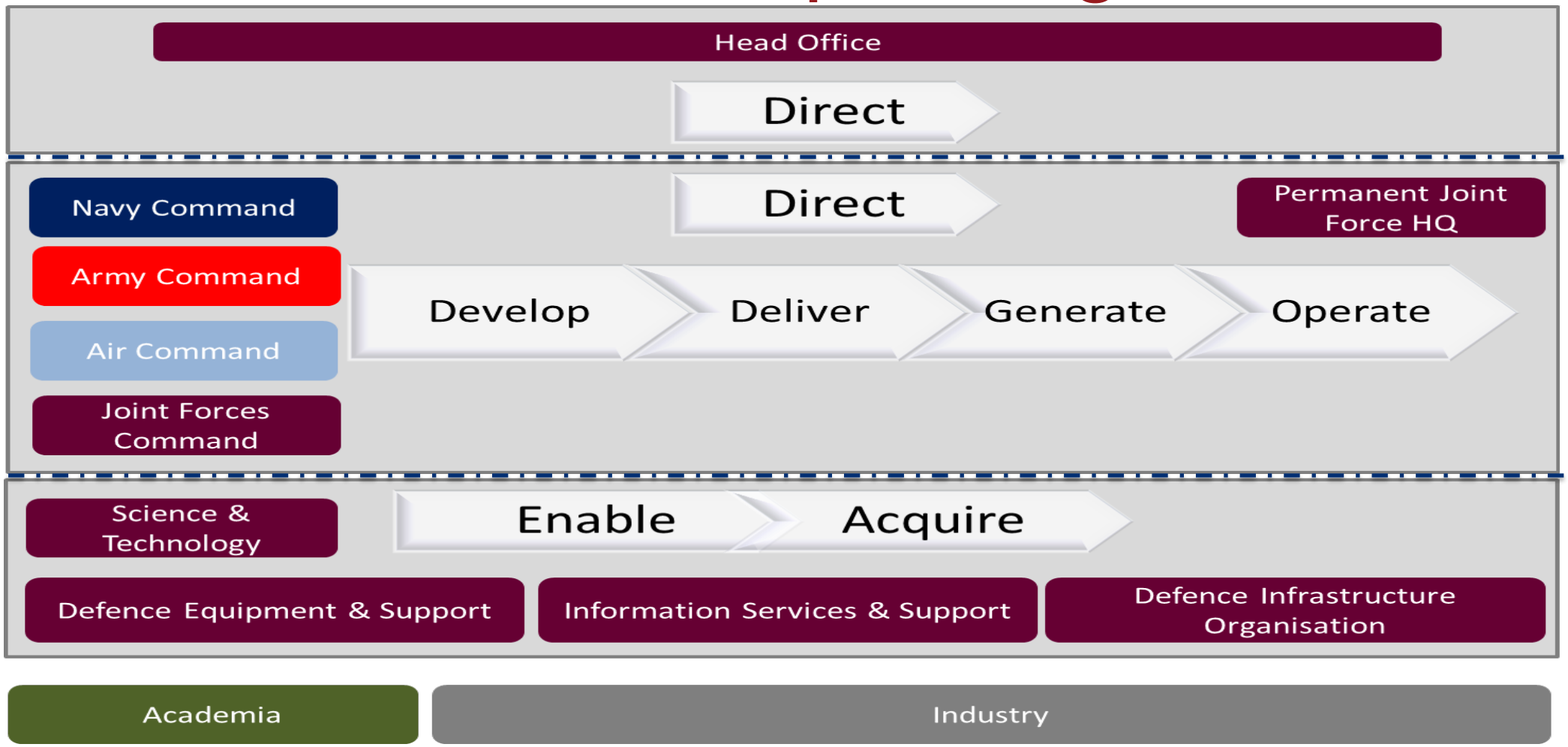
- The UK Acquisition Landscape
- What is a Programme Anyway?
- Defence Lines of Development
- Perspectives on Capability
- Using DLODs to inform the Programme Blueprint for a Capability
- Conclusions & Next Steps

# The UK Acquisition Landscape

# Evolution of the Current Operating Model



# The UK Defence Operating Model




*Portfolio*

*(Sub)Portfolio & Programme*

*Project*

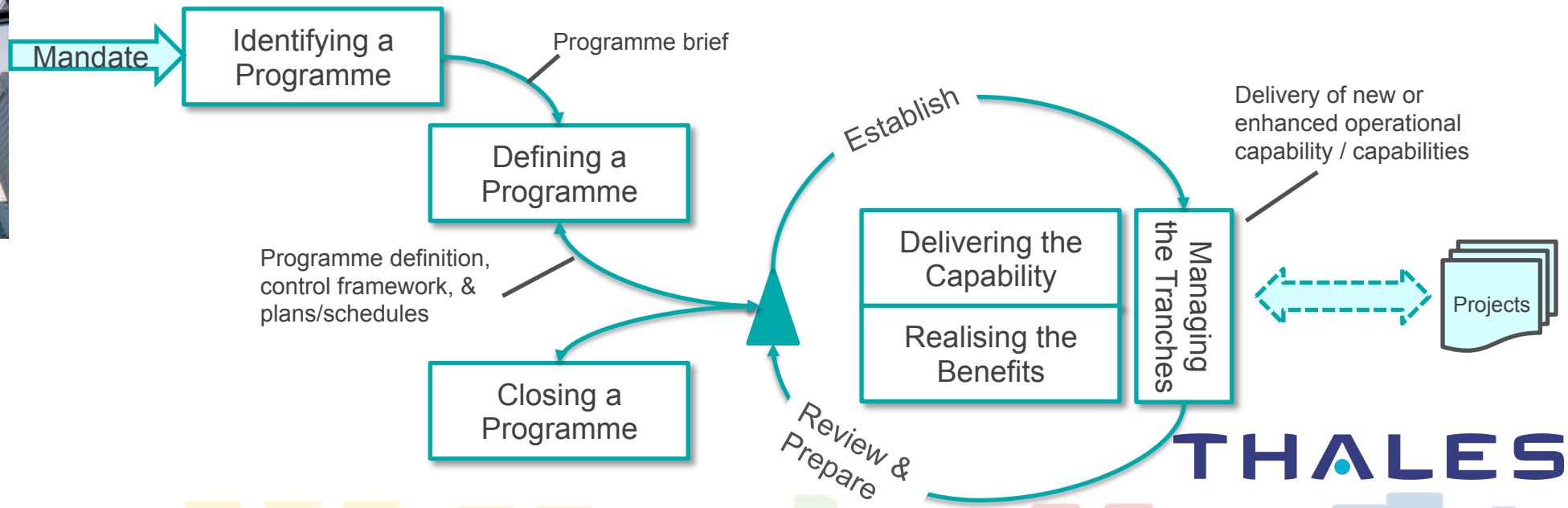
# What is a Programme Anyway?

