



Ministry
of Defence

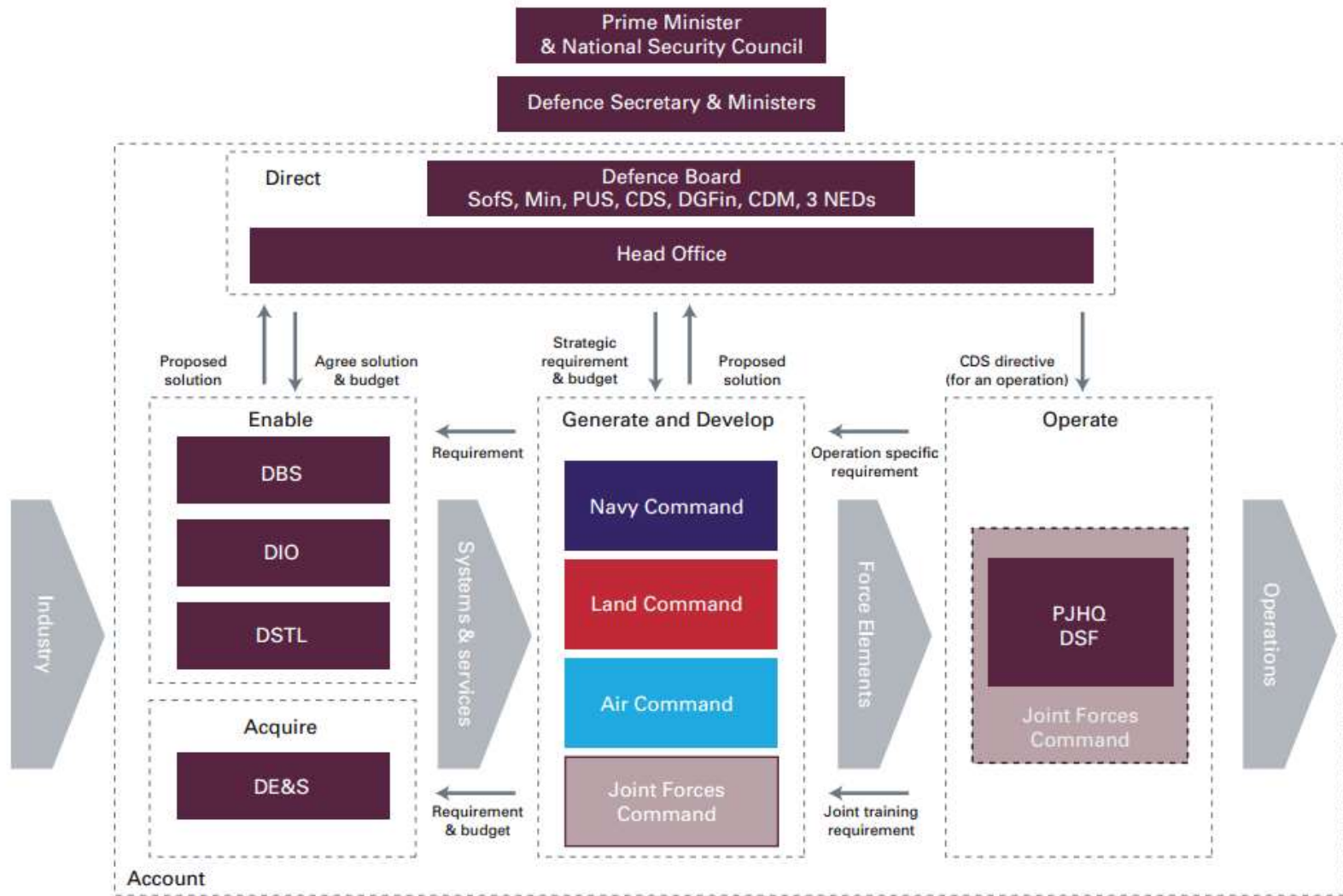
Test and Evaluation in a ‘complex distributed’ customer environment

Dr Dai Morris

UK Complex Weapons Senior Responsible
Owner

SOME BACKGROUND

UK Defence Reform – The “Levene” review



Defence Acquisition Reform

- Being one part of wider Defence Change
- Defence Equipment & Support
 - ‘Bespoke Trading Entity’ (Arms length Body of MoD)
 - Procurement, Support & Logistics
- Formalization of ‘Customer Relationship’
 - Between Commands and DE&S
 - Drives a stable ‘ask’ thus reducing change friction
 - Improves ‘Hold-to-Account’ and delivery

The UK 'distributed' customer is not dispersed!



