

Maritime Acquisition Training Guide

**Part 2: Training Analysis Standards**

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# Section 1: Introduction

#### Purpose

* 1. The Defence Systems Approach to Training (DSAT) is “*is cyclical and flexible and should be applied intelligently rather than followed dogmatically. Users should select both the activities specific to their need and the order in which they are applied, to achieve the most appropriate Training System*[*1*](#_bookmark1)*.”*
  2. A variety of providers, both internal and external to Defence, supply Training Needs Analysis (TNA) to support Maritime Acquisition projects and programmes. The contexts and structures of pre-existing Training Systems across each capability domain (Air/Land/Maritime) can differ significantly. To ensure intelligent application of the DSAT in Maritime Acquisition and to maximise the chances of successfully introducing a workable Training Solution into the existing Training System, it is important to ensure alignment of expectations between the analyst(s) and the key project/programme stakeholders.
  3. This document therefore provides standards which are intended to normalise TNA practice for analysts working in the Maritime domain and are applicable to both internal and external analysts conducting this work. The DSAT is applicable to all training and development activities within the Defence Training System and is therefore necessarily generic and gives options and freedoms in places; this document is deliberately more specific.

#### Scope

* 1. The standards within this document apply to analysts conducting, or supporting, the activities outlined below in support of Maritime domain Acquisition projects and programmes. Whilst every effort has been made to ensure congruence of this document with the extant DSAT, nothing contained in this document relieves analysts of the obligation to comply with Direction contained within JSP 822.

#### Contracted Analysis

* 1. JSP 822 v5, Vol 1 - Introduction states

“*Where discrete elements of the DSAT process are outsourced to contractors, the exact requirement should be captured in the contract in order to ensure that DSAT activities that are undertaken by DSAT SQEP staff, are compliant with JSP 822 DSAT direction. Outsourcing the provision of DSAT activity to commercial organisations can be an effective use of resources especially where capability or capacity shortfalls exist and where time imperatives or the need for concurrency demand it. (p.8)*

* 1. This document is designed to be consistent with the DSAT and to complement Maritime domain contracts for outsourced TNA: the contract will detail what is required to be delivered, whilst this document provides product standards and process standards against which the contracted analysis outputs will be assessed. Contracts may make reference to this document accordingly.
  2. All standards contained within this document are applicable to contracted analysis **unless they have been explicitly waived or relaxed by the customer and ratified by the appropriate Steering Group**. Any such agreed waiver or relaxation should be formally documented, ideally within the contract or associated Statement of Work, verified by both parties (i.e. the Delivery Team and the customer in the appropriate steering group) and copies of the agreement provided to both parties.
  3. Many contractual agreements make the payment of the supplier dependent on the

1 JSP 822 v5, Vol. 1, p. 7.

customer’s endorsement of analysis outputs. Adherence to the standards within this section is a key criterion for stakeholders in deciding whether to endorse a given piece of analysis work.

#### DSAT Overview

* 1. The DSAT is explained in detail in [JSP 822 - Defence Direction and Guidance for Training](https://modgovuk.sharepoint.com/sites/people-tesrr-policy/SitePages/JSP-822--Volumes---PDF-format.aspx) [and Education.](https://modgovuk.sharepoint.com/sites/defnet/HOCS/Pages/JSP822.aspx) All analysts working on, or in support of, Maritime domain Acquisition projects and programmes are expected to be fully conversant with the content and application of the DSAT detailed within the extant version of JSP 822.

#### TNA Overview

* 1. When procuring new or replacement training capabilities, a TNA is undertaken to identify the most cost-effective training solution and fund/deliver the design, development, through life delivery and ultimate disposal of the training solution.[2](#_bookmark2) The Analysis process is iterative and so with increasing quantity, maturity and granularity of available data deliverables should be reviewed and updated. The process can be broken down into 3 phases (see Figure 1):

#### TNA Stage 1.

* + 1. **Scoping Exercise**. Initial analysis of the training gap is undertaken and possible training solutions identified. It also defines the management of the TNA, programming and resourcing issues, policies, constraints, risks and assumptions. The key output is the Scoping Exercise Report (SER) which recommends whether further analysis is required or that training is not the solution and the process is not taken forward.
  1. **TNA Stage 2.** Alongside the specifics detailed below, each deliverable should supply a robust audit trail to substantiate its contents and recommendations. This inclusion is key in enabling progressive assurance throughout the TNA process.
     1. **Deliverable 1 - Role Analysis (RA)**. This identifies the Role(s) that need to be trained for, the supporting duties, tasks, sub-tasks and task-elements, then analyses these to generate Performances, Conditions and Standards. This is summarised in the Role PS.
     2. **Deliverable 2 - Training Gap Analysis (TGA)**. This analyses the composition of the training gap (in terms of KSA). The outputs are the Statements of Training Gaps (an initial draft of the TOs, based upon the Role PS, which are the key outputs. TSGs should be mindful that the TOs are not final. They are representative of the analyst’s understanding and recommendations for training at that point in the project; endorsement of the TGA does not, therefore, render the TOs unchangeable at a later date.
     3. **Deliverable 3 - Training Options Analysis (TOA)**. The third deliverable looks at different combinations of methods and/or media which will bridge or partially bridge the training gap. Each method and/or medium is analysed in combination, or independently, for its training effectiveness, cost effectiveness, risk and On-Job-Training (OJT) requirement. The product from this deliverable is a recommendation as to the most cost- effective solution.
  2. **Deliverable 4 – Training Needs Report (TNR)**. The Training Needs Report provides the requirement and the endorsed training solution with a draft RPS and FTS, the implementation issues and Training Needs Evaluation (TNE) strategies and the full audit trail to all the previous TNA products.

1. The DSAT process will begin with a State of Requirement (SOR), which states that there is a (real or perceived) need for personnel to have specific KSA due to a **new** or **changed** requirement. In the case of new equipment the TNA process is initiated as part of Train activities rather than through a formal SOR.

#### TNA Stage 3.

* + 1. **Training Needs Evaluation (TNE)**. This assesses and reports on the effectiveness of the TNA process as well as the ability of the implemented training solution to meet the Defence requirement. The TNE is conducted in 2 parts: evaluation of the process, and evaluation of the training solution. The key output is an assessment of how well the TNA outputs contributed to the provision of a training solution that meets the Defence requirement. This completes the TNA process.

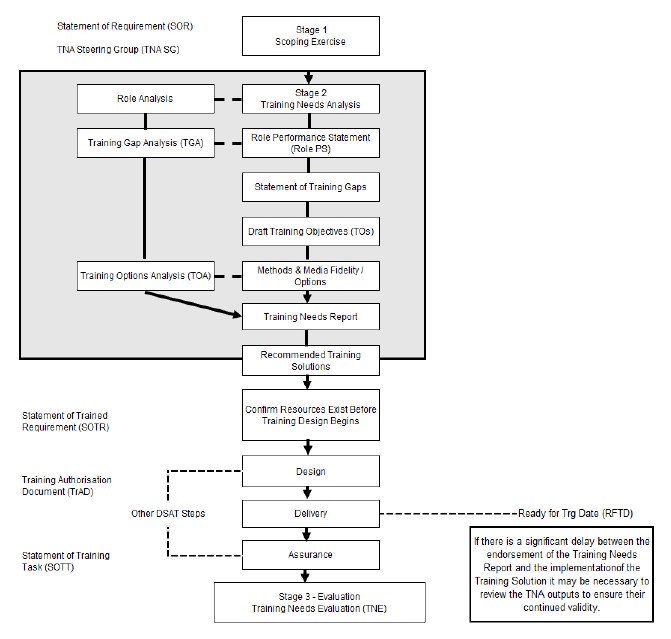


Figure 1: The TNA Process[3](#_bookmark3)

3 JSP 822 v5, Vol 2, para 13, p. 53

* 1. **Adaptability of the Approach.** Every TNA project will be different. The **TNA approach should be tailored to suit the specific requirements** of individual projects but must always provide a full audit trail. The complexity of the TNA should be balanced against the scale of the operational/business requirement.
  2. **Evaluation of Training Requirement.** The most common adaptation of approach is when the change to the operational requirement is small or where there is perhaps no/minimal change to the RPS. Typical examples are equipment updates which result in changes to maintenance routines and, for efficiency purposes, the proposal of alternative learning strategies involving new training methods and media. For these types of capture, an evaluation of training requirement is recommended which replaces deliverables 1 and 2. The training options analysis will then follow. The detailed strategy shall be determined as part of the scoping exercise for each individual project
  3. **Process Governance**. The Training Steering Group (TSG) ensures the validity of the TNA process and outputs. It is a dedicated steering group representing all stakeholders, which manages the TNA via the production and maintenance of a Training Support Plan (TSP). It also provides the governance for advising and endorsing the tailoring of the TNA approach as appropriate.

# Section 2: Standards for Scoping Exercise Report (SER)

* 1. **Purpose**. The Scoping Exercise Report (SER) involves initial analyses of the training requirement, identifying possible options for meeting the training requirement and a broad order estimate of the risk and resource implications associated with each option. In addition, SERs will define the objectives of the Analysis, set out its management structure, the timeline for completion and associated milestones. The SER (and substantive stages of the TNA) provide the analysed evidence to inform the timelines and milestones agreed in the TSP.
  2. **Output**. The main outputs of the deliverable are outlined below.
     1. Establish/confirm training is necessary and recommend scope of further analysis if required.
     2. The articulation of the high-level training requirement.
     3. Potential Solutions (training and non-training along with any estimates of initial and through life costs).
     4. Project Plan/TORs covering the next phase of the TNA. Note that this requirement is dependent upon the SER’s ultimate recommendations: if sub-paras a-c are addressed without the need, ultimately, for a full Stage 2 TNA, the provision of Stage 2 TORs and parameters is not necessary. Such a finding may not, though, preclude the requirement for a broader project plan. These considerations are important for the DT at the point of contracting – contracting for the Scoping Exercise and the Stage 2 TNA at the same time might potentially bias the SER’s findings to justify the contracted Stage 2.
  3. **Data Sources**. The initial information source will be the Training Strategy document produced by the PT. However, this is a high-level document and more detailed information will be required from Technical Documentation, the programme’s Master Data Assumptions List (MDAL), Risk Register, URD, SRD, CONEMP and Information from other DLODs (Integrated Logistic Support (ILS) studies, Human Factor (HF) or Human-Machine (HM) Interface studies).
  4. **Methods/Tools**. It is important that the SER is not just a data depository and contains

analysis and addresses the ‘so what?’. The Analyst should use those tools detailed at the annexes in support of the TNA Development.

* 1. **Format**. The common elements of all SERs are detail at [Annex A.](#_bookmark18)

# Section 3: Standards for Role Analysis (RA)

**Purpose**. Role Analysis (RA) is the process of examining the specific Roles of the Target Audience indicated by TNA Scoping in detail, in order to identify all the component duties and tasks, the Conditions under which the Role is performed, and the Standards to be achieved when performing the Role.

* 1. **Outputs**. The main outputs of the deliverable are outlined below.

#### Summary of recommendations based on the findings at this stage.

* + 1. **Updated SE.** The analyst should review the SE and identify any important information that has changed since any previous analytical work was completed.
    2. **Target Audience Group Descriptions.** The introduction of new capabilities, and replacement or upgraded equipment often affects a cross-section of personnel fulfilling different roles; usually the contexts, and hence implications, for the different role holders vary considerably. The identification of primary and secondary impacts on each role in the target audience is an important factor in decisions concerning where RA activity is focused. Where the target audience identified by TNA scoping includes more than one distinct group, a description of each group and their context should be produced at the outset of RA (unless already produced during scoping, in which case the descriptions should be reviewed and validated), considering:
       1. Higher level context, including strategic context, operational doctrine and team/collective scenarios. What is the overall purpose of the role?
       2. External context, including wider environment and conditions, for both individual and team/collective, and number of people fulfilling the role. What external factors affect performance of the role?
       3. Internal context, such as organisational structures, role dependencies, relationships and responsibilities, and the training audience, throughput and selection processes. What internal factors affect performance of the role?
    3. **Role Scalars and Role Performance Statements.** A role scalar is produced[4](#_bookmark6) by analysing a role, forming performance statements for the duties, tasks, sub-tasks and task- elements that have to be performed within the Role and recording them diagrammatically. The Role Scalar forms the basis of the Role Performance Statement (RPS) which expands and completes the descriptions of the Tasks and Sub-tasks by including the Conditions the Tasks are performed under and the Standards which they must be performed to.
  1. **Data Sources**. From the outset, Data Maturity must be evaluated and communicated within the TNA. Any associated risks must be formally captured. The following sources of information should be used in RA:
     1. **Documentation**. In order to begin identifying duties and tasks any applicable documentation should be consulted These should include if available (and relevant): CONUSE / CONOPS / Employment, Books of Reference (BRs), Joint Service

4 Extant scalars should be reviewed and updated where possible to reflect any changes and avoid nugatory work (audit trail of any changes is to be captured)

Publications (JSPs), MOD / manufacturers’ manuals,

* + 1. **Subject Matter Experts (SMEs)**. Normally the most valuable source of RA data, the most appropriate SMEs are likely to be drawn from role holders (), line managers, trade managers, technical specialists (internal and external) and manufacturers. In some equipment acquisition scenarios, the manufacturer or users outside of Defence may be the only sources of data. Analysts should not be wholly reliant on others to provide them with SME contacts; they should be proactive in seeking, identifying and engaging with as many SMEs as necessary to provide a balanced opinion of issues and potential training options. Although, ultimately the responsibility for providing access to SMEs does reside with the TSG.
  1. At every point of the TNA, the Analysts are required to advise the TSG of data maturity concerns. It is not acceptable to knowingly submit deliverables that lack substantiating evidence, without its having been cleared with the TSG beforehand.
  2. **Methods/Tools**. These tools must be used in the development of Deliverable 1:
     1. Role Scalar Hierarchy at [Annex C.](#_bookmark25)
     2. Difficulty, Importance, Frequency Analysis at [Annex D.](#_bookmark28)
     3. Initial KSA Analysis at [Annex](#_bookmark30) E.
  3. **Quality Criteria**. The RA quality criteria are at [Annex G.](#_bookmark34)

# Section 4: Standards for Training Gap Analysis (TGA)

* 1. **Purpose**. The TGA identifies the additional training requirement of the affected Role holders by ***determining the training gap between the Role Performance as stated in the Role PS and the performance achieved by trainees by the end of any existing training solution(s)***. This analysis also enables obsolete training content to be removed or updated; additionally, the impact upon Defence capability can be assessed if a new or changed Defence capability is implemented without additional training.
  2. **Outputs**. The main outputs of the deliverable are outlined below.
     1. Summary of recommendations based on the findings at this stage.
     2. **Knowledge, Skill and Attitude (KSA) Analysis.** Define the additional learning requirements, if any, of the Role holders in terms of KSA at the sub-task and task- element levels.
     3. **Statement of Training Gap**. The new or amended TO’s that define the training gap are documented in a draft TPS (at this stage the training solution is unknown).
  3. **Data Sources**. Accurate identification of Training Gaps is dependent on having both valid RPS and valid TOs for the extant training solution(s). Before starting to derive any Training Gaps, analysts must consult the Training Delivery Authority and/or Training Provider who has custody of the TOs in scope and consequently must determine the validity of those TOs for serving as the basis of further TGA and inform the customer of their findings. If any extant TOs are deemed to be invalid or deficient in conforming to standards required of TOs, further consultation with the analysis sponsor/customer is essential to determine the way ahead.
  4. **Methods/Tools**. The following tools support the development of a TGA:
     1. KSA Analysis at [Annex E.](#_bookmark30)
     2. Gap Analysis at [Annex H.](#_bookmark35)
     3. An exemplar for documenting Training Objectives is at [Annex](#_bookmark36) I.
     4. Quality criteria for the TGA are at Annex J.