# Programmes Deliver Capabilities


MSP describes change management programme best practice

- Focussed on business transformation and governance
- Provides a set of generic processes and tools
- Strongly encouraged for UK Government change programmes

Based upon a "Transformational Flow":

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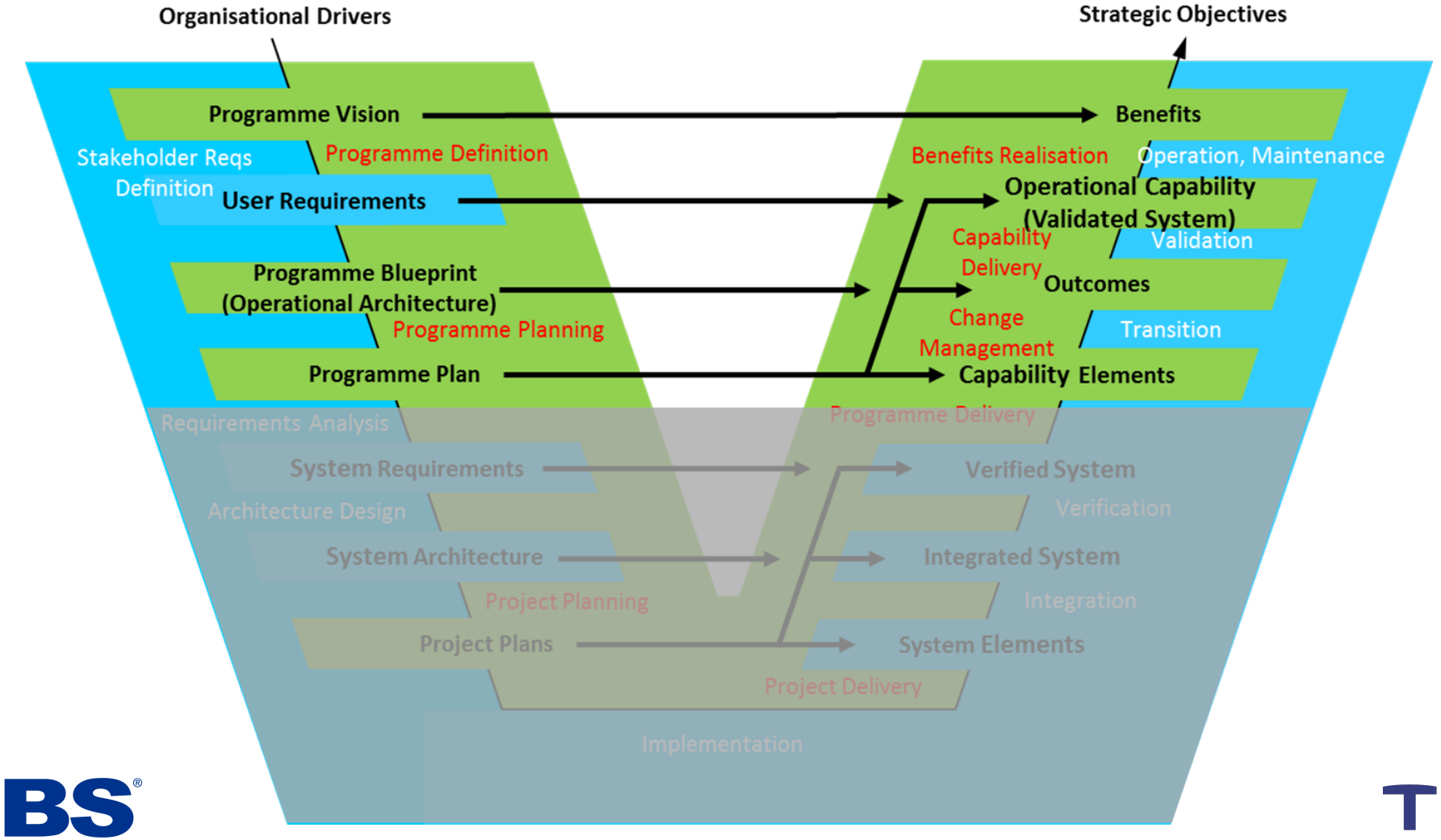
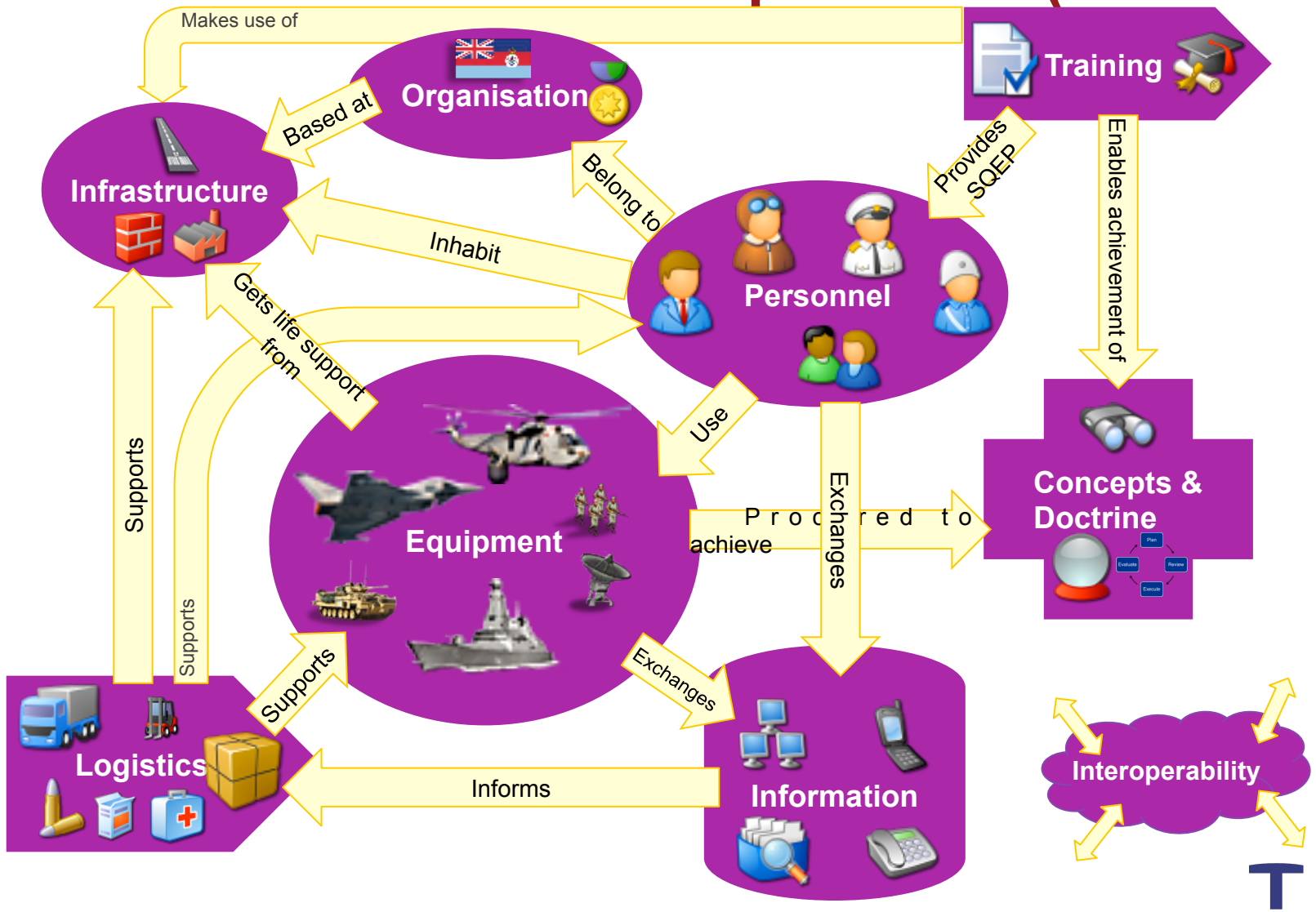
# Combined SE-PM “Vee” Diagram



