Ministry of Defence

JSP 822
Defence Direction and Guidance for Training and Education

Volume 3: Collective Training

Preface

How to use this Volume

1. JSP 822, Volume 3 sets out Defence Policy Direction and Guidance on Learning and Development for and by individual/teams across Defence[1]. The volume contains the majority of Defence Learning and Development policies for Collective Training; where Defence Learning and Development policy sits outside of Volume 3, it is clearly referenced throughout the volume, and in the Coherence section at Para 5 of Volume 1.

2. The volume is made up of Direction and Guidance:

   a. **Policy Directives** which provides the Direction that must be followed in accordance with statute or policy mandated by Defence or on Defence by Central Government.

   b. **Policy Guidance** which provides the Guidance and best practice that will assist the user to comply with the Directives.

3. The volume employs '**must**', '**should**' and '**could**' language as follows:

   a. **Must**: indicates that the policy direction is a legal or key policy requirement and is **mandatory**.

   b. **Should**: indicates the policy guidance is a **recommendation**. Although not compulsory, if a decision is made that any part of this policy cannot be complied with, then the Senior Responsible Owner who is ultimately responsible for that decision must thereby own and manage the inherent risks that arises.

   c. **Could**: indicates that the policy guidance is good practice and encouraged.

4. JSP 822 is the authoritative policy that directs and guides Defence people to ensure that Defence Collective Learning (training and education) is appropriate, efficient, effective and, most importantly, safe. Organisations across Defence have their own policy documents which local policy teams populate and manage, based on their interpretation of the policy contained within JSP 822.

Users should consult those policies and policy teams, within their organisation prior to JSP 822 and the TSLD Training Policy Team that manages JSP 822.

[1] Note that Organisational Learning is captured under the Defence Organisational Learning Structure (DOLS) Framework owned by Joint Warfare in STRATCOM and is not within the scope of JSP 822. The Pan Defence Skills Framework (PDSF) currently sits in Ch 4 of JSP 755

Contents

1 The Defence Learning Framework (DLF)

1. The DLF develops the Defence People Strategy's direction to maximise the talent of Defence People, providing a high-level framework encompassing the span of Defence individual and collective learning. The DLF provides key principles across ten component areas, covering all aspects of the Defence Learning Ecosystem. Detailed information on the DLF can be found in Volume 1.

Vision: Defence enables Joint Operational excellence through high quality learning that maximises the use of all the talent available to Defence.									
Mission: To enable the competent, efficient and effective delivery of UK Defence Strategic Objectives by FE@R through the provision of high quality, timely and relevant learning to Defence People.									
Key Components of Defence Learning									
Learning Governance: Effective governance structures exist with defined responsibilities and robust H2A mechanisms.	**Learning Design:** The DSAT QMS and DSAT policy and processes are applied effectively to all Defence Learning.	**Learning Delivery:** Modern, flexible learning delivery methods are employed to meet Defence and learner needs.	**Learning Environment:** Modern learning environments and technologies engage the learner in achieving high quality learning outcomes.	**Learning Culture:** A positive, proactive approach to Through Life Development (TLD) pan-Defence is embedded across the workforce	**Individual Skills Development (Professional):** Identification, acquisition and recording of Defence Professional Skills is enabled & embedded pan-Defence.	**Individual Skills Development (Personal):** Defence people are encouraged and enabled to attain personal Skills that maximise their talent (KSE-B)	**Collective Skills Development:** Deliberate and targeted learning occurs that develops team effectiveness and operational capability.	**Partnerships:** Strong strategic, operational and tactical partnerships are nurtured to maximise Defence Learning outcomes and benefits.	**Learning Futures:** Research, experimentation and innovation drives continuous improvement in Defence Learning.
Principles of Defence Learning									
1. Effective structures and responsibilities are implemented. 2. Functional and Capability Sponsors are involved from the outset. 3. Learning Requirements are clearly articulated. 4. Continuous improvement is driven across Defence Learning. 5. Risk is managed, and resource prioritised to maximise Defence Learning outcomes. 6. Robust H2A mechanisms provide assurance at all levels of Defence Learning.	1. Learning meets documented requirements and supports the attainment of Skills. 2. DSAT Analysis, Design & Evaluation functions are implemented. 3. Design staff have the necessary Skills to maximise the efficacy of learning interventions. 4. Interventions are modularised by default and access maximised. 5. Existing content is reused / repurposed to reduce duplication and maximise usage. 6. Capability development addresses the Training DLoD coherently and in a timely manner	1. Evidence-based methods are employed to achieve learning outcomes. 2. Experiential Learning is integrated into the workplace. 3. A Blended Learning approach is adopted wherever relevant. 4. Learning diagnostics are employed to establish WF Skills and enable a "fixed mastery, variable time" approach. 5. Delivery staff have the necessary Skills to support learners to achieve enhanced learning outcomes. 6. Learners have the necessary learning and technology Skills to achieve enhanced learning outcomes.	1. Physical and virtual learning environments are safe, engaging and accessible high-quality places. 2. Learning technology capabilities are developed iteratively in an 'evergreen' approach. 3. A pan-Defence Learning Management and Delivery System: a. Provides coherent Information to enable evidence-based investment and policy decisions. b. Enables coherent and efficient Governance, Design, Delivery, Assessment and Evaluation. c. Enables immersive learning.	1. Positive attitudes to learning are demonstrated at all levels of Defence. 2. WF have the opportunity and support to undertake purposeful learning. 3. Learning achievement is rewarded and recognised. 4. Informal learning opportunities are encouraged, supported and exploited. 5. Duty of care and trainee welfare is prioritised in all learning environments. 6. Learning design & delivery account for the learning needs of a neuro-diverse workforce.	1. WF Skills are captured and recorded in a single pan-Defence repository. 2. Defence Skills records are utilised to: a. Exploit workforce talents to meet Defence Strategic Objectives. b. Enable professional development and career progression. 3. Professional Skills Development is based on clear learning outcomes and recognition of accredited / prior qualifications & learning.	1. A personalised learning pathway, a Skills Passport, and coaching and mentoring provision is available for all. 2. Individuals 'own' and 'value' their personal learning journey, supported with access to learning, qualifications, time and resources. 3. Individuals are encouraged to develop Skills and gain qualifications to prepare them for life beyond Defence.	1. Collective Training is focussed on the development of teamwork capabilities. 2. Methods and tools are used to accurately measure and assess teamwork capabilities and skills. 3. Identify, measure and evaluate collective team & task outcomes at all levels. 4. A full mix of Live, Synthetic and Blended methods are used to provide Collective Training interventions.	1. Collaboration with PAGs, UK Defence Allies and external organisations is harnessed to improve learning outcomes for the benefit of Defence. 2. Collaboration with DfE influences Government learning policy for the benefit of Defence and its WF. 3. Collaboration with partner organisations enables the delivery of apprenticeships, professional accreditation and intellectual development programmes. 4. Outsourced Defence Learning contracts are managed and assured effectively.	1. Lesson exploitation and horizon scanning identifies opportunities and priorities for learning research. 2. Research work in partnership with DST, DSTL and contracted partners is: a. based on agreed requirements; b. supported and exploited into practice. 3. Opportunities to experiment and innovate are created, and outcomes are transferred into BaU where appropriate.