# Section 5: Standards for Training Options Analysis (TOA)

* 1. **Purpose**. The TOA analyses the cost-effective delivery, through-life, of the different combinations of methods and/or media which will fully or partially bridge the training gap. Each method and/or medium is analysed in combination, or independently, for its training effectiveness, cost effectiveness, risk and any On the Job-Training (OJT) requirement. The product from this deliverable is a recommendation as to the most cost-effective solution.
  2. **Outputs**. The main outputs of the deliverable are outlined below.
     1. Summary of recommendations based on the findings at this stage.
     2. **Updated SE/Deliverable 1 & 2.** The analyst should review previous deliverables and identify any important information that has changed since any previous analytical work was completed.
     3. **Fidelity Analysis.** An assessment of the requirement for the training environment to replicate the workplace (real) environment to enable training to be effective.
     4. The product from this deliverable is a recommendation for a cost effective training solution for meeting the identified operational tasks or competences that require training.
     5. **RPS** for the duties and tasks (or competencies) affected by the recommended training option with an *estimated* Training Category reflecting the shore to sea training split.
     6. **Formal Training Statement (FTS).** A provisional set of Training Objectives in the form of an FTS with supportive notes to amplify OJT requirement to be included as appropriate to assist Training Designers with OJT specifications. This enables changes required to affected DSAT course documentation to be identified.
  3. **Data Sources.** Accurate identification of suitable training options requires an up-to-date knowledge of current methods and media, GFE, synthetic (CBT/CAI) along with their advantages and disadvantages; emerging innovative training technology should also be considered. If synthetic training is considered as an option, it must be compliant with current training, education and simulation policy. Future Training can advise on this.
  4. **Methods/Tools**. The following section is intended to provide the analyst with a range of tools that can be used in support of the development of Deliverable 3. To mitigate the subjectivity of the analysis, the TOA is comprised of 2 fundamental mandatory processes:
     1. A Measure of Training Effectiveness (MOTE).
     2. A Cost Benefit Appraisal (CBA).
  5. This methodology may be substituted with an alternative proposal by the analyst; irrespective of the processes employed, the TOA should never rest wholly on algorithmic findings. The input of the analyst’s reasoned judgement and expertise is paramount.
  6. The tools are found out the following Annexes:
     1. Fidelity Analysis at [Annex K.](#_bookmark38)
     2. The format for conducting MOTE is at [Annex L.](#_bookmark39)
     3. TOA quality criteria are at [Annex M.](#_bookmark41)

**Section 6: Standards for the Training Needs Report (TNR)**

* 1. **Purpose**. The TNA process, starting from the Scoping Study, will develop data into a Training Needs Report that specifies the training requirement, the recommended training strategy and the resources required to design and support the training.
  2. **Output**. The main outputs of the deliverable are outlined below.
     1. Summary of recommendations based on the findings at this stage.
     2. The Methodology used throughout the study.
     3. Identification of the Operational/Business Performance Requirement – the RPS/CF for each job holder[5](#_bookmark9).
     4. Identification of the Training Requirement – the results of the Training Gap Analysis to include Training Objectives with clear Performance statements, Conditions and Standards.
     5. Identification of the Training Requirement – the results of the TGA to include Training Objectives with clear Performance statements, Conditions and Standards.
     6. The steering group endorsed training solution stated and clearly summarised to enable implementation, to include:
        1. The TSG endorsed training solution, resulting from the Cost Benefit Analysis[6](#_bookmark10) and final selection using the Options evaluation[7](#_bookmark11), a statement of the fidelity requirements (based upon the HMI/HCI analysis), associated risks, assumptions and constraints.
        2. Implementation plan, including where responsibilities lie e.g. conversion training for new equipment (if applicable) or date of implementation (of legislation and/or policy change), acquisition and setting to work the steady state training solution and course design. At this stage all the new or changed training objectives endorsed by the steering group should be available and expressed as training performance, conditions and standards to enable implementation by the responsible training design team(s)[8](#_bookmark12). Any recommendation regarding estimation of course resource, timings and assessment should be clearly referenced to aid the training design team.
        3. Input to inform or refine the SOTR (for formal endorsement) to focus and direct the design stages.

5 RPS/ICF should be passed formally to P&T, TMG, Training Governance and Assurance (or the relevant organisation) for inclusion into the appropriate document management system such as TAFMIS etc.

6 JSP 822 v5, Pt 2, Para 56

7 Ibid, Para 57.

8 This should be passed formally to the contractor (or the relevant organisation) responsible for delivering the Training Design work under any extant contract such as SELBORNE.

* + - 1. An updated Training Support Plan to inform the ILS project plan and support the implementation Plan.
  1. **Data Sources**. No new analysis activities should be introduced at this stage and the Training Needs Report should collate all the information from the Scoping Study and TNA Deliverables adding an implementation plan and TNE strategy.
  2. **Methods/Tools**. There are no tools defined in support of the development of Deliverable 4.
  3. **Quality Criteria**. The TNR quality criteria are at [Annex N.](#_bookmark42)

# Section 7: Standards for the Training Needs Evaluation (TNE)

* 1. **Purpose.** The TNE evaluates the effectiveness and efficiency of the TNA training recommendation for future reference, regarding lessons learnt and to tailor the methodology accordingly for continuing development. It is intended that the TNE will look separately at the management of the TNA and the solution it proposed. The rationale for this is that it may be many years after the final report is endorsed before we are in a position to evaluate the proposed solution. Implementation and management of the TNE will depend upon the nature of the project, which will have been recommended by the TNA final report.
  2. **Output**. The main outputs of the deliverable are outlined at [Annex O](#_bookmark43).
  3. **Quality Criteria**. The TNE quality criteria are at [Annex P](#_bookmark44).

# Section 8: Practitioners Issues

* 1. **Selecting the correct approach.** The TNA must be tailored to meet the requirements of a project. The outputs to be delivered from the TNA process should be agreed at the scoping phase and the analysts can then select the correct approach and tools based on the constraints and information available at the time. Analysis should not be conducted as a check list exercise: it uses thought processes and deduction to reach sensible recommendations. Analysis should only be undertaken if it adds value to the TNA. Early setup and consultation with the TGS and its key stakeholder members including TNA QA and TRA will allow the optimum approach to be identified and endorsed.
  2. **SME/Stakeholder.** An SME is an individual who has thorough knowledge of a job, function/tasks, or a particular topic, which qualifies them to assist in the TNA process.
     1. **Identification and availability.** It is important to identify key personnel who can provide SME support to the TNA process. The sponsor must be made clearly aware and agree to provide the necessary SMEs. Those nominated should be made aware of the expectations of that dedicated support. SME support can be drawn from a variety of sources including: Operational Command (end user); policy; organisational headquarters; equipment manufacturer; users of the equipment/system; training staff; training equipment companies; CBT designers. In most cases SMEs are not exclusively tasked to provide advice and support. When collecting data and validating analysis the analyst should consider time, location, and the accessibility of SMEs to make the most efficient use of these valuable resources. Workshops, meetings, e-mails and telephone conversations form the normal correspondence. The selection of SMEs may vary during the different phases of the TNA.
     2. **Briefing.** Sponsors and stakeholders often have a limited knowledge of the management of training and are unfamiliar with the TNA process. At the start of a project, time is often well spent in educating those who are to be involved in the TNA

about the process. This is particularly important for those involved directly with the TNA work and the steering group. They must be aware of their roles and responsibilities, including the provision of information and staffing routines.

* + 1. **Subjectivity**. The analyst should evaluate SMEs’ input, taking unconscious biases into account regarding existing capabilities, SOPs and ways of working.
  1. **Cost Benefit Analysis.** Costing and investment appraisal are superficially easy but have many pitfalls for the uninitiated. Their techniques are beyond the scope of this manual. It is important that costing and investment appraisal are undertaken strictly in accordance with the current policies[9](#_bookmark16).
  2. **Presentation of TNA findings.** It is important that the work and analysis that has been conducted is presented effectively. Analysts need to be able to articulate their findings on paper and orally at the TNA steering group. The written report(s) should be concise, follow a logical sequence and present a robust argument with supporting evidence. The ability to be able to articulate the options to the steering group and explain the implications of selecting different options is key , so that a clear understanding of the various training solutions is established.
  3. **Iterative Nature of TNAs.** Whilst a TNA is carried out by completing a number of stages in a linear sequence, it is important to remember that the process is essentially iterative and aims to include all supporting data, completed stage reviews and all assumptions that have been justified. It is vital at every stage of a TNA for the outputs to be reviewed to ensure their continuing validity, and appropriate stages of the process repeated if necessary.

# Section 9: Training Points of Contact

* 1. For specialist training advice on DSAT and Royal Navy Training, the following can provide further information:

#### People and Training Directorate (P&T) (2\* Area), Deputy Director People Strategy (DDPS) (1\* Area), Future People Capability (FPCAP)/Future Training (FT) (OF5 Area)[10](#_bookmark17).

[Sharepoint page (with PoCs and Organisational Diagram)](https://modgovuk.sharepoint.com/teams/60754)

Future Training within P&T can provide advice and consultancy to project teams within the delivery agents via the MTAO team. Future Training also own the TNA QA (AW and SM team) who will conduct the quality assurance of the TNA work. It should be emphasised that the focus of the output of P&T is individual training (as described in Pt 1 of the MATG) but MTAO are able to offer advice and consultancy on DSAT broadly (individual and collective) as RN Training Managers.

#### Director Force Generation (Dir FGEN) (2\* Area), Commander Fleet Operational Standards and Training (COM FOST) (1\* Area)

[Sharepoint Page (with PoCs and Organisational Diagram)](https://modgovuk.sharepoint.com/teams/55846)

Information and discussion related to Collective Training should be addressed to COM FOST Chief of Staff (COS) who can then direct to key PoCs in FOST Ships or FOST Submarines. As stated above support and advice/consultancy can still be sought from Future Training.

* 1. The majority of TRAs for the Royal Navy can be found within the following organisation:

#### P&T, DDPS, Workforce Planning and Talent (OF5 Area)

9 In particular JSP 822 v5, Vol 2, Pt 3, Para 56, p.32.

10 Submarine Individual Training Coherence Organisation (OF5 Area) is due to be established in April 2023 and Future Training/MTAO SM team will form part of this team. Contact details can be obtained via the FPCAP/FT Team as required.

[Sharepoint Page (with PoCs and Organisational Diagram)](https://modgovuk.sharepoint.com/teams/50011/SitePages/Home.aspx)

Workforce Planning Teams/Branch Managers act as the TRAs for most RN individual training. The TRAs for Collective Training can be contacted via COM FOST with details at the [link](https://modgovuk.sharepoint.com/teams/55846).