AN EXTERNAL VIEW OF T&E

Why is this important?

■ UK Delegated Model

- No DOT&E!
- Commanders have the responsibility and authority
 - And a very difficult resource challenge
 - They can (and DO) trade time & cost in all aspects of a project
 - Safety & Contractual compliance test tends to be robust
 - The trade space can be in Operational Test....

■ Not really dispersed, but certainly distributed

- Different management chains only separated by one floor of a building really matter
- The Customer needs to ‘want’, not just hear “must”

Some common 'Assertions' – or Myths

■ Testing:

- Delays the Programme
- Is always over-specified
- Aims to break things, not show they work
- Is always too expensive
- Can all be done in simulation
- *Is the most important part of any programme*

■ So what does this say about the external view of the Evaluation community?

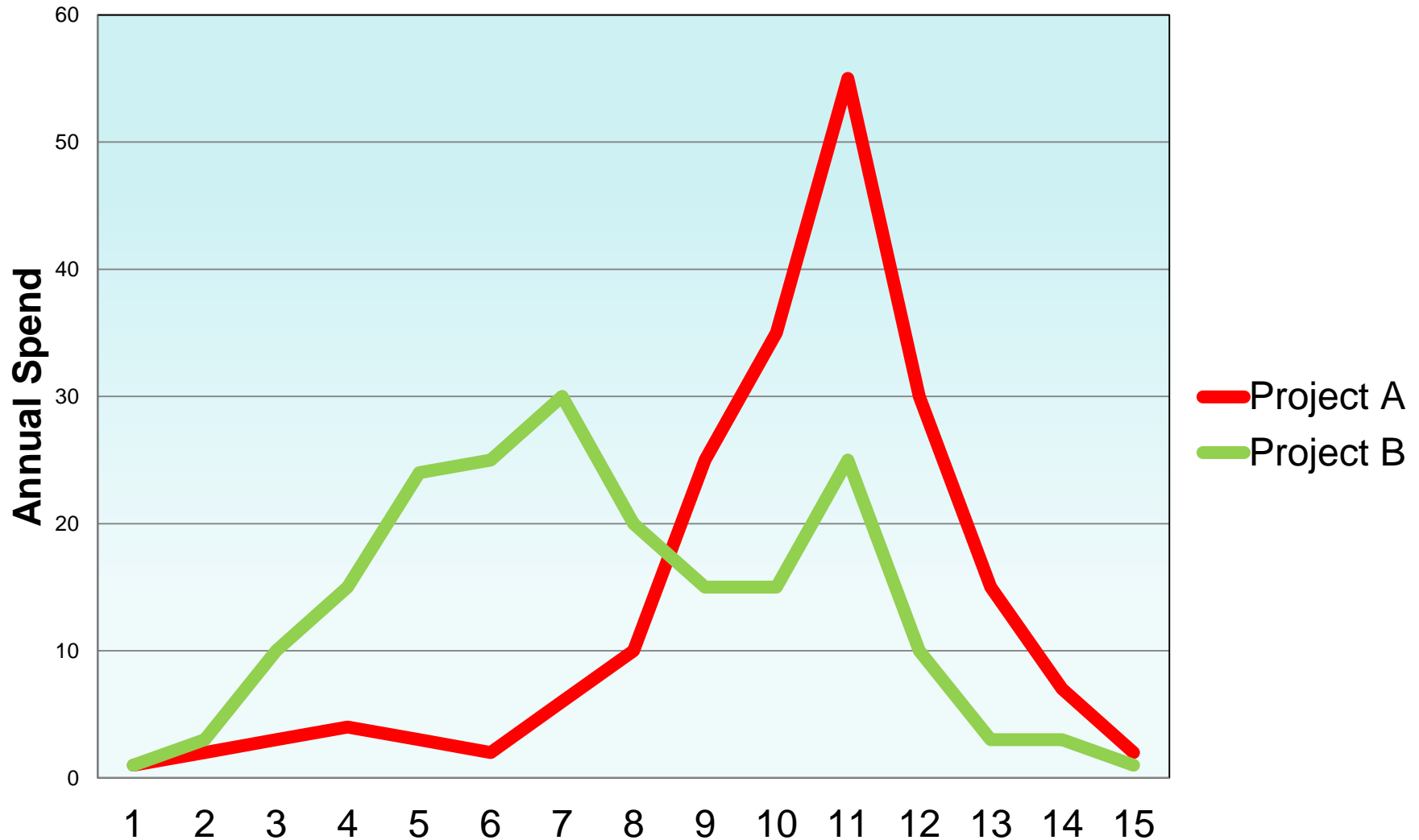
The Evaluation Community Solution