2 Defence Direction for Collective Training

Policy Sponsor: TSLD, CDP

This Defence Collective Training Policy details the management, governance structures, processes and practices - in addition to those outlined in Volume 1 - that shape the conduct of collective training and influence collective training requirements in the acquisition of capabilities.

2.1 Collective Training

SCOPE

1. The policy contained in this volume is to be applied to all Collective Training (Tier 0 through to Tier 4) requirement setting, design, delivery, evaluation and governance activities across Defence.

AIM

2. This policy sets strategic Direction for the conduct of Collective Training; driving coherence across Military Commands (MCs) and codifying processes in support of force generation, preparation and sustainment. It also places Collective Training at the centre of managing risk to contingent capability and sets priorities to deliver improvements in the efficiency and effectiveness of collective training.

COLLECTIVE TRAINING DEFINITION

3. The Training Defence Line of Development (DLOD) provides the means to develop, practice and validate, with constraints, the practical application of a common military doctrine to deliver a military capability.

4. Training consists of individual and collective training on a progressive spectrum (See Figure 1); they are interlinked and mutually dependent[2].

5. The definition of Collective Training is: **'training to improve the ability of teams, units or formations to function as a cohesive entity and so enhance operational capability'.**

[2] For Collective Training, lower tiers can be conducted within higher tiers e.g. Tier 1 training may be conducted within Tier 2 Training.

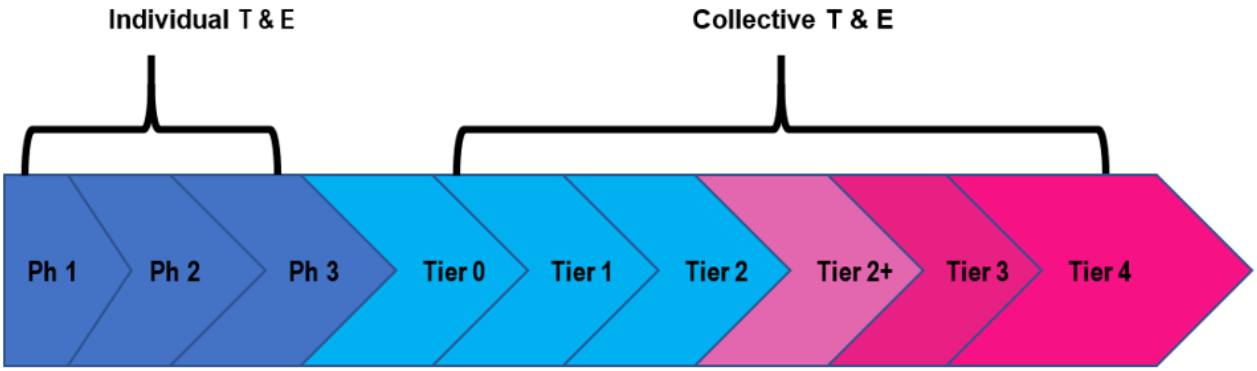

Figure 1: Individual and Collective Training Continuum

6. Collective Training is any training activity focussed on the collective performance of two or more people working together that improves the ability of teams, large or small, to work together in order to generate the forces required for operations.

7. Collective Training is collective only when the team as a whole is assessed on its collective performance.

PURPOSE OF COLLECTIVE TRAINING

8. Effective Collective Training is critical to the successful achievement of operational effect through the generation, and maintenance, of Force Elements at Readiness (FE@R). In turn delivering Defence Strategic Direction and Defence Objectives.

9. In an era of constant competition there is a blurring of boundaries between training, exercises and operations, and the concept of Defence Activity Other Than Operations recognises that collective training spans both 'Generate' and 'Operate' functions within the Defence Operating Model[3].

METHODS OF COLLECTIVE TRAINING

10. Collective Training is usually, but not exclusively, delivered through exercises[4] but can also occur through other methods such as platform or simulator drills and scenarios.

11. Collective Training can utilise Live, Virtual or Constructive training environments – or a blend between the three. Different contexts for Collective Training are utilised according to the Collective Training Tier being conducted (see Table 1 below) and the Primary and Secondary Training Audiences (PTA/STA) being trained.