### SCOPING EXERCISE REPORT (SER)

* + 1. There are some common elements of all :SERs:
       1. **Summary of Requirement**. Analysts should have a sound understanding of the new/changed capability that is underlying the SER and its key elements, particularly those that will impact on training; refer to the CONEMP where available.
       2. **Aim of SER**. Analysts should ensure that there is a clear understanding of the aim of the SER, i.e. first, to confirm training as a necessary component to the successful integration/maintenance of the capability in question. Second, to conduct one or more initial analyses of the training requirement and, where applicable, suggest possible options for meeting the training requirement and make a broad order estimate of the risk and resource implications associated with each option. Normally, confirmation of training as a necessary component of the capability is dependent on analysis of the training requirement and analysts should be aware that there may be an initial indication that training or changes to existing training is required that could be found to be in error based on more detailed analysis.
       3. **Guidance on the Conduct of SERs**. It is imperative that clear guidance has been provided for the conduct of the SER. A considerable amount of resources may be required to carry out the SER and these should be detailed clearly within this guidance, which should include:
          1. The scope and size of the SER task.
          2. Methodology of the SER. If it does not follow the guidance provided in this manual, it should be stated where any differences apply and identify any additional source reference documents that are to be used to inform the way the SER will be conducted.
          3. Deliverables and reporting procedures.
          4. Timescales and milestones associated with delivery of the capability.
       4. **Resource Requirements.** The SER should highlight what resources it requires in order to proceed. These would normally include (but not limited to) access to Subject Matter Experts[11](#_bookmark19) (SMEs) from MOD and industry, access to MOD and industry facilities, access to technical documentation, access to concepts and doctrine, access to legacy training solutions and facilities. Analysts should not be wholly reliant on others to provide them with SME contacts; they should be proactive in engaging with as many SMEs as necessary to provide a balanced opinion of issues and potential training options.
       5. **SER Planning**. Analysts should plan SER and further analysis activity at the outset. It may be useful to include a draft plan with timelines for when deliverables will be complete, what deadlines they are working towards, and what they will contain. It should also include any known constraints on the plan in terms of resources and availability of key personnel, release of documents, witnessing key events / trials, etc.
       6. **SER Management Structures**. Identification of the management structure, including key stakeholders and approval authorities is essential for SER success. This will normally be defined by ILS methodology (for acquisition related projects coordinated

11 Subject Matter Expert (SME) – an individual who has thorough knowledge of a job, functions/tasks, equipment or a particular topic (e.g. training), which qualifies him/her to assist in the training development process (for example, to consult, review etc.)

through DE&S, normally under a Project Team umbrella) or by the applicable CEB. In either case, the SER will most likely be managed and overseen by a TSG that will be responsible for ensuring that it is completed on time and that content is endorsed by all members. It is not essential that the TSG formally sits, and it is possible for decisions to be made ‘virtually’ out of committee. The TSG should consist of applicable DLoD representatives, all of whom should be consulted when producing SER outputs and prior to its distribution for endorsement. The analyst is accountable to the TSG and responsible for delivery of the SER products as agreed by the TSG. TSG members are responsible for representing the views of their organisations and are to ensure that any issues have been staffed to an appropriate level prior to being addressed in committee.

* + - 1. **Stakeholders**. Possible stakeholders that will probably form the TSG are detailed below:

#### Endorsing Members:

* + - * 1. **Chair**. This should be the person sponsoring / commissioning the high level SER. Could be from either Mil (Cap), but normally delegated to the PT. Also represents the training Equipment DLoD.
        2. **Training Requirements Authority (TRA).** Often the Branch Manager or Workforce Planning Team lead. If multiple TRAs then a lead should be nominated[12](#_bookmark20).
        3. **Front Line Command (FLC) Capability Area Representative**. Representing the User of the capability.
        4. **Training Capability Manager**. Representing the in-service space.
        5. **Future Training TNA QA.** SM or AW SO3 TNA QA as appropriate.

#### Other key stakeholders can be added as required to the membership of the TSG including, these aren’t necessarily going to be endorsing members:

* + - * 1. **Delivery Agent Training DLoD Integration Authority**. Ensures coherence with training acquisition guidance and assesses impacts on existing training solutions and infrastructure.
        2. **Industry**. At the Chair’s discretion if contracts have been let. Could be prime contractor and / or training solution / Analysis contractor.
        3. **Training Deliverer**. From training stream / lead school to represent the training Information and Training DLoDs for instructor and training design issues.
        4. **Collective Training Representative**. As required.

#### Other DLOD Representatives as Required.

* + - * 1. **SMEs**. As required. It should be noted that many SMEs may not have experience of the new capability, but will have experience of similar legacy capabilities.
      1. **Assumptions, Constraints, Risks Issues and Dependencies (ACRID) Capture**. A key component of project management is the identification and impact analysis of

12 JSP 822 v5, Vol. 1, Para 12, p. 14

Assumptions, Constraints, Risks, Issues and Dependencies (often abbreviated to ACRIDs) that affect the project.[13](#_bookmark21)

* + - * 1. Assumptions are those factors which are assumed to be true, but which have not yet materialised or which are not yet confirmed in detail.
        2. Constraints are those factors which are known and which have a limiting effect on the project.
        3. Risks are defined as uncertain future events that could negatively or positively affect the organisation’s achievement of its objectives, partly or completely.
        4. Issues are a certainty. It is an event that has already occurred, something that is known and certain to occur, and will affect the organisations ability to achieve its objectives. If the effect is uncertain, it is not an Issue and should be managed as a risk.
        5. A Dependency is a logical relation between two things where the second thing depends on the first. So, for example task where one task cannot be done until a preceding task has been. Dependencies can always be identified and often can and should be tracked. Project dependencies are task dependencies in the context of a project.
        6. The need to set up, maintain and circulate a register of ACRIDs during the TNA process is essential and these must be reviewed and updated regularly by the TSG as as the TNA progresses. These need to be considered at different levels of applicability, i.e. to the TNA, or to the Project, or to the Programme, or even to the Enterprise and escalated if necessary.
      1. **Assumptions and Constraints**. Assumptions and constraints could arise from a variety of factors, including policy, legal requirements, career structures, infrastructure, existing training capability, acquisition decisions, MDAL assumptions, URD and SRD requirements, CONEMP/CONUSE /CONOPS guidance, etc. Analysts should also identify potential constraints to what cannot be achieved in certain methods of training, which may eventually inform a RTGS, e.g. firing of live weapons against enemy targets, excessive violence by/against trainees, environmental legislation, duty of care regulations, full sensory immersion, health and safety legislation, availability of assets, financial cost, political sensitivities, host nation support for training exercises, etc.

Both assumptions and constraints may apply to the actual conduct of the Analysis and the training solution recommendation.. It is important that the SE analyst identifies these two types, and ensures that the formers’ impact on the latter is managed effectively. Project assumptions and constraints must be captured and provided for endorsement in the SE report(s). This is best achieved through the use of an assumptions register, which should be integrated with any wider project MDAL[14](#_bookmark22), or similar, to avoid duplication of effort and to maintain the Training DLoD as integral to the wider project it supports. SER assumptions and constraints should also be identified on project TORs, highlighting possible impacts on the SER’s accuracy. Analysts should summarise key assumptions and constraints:

* + - * 1. Assumptions made about the training Target Population (e.g. what experience level and therefore rank of maintainer and operator will be required,

13 This may also be referred to as RAIDO – (Risks, Assumptions, Issues, Dependencies and Opportunities).

14 A statement of any assumptions being made in support of the Training DLoD for inclusion in a Master Data Assumptions List (MDAL). This will enable de-confliction of assumptions made across DLoDs and help justify commitment of resources in support of training.

etc.).

* + - * 1. Assumptions made regarding training throughput (e.g. average appointment lengths, any need for spare throughput capacity, etc.).
        2. Assumptions made on when training is required to start, finish and how often it may be required, including whether an interim solution is required (e.g. will a contractor be needed to provide interim training whilst the steady state solution is developed?).
        3. Assumptions made on training location, particularly resulting from policy guidance.
        4. Assumptions on how to deliver training, including any policy/concepts and doctrine guidance.
        5. Assumptions on whether training will need to be integrated into existing training solutions (e.g. existing simulators/trainers, etc. – this could be a significant cost).
        6. Assumptions on what will need to be trained, drawing upon the CONEMP (can also be very high level, e.g. maintainer training/maintenance managers / operators / command appreciation, etc.).
      1. **Training Risk Management**. The underpinning rationale for UK Defence training is to only provide that which is essential – hence the importance of properly defining the training requirement through the Analysis phase of DSAT. Because SERs will often be conducted with limited resources and to timescales that may preclude full analysis, it is crucial that the process identifies and manages risks inherent in both the project’s approach and the training solution(s) being offered as potential options. In terms of risk and opportunity identification, the most obvious source of information is the assumptions and constraints data. It is imperative that the MDAL, or similar, relates to a risk register. As with assumptions and constraints, the training risks should be integrated with the wider project risks to avoid duplication of effort and to maintain the Training DLoD as integral to the wider project it supports. Additionally, larger projects may have specific risk management staff, rather than relying on Training DLoD or SE personnel with limited risk management experience.

#### Risk identifier / title.

* + - * 1. **Risk Category**. Used as a method of grouping similar type risks (e.g. ‘Resource’ or ‘Finance’).
        2. **Risk Description (Cause, Event, Consequence)**. Details of the risk including the cause, risk event and consequence (best practice is to use three separate fields).
        3. **Risk Owner**. The person with the authority and resources to enable effective assessment and management of a risk.
        4. **Probability**. Qualitative or quantitative (percentage) measure indicating the likelihood of a risk occurring; both pre-response and post-response estimates should be recorded.
        5. **Impact(s) (Typically Time, Cost and Performance**). For quantitative

assessment, the criteria (e.g. high, medium, low) should be defined in the Risk Management Plan, for qualitative assessment specific estimated values are chosen; both pre-response and post-response estimates should be recorded.

* + - * 1. **Response Action**. Description of the response including the Action Owner (person responsible for ensuring the mitigation is implemented), and the planned start and finish dates for the action.
        2. **Fallback Plan**. Responses to be implemented if the risk occurs, and the point when the decision to implement the Fallback Plan needs to be taken (if before the risk might occur).
      1. Analysts should summarise key risks (including opportunities). A more detailed list of risks should be presented in a common format with the project’s Risk Register. At a minimum, analysts should consider the following training risks to:
         1. Risk to military capability and effects of not having a training solution ready in time to meet In-Service Date (ISD).
         2. Impact of not having a training solution adequately resourced through life of the capability.
         3. Being unable to articulate training requirements in time to inform training solution design.
         4. Training requirements articulation, design and development through unavailability and/or immaturity of key information.
         5. Personnel structures through inappropriate training and/or lack of throughput capacity.
         6. Doctrinal development and validation through training not capturing doctrinal requirements.
         7. Organisations (especially FLC) if training is inadequate or not appropriately resourced.
         8. Training infrastructure (including existing training solutions) of ability to adsorb new training solution.
         9. Logistics support activity through inadequate training.
      2. **Findings – Potential Training Gap**. It is important that the SE is not just a data depository and contains analysis and addresses the ‘so what?’ Articulation of potential training performance requirements for the capability and its training solution need to be established. Before examining them in detail from a training perspective, it is crucial that the questions are first approached in terms of ‘who’ will be performing the capability and ‘what’ will that capability require in terms of human job/role performance. Analysts should consider the following performance criteria:
         1. What is the nature of the performance expectations of individuals and teams involved with the delivery of the capability?
         2. Who may need to be trained; individuals, sub-teams, teams and collective?
         3. Potential annual training throughput if possible (this should also inform

Statement of Trained Requirement (SOTR) analysis).

* + - * 1. What elements of the performance expectations may need to be trained?
        2. When training may be required to begin, is an interim solution required, how long will it be required for, and how frequently will it be required (including continuation training)?
        3. Where could training be delivered? e.g. Training Establishment, workplace, contractor’s premises, online, etc.
        4. How should training be delivered? What are the potential options? What is the policy direction? What are the impacts on existing training solutions?
        5. Depending on the maturity of applicable doctrine and concepts, it may even be possible to provide a very high level overview to show what job/role tasks will need to be trained. Is this likely to change through life – e.g. changes to equipment and doctrine may require changes to training?
      1. Analysts should estimate what the gaps are between what training is delivered now and what will be required for the new capability. It could be cheaper and less risky to integrate new training into existing training capability, but this assumes the current training meets the new requirements. In particular, analysts should consider the following points for each individual/team/collective target audience:
         1. Is current training (including any underpinning career training/education) fit for purpose and effective?
         2. Will current training meet the doctrinal requirements of the new capability?
         3. Is current training funded to continue over the life of the new capability?
         4. Does current training have throughput capacity for the new capability?
         5. What is the TE/workplace training balance, is this appropriate and cost effective?
      2. **Findings – Potential Training Solutions**. Analysts should summarise existing training capability applicable to the project for the following reasons:
         1. Where a new capability is replacing an existing capability (e.g. a navigation radar), it is useful to understand how efficient and effective the existing training is so that requirements for its replacement can be set to improve upon it. These may focus on such criteria as reducing course lengths, increasing course capacity and frequency, improving TPS levels and reducing workplace training burden in the front line, reducing instructor numbers, and lowering costs of training to the MOD.
         2. Is there an impact on existing training systems? The MOD has invested heavily in large training systems (mostly team training systems) which are likely to require modification to incorporate the new capability being analysed. Modification to these systems will normally be on the ‘*who changes pays*’ basis for which funding should be provisioned. Any modification must also be carefully planned to ensure minimal disruption to legacy training provided by that system.
         3. It may prove less expensive and risky to modify an existing training

system to incorporate training for a new capability than procure a new one.