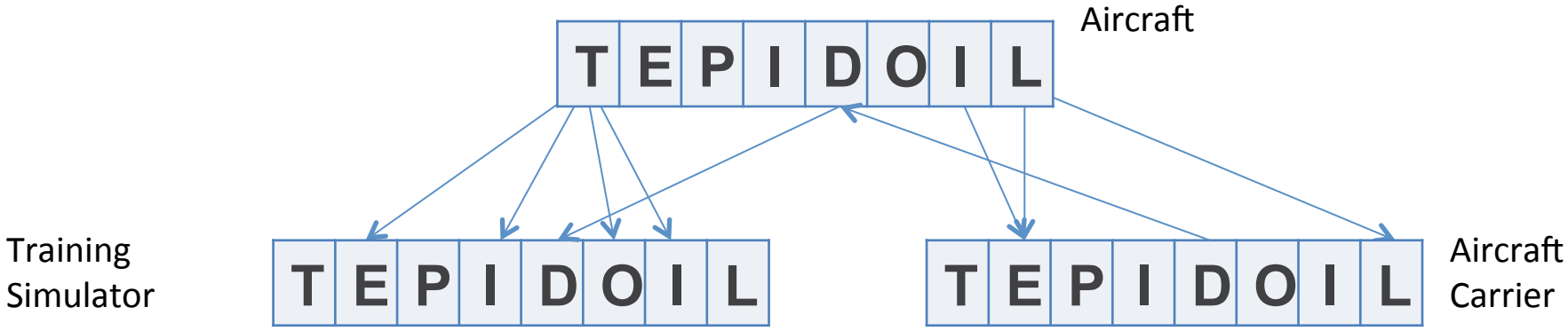
# Defence Lines of Development

# Defence Lines of Development (DLODs)



# DLOD Dependencies

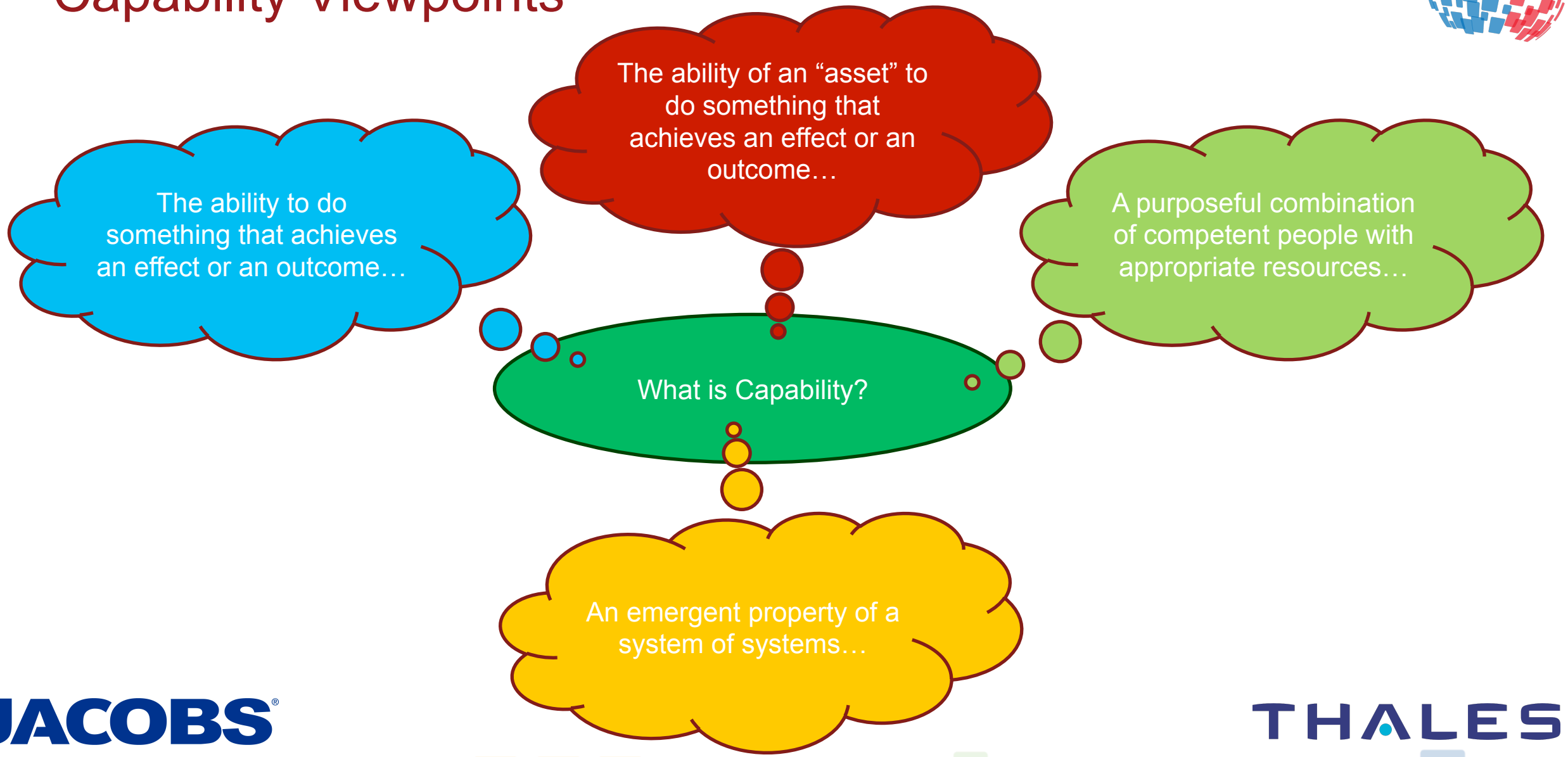
- Needs in one DLOD are often satisfied by solutions in another DLOD.
  - For example, an Aircraft Carrier provides a surrogate for other DLODs, and a Training need is realised through a combination of DLODs.




- Any top-down allocation across DLODs at the option generation stage must be capable of being revisited as the solution matures and the dependencies (both within and external to the capability) are better understood.