COLLECTIVE TRAINING TIERS

12. Collective Training is conducted at Tiers 0 – 4 dependent on the level of the team being trained. Tiers 0 – 2 are the responsibility of the Front Line Commands (FLCs) to train those personnel under their own command. Tier 2+ to 4 are Defence Collective Training responsibilities ultimately directed by DCDS (MSO)[5] through the Integrated

[3] Para 3, Pg. iii, DOC Assessment 19/05: An Assessment of Defence Collective Training.
[4] An exercise is a time bound and chronologically sequenced series of scenarios (simulated, live or a combination) that provide a realistic narrative within which the principal learning and assessment activities take place. These include Tabletop Exercises (TTX) and Wargaming.
[5] Tier 2+ is the interface between sS and Joint Collective Training; leadership and organisation of Tier 2+ CT events can be allocated from SC JW to a sS on agreement.

Campaign Steering Group (ICSG). They are captured in the endorsed Defence Annual Guidance for Exercises (DAGE) and co-ordinated by Director Joint Warfare (DJW) through the Defence Exercise Programme (DXP). The Tiers are defined in Table 1 and are to be used as the structure for progressive Collective Training[6]:

Generic	Training to improve the ability of teams, units or formations to function as a cohesive entity and so enhance operational capability.
Tier 0 *(ATL ALPHA-ECHO)*	Sub-unit-level training. Tier 0 training prepares individuals to operate as teams below unit level
Tier 1 *(ATL FOXTROT)*	Unit-level training. Tier 1 training prepares units and sub-units to take their place within a tactical formation or Combined/Joint Force Component.
Tier 2 *(ATL GOLF)*	Tactical-formation-level collective training. Tier 2 training prepares tactical formations operating below the Combined/Joint Force Component level for operational employment.
Tier 2+ *(ATL HOTEL -INDIA)*	Component-level Joint collective training. Tier 2+ collective training prepares one or more Combined/Joint Components for operational employment. It may be conducted in combined or joint contexts on a UK, NATO or Coalition Partner framework basis. This Tier is of particular significance with enduring NATO requirements and the next higher HQ in such training will be the Joint Task Force HQ.
Tier 3	Combined/Joint Task Force-level collective training. Tier 3 training prepares a Combined/Joint Task Force for operational employment or a Permanent Joint Operating Base (PJOB) for an operational role. It may be conducted in combined or joint contexts and on a UK, Joint Expeditionary Force, NATO, EU or Coalition Partner framework basis.
Tier 4	Strategic-level training. Tier 4 events prepare the Defence Crisis Management Organisation (DCMO) to manage crises and provide strategic direction for, and conduct of, operations at the Political-Military Strategic level. They may involve Other Government Department (OGD)/Non-Government Organisations, other International Organisations and/or NATO and the EU.
In-Theatre	All levels as required as part of RSOI.

Table 1: Collective Training Tier Definitions

[6] The Army uses Army Training Levels (ATL) ALPHA – INDIA terminology for Tier 0 – 2+ CT; this is reflected in Table 1.

EXERCISES AS COLLECTIVE TRAINING

13. Exercises run as part of the Defence Exercise Programme (DXP) or by the Single Services (sS) have up to four purposes which can conflict with each other:

a. Force preparation.

b. Force evaluation.

c. Defence Engagement & Influence.

d. Experimentation.

14. In order to be effective Collective Training, training value must be *primus inter pares* and an exercise's primary focus must be on a spectrum of:

a. Force preparation, i.e. learning through development activities and formative assessment, leading to:

b. Force evaluation, i.e. assessment (summative) to assess the readiness of a force.

15. Experimentation is defined as '*controlled and directed activities designed to discover new information about an idea or concept, test a hypothesis or validate a solution or choice in support of Force Development'*[7]*.* Experimentation must be incorporated into programmed collective training activity wherever possible to make collective training the crucible for change required by modern warfare. Some elements of experimentation will not be compatible with collective training integration and will require discrete experimentation exercises.

2.2 Direction on the application of DSAT to Collective Training

16. All Collective Training Training Requirements Authorities (TRAs), Training Delivery Authorities (TDAs) and Training Providers (TPs) are to conduct the mandated DSAT elements of analysis (requirement setting), design, delivery, assurance and governance in accordance with their allocated roles[8], as directed in JSP 822, Volume 1.

17. These DSAT elements must be applied to both Collective Training delivered by a Collective Training organisation and that delivered on a distributed basis.

18. The specific activities within each element may be elective and are detailed in Chapter 3. Each TRA, TDA and TP must apply a risk-based approach to assessing and conducting the level of detail required for each training activity.

19. TRAs, TDAs and TPs 'own' and are responsible for the identified training, training safety and training output risk. These risks, and their mitigation measures, must be reviewed at the relevant Customer Executive Board (CEB) and risk 'ownership agreed. See JSP 892 for Defence Risk Management Policy.

[7] Defence Force Development Board 2019 definition from pg 15, DCDC Defence Experimentation Handbook.
[8] See Para 25 and Table 2.

20. Commanders and managers **must** ensure any change to training where the resultant risk has an impact on Safety that increases risk to life and could result in death or serious injury **must** be subject to an approved risk assessment by the Commander, Line Manager or accountable person.