* + - * 1. Policy may direct you to incorporate training into an existing training capability or deliver in specific locations.
      1. Analysts should identify potential training solutions that could meet the potential training and fidelity requirements for all those identified as part of the Target Population (individual, team, collective)[15](#_bookmark23). It is likely that a combination of training media may be appropriate to address discrete elements of the training gap, e.g. CBT/CAI for knowledge/mental skills, Part-Task Trainers for physical skills, simulation for tactical/doctrinal exploitation and team training, etc. Consideration should also be given to workplace support tools, mobile training tools, and enhanced Interactive Electronic Technical Manuals.
      2. Analysts should identify all known existing and planned training systems that will potentially be affected by the new capability. Generally, this will apply to the larger scale team training systems (e.g. Maritime Composite Training System (MCTS), Submarine (SM) Command Team Trainers, Bridge Simulators, SM Manoeuvring Room simulators, Combined Arms Tactical Trainer (CATT), Command And Staff Trainer (CAST), Mission Training through Distributed Simulation (MTDS), Dismounted Close Combat Trainer (DCCT) etc.) in which the MOD has invested significantly. The value of these training systems will be jeopardised if they do not keep pace with new capabilities being introduced into service, and on the ‘who changes pays’ basis, it would be the responsibility of the new capability sponsor to fund any change to existing training solutions to incorporate the new capability.
      3. **Training Resource and Cost Estimates**. It is not possible to generate cost effective and optimised training without an understanding of the resource requirements of a given training solution. There may be many ways to generate a training effect and it is essential that the SE begins the process of rationally justifying why a specific training solution is preferred. Similarly, there is no point Defence committing to a given capability solution unaware of the training impact required to deliver that capability.
      4. Analysts should estimate potential WLC to defence of the Training DLoD in order to ensure sufficient funds are allocated. Estimates should include costs which could arise from factors such as the ones below, as well as an indication of whether these are EPP or ESP funded items. Any assumptions made regarding cost sources must be annotated in the MDAL, similarly any cost risks must be identified in the Risk Register.

|  |  |
| --- | --- |
| **Capital Cost Items**  (usually EPP funded) | **Annual Through Life Support Costs**  (usually ESP funded) |

15 Analysts should always consider the ‘do nothing’ option and highlight any risks to capability and subsequent costs that this will present.

|  |  |
| --- | --- |
| * Training Media * Integration into Existing Training Solutions * Training Support Systems * First of Class Training * Reference Documentation * Training Design * New or Refurbished Training Infrastructure * IT Infrastructure * Risk Mitigation | * Live and Workplace Training * Instructors * Train the Trainer Courses * Training Support Staff * Training Administrators * Travel and Subsistence * Consumables and Utilities * Training Design * Training Publications * FM (Hard and Soft) * Tech Refresh for Training Equipment |

* + - 1. **Audit Trail**. It is essential that an accurate audit trail is kept of all documents referred to, all key e-mail and telephone correspondence, and all relevant meetings attended. These should be annotated as footnotes to the respective piece of text to validate its accuracy and add credibility to the analysis.
      2. **Iterative Review**. Analysts should review any previous analytical work and any additional pertinent documentation. The iterative review will also provide analysts with the opportunity to identify any important information that has changed since any previous analytical work was completed.

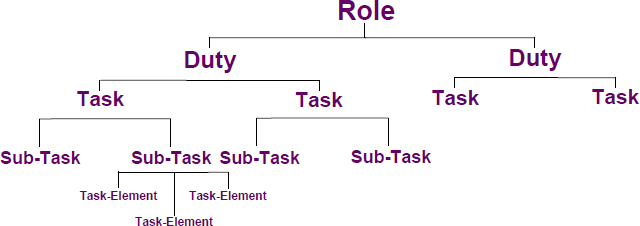
### TNA SCOPING EXERCISE REPORT QUALITY CRITERIA

|  |  |  |  |
| --- | --- | --- | --- |
| **TNA SCOPING EXERCISE REPORT** | | | |
| **Task Description** | **Lead Responsibility** | **Source Information** | **Guidance Notes for Practitioners** |
| Introduction | Sponsor | Concept Studies |  |
| Aim/Scope of the TNA | Sponsor, RM (in conjunction with the TNA author) | URD; Market Survey; Feasibility Studies; ILS use studies, EHFA |  |
| Summary of new/changed  requirement |  |
| Policy | Sponsor | As S1 & S2 plus governing legislation eg. DCDS Procedures, Health and Safety; Training Policy eg. Impact of  Embedded Training; PPP Initiatives; RN Training Strategy papers |  |
| Target Audience Description | Sponsor, RM (to liaise with HFI and Prime Contractor) | HFI requirements regarding Physical, Functional and Environmental specs for Prime Equipment; previous and associated TNAs; IPR limitations regarding access to information from Prime Contractor/Partner |  |
| Constraints | All |  |
| Previous/Associated studies | TNA Author |  |  |
| Risks | All | Project Online (POL), JSP 892 | Analysts should identify all known training risks and annotate them at an Annex, as well as summarise key risks. They should be presented in the same format as the project’s risk register (if  applicable) to enable training risks to inform that register. |

|  |  |  |  |
| --- | --- | --- | --- |
| Assumptions | All | Project MDAL | Should be drafted in the same format as the project’s MDAL to enable easy transfer of training assumptions into the MDAL, and provide the analyst with ready  access to the MDAL to inform training analysis. |
| Methodology | TNA QA  Sponsor |  |  |
| Findings – Potential Training Gap | TNA Author | MDAL; Responsibility Matrix; Whole Life Cost Model, Current training systems | Initial estimate of the performance requirements of the new capability, who will be responsible for this performance and what elements of the capability performance  requirements will need to be trained. |
| Findings - Potential Training Systems | TNA Author | MDAL; Responsibility Matrix; Whole Life Cost Model, Current training systems | Analysts should provide an estimate of the ROM costs of the  potential training options through the life of the capability. |
| Management | TSG Chair TNA QA | JSP 822, ASG |  |
| TNA Plan | RM/TNA Author | Training Level 1 Plan |  |
| Resource for conducting TNA  and implementing the recommended solution. | Sponsor, RM, ILSM, P&T, FGen | SLAs/CSA; Alternative Assumptions; TLB Transfers; PFI/PPP/CLS issues |  |
| Acquisition strategy | RM | SMART strategies |  |
| ILS Programme | ILSM | ILS |  |
| HFI Plan (if appropriate) | RM/ HF | HFI & research |  |
| Training Support Plan | RM, ILSM | ILS Tasks |  |
| Audit Trail | Analyst/TNA Author | Reference to all above |  |
| Document configuration Policy | TNA Author, Sponsor |  |  |
| Endorsement by SG | Endorsing members |  |  |

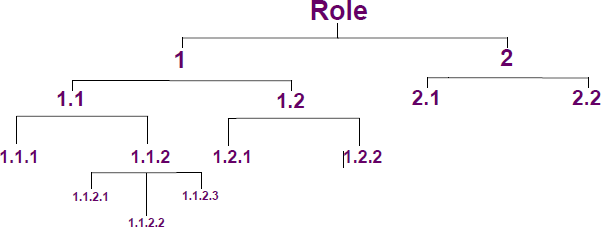
### ROLE SCALAR HIERARCHY

1. **Duties**. Duties are the major functions, or areas of responsibility, of the Role. They have no specific start or finish and tend to be general in nature. A duty may be common to more than one Role. For complex Roles, or when analysing groups of Roles that share Duties, it may be necessary to apply more than one layer of Duties to build a meaningful Role Scalar; this is permissible where warranted. The Scalar numbering system should be adjusted accordingly to ensure consistency with the RPS.
2. **Tasks**. Tasks are the fundamental building blocks of a Role. A task is:
   1. A specific action
   2. Performed by an individual.
   3. Recognised by a definite beginning and an end.
   4. Performed for a relatively short period of time (could be hours but rarely days).
   5. Observable and measurable.
3. **Sub-tasks**. Subordinate Tasks, usually referred to as ‘Sub-Tasks’, are the component parts of a primary task. Typically, they are carried out as part of a primary task, but not for their own sake. Depending on the nature of the primary task, there may be a variety of sub- tasks at various levels within the hierarchy, with some sub-tasks subordinate to other sub- tasks.
4. **Task Elements.** Task elements are sequenced step-by-step component of a sub- task. Where there is a need for a Process Standard for a Task but no such standard is laid down in a referenced publication, Sub-tasks and Task Elements may be used to construct a Process Standard within an RPS.
5. The usual convention for levels in a Role Scalar is shown below in Figure 2. Note that use of Task elements should be minimal and only where justified; Sub-Sub-Tasks will carry through to the RPS and should therefore usually be used instead.



**Figure 2: Role Scalar**[**16**](#_bookmark26)

1. **Role Scalar numbering system**. It is important to employ a hierarchical numbering system within a Role Scalar, as often it is cross-referenced to other training documentation. The numbering system should indicate the level and relationship of the particular components of the Role. An example of a numbering system is shown in Figure 3:



**Figure 3: Role Scalar Numbering System**[**17**](#_bookmark27)

1. If changes to an extant RPS are being considered, analysts should investigate and take in to account the impact of any changes upon cross-references to the extant Role Scalar(s) from existing training documentation. This should normally include consultation with the custodian(s) of such training documentation.

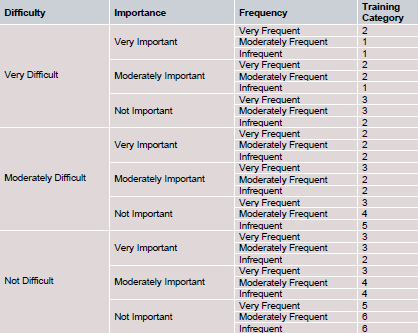
### DIFFICULTY, IMPORTANCE, FREQUENCY (DIF) ANALYSIS

1. Every Task should be analysed for its respective DIF. It should not be assumed that Sub- Tasks will share the same DIF profile as their parent Task, or other Sub-Tasks of the parent Task. Sound DIF analysis requires analysts to consult a suitable range of SMEs to get as balanced as possible a view of Task and Sub-Task difficulty, importance and frequency, and their respective discriminators. Table below should be used as criteria to discriminate between the levels of difficulty, importance and frequency for each task.
2. When DIF analysis includes multiple participants, disagreement and debate is normal and is usually very constructive. Once consolidated difficulty, importance and frequency conclusions have been reached for each Task and Sub Task should be taken forward to generate preliminary Training Categories for that Task/Sub Task using the algorithm in the table below. Variances between SME views should be resolved before calculating the provisional Training Category; it is not acceptable to calculate a set of provisional Training Category numbers and then use the average number as the provisional training category.
3. Detailed records of DIF analysis, detailing intermediate scores, variances between SME views and how significant disagreements were resolved, should be kept by the analyst(s) and made available to the customer/sponsor.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Very** | **Moderate** | **Low** |
| **Difficulty** | Requires high level of intellect and / or precision to conduct task.  Is a complex task requiring ability to assimilate information from multiple sources.  Will be performed under extremely challenging conditions.  Is physically arduous. | Moderate level of intellect required to conduct task. Task is of moderate complexity requiring ability to handle information from single or few sources.  Will be performed under difficult conditions.  Requires some physical rigour. | Requires little significant intellectual ability to conduct task.  Task is not complex. Will be performed under benign conditions.  Routine physical demands. Performance at lower standards is not catastrophic. |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Very** | **Moderate** | **Low** |
| **Importance** | Critical to success of operations.  Critical enabler in delivering desired effect.  Carries high risk of death or serious injury if not performed correctly.  Could result in serious damage to equipment or infrastructure if not conducted correctly.  Could compromise Top Secret or Secret material if not conducted correctly.  Could jeopardise ability to interoperate if not performed correctly.  Failure would have significant financial ramifications.  Legally required to conduct task correctly. | Contributes to success of operations.  Contributes to delivery of desired effect.  Carries moderate risk of serious injury if not performed correctly.  Could result in minor damage to equipment or infrastructure if not performed correctly.  Could compromise Confidential material if not conducted correctly.  Could hinder ability to fully interoperate if not conducted correctly.  Failure could have financial impact up to £1m.  Policy guidelines to conduct task. | Has little impact on success of operations.  Has little impact on delivery of desired effect.  Carries some risk of minor injury.  Unlikely to result in damage to equipment or infrastructure.  No significant risk to security.  Will not impact ability to interoperate.  Failure will have limited financial impact.  No policy or legal directions. |
| **Frequency** | Performed daily, weekly or more than once per month. | Performed monthly or more than once every three months. | Performed once every three months or less often. |

Figure 1 - DIF Analysis Definitions



#### Figure 2 - DIF Analysis Algorithm[18](#_bookmark29)

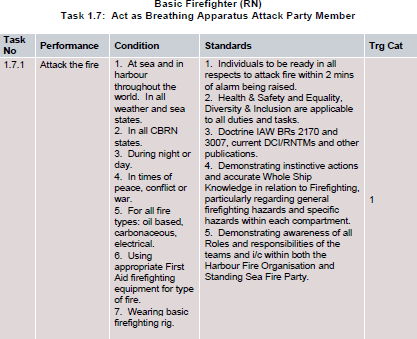
18 JSP 822 v5, Vol 2, Pt 3, para 32, p. 25

### KNOWLEDGE, SKILL AND ATTITUDE (KSA) ANALYSIS

* 1. KSA analysis is systematic analysis of Performance, Conditions and Standards in order to identify the necessary KSA required to perform a Role. A KSA Analysis moves on from what the Role holder does (captured in the Role Scalar), to identifying the KSA that have to be learned to successfully perform the task. The results of a KSA Analysis contribute to the generation of TOs and EOs, judgement of the most cost-effective Training Options and the selection of the most appropriate training Methods & Media. Judgement should be applied to ensure large swathes of trivial KSA are not listed and that KSA are identified with a suitable level of precision to enable the development of performable TOs/EOs. For example: claiming a necessary procedural skill is ‘apply basic Mathematics’ is imprecise; ‘apply Ohms Law’ or ‘resolve speed/distance/time problems’ is more precise and hence far more useful for TO/EO development.