- Demonstrate Operational Excellence
 - Plan evaluation early, plan well, plan agile
 - Never buy before you know how to test
 - Demonstrate the value of ITEAPs,
 - Invest in the infrastructure for efficiency

- “The output is essential and worth it!”
 - But is it valued by the whole customer community?

**T&E AS AN ORGANISATIONAL,
NOT JUST PROJECT, BENEFIT**

Evaluation Spend Profile – a risk indicator?



Evaluation activity as a Prog. management tool

■ Evaluation **is** Risk Management

- So how much do we focus on the 'up-side' discovery?
- And how do we build that into Operational Capability?
- Can we use 'Measure & Declare' more

■ How integrated are the Training and Evaluation communities?

■ Evaluation of the requirement

- Do we spend enough resource 'helping' set the requirement?
- The evaluation community can identify optimism bias

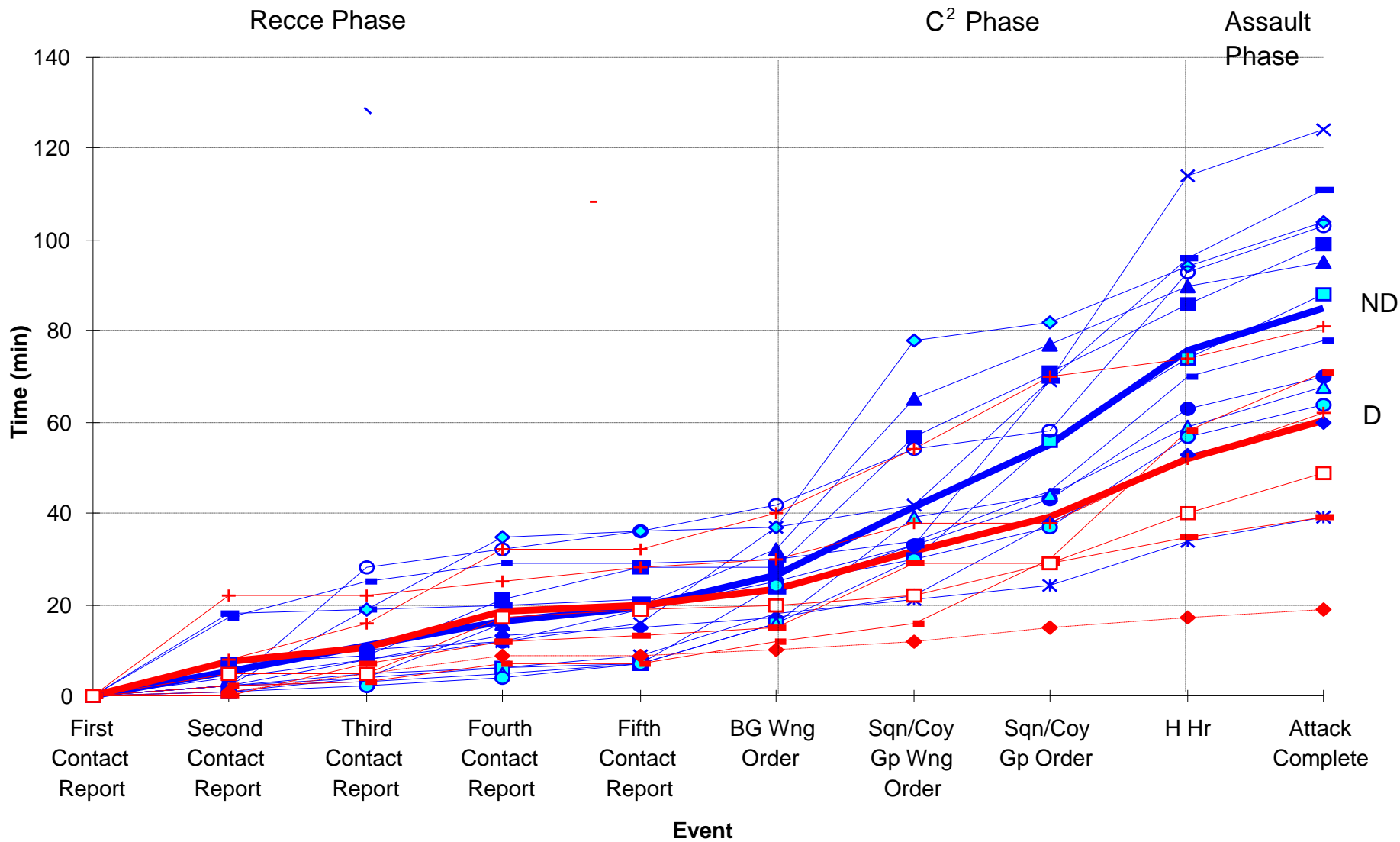
Great idea, or invitation for disaster?