# Perspectives on Capability

# Capability Viewpoints

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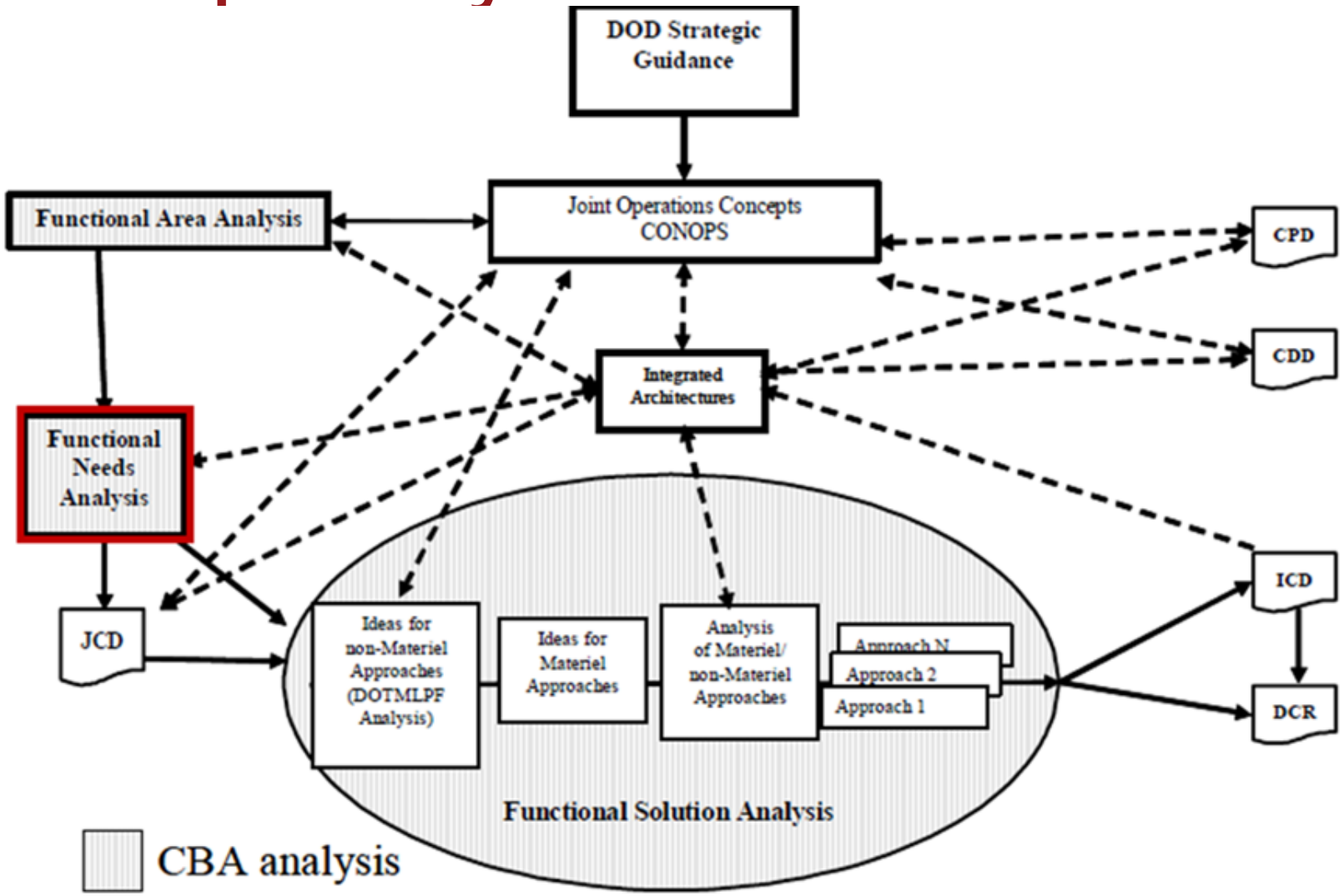
# Capability Integration – A Global Problem

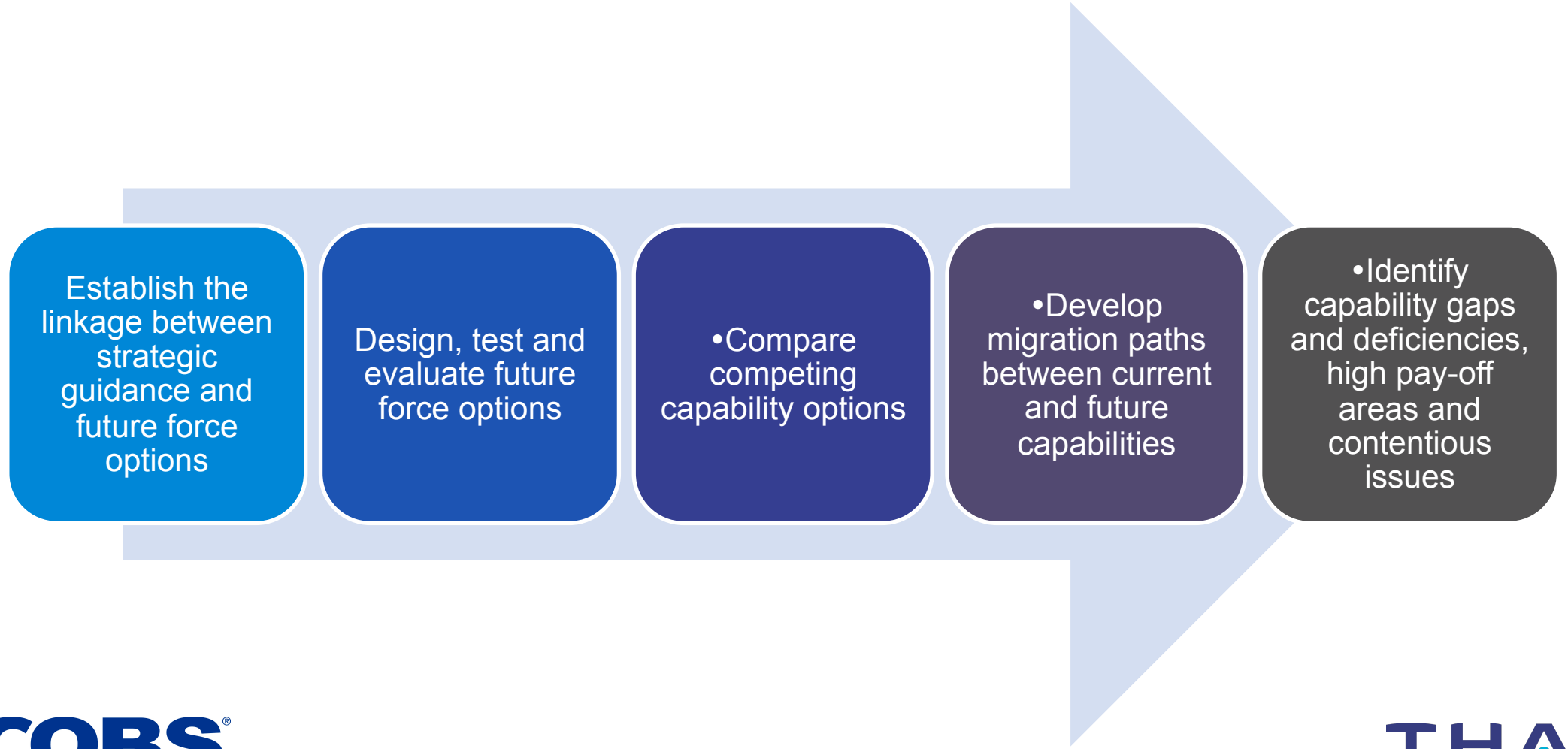
- US – JCIDS approach
- Australia – CODAS approach
- RAND Corporation FAR-Ness method