#### KSA Categories

* 1. KSA can be divided into the following categories and sub-categories, combinations of which may apply to each Role PS task being analysed.
  2. **Underpinning Knowledge.** The Knowledge required for successful Task completion should be categorised as:
  3. **Factual Knowledge**. The basic elements that performers must know to be acquainted with a discipline or solve problems in it, which could include knowledge of:
     1. Terminology.
     2. Specific details and elements.
  4. **Conceptual Knowledge**. The interrelationships among the elements within a larger structure that enable them to function together, which could include knowledge of:
     1. Classifications and categories.
     2. Principles and generalisations.
     3. Theories, models and structures
  5. **Procedural Knowledge**. Knowing how to do something; methods of inquiry, and criteria for using skills, algorithms, techniques and methods, which could include knowledge of:
     1. Subject-specific skills and algorithms.
     2. Subject-specific techniques and methods.
     3. Criteria for determining when to use appropriate procedures.
  6. **Underpinning Skills.** The Skills required for successful Task completion should be categorised as :
     1. **Physical Skills**. Organised and co-ordinated patterns of mental and/or physical activity. Physical skills may be built up gradually by repeated training or practice and can include:
        1. Accurate, co-ordinated physical movements.
        2. Consistent in physical actions.
        3. Smooth, fluid and rapid physical actions.
     2. **Perceptive Skills**. Using the senses to obtain cues that guide performance, which could include:
        1. Developing a mental image of an environment.
        2. Developing an awareness of an environment through physical sensation.
        3. Developing visual recognition/proficiency.
     3. **Procedural Skills**. Using physical and practical skills in order to accomplish a specific and well characterised technical task.
     4. **Complex Response Skills**. The skilful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate and highly coordinated performance, requiring a minimum of energy.
     5. **Adaptation Skills**. Skills are well developed and the individual can modify movement patterns to fit special requirements:
        1. Responds effectively to unexpected experiences.
        2. Modifies instruction to meet needs of learners.
        3. Perform a task with a machine that it was not originally intended for that purpose.
     6. **Origination Skills**. Creating new movement patterns to fit a particular situation or specific problem.
        1. Learning outcomes emphasise creativity based upon highly developed skills.
        2. Constructs a new set or pattern of movements organised around a novel theory or concept.
        3. Develops a new and comprehensive training program.
  7. **Underpinning Attitudes.** The attitudes required for successful task completion should be categorised as :
     1. Openness to experience and willingness to hear.
     2. Willingness to react and participate actively.
     3. Ability to attach values and express personal opinions.
     4. Ability to reconcile internal conflicts and develop value system.



#### Figure 1- KSA Analysis Example[19](#_bookmark31)

19 JSP 822 v5, Vol 2, Pt 3, para 32, p. 27

### ROLE PERFORMANCE STATEMENT (RPS)

#### Task Structure.

1. Tasks are comprised of 3 components, as shown in the table below:

|  |  |  |
| --- | --- | --- |
| **Tasks (Three Part Format)** | | |
| ***Performance***  *(Performance statement)* | ***Conditions***  *(Conditions statement)* | ***Standard***  *(Standards statement)* |
| what the Role holder should be able to DO in the Role....  *Use an observable and measurable action verb.*  Detailed in the Role Scalar and RPS | with WHAT and WHERE....  *Specify the circumstances of the performance in the Role*  Detailed in the RPS | and HOW well.  *State the standard to be achieved for the performance in the Role.*  Detailed in the RPS |

**Figure F-1 Task Components**

1. Tasks are the fundamental building blocks of a Role and much of the necessary detail used in subsequent stages of TNA, and to then develop training, is contained within them; it is therefore essential that the Performance, Conditions and Standards identified in the RPS reflect the realities of the Role. **‘Reverse engineering’ of Tasks from existing or desired training content is never acceptable**.

#### Writing Performance Statements

1. The Performance statement, the first of the three components of any task, is a clear, concise statement of the performance required. It represents a logical and complete part of a Duty within a Role, and is observable and measurable. A properly constructed Performance statement answers the question ‘what does the Role holder have to do?’ It must be a single statement containing an action verb, the object of the action and any necessary qualifier as illustrated in the table below. The choice of verb for the Performance statement is critical. Verbs such as ‘know’ or ‘understand’ do not adequately define an action on the part of the member and are not observable or measurable. ‘Diagnose’, ‘assess’, ‘select’, ‘identify’, ‘distinguish’ are much more readily witnessed and can be assessed more easily.
2. The table below illustrates examples of good and poor practice in task performance statement writing:

|  |  |
| --- | --- |
| **Good practice** | **Comments / Examples** |
| Use one action verb | The Performance statement must describe an observable activity  **Good:** Control travel expenses  **Poor:** Plan, organise and control travel expenses.  A Performance statement should be built around a single action verb; it is not a list of sub-tasks. |
| Consider end product in selecting action verb | End product of overall performance can indicate best action verb to use  **Good:** Weld pipe  **Poor:** Use welding equipment. |
| Focus on action, not knowledge | Critical knowledge requirements will be captured at a later stage  **Good:** Advise commanders on laws of armed conflict.  **Poor:** Demonstrate a thorough knowledge of the laws of armed conflict. |

**Figure F-2 Task Performance Statement Writing**

1. Often the Performance statement of a Task (without Conditions or Standards) is necessary and useful in its own right (i.e. when producing a Role Scalar). However, the task is only complete when all components (i.e. Performance, Conditions and Standards) are present. In RA, the content of Tasks may develop or be refined as the RA continues and as the information available matures; this is very likely to happen in Acquisition projects as they progress through the CADMID cycle. Where all or part of any component of a Task is not yet known, the ‘known unknown’ information should be indicated and the Task(s) should be identified clearly as being ‘draft’ or ‘provisional’.
2. In addition, the Task Performance statement should include the following elements:

|  |  |  |
| --- | --- | --- |
| **Element** | **Task Performance example** | **Description / Comment** |
| Action verb : | Obtain | Describes what action is being done. First word is a statement.  Only one action verb is used. |
| Object: | a blood specimen | Identifies what is being acted on.  Usually, only one object is used in the statement. |
| Necessary qualifier: | by venepuncture | Distinguishes venepuncture from other means of obtaining blood samples (only used if required to  distinguish between alternate methods). |

**Figure F-3 Task Performance Elements**

#### Specifying Conditions

1. Conditions statements describe the situation under which the action specified in the performance statement must be completed. Conditions statements are often written in terms of what will be ‘given’ (available to) or ‘denied’ (not available to) the service member while performing the required task and in what environment the task will be performed. Conditions should reflect the work situation as accurately as possible, but include only those factors that influence job performance: An exhaustive list of every trivial condition is not necessary and detracts from the value of the RPS. Conditions that do not impact on Task or Sub-Task performance do not require statements.
2. Since the Conditions may be critical in determining future Training Gaps, informing training design and helping to justify resources, they should be documented as accurately and closely as possible to the actual conditions in the workplace. Each Task and Sub-Task must therefore have a full Conditions statement clearly linked to its Performance statement (not a key to a list of Conditions located elsewhere).
3. It is recognised that Sub-Tasks will usually (although not always) share identical Conditions to their parent Task. In such cases it is not necessary to repeat the full Conditions statement; instead, having checked and confirmed the commonality, a positive statement linking to the Conditions of the parent Task may be made (i.e. for Sub Task 1.3.1: “Conditions as per Task 1.3”).
4. **Conditions: Good practice**. While customers in other domains may prefer Conditions to be analysed at the Role or Duty levels, in the Maritime domain it is expected and required that Conditions are analysed and recorded specifically at the Task and Sub-Task levels. **A set of generic ‘blanket’ Conditions covering all eventualities is not acceptable**. The tables below illustrate examples of the use of various types of Conditions.

#### Types of Conditions

|  |  |  |
| --- | --- | --- |
| **Type of Condition** | **Description** | **Examples** |
| Tools and Equipment\*  \*highly significant within Acquisition | Tools, equipment, clothing, replacement parts, etc. that are either provided or denied to the service member whilst carrying out the performance. | Using Electronic Chart Display and Information System (ECDIS).  Given a multimeter and a torch.  Wearing full Firefighting personal protective equipment and breathing apparatus. |
| Supervision | Level / degree of supervision that will be provided to, or required of, the service member during performance. | Under direction of crew commander. Supervising a junior technician. |
| Job aids, reference manuals and materials | Documentation that is either provided or denied to the service member while carrying out the performance. | Given a procedural checklist.  Without reference to written Standard Operating Procedures (SOPs).  With access to Technical manuals. |
| Environment | The location, terrain, weather, climate, threat, time, etc. under which the performance will be carried out where this is integral to the performance of the task. | In a Type 45 destroyer at sea. In extreme cold weather.  At night / in total darkness.  In CBRNDC State 1, condition ZA. Under enemy fire. |
| Assistance | Assistance (if any) that will be provided to the service member during performance | Assisted by the FB5X operator. |
| Special physical and psychological demands | The psychological, physical and social factors associated with task performance. | In a confined workspace. In a noisy distracting area.  For a prolonged period with little opportunity for sleep. |
| Cues | The reason(s) why task performance is initiated by the service member or for performing it in a certain way.  Can involve stimulation of one or more of the senses. | Immediately, on hearing the general alarm. When piped to the scene of the incident. |
| Limitations | Describes limitations (security,  safety or legislative) to the range of performance. | In sea states not exceeding sea state 5. |

#### Specifying Standards

1. Standards statements indicate the required level of performance by describing how and how well the performance statement must be completed. Valid standards are based on actual job / workplace requirements that are both specific and clearly written. Standards statements indicate the acceptable level of performance to all concerned: trainees, designers, instructors, units and command authorities and as such, they will provide direction for the scope and limits of the training. Standards statements are used to:
   1. Define the desired level of performance from an end user perspective.
   2. Identify individuals who can satisfactorily perform the task and those who cannot.
   3. Indicate to designers and instructors the level of proficiency which trainees must eventually attain.
2. Accurate Standards are required for the subsequent design of relevant and valid assessments. It is therefore imperative that Standards statements reflect actual Role requirements: they must be neither arbitrarily demanding nor too easy. If Standards are too demanding, they may reflect an unrealistic ideal, and generate unnecessary training costs. If Standards are too easy, trainees may not achieve the required capability to carry out their Role responsibilities.
3. **Standards: Good practice**. While customers in other domains may prefer Standards to be analysed at the Role or Duty levels, in the Maritime domain it is expected and required that Standards are analysed and recorded specifically at the Task and Sub-Task levels. **A set of generic ‘blanket’ Standards covering all eventualities is not acceptable**. Three types of Standards can be used, as described in the table below.

#### Types of Standards

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of Standard** | **Description** | **Use when** | **Examples** |
| Product Standards | Provides description of acceptable result of performance.  If the product standard is detailed in another publication this should be precisely referenced. | Only one specific product is acceptable.  Quality or product is not substantially affected by process.  Finished product is observable. | All blocks of the travel order claim are completed in accordance with actual itinerary, with maximum allowable amounts as specified in A-AD-001, Ch. 4, Page 140 or  checklist 3 |
| Process Standards | Explains the sequence of sub- tasks and Task Elements to be performed in the process, when the sequence or procedure is critical to successful performance.  If the process standard is detailed in another publication this should be precisely referenced. | Only one process is approved.  Failure to use process could cause danger / damage to personnel / equipment.  Process is observable and measurable, but product is not. | 1. All power is shut off; (then) 2. All safety guards are installed.   (then)   1. All bushings and armatures are lubricated.   In accordance with Article in Use (AinU) accounting procedures within JSP 886, Part 8, Vol 4. |

|  |  |  |  |
| --- | --- | --- | --- |
| Combination of Product and Process Standards | Lists sub-tasks and a description of the acceptable product when both process and product are important measures of success. | Both process and product are important  Failure to use correct process could cause danger / damage to personnel / equipment  Process and product are observable and measurable | All faults are located.  All defective components are replaced.  Repaired equipment operates in accordance with manufacturer’s specifications as listed in BR203-Operating Parameters for Short Range Radar, Ch. 7, Pages 1-12. |

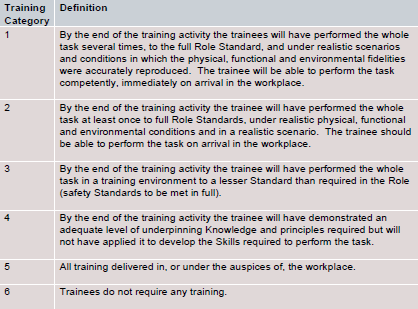
1. **Referencing Standards within other documents**. Where auditable official publications detail relevant Standards it is valuable to refer to these in the RPS; this prevents contradictions and keeps the RPS to a workable size. When referring to other publications, analysts are to consider the purpose of the RPS as the basis of subsequent work to develop training: the guiding principle should be to assist the next user of the document to find the information relevant to the Standard(s) quickly and easily. Therefore:
   1. Whilst it may be convenient to the analyst to use a key to refer to a ‘master list’ of reference publications, this can be very inconvenient and difficult for a training designer or other user to follow and use and therefore this is considered poor practice.
   2. The analyst is expected to check any reference publication(s) cited in Standards to confirm that a relevant Process, Product or Combination Standard is actually present within the document.
   3. Judgement must be applied in the level of detail given in each reference. For example, JSP 440 is a very large document comprising 8 multi-section Parts and Supplements. Stating “*in accordance with JSP 440*” therefore gives the next user an unacceptable burden to trace the detail of the Standard. As a baseline expectation, the relevant Publication, Volume/Part and Chapter(s) should normally be specified in every Standard.
   4. Publications referenced within Standards should be chosen to avoid variability:

i.e. ‘*in accordance with Unit Standing Orders*’ leaves open the possibility of variation between Standing Orders of different units, and therefore should be avoided.

#### Prioritisation of Training - Training Categories

1. A thoroughly conducted RA will be wide ranging and will consider levels of supervision, work conditions, difficulties and distastes, frequency of task performance, percentage of personnel performing the job, likely job changes and consequences of inadequate performance.
2. All of this information, in conjunction with information on trainee entry standards, trainee throughput and knowledge of the likely training environment, can lead to conclusions regarding the balance between formal training course and workplace training. These conclusions should be expressed through the use of training categories, summarised in the table below.
3. Training Categories are designed to give an **indication** as to where the training should take place and to what fidelity it should be delivered. They should provide a basis for

any balance of investment decisions affecting training and inform the judgement of risk related to trade-offs within the training solution.



**Figure F-4 Training Categories**[**20**](#_bookmark33)

1. The main analytical tool already used to derive training categories is the Difficulty- Importance-Frequency (DIF) Analysis. This technique involves looking in some detail at the nature of the job in terms of the Difficulty, Importance and Frequency of Tasks and Sub-tasks (DIF Analysis) and then considering what would be required to provide in order to adequately prepare an individual to perform the Tasks and Sub-Tasks. At this stage of the process, the DIF is more an indication of a ‘training priority’, this will be transitioned into a firm Training Category during the TOA stage.