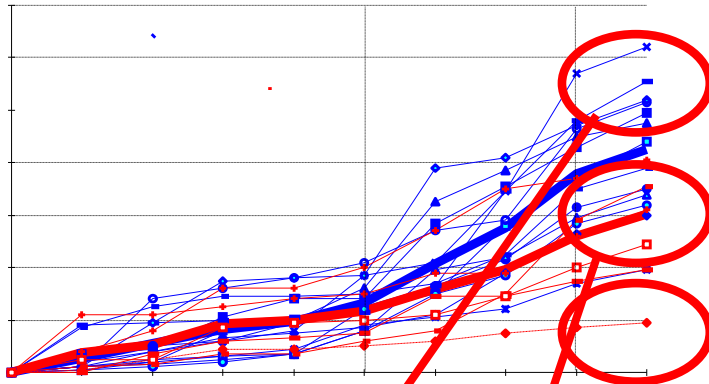
What the Evaluation Community sees

EVALUATION & MISSION EFFECTIVENESS

Up-side 'Risk' - A simple Pan-DLoD Evaluation



'The DLoD experiment in more detail....



1 – “Baseline Control”

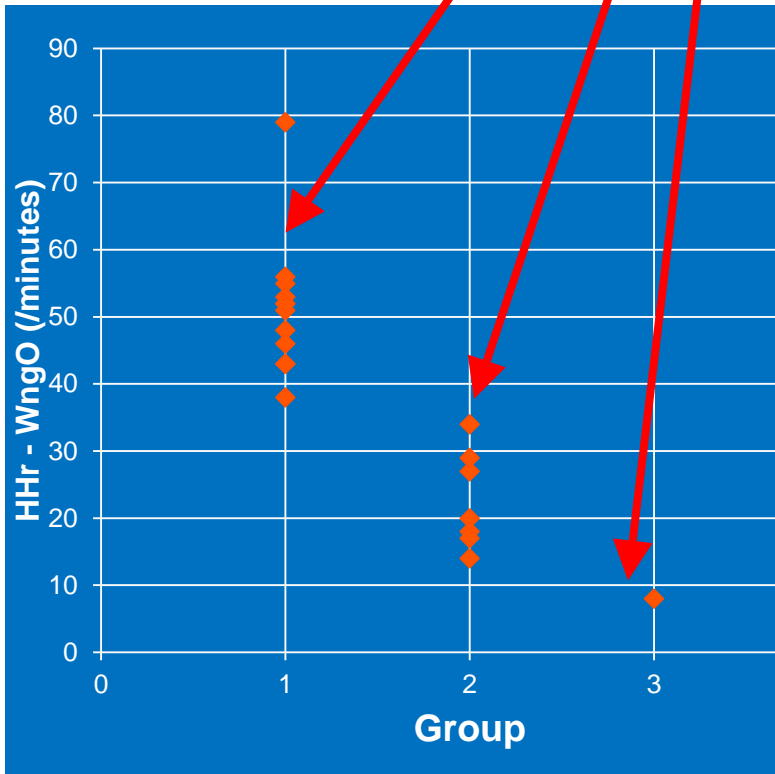
- no changes to any DLOD
- illustrates the potential of training to vary and improve average performance.

2 – “Capability Evaluation”

- Change to Equipment DLOD only
- Improves Capability in statistically significant manner.