21. Training should be delivered as it was planned, with the correct training facilities, suitably qualified and experienced training staff and with the correct procedures and instructions. Undue pressure should not be put on managers or those delivering training to deviate from planned and endorsed training programmes. Those responsible for the management and delivery of training should have the ability to amend training as necessary, to meet changing environmental conditions (e.g. avoiding excessive heat), equipment deficiencies or shortfalls in resources. However, careful consideration must be given to the resultant risk, especially where it has an impact on safety that increases the risk to life and could result in death or serious injury. It is imperative that the delivery of training remains progressive and subject to a safe system of training throughout. Changes to planned training delivery such as truncating, accelerating or other variations (changing location, time or content etc) can affect the rate at which training proficiency is achieved, potentially increasing the associated risk. In many cases certain proficiency criteria must be met by trainees to be able to perform tasks in a consistent, reliable and repeatable manner that meets established standards, facilitating the progression in training and enabling post training activities. This is of paramount importance for any critical training which, if not conducted to the correct standard, increases the risk to life and could result in death or serious injury. Any change to the content, time or resources available for such critical training **must** be subject to an approved risk assessment by the Commander, Line Manager or accountable person.

22. Furthermore, for all training activities, dynamic risk assessments are to be conducted before or during activities in response to changing or unexpected conditions. This will allow training to be paused, amended, or stopped as necessary.

2.3 Collective Training Governance and Holding to Account (H2A)

23. Governance functions – as set out in Para 24 – are mandated. This will ensure the effective governance and management of Collective Training through a Collective Training MTS that delivers the DSAT Quality Management Standard (QMS).

24. All Collective Training must be governed and authorised by a Customer Executive Board (CEB)[9] or a forum that performs the tasks of a CEB within its remit. The TORs for a Collective Training CEB are at Annex A. All Collective Training events must be authorised by the relevant CEB through completion of a Collective Training Authorisation Document (CTrAD) – see Annex B.

25. Governance Structures for Tiers 2+ to 4 are set out at Figure 2; these structures are evolving as the Strategic Effects Cycle (SEC) is implemented (replacing the Strategic Effects Management Process (SEMP)). All MCs must be appropriately represented at the relevant

[9] A Collective Training CEB provides a mechanism for stakeholders to develop the scale and content of collective training to match the operational requirement within the available budget and in accordance with relevant Defence and sS policies. The CEB should ensure that training responsibility, authority and accountability, along with resources, are all aligned and that training risk against contingent capability is managed.

joint collective training governance meetings[10] in order to enable seamless transition between Tier 2 and Tier 2+ CT and sS integration and support to Tier 2+, 3 & 4 exercises.

a. The **Strategic Effects Cycle (SEC)** is Defence's annual cycle of a rolling 0 – 3 year[11] demand and supply process, owned by SPO Mil Strat Plans on behalf of DCDS(MSO). It is the process by which Defence determines and articulates its priorities through a set of 35 prioritised Strategic Effects that are organised in three tiers[12] (which provide a consistent reference to be used across SPO, PJHQ and FLCs) and in accordance with the Integrated Operating Concept (IOpC); identifies how to achieve its objectives (through ways and means estimates); directs Defence's prioritised requirements; and deconflicts where the demand surpasses supply. The outputs of the SEC are endorsed by COS-C and approved by Ministers throughout the process. SPO Mil Strat Plans ensure SEC compliance of Defence planning while SPO Future Commitments ensure SEC compliance of Defence activity i.e. activity aligned to priorities and demand, in tandem with cohering the COWGs, 1* ASGs, 2* CDG and 3* ICSG.

b. **Component Orientation Working Groups**. SPO Fu Cts and PJHQ J5 will co-chair AH/OF5 Component Orientation Working Groups. SPO will work with PJHQ to ensure appropriate pol-mil equity is represented at these. PJHQ J5 will provide the secretariat.

c. **1* Alignment Steering Groups**. SPO and PJHQ will co-chair Alignment Steering Groups. These will develop planning options to provide a 1* set of draft choices for the Operational Base Plan. PJHQ J5 will provide the secretariat.

d. **2* Campaign Development Group**. ACDS (Ops & Cts) will chair a 2* Campaign Development Group to refine the opportunities and choices for future activity. The output of this meeting will be a 2* proposed set of choices for the Operational Base Plan ahead of the 3* ICSG. This includes dispute arbitration and endorsing **DJCTEC** proposals at 2* level. SPO Fu Cts will provide the secretariat.

e. **3* Integrated Campaign Steering Group**. DG Sec Pol, DG Strat & Int and DCDS (MSO) will co-chair a 3* ICSG. This will provide a 3* endorsed Operational Base Plan and agree the choices to be presented to 4* Principals and Ministers for an approved Global Programme to Operate. The ICSG will include 3* confirmation of Year 0 planned activity, direction for Year 1 activity, inform planning for Year 2 activity and shape scoping for Year 3 activity. For collective training, it reviews and agrees the **Strategic Effects Cycle** (SEC) outputs, provides top-level arbitration over issues that cannot be resolved at lower levels and endorses the **Defence Exercise Programme** (DXP) and the **Defence Annual Guidance for Exercises** (DAGE).

f. The **Defence Annual Guidance for Exercises** (DAGE), produced by JW on behalf of SPO, sets out the training and experimentation requirements for UK Tier 2+, Tier 3 and Tier 4 collective training and exercises in accordance with Defence strategic

[10] Currently ICSG, CDG, ASGs, COWGs, DJCTEC and DXPWG.
[11] Year 0 Confirm, Year 1 Direct, Year 2 Inform, and Year 3 Shape.
[12] Following a transition period to prevent existing reference documents from becoming obsolete without replacement, the Strategic Effects will supersede the existing framework of Mil Strat Objectives. Further detail will be provided in due course by SPO, in collaboration with the Strategic Hub.

direction and guidance[13]. It articulates the top priority exercises for Defence, with likely pinch points for key enablers, and allows for flexibility in exercise design within the parameters of available resource.

g. The **DXP** is the accumulation of Defence exercise activity input into the Lighthouse data management system which is annually endorsed by **ICSG**. It seeks to schedule exercises as a Defence commitment: confirming in year activity; directing final planning and resourcing in the next financial year; and informing stakeholders of planned events in financial years 1-3 and beyond. It is continually updated by the DXPWG, guided by the DJCTEC and informed by the SEC.