20 JSP 822 v5, Vol 2, Pt 3, para 32, p. 28

#### Annex G to MATG Pt 2

#### Dated 14 Feb 23

### ROLE ANALYSIS QUALITY CRITERIA

|  |  |  |  |
| --- | --- | --- | --- |
| **DELIVERABLE 1 – ROLE ANALYSIS & ROLE PERFORMANCE STATEMENT** | | | |
| **Task Description** | **Lead Responsibility** | **Source Information** | **Guidance Notes for Practitioners** |
| Clear introduction with reference to applicable assumptions and constraints | Project Sponsor | Scoping Report & TNA Assumptions register plus recording any new  assumptions/constraints as a result of further analysis. |  |
| Ensure that HMI assumptions fully describe operator and maintainer functionality which must include interface with parent equipment. | TRA, Project Sponsor, Capability Manager, Lead School, Manning Authority, PM/ILSM to co-ordinate access to Prime Contractor as  appropriate. | Prime Contractor; interface considerations of Prime Equipment with the relevant platforms; SME Interviews with Prime Contractor, RN Capability Owners, Users and Training deliverers; existing procedures on similar equipment; Health & Safety; Applicable ILS/HFI studies and previous/associated TNAs, references, Scalars and Role Analysis/CF, supporting documents; SME interviews | Conduct Role Analysis using the tools and techniques described in [JSP 822](https://modgovuk.sharepoint.com/sites/people-tesrr-policy/JSP822Volume2) [v5, Vol 2](https://modgovuk.sharepoint.com/sites/people-tesrr-policy/JSP822Volume2) and supporting documentation  Conduct Collective Performance analysis. |
| Allocate HMI assumptions to Target Audience/Job holders including sub  team/command team interfaces. |  |
| Identify Duties, Tasks and sub Tasks for job holders identified above. |  |
| Prioritise tasks using DIF analysis or  Safety Case. | TNA Author supported by QA  function |  |
| Establish RA/CF by adding Conditions and Standards to the identified performances | Project Sponsor, TRA and Capability owner (To endorse for  operational/business requirements capture), All | SME interviews, [JSP 822 v5](https://modgovuk.sharepoint.com/sites/people-tesrr-policy/SitePages/JSP-822--Volumes---PDF-format.aspx) | Template available in [JSP 822 v5 , Vol](https://modgovuk.sharepoint.com/sites/people-tesrr-policy/JSP822Volume2/SitePages/Chapter-11--Annexes.aspx)  [2, Ch 11](https://modgovuk.sharepoint.com/sites/people-tesrr-policy/JSP822Volume2/SitePages/Chapter-11--Annexes.aspx) |
| Estimate training throughput | TRA/Lead School, Manning Authority | Scheme of Complement, Manning requirements; Lead School Training plans; associated Course Authorisation Documents. | Need to consider throughput for transition period, or surge and steady state. Can be done annually or another time basis. Need to account  for manning rules. |
| Ensure Audit trail to documented sources and SME interviews; valid  methodology | TNA Author |  |  |
| Endorsement by steering group | Endorsing Members |  |  |

### TRAINING GAP ANALYSIS

#### Comparison of Newly Generated and Extant Role PS

1. It is common for a Role PS to be produced for an existing capability that has had a change in equipment, scope or complexity. It then becomes necessary to conduct a comparison between the newly generated Role PS and any extant documentation (OPS/RPS). This process is conducted to enable the analyst to select new or amended Tasks to take forward to develop into TOs in the TGA, and to delete obsolete Tasks and any material that supports them (which will have an effect on any existing TO’s that are taken forward into the new training documentation).
2. The first step in this process is to identify Tasks which are no longer required from the old documentation and ensure that the training conducted to support them is removed from the dependant training documentation.
3. The second step is to identify any tasks that do not alter. This should be done by comparing the Performance Statements as well as the Conditions and Standards for each one. Only when all three remain unchanged can a Task be pulled straight through to the new documentation along with any extant training that supports it. Finally, all tasks that are either new or amended should be carried through to the TGA to have KSA analysis conducted on them in order to develop TOs (also in the form of Performance, Conditions and Standards)

### DESIGNING NEW TRAINING OBJECTIVES (TOS)

1. Training Objectives ensure that the training activity has a definite purpose such that the Role Performance needs will be met. They help ensure that the associated trainers, support staff and trainees have a clear understanding of what the trainees are required to be able to do by the end of training. TOs form the basis of the detailed design of each of the training events as well as underpinning the identification of appropriate training resources. They may also be used in support of the award of civilian accreditation.
2. TOs are precise statements of what a trainee should be able to do after training. A TO is measurable and has three constituents: the Performance required, the Conditions under which the trainee must perform and the Standard to which the trainee must perform (see table below). These statements must be in the form of observable and measurable behaviour which allow the achievement of the TOs to be confirmed through assessment.

|  |  |  |
| --- | --- | --- |
| **Training Objectives (Three Part Format)** | | |
| ***Performance***  *(Performance statement)* | ***Conditions***  *(Conditions statement)* | ***Standard***  *(Standards statement)* |
| what the trainee should be able to DO by the end of Training....  *Use an observable and measurable action verb.* | with WHAT and WHERE....  *Specify the circumstances of the performance by the end of Training* | and HOW well.  *State the standard to be achieved for the performance by the end of Training* |

**Figure I-1 Training Objective Components**

1. A TO defines what a successful learner is able to do at the end of a period of training: at the end of a lesson, series of lessons, or a course or training activity. It does not describe the learning process or any learning experience. Assessment of a TO should consist of the trainee performing the TO under the given training conditions and to the required training standards. Therefore, when complete, a TO must make sense as a precise instruction to a trainee.

#### Writing TO Performance Statements

1. The performance statement of a TO states what a trainee should be able to do at the end of training and should be derived from the corresponding task from the Role PS and therefore has an action verb as the first word in the performance element. Good practice in writing Task Performance statements is equally applicable to writing TO Performance statements.
2. It may be feasible and useful to replicate the Performance Statement from the Task when this is what will actually be performed in training; however it may be necessary in some cases to break a Task Performance statement down in to a set of constituent training objective Performance statements. As a result the number of TOs generated would usually be expected to be equal to or greater than the number of Tasks in scope. TO Performance Statements should never be written at a less precise level than the Task they relate to as significant details from the Task will be lost. ‘Reverse engineering’ of TOs from existing or desired training content is never acceptable.

#### Specifying Training Conditions

1. The conditions statement of a TO, specifies the actual conditions, or circumstances, within the training environment in which the TO will be carried out. In training, the ideal solution would be to provide the same conditions normally experienced in the Role. However, this is not always possible or cost effective so the conditions statement must clearly indicate the precise conditions of the training environment will provide. Good practice in specifying Role Conditions is generally applicable to specifying training Conditions. However, while there may be some variability of Conditions experienced within the Role (multiple Role Conditions where not all always apply i.e. ‘Condition X or Condition Y’), a TO should contain a single, consistent set of Conditions (i.e. ‘or’ should not appear in training Conditions).

#### Specifying Training Standards

1. The Standards statement specifies the standard of performance that should be achieved by the trainee by the end of training. Where viable and cost effective this should be aligned as far as possible to the Standard required in the Role. The statement must be detailed enough to accurately assess if a trainee has achieved the standard or not. As for the derivation of the Role PS, standards can either be product standards (minimum absolute standards) or process standards (certain procedures that need to be followed in a particular sequence) or a mixture of the two. Good practice in specifying Role Standards is generally applicable to specifying training Standards.
2. When determining TO Standards the nature of the performance (which could be dangerous, critical or an emergency task), consequence of not meeting the standard and the training category should be considered, as the standard required is likely to eventually affect how that performance is taught and how the trainee is tested.
3. Some TOs may be subject to external rules and regulations, i.e. the standard is dictated. Some examples of topics where this applies are:
   1. Health and Safety.
   2. Nuclear.
   3. Weapons handling.
   4. Flying regulations e.g. Civil Aviation Authority.
   5. Legal requirements, both national and international.
4. If a performance is affected by such factors, the document or regulation should be clearly referenced in the Standards statement, e.g. in accordance with Publication/Law/Act, Section X, paragraph Y, Date and Version.
5. It should be noted that any restrictions in training Conditions might constrain the training Standards that can be achieved. The training Conditions and Standards must be compatible. (i.e. a process Standard requiring electrical isolations to be made by staff in the Ship Control Centre may not be fully achievable if training is being conducted on a part-task trainer in a laboratory ashore; a Standard should be proposed which reflects this process standard as fully as possible while being cost-effective).
6. TOs must be tagged to identify them as a Core (training) requirement, Legal requirement and/or Accreditation requirement, which is denoted using a letter (C, L, A). To ensure that training is allocated to all tasks, the link between tasks and TOs/CTOs should be shown through an auditable numbering/identification system. This can be achieved is by using

the task numbers from the Role/Team PS to identify their dependent TOs/CTOs.

|  |  |
| --- | --- |
| Original task number: | 2.1 |
| Single TO derived from one task: | TO 2.1 |
| Multiple TOs derived from one task: | TO 2.1a |
| TO 2.1b |

#### Annex J to MATG Pt 2

#### Dated 14 Feb 23

### TRAINING GAP ANALYSIS QUALITY CRITERIA

|  |  |  |  |
| --- | --- | --- | --- |
| **DELIVERABLE 2 – TRAINING GAP ANALYSIS** | | | |
| **Task Description** | **Lead Responsibility** | **Source Information** | **Guidance Notes for Practitioners** |
| Clear introduction with reference to  applicable assumptions and constraints; Update to Deliverable 1 | Project Sponsor | Scoping Report + Deliverable 1, TNA Assumptions |  |
| Establish current training standard (FTS) of identified job holders/team for the performances identified in  the RA/OPS/RPS/CF | Lead School; Branch/Trade managers, SRO | Existing documentation; RPS/OPS/CF |  |
| State the gap between existing training and the RPS/OPS/CF in  terms of the degradation of performance | TRA, Training command, Lead Schools, PM (Access  to Prime Contractor and HF research) | Associated RPS/OPS/CF, TPS, WTS Assessment specs + relevant reports to validate current effectiveness for current individual and collective (METs Capability Trg Directives etc.) training.  Equipment Procedures, HF Research, Health & Safety requirements for the new requirement.  SME Interviews with Lead School, Type Command, Prime Contractor | Conduct KSA analysis. |
| Determine the knowledge skills and attitudes required to fully bridge the gap between current training level and new operational/business performance |  |
| Determine impact of the option to utlise exiting training and existing resources. | Project Sponsor, TRA/SRO, training school | Scoping Report, Deliverable 1 and tasks above. |  |
| If new training is to be conducted inform  relevant CEB or Training Management Board or equivalent authority. | TRA, PM, Training command |  |  |
| Establish resource implications on existing  training | Training command, PT,  Customer 1 |  |  |
| If no further training is required end the TNA and present as Training Needs Report. | All |  |  |
| Ensure Audit trail to documented sources and SME interviews; valid  methodology | TNA Author |  | It must be a thorough record of all key activities and decisions made between  stakeholders. |
| TNA steering group endorsement | Endorsing Members |  |  |

### FIDELITY ANALYSIS

1. Fidelity Analysis (FA) considers each Task in the RPS to assess the extent to which it is necessary for the training environment to replicate the workplace (real) environment to enable training to be effective. Results of FA may modify the provisional Training Categories derived from DIF analysis and are also used later in the TNA during the Training Options Analysis (TOA). This analysis should be conducted as a result of the production of a RPS derived from the RA and include any existing performance standards.
2. Decisions made at this stage can have a significant impact on the nature and cost of training solutions, as fidelity can be a significant cost driver so it is important not to ‘gold plate’ the fidelity requirements, but instead determine the appropriate level of fidelity that is essential to prepare a trainee to carry out the Task.
3. **Fidelity Categories**. Fidelity can be divided into 4 categories and sub- categories, combinations of which may apply to each Role PS task being analysed.
   1. **Physical fidelity**. Physical fidelity analysis assesses the need to familiarise trainees with the visual, spatial and tactile characteristics of equipment, consoles, compartments, platforms and threats (including applicable reference manuals, Standing and Emergency Operating Procedures and so forth). Physical fidelity can be broken down into these sub- categories:
      1. Layout. Position of the controls etc., relative to each other.
      2. Look. Shape, colour, luminescence and size of interface.
      3. Feel. Feel and movement of the interface during use.
   2. **Functional fidelity**. Functional fidelity analysis assesses the need to provide trainees with exposure to equipment functionality, doctrinal procedures, and maintenance routines which are required to be exploited in order to deliver the desired military effect. Functional fidelity can be broken down into these sub-categories:
      1. Format. Format of data displayed or action taken.
      2. Content. Information displayed or heard, frequency, text colour etc.
      3. Response. Data change rate and display response times.
   3. **Environmental fidelity**. Environmental fidelity analysis assesses the need to prepare or ‘acclimatise’ trainees for the conditions they will be operating under, and simulate some of the conditions that can hinder Performance. It can be easy to ‘gold plate’ environmental fidelity requirements beyond what is essential to provide the necessary cues, stimuli and responses, but high levels of environmental fidelity may be necessary for exposing trainees to complex operating environments and ‘fog of war’ type issues. Environmental fidelity can be broken down into these sub-categories:
      1. Sound. Background noise, conversation and sympathetic resonance.
      2. Motion. Incidental movement of the system, equipment or platform.
      3. Ambience. Heat, light, smell, smoke, humidity etc.
      4. Geographic features. Effects on sensors, infrastructure, SOPs etc.
   4. **Tactical and cultural fidelity**. Tactical and cultural fidelity assesses requirements that enable individuals and teams to ‘train as they intend to operate’. Exposing trainees to the types of units, threats, allies (including neutral or ‘white’ forces), cultural issues and geographical locations that they will experience on operations, can also be used for mission rehearsal training or tactical development. Modern training technology, particularly simulation, enables accurate representations to be included in training quickly and cheaply. Tactical and cultural fidelity can be broken down into these sub- categories:
      1. Threats. Enemy characteristics (number, tactics, equipment etc.).
      2. Allies / Neutrals. Allied and neutral forces characteristics (number, tactics, equipment, culture etc.).
      3. Conflict character and location. Type of operation, presence of media and

/ or Very Important Persons (VIPs), cultural / religious behaviours, historical implications, infrastructure and building implications etc.