# JCIDS Capability Assessment

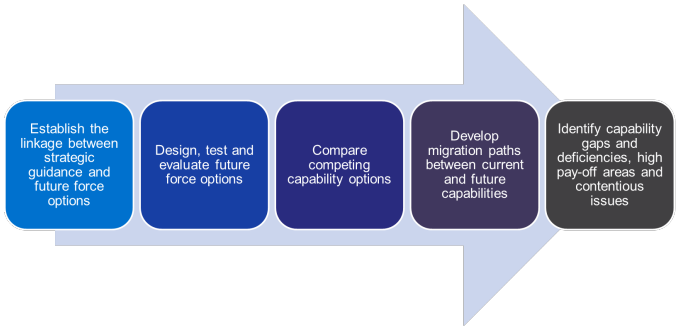


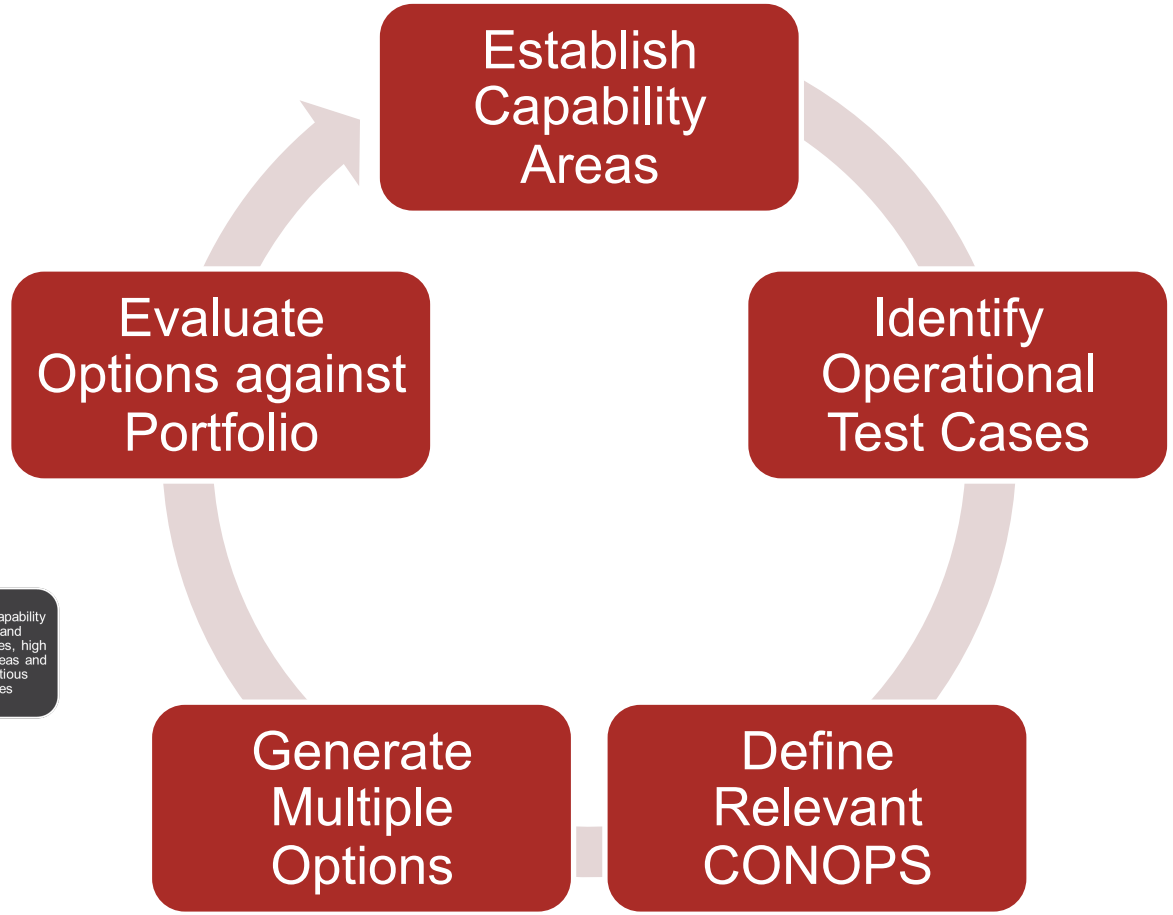

*Covers full DOTMLPF-P spectrum*

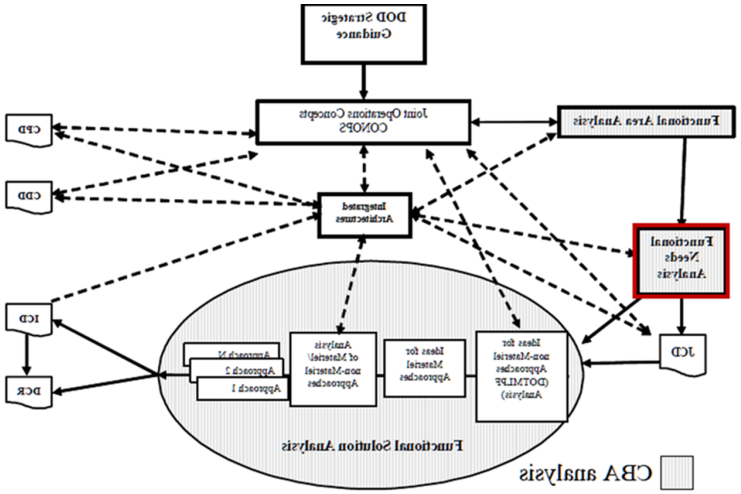
# Capability Option Development & Analysis System (CODAS) – Australian Army