h. **DXPWG**. A cross MC desk level monthly meeting, chaired by JW SO1 DXP which updates, schedules and deconflicts Exercise commitments, identifying resource pinch points and recommends mitigation measures and potential COAs to the DJCTEC for resolution.

i. The **Defence Joint Collective Training & Exercise Committee** (DJCTEC), chaired by JW Head Joint Force Training & Integration (Hd JFTI), provides a detailed draft DXP aligned with DSD, DP, Defence Experimentation priorities, and SEC direction and priorities for endorsement by the **ICSG**. Through the DXP Working Group (DXPWG), it manages and co-ordinates the in-year delivery of the endorsed DXP, ensuring the programme reflects the required balance between tiers of training and national and international exercises. It contains MC representation to advocate their priorities and reinforce the link between the COWGs and the centre. The DJCTEC resolves conflicts over sS priorities or enabling assets where possible. It develops prioritisation proposals for exercises, which are staffed to the **CDG** and the **ICSG** as necessary.

[13] Including, but not limited to Defence Strategic Direction, Defence Plan, SEC outputs, SACEUR's Annual Guidance for Exercises, Defence Experimentation priorities, ICSG direction and DCDS (MSO)'s in year guidance.

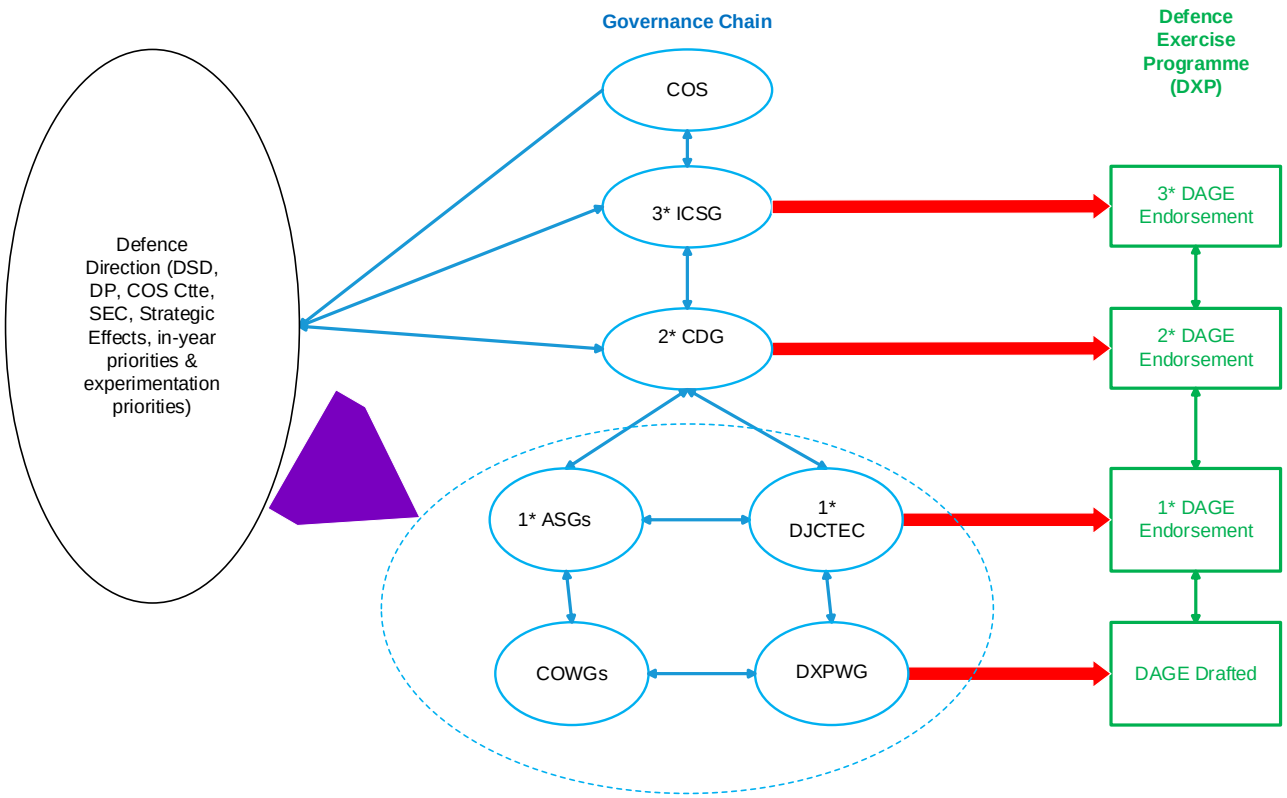

Figure 2: Collective Training Governance Practice: Tiers 2+, 3 & 4

26. MCs are responsible for setting governance structures for internal Tier 0 to 2+ collective training.

27. The key Governance functions[14] are[15]:

a. The Customer /Sponsor – the end user of collectively trained FE. Identifies an outline requirement and supplies critical information to the TRA for requirement analysis. In most cases this will be CDS, VCDS, the sS Chiefs, Com UK StratCom or their Cyber and Space equivalents.

b. The Training Requirements Authority (TRA)[16] is nominated by the Customer/Sponsor to represent the end user and is responsible for:

(1) Force Generation training requirements, which must be supported by the Capability and Readiness Assessment Framework (CRAF) process. Operational performance requirements are set down in Joint and sS Mission Task Lists (JTLs & MTLs)[17] from which Collective Training requirements can be set.

(2) analysis required to determine detailed requirements, including Training Needs Analysis.