* + 1. Team interactions. Command and control (C2) relationships, communications, situational awareness.

1. **Fidelity Factor.** Every relevant task within the RPS should be analysed for its respective Fidelity requirements, based on the applicable Fidelity Categories. Depending on the complexity of the capability involved, it may also be necessary to articulate fidelity requirements at the sub-task level; It should not be assumed that Sub-Tasks will share the same Fidelity requirement profile as their parent Task, or other Sub-Tasks of the parent Task.
2. **Team/collective performance.** Analysts should also consider the fidelity requirements of any team/collective Performance criteria that have been established in support of the new or revised capability, to contextualise the individual training need.
3. Four indicative levels of fidelity are defined in the table below; these indicate the level of fidelity judged necessary if training is to effectively prepare an individual for performance of that task.

|  |  |  |  |
| --- | --- | --- | --- |
| **Fidelity Factor** | **Indicator** | **Definition** | **Impact** |
| 0 | None | Not applicable | Has no impact on training |
| 1 | Low | Replication not important | Little impact would be  made on training except to add realism |
| 2 | Medium | Replication moderately important | Significant impact would be made on the training. The task contains elements which requires exact replication |
| 3 | High | Exact replication important | Has a significant impact and is essential to training |

**Figure K-1 Fidelity Factors**

1. Fidelity factors alone will not give meaningful guidance to designers of the eventual training solution. Analysts should also include specific justification of the fidelity requirements for each Task/Sub Task within each applicable Fidelity Category and sub-category. An

example of a completed Fidelity Analysis (FA) for a Task is shown below.

1. Detailed records of FA, detailing Fidelity Factors and full justifications, should be kept by the analyst(s) and made available to the customer/sponsor. This information will be used again within the Training Options Analysis.

#### Fidelity Analysis Example

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Role Title** | AWW Missile Controller | | **RPS ID** | RN\_9999 |
| **TRA** | NAVY PERS-BM WAR GS SO2 | | **Task Ref** | 5.3 |
| **Performance** | Control Surface to Surface Missile to hit a designated target | | | |
| **Conditions** | At sea in a RN warship from the Operations Room.  Using Harpoon missile system, associated consoles and interfaces.  In a multi-threat environment where a mixture of enemy, friendly and neutral units may be present within range of the weapon.  Under direction of the Principal Warfare Officer (PWO) and Abovewater Warfare Director (AWD). | | | |
| **Standards** | Hitting the designated enemy unit. Avoiding damage to friendly units.  Correctly performing all drills and conforming to all safety rules as laid down within  <Reference Publication, Chapter> | | | |
| **Sub-task (if applicable)** | 5.3.1 Guide the weapon manually using the FCC controls and light pen to input guidance data for the weapon. | | | |
| **Physical Fidelity Requirements** | | | | |
| **Sub Category** | **Fidelity Factor** | **Justification** | | |
| Layout | 2 | Controls and switches must be in the correct position in relation to the operators position | | |
| Look | 1 | Actual feel of controls is not required for training | | |
| Feel | 1 | Appearance not important to training but spatial representation of the console is required. | | |
| **Functional Fidelity Requirements** | | | | |
| **Sub Category** | **Fidelity Factor** | **Justification** | | |
| Format | 3 | Essential that data displayed is an accurate representation to provide the correct cues to the operator | | |
| Content | 3 | Essential that the content of the data is accurate to ensure correct interpretation of the data | | |
| Response | 3 | Essential that response is exact to ensure correct identification of faults and interpretation of data | | |
| **Environmental Fidelity Requirements** | | | | |
| **Sub Category** | **Fidelity Factor** | **Justification** | | |
| Sound | 1 | Typical operations room sounds would enhance realism | | |
| Motion | 0 | Not applicable | | |
| Ambience | 0 | Not applicable | | |
| Geographic Areas | 0 | Not applicable | | |
| **Tactical / Cultural Fidelity Requirements** | | | | |

|  |  |  |
| --- | --- | --- |
| **Sub Category** | **Fidelity Factor** | **Justification** |
| Threats | 3 | Essential that all threats be realistically portrayed |
| Allies / Neutrals | 3 | Essential that all Allies / Neutrals be realistically portrayed |
| Conflict Character / Location | 1 | Actual conflict character and location not important |
| Team Interactions | 2 | Interaction with team through voice communications only. |

### MEASURE OF TRAINING EFFECTIVENESS (MOTE)

1. The MOTE seeks to derive an objective measure of a training medium’s effectiveness in satisfying a set of training requirements. It is fundamental that this is a direct measure of effectiveness for each task rather than a calculated score derived from weighted combinations of a number of component factors.
2. Collecting scores from a panel of suitable Subject Matter Experts (SMEs) significantly reduces subjectivity in the MOTE. SMEs should be accepted as such by the Training Steering Group to ensure the validity of any assessment. The SMEs involved in the TOA form a MOTE assessment panel that reports to, and is accountable to, the Training Steering Group. It is stressed that authority still rests with the Training Steering Group who will ultimately be responsible for judging the accuracy and validity of the analysis.
3. Where in this Annex the term ‘Option’ is found, it is important that the analyst is aware that an ‘Option’ consists not solely of one media or method, but of a suite of media and methods. It is essential that a single media is not discarded simply because it performs poorly when its effectiveness is judged in a stand-alone mode. The media discarded may well be the most effective for certain training requirements without off-setting the cost parameters too much. This media, when combined with another at little cost, may well prove to be the most cost effective solution available.

#### Management of the MOTE Assessment Panel

1. The composition of the MOTE assessment panel should be sufficient for the scale of the project. As a guide, small scale training equipment procurements might just need a single assessor who will typically be the TNA author or SME with knowledge of both the training requirement and the capabilities of the method and media options. Larger scale projects might have a broader panel with representation from the analyst, training and/or equipment SMEs. To maintain a workable process it is expected that membership of the panel would be limited to a maximum of 6 members.
2. The TNA Analyst will chair the panel and be responsible for routine management of the MOTE Panel and associated process. The chair will co-ordinate assessments and meetings conducted to verify assessments. Records of any MOTE panel meetings are to be taken to contribute to the TNA audit trail.
3. Once nominated, members of the MOTE panel are to be briefed on the process and their responsibilities. This briefing should cover the general principles detailed in this COA plus any information specific to the project. Once briefed they are to be provided with blank assessment sheets for each of the options.
4. Once all returns are received, collated and analysed the panel should meet for one or more alignment meetings as required to discuss areas of divergence in the assessment of the options. The primary purpose of these meetings is to ensure that the panel assesses consistently and to document the reasons behind extreme scores. Once the MOTE panel has completed its assessment, the results, associated data and records may be incorporated in the TOA and audit trail.

#### Conducting the MOTE

1. A number of factors potentially affect the training effectiveness of a particular option. Typical factors that might be considered are detailed in Table 1. At the outset of the analysis the factors to be considered should be listed and prioritised in terms of importance. The list of

factors and associated criteria should be given to the MOTE panel and explained to the assessors to ensure consistent assessments.

1. It must be realised that whilst the elements in Table 1 marked (\*) do not affect the effectiveness of the training in its true definition (Effectiveness of Training: the *degree to which training prepares people for their jobs*), they will influence the long term effectiveness of any training solution, and hence it’s Through Life Cost. Meeting the Role Performance Statement (RPS) in the immediate case is determined by how well people are prepared by the training. If the training solutions are to be assessed solely on their ability to meet the RPS, without consideration of flexibility or long term viability or risk, then the elements marked (\*), should not be included. An alternative approach is to consider those marked with an asterisk as non- scoring items but to consider their impact within the text.

|  |  |
| --- | --- |
| Meeting the RPS | Ability to meet training priority.  Ability to meet Role Performance Conditions & Standards. |
| Fidelity | Ability to meet physical, functional and environmental fidelity requirements. |
| Assessment Issues\* | Validity & Reliability of assessment.  Degree of student feedback and monitoring. Degree of Instructor Control. |
| Usability issues\* | Ability to adapt to/meet learner styles.  Media Skills and Instructor Training required. Acceptability of training media. |
| Flexibility\* | Ability to add extra facilities.  Ability to modify courseware to adapt to changed operational or learner requirements.  Capability to interface/integrate with other equipment and media.  Ability to store and play back scenarios. |
| Training Management Issues\* | Ease of providing information for planning and administration. Quality Control.  No of Instructors required.  No of Support Staff required. Class sizes. |

**Table L-1 Factors and Associated Criteria Affecting the MOTE**

1. The list of MOTE criteria is used to arrive at an assessment of the overall effectiveness of each Group/option pair. Scores are to be given in a range of between 0 and 1 in increments of 0.1, in accordance with Table 2.
2. A score of 0.8 indicates an option meets the requirements of the criteria. Other scores will typically be assessed bearing in mind this critical boundary. Marks of 0.5 and below should have an amplifying comment recorded to indicate where the critical areas of deficiency are perceived – important for identifying any subsequent training gap. Scores of greater than 0.8 have been allowed in order to discriminate between similar options and to allow for those which provide benefits in addition to the bare requirement. Any score of greater than 0.8 should have an amplifying comment to indicate where the additional benefits are perceived to exist.
3. It should be borne in mind at all times that the score relates to training effectiveness i.e. the ability of the option to meet the RPS. As such the coarse assessment of effectiveness will be directly associated with meeting the RPS and Fidelity requirements, with consideration of the other main factors allowing fine adjustment of the score.

|  |  |  |  |
| --- | --- | --- | --- |
| **Score** | **Effectiveness** | **Definition** | **Notes** |
| 0.0 | 0% | Option totally unsuitable. | Requires amplifying comment |
| 0.1 |  |  | Requires amplifying comment |

|  |  |  |  |
| --- | --- | --- | --- |
| 0.2 | 25% | Option has extremely limited effectiveness – major shortcomings | Requires amplifying comment |
| 0.3 |  |  | Requires amplifying comment |
| 0.4 | 50% | Option has limited effectiveness – significant shortcomings | Requires amplifying comment |
| 0.5 |  |  | Requires amplifying comment |
| 0.6 | 75% | Option is reasonably effective – some minor or a major shortcoming | Might require amplifying comment |
| 0.7 |  | Option is almost effective – minor  shortcomings |  |
| 0.8 | 100% | Option is just effective – the minimum to meet the entire need. |  |
| 0.9 | >100% | Option provides more than bare  minimum – some additional benefit. | Requires amplifying comment |
| 1.0 | >>100% | Option provides significantly more  than bare minimum – significant additional benefit. | Requires amplifying comment |

**Table L-2. Definition of MOTE Scores**

#### MOTE alignment process

1. Once all the individual assessments are collected they should be summarised and averaged for each option in a tabular form, indicating the assessors’ scores for each Group. A suggested format is given at Table 3:

**Option: *Insert Option Name*** *e.g. CBT*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Scorer** | | | **Score** | | **Compliant** |
|  | **1** | **2** | **3** | **Ave** | **Range** |
| 1.1 | 0.6 | 0.7 | 0.6 | 0.63 | 0.1 | x |
| 1.2 | 0.7 | 0.8 | 0.9 | 0.8 | 0.2 |  |
| 1.3 | 0.8 | 0.9 | 0.9 | 0.87 | 0.2 |  |
| : | : | : | : | : | : |  |

**Table L-3. Tabular Score Sheet**

1. This data and the individual score sheets are to be available at the alignment meeting, the purpose of which is to investigate extreme scores and extreme divergence of scores. Any Group for which the range is greater than 0.2 should be discussed and a record made of the reason for the divergence. Where the alignment meeting highlights misunderstandings or misapplications of the marking guidelines, the individual’s score may be amended. For example, the option scored above might be genuinely effective but scorer 1 did not realise that the option could actually address the shortcomings which caused an assessment of 0.7 to be given at 1.2.
2. **Compliance**. Each average score is compared with the threshold for compliance to determine whether the option is compliant for that Group. The boundary for compliance is typically 0.8 – just effective. However, in some cases a shortfall might be acceptable in which case the threshold could be lowered.
3. Should RPS complexity or TNA auditability demand, subjectivity in assigning an overall effectiveness score to each Group/option pair can be further reduced by sourcing each individual component score through a weights and measures approach, based on the criteria in Table 1. With this approach the reasoning behind each individual score can be made clearer, together with an indication of where the scorer has place priorities. Each TOA needs to be assessed against its own specific criteria, but an example of this approach can be seen in Table 4. The determination of an overall effectiveness score can be of particular use in creating a detailed audit trail of the thought processes involved in each TOA.

|  |  |  |  |
| --- | --- | --- | --- |
| ***Option Name e.g. CBT*** | | | |
| **Criteria** | **Effectivene ss Score** | **Weighting** | **Weighted Score** |
| Meeting the RPS | 0.8 | 8 | 6.4 |
| Fidelity | 0.9 | 7 | 6.3 |
| Assessment issues | 0.5 | 1 | 0.5 |
| Usability issues | 0.8 | 2 | 1.6 |
| Flexibility | 0.2 | 1 | 0.2 |
| Training management issues | 0.7 | 1 | 0.7 |
| Totals |  | 20 (1) | 15.7 (2) |
| **Weighted Effectiveness Score** | [(2)  (1)] |  | **0.79** |

**Table L- 4. Weights and Measures Approach to Effectiveness Scores**[**21**](#_bookmark40)

1. If this approach is utilised, however, the definition of the term ‘effectiveness’ must be borne in mind at all times. For the RN, should the option meet the RPS requirement, and to a sufficient degree of fidelity, it must be deemed to be effective. Any other criteria should not be overriding factors on the assessment of true effectiveness. The two criteria - ‘Meeting the RPS’ and ‘Fidelity’ - should therefore have significantly higher weightings than any other criteria.