# RAND Corporation: FAR-Ness method
## (Flexibility, Agility, Robustness)



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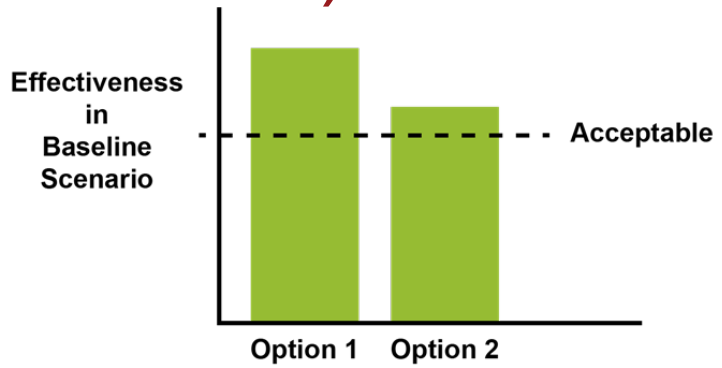
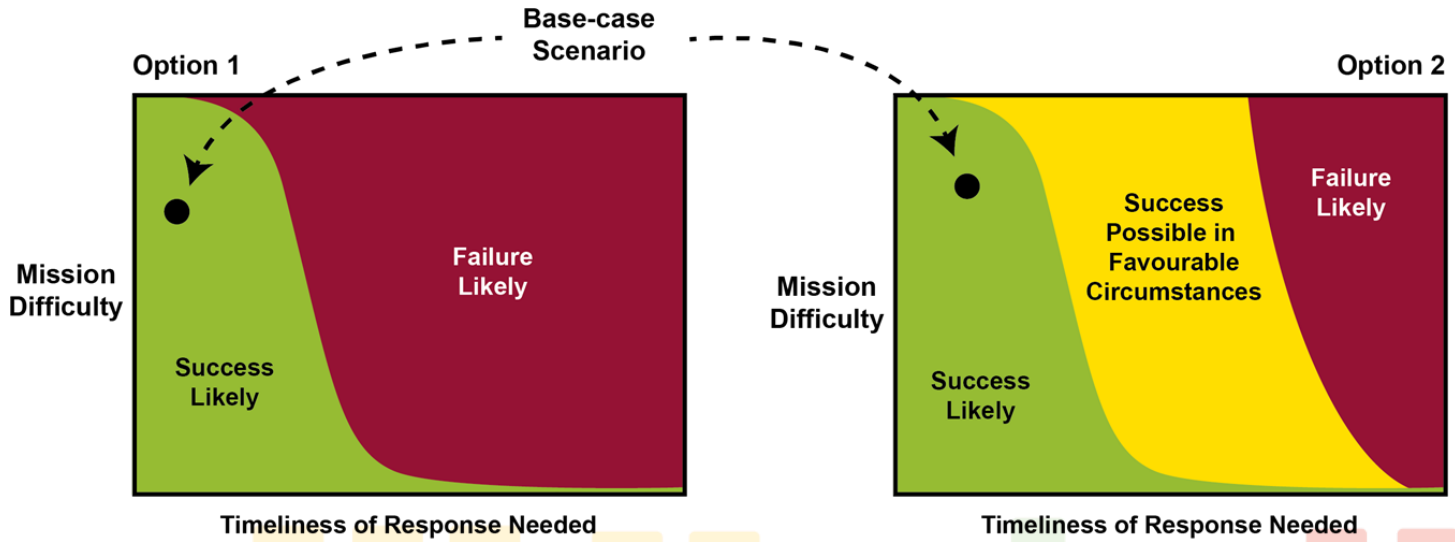
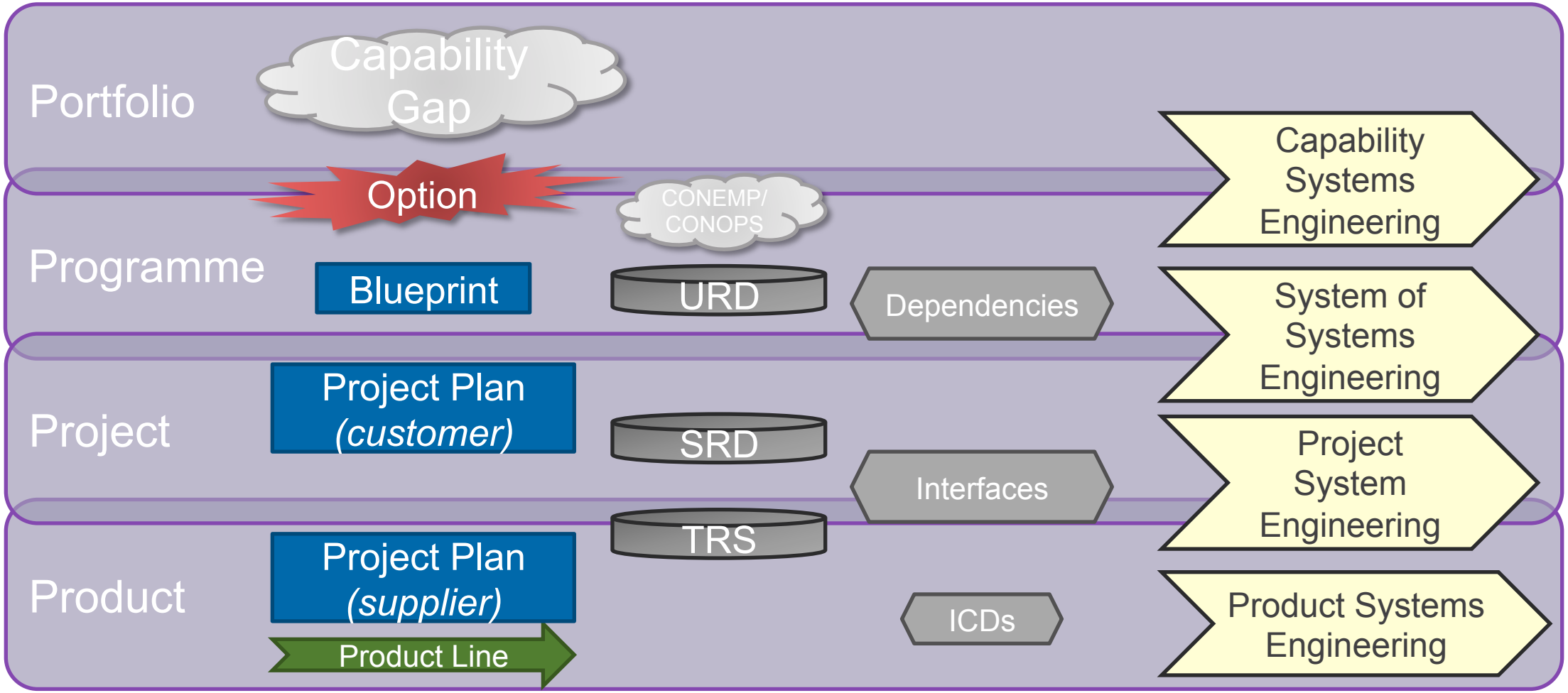


# Mind the Gap – Where Does the System Start?

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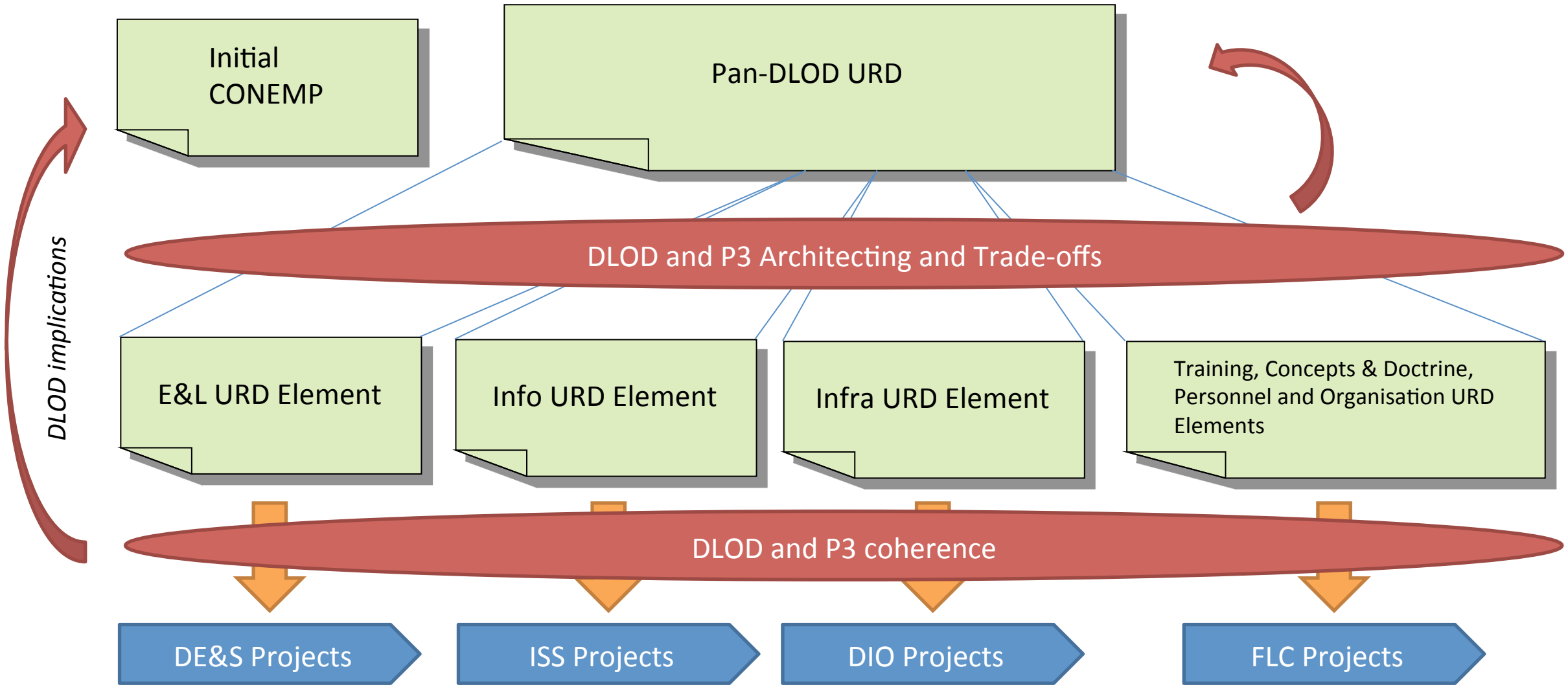
# Using DLODs to inform the Programme Blueprint for a Capability