[14] See JSP 822, Volume 1, on the Management of Training System (MTS) for further detail.
[15] Note that functional responsibilities may be allocated differently in accordance with sS & Jt structures provided there is clear authorisation and record of such allocation and that all functional responsibilities set out in Para 24 are performed in compliance with JSP 822 Collective Training policy.
[16] Note that a Lead TRA will need to be agreed for integration capabilities e.g. Air/Land, Air/Maritime or when there are multiple end users of collectively trained FE.
[17] JTLs & MTLs are derived from a range of sources including directed tasks in the Defence and TLB Plans.

(3) ensuring the Training DLoD is resourced.

(4) Assurance, comprising Evaluation, Validation and Certification (advice to the Chain of Command) following training and evaluation. This includes ownership and acceptance of any training risks against readiness[18], and advice on recertification in the event of changes to operational tasking or reductions in readiness.

(5) second party audits and inspections.

(6) representing the Customer/Sponsor at relevant CEBs.

c. The Training Delivery Authority (TDA)[19] is responsible for:

(1) Designing Collective Training to meet Collective Training Objectives (CTOs) derived from the JTL and/or MTL as specified by the TRA.

(2) Ensuring that assurance, including evaluations, is conducted to assure readiness of FE through training.

(3) Ensuring that First Party Audits are conducted by the TP.

(4) Ensuring that the governance of Collective Training is conducted through a relevant CEB. This may include chairing the CEB.

28. The TP is responsible for:

a. providing Training to meet the force generation requirements against the respective Collective Training Objectives (Performance, Conditions and Standards) specified by the TRA via the JTL and/or MTL and the CRAF process.

b. conducting assurance, including evaluation to assure readiness of FE through training by assessing:

(1) the achievement of Collective Training standards.

(2) the risk remaining after Collective Training has been conducted due to shortfalls in the force generation process.

c. conducting First Party Audits.

d. attending relevant CEBs and reporting on the delivery of training.

[18] Prior to their transfer to the operational commander.
[19] Note that a Lead TDA may need to be agreed for integration capabilities e.g. Air/Land, Air/Maritime.

29. The TRAs will be:

a. sS Force Generation Authorities for Tiers 1 and 2 Collective Training. (These may be at either 1* or 2*, depending on the needs and preferences of the Service).

b. SC for Tiers 2+ Collective Training[20].

c. SC (CJO) for Tier 3 Collective Training (or DCDS MSO where PJHQ is being trained).

d. DCDS(MSO) (on behalf of VCDS) for Tier 4 collective training[21].

30. The TDAs will be:

a. sS Force operational leads for Tiers 1 and 2 Collective Training. (These may be at either 1* or 2*, depending on the needs and preferences of the Service).

b. sS operational training leads or DG JFD, SC for Tier 2+[22] collective training.

c. DG JFD, SC for Tier 3 collective training.

d. SPO for Tier 4 training[23].

Tier	Trg Continuum	TRA	TDA
0 (Sub-Unit)	Integration Training	sS FGen Authorities	sS Operational Training Leads
1 (Unit)	Core adaptive		
2 (Formation)			
2+ (Component)	Joint competency	SC (CJO or SJFC)	sS Operational Training Leads or DG JFD, SC
3 (Combined/Joint Task Force)	Coalition competency	CJO, SC	DG JFD, SC
4 (Strategic)	Strategic HQ – DCMO	DCDS (MSO)[24]	SPO IPS
All Tiers as required	In-Theatre Training	PJHQ, SC	PJHQ, SC

Table 2: Collective Training Responsibilities Across Training Tiers[25]

[20] Within SC, CJO or SJFC (as the two Joint operational commanders and end users of the trained component HQs) are the most appropriate TRAs for Tier 2+ Collective Training.
[21] DCDS (MSO) may allocate this TRA responsibility to SC for specific activity on agreement.
[22] As per Footnote 4, leadership and organisation of Tier 2+ CT events can be allocated from SC to a sS on agreement.
[23] This TDA responsibility may be allocated to SC JW on agreement.
[24] Or other relevant SPO 3* Director according to Defence Task being trained for.
[25] These are also set out in greater detail in Volume 1.

2.4 Collective Training Assurance and H2A

Important! Detailed direction and guidance on the assurance of training activities can be found in Chapter 6, and Volume 5, and must be read in conjunction with this volume.

31. Collective Training as part of the Force Generation process must include distinct[26] training assurance[27] phases[28], comprising:

a. Evaluation: an assessment by the TDA[29] – typically through exercising – that the training audience (primary and/or secondary) has met the training competencies/standards required, in conjunction with an assessment of any associated risks owing to training shortfalls. This results in a formal declaration of competence of the training audience (FE/Component).

b. Validation:

(1) Internal Validation: the process to determine whether CTOs are being met and the quality of their delivery.

(2) External Validation: The use of both qualitative and quantitative data to determine the degree to which training prepares teams for the specified Role and whether the Team Performance Statement remains valid.

c. Certification: agreement by the Chain of Command (with advice from the TRA) that a force or FE can be operationally deployed (FE@R), including the acceptance of any risks[30]. This may include recertification following a force sustainment phase, such as deployed (continuation or in-theatre) training, a change of operational role or sufficient turnover of trained personnel.

29. Collective Training must support the development of adaptable forces by rebalancing Collective Training assurance processes towards the assessment of teams rather than purely the assessment of tasks.

30. These Collective Training assurance processes lead to successful generation of a FE or Component at a specific level of operability (as indicated by the CT Tiers).

31. Collective Training outcomes must be assured prior to the participation of FEs or Components in higher tier Collective Training activity[31].