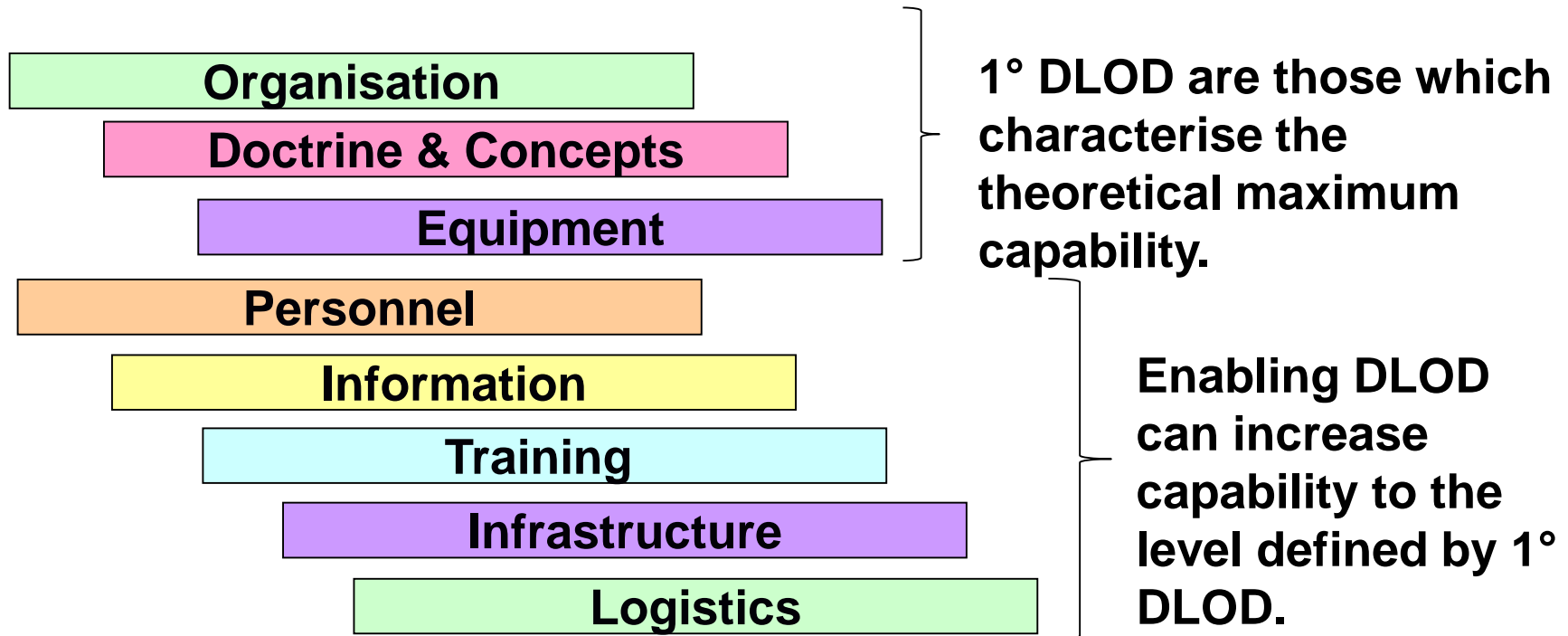
3 - “Emergent Condition”

- ‘Habitual test subjects’ changed Doctrine & TTPs to suit the change to their Equipment.
- Suggests that changes in non-equipment DLoD can cause great improvement in capability.