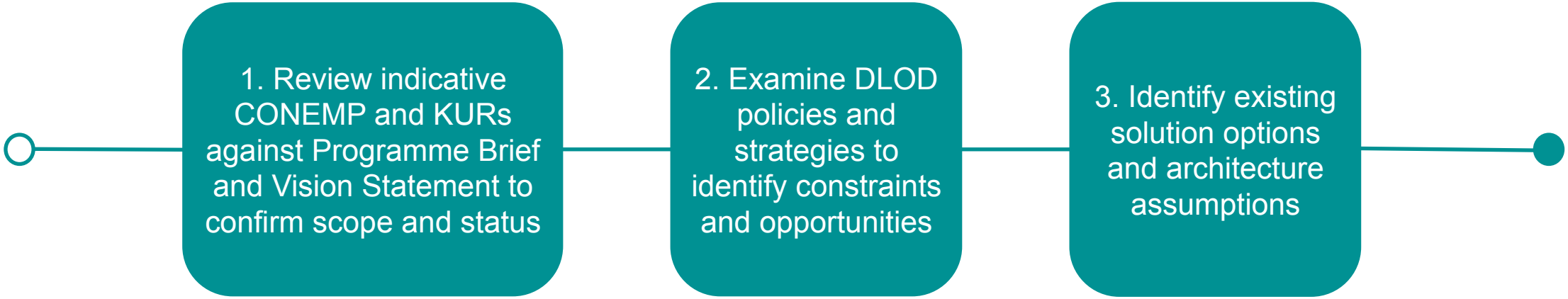
# The Problem

- Develop a process to:
  - Identify an optimal combination of viable DLOD changes that will collectively enable the achievement of the programme objectives and fill the capability gap.
  - In doing so, ensure that the DLOD requirements and dependencies will be identified and defined for the programme so that they can be managed, monitored and controlled throughout programme delivery.

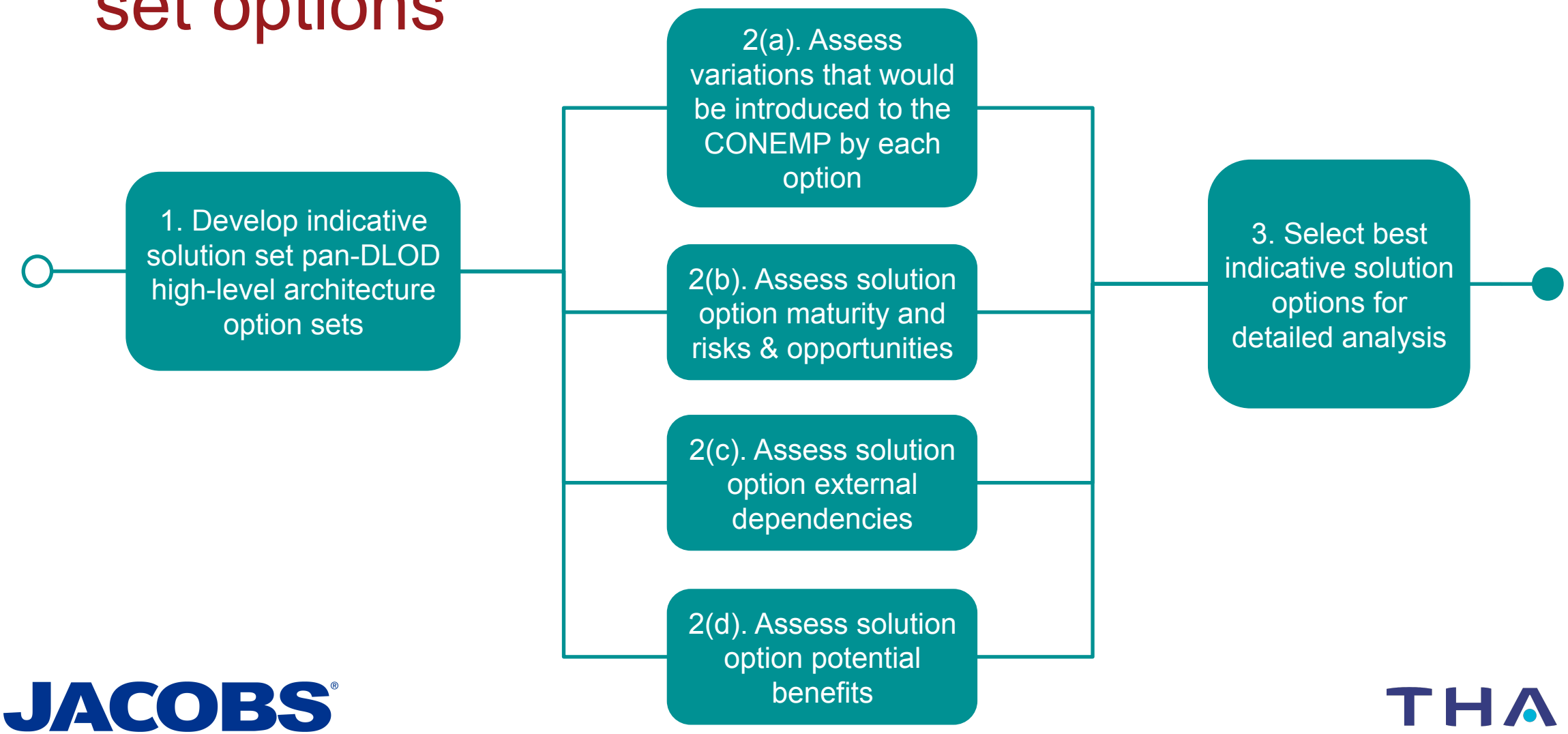

Initial CONEMP
Pan-DLOD URD
DLOD implications
DLOD and P3 Architecting and Trade-offs
E&L URD Element
Info URD Element
Infra URD Element
Training, Concepts & Doctrine, Personnel and Organisation URD Elements
DLOD and P3 coherence
DE&S Projects
ISS Projects
DIO Projects
FLC Projects