32. Figure 3 illustrates the two key areas of risk in assurance of Collective Training[32].

[26] The appropriate gap between training and assurance will depend on the requirement and context.
[27] This is *operational* assurance; safety-focused *operating* assurance is also necessary.
[28] Different terminology may be used by MCs, provided the policy direction in relation to Collective Training assurance is met.
[29] The TDA can delegate this responsibility to the TP where agreed.
[30] Note that training assurance at Tiers 3 and 4 may imply the involvement of Performance Standards provided by or agreed with NATO, the EU, Coalition partners or OGDs as appropriate.
[31] Unless lower tier CT activity is being intentionally conducted within higher tier CT activity.
[32] Even where evaluation is successful and readiness is certified, there is a risk that readiness will be consumed over time and will need to be regenerated or sustained, typically through deployed training.

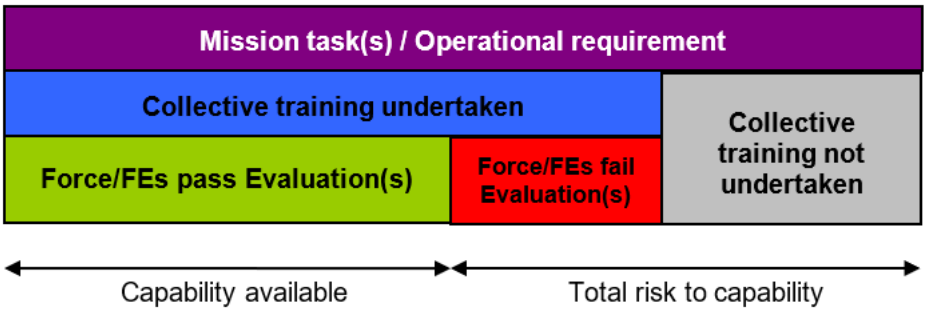

Figure 3: Risk and Collective Training

33. MCs are responsible for reporting contingent capability against their own Command Plans and against CRAF (set by UK StratCom). UK StratCom reports capability risks through the CRAF in quarterly 2* CRAF BiLats (Air, Land, Mar & Jt) to ACDS Cts, C&FD and DefLogs. Capability risks are also captured as part of MSO's DB Risk 3 (mount/sustain operations) as well as the MCB and supporting forums.

34. TSLD is responsible for assuring compliance with Collective Training policy. Assurance will be conducted through a risk-based approach through attendance by a TSLD representative at selected CEBs (or forums conducting the functions of a CEB). Each assurance visit will be followed up by a report noting good practice and identifying areas for improvement.

NATO Collective Training Policy and Doctrine

35. UK Collective Training must be compliant with NATO Collective Training Policy and Doctrine set out in NATO Bi-SC Collective Training and Exercise Directive 075-003.

Exploitation of Collective Training Data

36. Collective training data must be collected and exploited for wider Defence benefit, in particular to inform and support experimentation.

Use of Synthetics in Collective Training

37. JSP 939 - Modelling and Simulation Policy - provides direction.

Co-ordinated Working

38. MCs must work co-operatively across the five domains and share good practice and Lessons Identified (LID).

Safety Regimes

39. For each Joint Collective Training event the Lead Safety Regime must be clearly identified and authorised.

Training Audiences

40. Collective Training Events usually involve multiple training and supporting audiences; these audiences must be clearly identified and, wherever possible, collective training value for each audience must be maximised within the Collective Training Event.

Start States

41. Training Audiences for Collective Training Events will inevitably arrive at a variety of start standards; this must be taken account of when planning Collective Training Events in order to maximise value.

Development of CT Suitably Qualified and Experienced People (SQEP)

42. Personnel responsible for the planning, design, delivery and assurance of Collective Training Events must be SQEP. SQEP will be developed through:

a. experience gained through job roles involving participation in and planning for Collective Training events.

b. Planning and Staff Training Courses.

c. DSAT Training Interventions[33].

[33] Current DSAT Training Interventions (covering Analysis, Design and Assurance activities) are focused on Individual Training. Personnel involved in CT planning, design, delivery and assurance would benefit from attendance on these courses (run by the Defence Centre for Training Support), as specific CT-focused training interventions are yet to be developed.

3 Defence Guidance on Training Analysis

Policy Sponsor: TSLD, CDP

Note that Collective Training Guidance provides a set of generic processes and procedures to build on the mandated Collective Training Policy Direction set out at Chapter 2. It is recognised, however, that the scope and needs of Collective Training across Defence are wide and varied and therefore Commands have developed different approaches, processes and tools based upon the mandated DSAT elements in Chapter 2. Over time work will take place to develop the Collective Training Guidance in Chapters 3 – 5 to meet the needs and realities of Collective Training across Defence whilst remaining DSAT compliant and to support commonality and coherence in Collective Training approach, processes and tools across Defence. For reference, the RN's methodology is linked here

Element 1 - Analysis Activities	DSAT / MTS Reference
Statement of Requirement (SoR)	**5.1**
CTNA Steering Group (CTNA SG)	1.1
Training Support Plan (TSP) (Including Ready for Training Date (RFTD))	1.1.1
Scoping Exercise Report (With Training Solution recommendation)	**1.2**
Collective Training Needs Analysis (CTNA) Terms of Reference (ToRs)	1.2.1
Training Audience (and Throughput) Description (informs the SOTR)	**1.2.2**
Constraints Analysis	1.2.3
Risk Register and Assumptions Register	**1.2.4**
Raise Collective Training Authorisation Document (CTrAD)	**5.2**
Team / Collective Task Analysis (TCTA)	**1.3**
Identification of Team / Collective Role	1.3.1
Hierarchical Task Analysis (HTA)	1.3.2
Critical Errors	1.3.3
Teamwork Description	1.3.4
Team Performance Statement (Team PS)	1.3.5
Teamwork Error Analysis	1.3.6
Overlay Analysis (OA)	**1.4**
Collective Training Components	1.4.1
Draft Collective Training Objectives (CTOs)	**1.5**
Environment Analysis (EA)	**1.6**
Fidelity Analysis	1.6.1
Training Environment Options	1.6.2
Methods and Media Options	**1.6.3**
Risk Assumption Management	**5.3**
Training Needs Report (Informs the Statement of Trained Requirement (SOTR))	**1.7**
Cost Benefits Analysis (CBA) (derived from the Training Options Evaluation Table)	**1.7.1**
Options Evaluation (with recommended Training Solution)	1.7.2