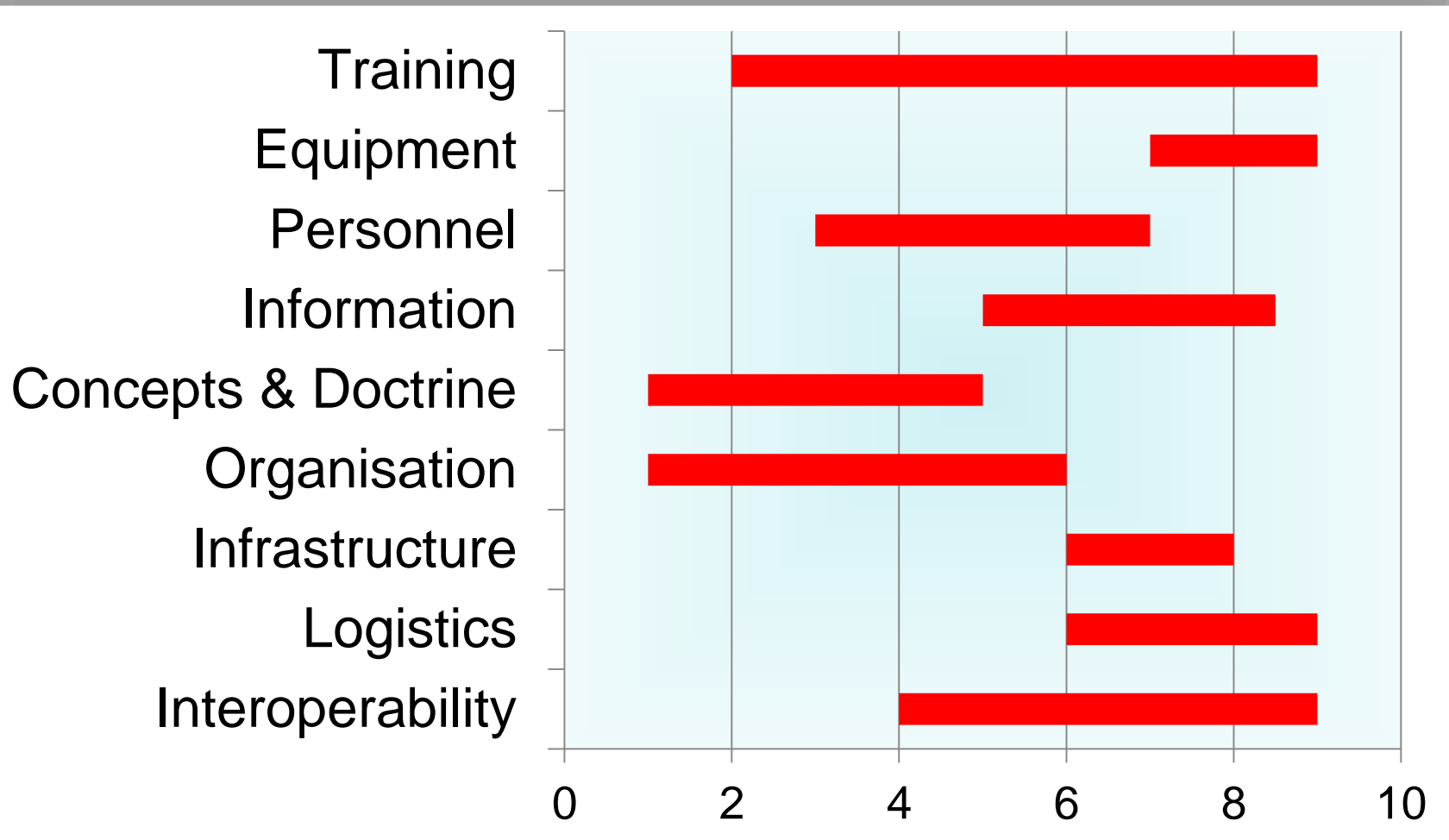
‘Defence Lines of Development

DLODS can be thought of as of as Primary or Enabling when used to explore / assess improved capability:



This FD construct doesn't imply 1° DLODs are more important. It simply serves to facilitate a potential Evaluation Approach.

How Good are we at Evaluating DLoDS?



A personal conclusion

- Testing for 'mission effectiveness' is fundamentally different to testing equipment performance
 - It should be a discovery process, not (just) verification
 - A real challenge for experimental design
- Our current Evaluation Capability is not always well matched to the task
 - DT, OT, Training communities all have a part to play
 - It's a through-life problem, not just 'Milestone C'
 - Mission effectiveness is as much about red as blue...

Some Final Thoughts

- We do need to sharpen our tools
 - Especially in the non-equipment area
- Evaluation is about Risk Management
 - So how do we get at the 'upside' not just the downside?
- The community has much to offer a SRO
 - But it needs to communicate in a different way
 - And accommodate the culture difference

Peter Drucker – 'Culture eats strategy for breakfast'

Questions, Comments ?





Ministry
of Defence

Test and Evaluation in a ‘complex distributed’ customer environment

Dr Dai Morris

UK Complex Weapons Senior Responsible
Owner