

# Introduction

This leaflet is aimed at all members of the MOD and our Industry partners to help manage technology effectively and therefore support the successful delivery of your project.

## Are you effectively managing technology in your project?

- The **DE&S Technology Management Strategy** addresses management of technology by Delivery Teams and Operating Centres.
- **TLMP** provides a method for planning and hitting Technology and System Maturity targets throughout all project stages.
- **PTG Assistance and Assurance** activity provides help and guidance to projects on managing and mitigating technology risk, via a robust assurance process.
- **Tools & Techniques** give projects the effective means of managing technology and recording maturity evidence.

## Do you understand your technology maturity and risks?

# DE&S Technology Management Strategy

There are five key principles of Technology Management endorsed for DE&S and the wider acquisition community:

1. Understanding Technology Opportunities in Projects
2. Managing Technology Risks in Projects
3. Joint Planning Technology Resources and Outcomes
4. Equipping our Staff for the Job
5. Industry and Teams ~ Working Together

# Technology in the TLMP

Effective Technology Management in projects is essential at all stages of the acquisition cycle and must be considered within the TLMP. Technology and System Maturity are measured through the use of Technology Readiness Levels (TRLs) and System Readiness Levels (SRLs).

## Create a Road Map to focus on the technology options required to achieve project aims.

### Concept & Assessment

- Understand and exploit MOD/Industry research activities.
- Use Technology Demonstration Programmes (TDPs).
- Develop plans for the integration and testing.
- Use models and simulation to support technology maturity.

### Demonstration & Manufacture

- Ensure the project activities have adequate plans and resources to mature and demonstrate the technologies.
- Use TRLs and SRLs to measure progress and risks.
- Complete integration and environment testing.
- Undertake acceptance testing activities on systems.

### In-Service & Disposal

- Plan for Technology Insertion to deal with obsolescence, capability upgrade and life extensions.

# Programmes and Technology Group

## Assistance and Assurance

Programmes and Technology Group Assistance and Assurance (PTG AA) provide through life Technology Management help, guidance and assurance.

## PTG AA support delivery teams with Technology Management, especially prior to key project decision points.

- PTG Assistance and Assurance staff provide independent assurance.

- Delivery Teams need to plan to ensure that sufficient time is allowed for assurance activities to be undertaken (ideally 6-9 months).

- Delivery Teams need to undertake an accurate self assessment of TRLs and SRLs prior to PTG assurance.

- The level of independent assurance will be determined by a risk based approach, together with consideration of the project category and time prior to decision point.

# Tools & Techniques

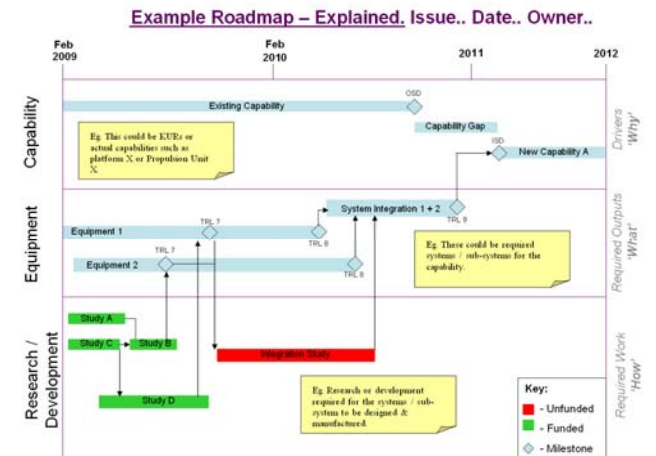
## Technology Road Mapping (TRM)

Roadmapping helps to align and communicate the business need (Know Why), with the delivery programmes (Know What) and the underpinning resources (Know How).

- Roadmaps link Capability needs with Equipment Projects and Research activities.

- Roadmaps can be developed with a focus on Capability by ECC, Equipment by Delivery teams or Research by Science and Technology areas.

- Delivery Teams should develop a technology roadmap identifying the key technologies for each option and the plan to develop them including fallback options with decision points.



## Technology Readiness Levels (TRLs)

TRLs are a structured means of measuring technology maturity. By assessing the risk of achieving each TRL, risk can be identified within projects including those presented by integrating technology into new and existing equipment.

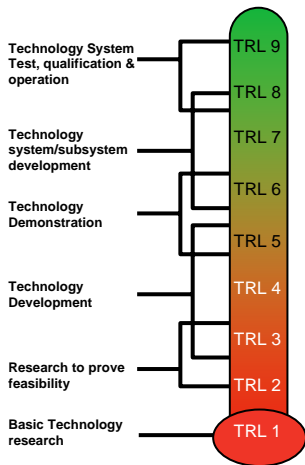
■ IG and MG business cases for all equipment and business change projects which rely on technology, must contain a structured assessment of technology risk – IAB Smart Approvals Guidance

■ The guidance is that technologies must be sufficiently mature in time for their integration into the equipment.

■ Delivery Teams will typically be aiming to support a TRL 3 claim for all key technologies by Initial Gate and ideally aiming at TRL 7 for Main Gate, although cases can be made for lower levels.

■ Projects must develop specific, measurable TRL criteria applicable to their project.

## Generic MOD Technology Readiness Levels



TRL9: Actual Technology system qualified through successful mission operations.
TRL8: Actual technology system completed and qualified through test and demonstration.
TRL7: Technology system prototype demonstration in an operational environment.
TRL6: Technology system / subsystem model or prototype demonstration in a relevant environment.
TRL5: Technology component and/or basic technology subsystem validation in relevant environment.
TRL4: Technology component and/or basic technology subsystem validation in laboratory.
TRL3: Analytical and experimental critical function and/or characteristic proof-of-concept.
TRL2: Technology concept and/or application formulated.
TRL1: Basic principles observed.

## System Maturity and System Readiness Levels (SRLs)

Measures the maturity of the equipment in terms of its readiness to enter service and deliver capability.

■ They provide a recognised structure to assess and communicate System Maturity together with associated interfaces within the overall design, development and testing regime.

■ Projects should aim to produce sufficient evidence to support a SRL1 claim at Initial Gate and SRL4 by Main Gate.

## MOD System Readiness Levels

		SRL Levels								
		1	2	3	4	5	6	7	8	9
System Disciplines	Systems Eng Drivers	Green	Green	Green	Yellow	White	White	White	White	White
	Training	Green	Green	Green	Red	White	White	White	White	White
	Safety and Environment	Green	Green	Yellow	Red	White	White	White	White	White
	R & M	Green	Green	Green	Green	White	White	White	White	White
	HFI	Green	Green	Green	Yellow	White	White	White	White	White
	Software	Green	Green	Green	Red	White	White	White	White	White
	Information Systems	Green	Green	Green	White	White	White	White	White	White
	Airworthiness	Green	Red	White	White	White	White	White	White	White
	Project Specific Areas	Green	Green	Green	Green	White	White	White	White	White

## Further Information

Further help required with Technology Assistance?

Please contact Craig Robertson

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Further details on the above can be found by contacting the team or looking on the AOF.

📄 [AOF/Tactical Level/Technology Management](#)

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# Assistance & Assurance (Technology)



Programmes and Technology Group



**Our Vision:** “To help Defence teams deliver projects and programmes right first time”

**Our Charter:** “Success of PTG will be measured by the ability of the MoD in general and DE&S in particular to get projects and programmes right first time”