#### Calculating the MOTE

1. Once the alignment meeting has reviewed all the Group/option pairs the revised scores, together with the records of assessment, form the audit trail for the MOTE. Conversion of the raw data into a measure of effectiveness is a largely arithmetic process which may be automated using a spread sheet.
2. The MOTE for a particular option is calculated by simply averaging the scores for each Group (not-weighted or weighted, as required). Using table 4 figures:

Calculate the average score divided by the total number in the group

MOTE = 0.63 + 0.8 + 0.87 = **0.77**

3

#### Calculating Confidence bands for MOTE.

1. In order to provide upper and lower estimates for the MOTE, the Min and Max individual scores are entered into the same process as above.

Calculate the maximum individual score for each and divide it by the total number in the group for each option.

MoteMax = 0.7 + 0.9 + 0.9 = 0.83

3

Calculate the minimum individual score for each Option and divide it by the total number in the group for each option.

MoteMin = 0.6 + 0.7 + 0.8 = 0.7

3

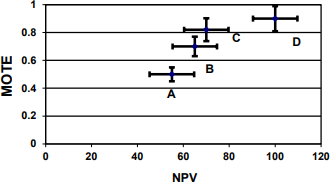
#### Cost Benefit Appraisal (CBA)

21 The weights applied in Table 4. are for illustrative purposes only. There is some debate as to the worth of a weighting process within TOA and therefore weighting values, when utilised, should always be explained and justified within the TOA.

1. Cost Benefit Appraisal (CBA) is limited by the availability and accuracy of cost data. The method identified below gives an auditable and sufficiently objective means of discriminating between training options. This must be tempered with a critical analysis of the outcome of the CBA.
2. For each option the through life costs must be calculated on a consistent approach between media. If absolute costs are not available then the costs must be derived by identical means for each option. In most cases the costs will be based on additional Through Life Costs (TLC) comprising both capital and running costs. Typically, capital costs should include new building, training equipment/GFE (including installation), extra computer hardware/software, courseware development and new training aids. This figure is normally a one off initial payment but there may be periodic renewable elements across the TLC.
3. Annual running/support costs should include instructional and support staff, maintenance, overheads etc. One way of producing this figure might be to obtain the trainee day cost for a particular course; this can be multiplied by the additional course length and annual throughput to give a broad order annual support costs. It should be noted that some options might cause savings that can be offset against TLC; these should be incorporated in the figures. Further detailed guidance can be found in JSP 507 - MOD Guide to Investment Appraisal and Evaluation.
4. The data collected should provide a minimum cost, a most likely cost and a maximum cost. Rough Order of Magnitude (ROM) costs may be sufficient to discriminate between options; however if that is not the case it may be necessary to refine these figures further.

#### Graphical Representation of the Data

1. The CBA data can be simply and intuitively displayed as a graph of MOTE against Net Present Value as demonstrated in Fig 5 below. The error bars in the horizontal direction represent the spread in terms of the training effectiveness scores awarded by the SMEs. The error bars in the vertical direction represent the spread in terms of ROM costs. It is important that the analyst notes that at first glance option C appears to be more expensive but provides a higher level of training effectiveness than Option B. However the case may be that Option C is more expensive but yields a lower training effectiveness score (when noting the overlap of error bars in the vertical direction) than Option B.



**Figure L-5. MOTE vs NPV**

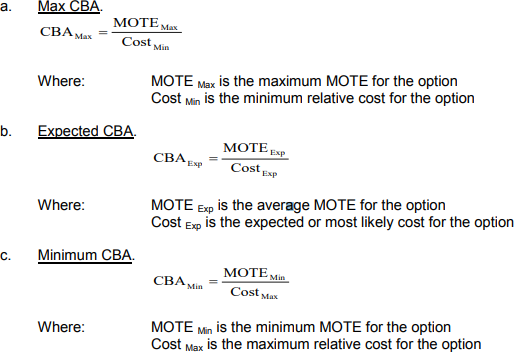
#### Calculation of a CBA Measure

1. Cost effectiveness can be coarsely assessed by dividing the MOTE by the NPV. This can give a Max CBA, a most likely CBA and a Min CBA.

CBA = MOTE

Cost

1. As MOTE is a number between 0 and 1, and costs are usually significant, in order to have a useful CBA measure it is usual to use a relative cost. Dividing the cost of an option by the cost of the most expensive option derives the relative cost figure. This will give a relative cost between 0 and 1 and a useable CBA measure.
2. The three CBA figures are calculated as below:



#### Interpretation of the MOTE/CBA Data

1. It should be noted that the MOTE represents averaged values and so should be treated with caution. In particular they should not be blindly used to reject options. **The MOTE and CBA figures are there for guidance purposes, the analysts should consider each option’s score carefully before rejecting or ranking the options.** It should be noted that other influences might affect the ranking of options.
2. Care should be taken when discriminating between options to compare on a like for like basis. Typically we might have two approaches; either to compare on level effectiveness or to compare on level cost. In the case at Fig. 5 we might reject option B in favour of option C on the basis that their costs are broadly similar but C is more effective.
3. A consistent model should be applied to compare options. In the case above (Fig 5) options A and B might be rejected as under compliant. This should not be done without consideration of how these options could be brought to compliance. In the case above the cost of making A compliant might be less than selecting option C.
4. In most cases the solution for reaching compliance might include some form of OJT, therefore careful consideration should be given to the calculation of these costs. Several approaches of costing the impact of OJT might be used: OJT could be counted in terms of the cost of providing the OC, for example the cost of 3 days OJT for Command Team Training might be assessed as 3 days of running costs for the particular platform. The cost of OJT might be calculated in terms of interruption to ship’s activities multiplied by capitation rates of those

involved. Another strategy might be to calculate the cost of “contracting out” the activity while the personnel are being trained. Whatever the approach, thought should be given to the particular problem and whatever method used must be acceptable to the Steering Group.

1. In some cases the options considered might be variants of a single option. In such cases consideration of raising option effectiveness might be inappropriate as another option might be an enhanced version of the under compliant option.
2. It is vital that an analyst makes a case by case assessment of the options based upon the underpinning data and presents this analysis in the Training Needs Report for Steering Group approval. No hard and fast rules for interpreting the data can, or should be given as the circumstances for individual projects can differ. Certain tasks might be deemed critical in which case an option which was otherwise compliant (MOTE ≥ 0.8) might be rejected as it was deficient in these areas and similarly the converse might apply. Fundamental to a satisfactory TOA is the analyst’s ability to present a coherent and reliable case.

### TRAINING OPTIONS ANALYSIS QUALITY CRITERIA

|  |  |  |  |
| --- | --- | --- | --- |
| **DELIVERABLE 3 – TRAINING OPTIONS ANALYSIS** | | | |
| **Task Description** | **Lead Responsibility** | **Source Information** | **Guidance Notes for Practitioners** |
| Clear introduction with reference to applicable assumptions and constraints; update to  Deliverables 1 & 2 | Project Sponsor | Scoping + Deliverables 1 & 2, Update TNA Assumptions Register |  |
| High level methods and media selection | QA function, TNA Author | Evaluation of Projects with Similar solutions. SME Interviews with Lead Schools, DERA reports  Cost data Bases, Previous TNAs, Past or Associated Projects |  |
| Using fidelity analysis determine the high level Training Effectiveness of selected options | Training command, QA function  TNA Author |  |
| State the training penalties and Workplace Training requirement of each option | Lead School; Training command; FLC | Need to cover design, delivery and evaluation of workplace training, for both  the training staff and student needs. |
| Estimate the risks and/or opportunities associated with each option | Project Sponsor, Training command, FLC | Risks include commercial, technological operational/business risks.  What is the risk, how important, what is most likely to occurs as a result, what is  the effect on training/ OC. |
| Determine the cost-effectiveness for selected options | Training command, RM |  |
| Recommend an option based on an evaluation  of tasks above. | All |  |
| Prepare a RPS/CF and training category for the  recommended option Prepare collective Training performance | Training command, QA function  TNA Author | Collective training documentation, current documentation | RPS & FTS Templates available in [JSP](https://modgovuk.sharepoint.com/sites/people-tesrr-policy/JSP822Volume2/SitePages/Chapter-11--Annexes.aspx)  [822 v5, Vol 2, Ch. 11](https://modgovuk.sharepoint.com/sites/people-tesrr-policy/JSP822Volume2/SitePages/Chapter-11--Annexes.aspx). |
| Conduct IA of recommended option(s) (if  appropriate) | PM | JSP507 |  |
| Ensure full audit trail | TNA Author | Reference to All used sources | A record of source data for costing. |
| Endorsement by steering group | Endorsing Members |  |  |

### TRAINING NEEDS REPORT QUALITY CRITERIA

|  |  |  |  |
| --- | --- | --- | --- |
| **DELIVERABLE 4 – THE TRAINING NEEDS REPORT** | | | |
| **Task Description** | **Lead Responsibility** | **Source Information** | **Guidance Notes for Practitioners** |
| Ensure content of Executive Summary  satisfies the endorsing members on TNA steering group | Project Sponsor | All previous TNA deliverables |  |
| Clear introduction with reference to aim of TNA and applicable assumptions and  constraints | Steering group |  |
| Clear statement of methodology used throughout the study. | Steering group, QA function |  |
| Identification of the RA/RPS/CF for each  job holder | TRA |  |
| Summary of the Training Gap Analysis | TRA, Training command, PM  (Access to Prime Contractor and HF research |  |
| The steering group endorsed solution is  stated and clearly summarised to enable implementation | Sponsor | Steering group minutes |  |
| A draft RA/RPS/CF & FTS is developed  to specify all the TOs to be executed by the steering group endorsed solution | Training command, TRA | Previous deliverables: JSP822 | RPS & FTS Templates available in [JSP 822 v5, Vol 2, Ch. 11.](https://modgovuk.sharepoint.com/sites/people-tesrr-policy/JSP822Volume2/SitePages/Chapter-11--Annexes.aspx) |
| Sufficient information is included to prepare an ITT or equivalent document to  enable quotation (and later acquisition of the solution) | Sponsor | Previous deliverables |  |
| Present a recommended PPE strategy with associated responsibility. | Sponsor, Training command, QA function | ITEAP Acceptance criteria, Lead School Internal and External  Validation procedures. |  |
| Present a recommended Implementation strategy with associated responsibility. | Sponsor, Training command |  |  |
| Annexes and references clearly referenced throughout the text | QA function | All applied data sources including  specs, procedures, interviews, minutes of meetings |  |
| Format of report is suitable for all users | All |  |  |
| Establish Distribution list for report | All |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Audit Trail to all deliverables is clearly defined. | TNA Author |  |  |
| Endorsement by steering group | Endorsing members |  |  |

### TRAINING NEEDS EVALUATION (TNE)

1. The TNE should evaluate:
   1. Management of TNA Phases 1 and 2.
   2. Training effectiveness - has the chosen solution met the need? This is fundamentally an external validation where the following general approach is recommended in categorising any training non-compliance:
      1. Evaluate against the TNA solutions and recommendations that were fully implemented.
      2. Identify any capability shortfalls as a result of TNA solutions and recommendation not being implemented.
      3. Identify any capability shortfalls, which resulted from not addressing in, or de- scoping from, the TNA.
   3. Training efficiency (i.e. cost effectiveness).
   4. Availability, reliability and maintainability of any training equipment.
   5. The management of the training delivery.
2. The results of the TNE should be presented as a report and distribution of the report to appropriate stakeholders. The TNE report should include the following:
   1. Aims of the TNA TNE.
   2. Aims and objectives of the acquisition project.
   3. Training system acquired.
   4. Summary of the findings from the TNA PPE.
   5. Review of the processes:
      1. Review of the development techniques and procedures.
      2. Review of the project management techniques and procedures.
      3. Adherence to standards and effectiveness of the standards.
      4. Performance against budget (i.e. cost of SME input, cost of contracted out TNA).
      5. Quality of the design.
   6. Review of the products:
      1. Functionality.
      2. Performance.
      3. Ease of use.
      4. Availability, reliability and maintainability of the training equipment.
      5. Upkeep and support aspects.
      6. Security.
      7. Documentation.
      8. Training effectiveness.
      9. Training efficiency.
   7. Actual running costs compared with estimates.
   8. Assessment of existing requested changes.
   9. Conclusions.
   10. Recommendations.

#### Annex P to MATG Pt 2

#### Dated 14 Feb 23

### TRAINING NEEDS EVALUATION QUALITY CRITERIA

|  |  |  |  |
| --- | --- | --- | --- |
| **TRAINING NEEDS EVALUATION** | | | |
| **Task Description** | **Lead Responsibility** | **Source Information** | **Guidance Notes for Practitioners** |
| Clear introduction with reference to  applicable assumptions and constraints | QA function, Lead School | Training Needs Report – Deliverable 4 |  |
| TNE Strategy clearly defined | QA function, Lead School | Training Needs Report |  |
| Data gathering instruments clearly referenced | QA function, Lead School | Lead School validation procedures JSP822 |  |
| Analysis of Data clearly presented | QA function, Lead School | JSP 822, DSAT QMS, Lead School  Validation Reports and Procedures |  |
| Evaluate against acceptance criteria | Lead School, raining Command, FLC | ITEA Plan, RPS/CF, FTS |  |
| Review of the processes | TNA Author/ QA Function | TNA steering group minutes |  |
| Review of the products | Lead School, Training command;  FLC | To include Implementation issues |  |
| Recommendations for further action | Lead School, Type Command, PT, QA function | All above |  |
| Format of report is suitable for all users | Sponsor |  |  |
| Report Distribution | All |  |  |