# 3 Stage Approach to Programme Definition

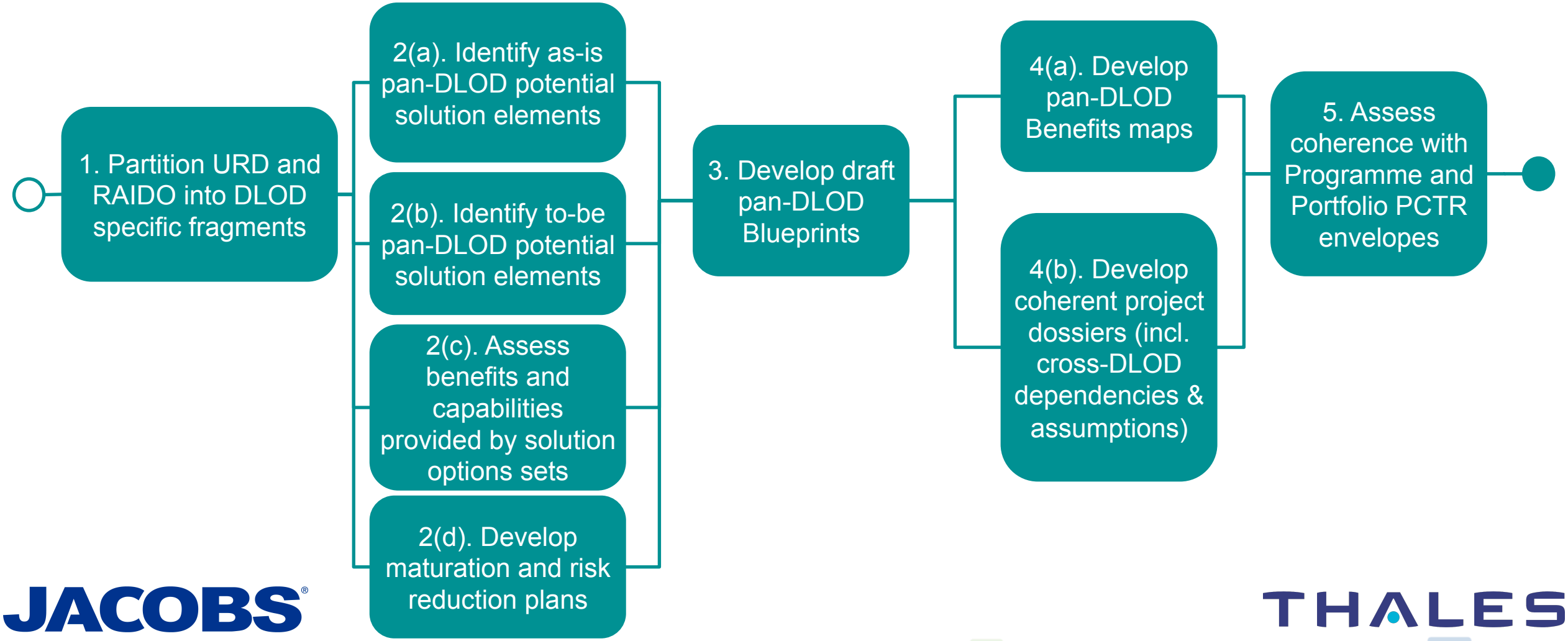
# Stage 1 - Identify Scope, Constraints and Existing Assumptions



# Stage 2 - Develop outline pan-DLOD solution set options



# Stage 3 - Develop Detailed pan-DLOD Indicative Solution Sets and assess P3 Coherence

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# Conclusions & Next Steps

# Conclusions

- Systems Engineering principles need to be applied at the earliest opportunity.
- This is not for the faint-hearted, as it typically involves embracing uncertainty and keeping multiple competing options in play until the programme starts to properly take shape.
- Programme Managers will benefit from being familiar with Systems Thinking
- Don’t assume that project management approaches can be scaled up to run programmes as “big projects”.
- Capability Systems Engineering enables wider policies, initiatives and interdependencies to be implemented in programmes (avoiding “silos”).

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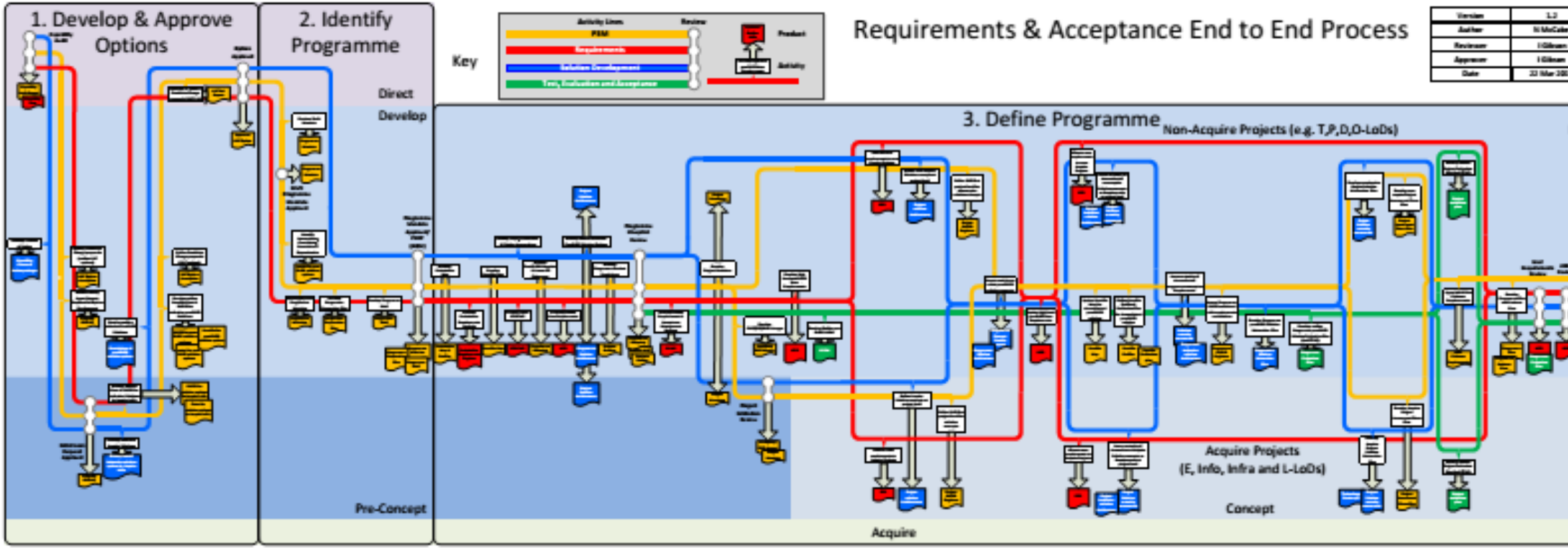
# Next Steps

- Ongoing work in Army HQ employing these techniques.
- Embodiment of this method into the rewrite of the UK MOD Acquisition System Guidance, as part of the “Tube Map”.

# Acquisition Requirements & Acceptance Tube Map



# Thank you

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