Blue shade box = MTS activity Green shaded box = DSAT activity **Bold** = Mandatory activity

Table 3: DSAT Element 1 Inventory of Activities

3.1 Introduction

This Section provides Guidance on the processes and outputs associated with the production of an analysis (in the form of a Collective Training Needs Analysis (CTNA)), which is Element 1 of the DSAT process, as illustrated in Table 3.

1. **Definition**. A CTNA is a structured analysis of training need arising as a result of new equipment acquisition, doctrinal change, organisational change, or changes to policy/legislation It is a highly flexible procedure with the choice of supporting tools and techniques to suit different Training Systems. It typically includes an analysis of different training Methods and technologies, with a view to recommending the optimum training solution to meet Defence needs and which balances cost and quality. In all cases, however, a CTNA is an output based, iterative process that provides an audit trail for all decisions and is closely mapped to the requirements of the QMS. A CTNA does not, and should not, imply that training will be the only solution. If training is not the solution, this will become apparent in the Scoping Exercise, after which, analysis activity will cease. It should be noted that a CTNA may range from a simple interview to a process lasting several months.

Analysis is conducted broadly in 3 Stages:

a. **Stage 1**. Scoping Exercise.

b. **Stage 2**. Analysis.

c. **Stage 3**. Evaluation.

2. **Key steps.** Collective Training activities should enable preparation of FE to deliver Defence outputs; should these change, the training need should be re-analysed, via a CTNA, and if necessary, adapted to support the new requirement(s). If a CTNA is to be conducted, the user must:

a. identify the requirement being raised and the need to carry out a CTNA.

b. form a CTNA Steering Group (CTNASG).

c. assure the CTNA process.

3. There may be different reasons for undertaking a CTNA:

a. In support of a new fielded force or training equipment or service.

b. In support of an enhancement to any equipment or support system already in service.

c. A change in policy/legislation.

d. A change to the doctrine underpinning the deployment of a capability.

e. Changes to organisational structure or changed competence requirements.

4. As a general rule, a CTNA should be used when a change in Defence capability is likely to have a significant impact on the training resources required to generate trained output. The CTNA should be fit for purpose, provide an auditable trail and determine the most cost-effective training solution. The CTNA may vary in complexity from a simple scoping exercise to an extensive process requiring a dedicated team of Needs Analysts.

5. **Non-training specialist involvement**. Stakeholders often have a limited knowledge of the MTS and are unfamiliar with the CTNA process. At the start of a CTNA, time is often well spent in educating those who are to be involved in the CTNA about the process. They should be aware of their responsibilities, including the provision of information and staffing routines. Whilst it is not usually the CTNA author's responsibility to the implement the training solution, post CTNA, it is possible that they may be involved in subsequent working groups, to provide training support advice.

6. **Exploiting existing training activities**. The need to design training from scratch on a 'blank sheet of paper' is a very unusual occurrence, as it is much more likely that existing training can be modified. It follows, therefore that it is often desirable to analyse the current training first. Where current team information, Team PS or Collective Training Objectives (CTOs) do not exist for any current training, more comprehensive Team / Collective Task Analysis (TCTA), may be required, before any determination of a training requirement can be made. Analysis of similar, existing, training is also useful to support this.

7. **Audit trail**. A CTNA should generate a clear audit trail which plots the sequence of events and decisions leading to a training solution. The justification and supporting evidence used as the basis for these decisions should be readily apparent (such as: references to, and/or copies of, academic research literature; the deliberations of the Analysts; minutes of CTNASG meetings and Defence/Contractor publications). A quality audit trail requires full disclosure of, and rationale for, the methodology, tools and data sources used in the analysis, with copies of any specialist or bespoke software made available to the CTNASG.

8. **Iterative/selective nature of CTNAs**. Whilst a CTNA is carried out by completing a number of activities in sequence, it is important to note that the process is iterative in nature. Many influencing factors, risks and assumptions are liable to change during the conduct of a CTNA. It is therefore important that at every stage of a CTNA, the key outputs are reviewed to ensure their continuing validity, and that stages of the process be repeated if necessary. Processes for reviewing the CTNA outputs should be capable of amendment where changes are required. Tight control should be exercised by the CTNASG, which approves all changes to the CTNA. Follow-on changes to the training requirement and the impact on training may be managed through a system of configuration control but this does not remove the responsibility of the CTNASG for ensuring that changes are reflected in the CTNA.

The CTNA provides an audit trail of analysis to determine the need for training and, if required, enable design of a training solution. The process described in Figure 4 is a 3-stage process with a number of specified outputs. However, it should be emphasised that this recommended approach is not necessarily linear nor does it have to be followed prescriptively. In many cases there may not be a requirement to produce all of the suggested output products, and there may be merit in conducting stages or activities concurrently.

9. It should be noted that the cheapest option is not necessarily the most cost-effective option in meeting the training requirement. Also, the cheapest option is not necessarily to continue existing training within existing resources. Therefore, '*effectiveness*' is the key as it is the extent to which the training has prepared the individual or team for the Defence effect which matters. Cost is '*efficiency*' focused to optimise the use of resources to enable the execution of training (and required learning) and ensure Value for Money (VfM).

10. The CTNA process is summarised at Figure 4.

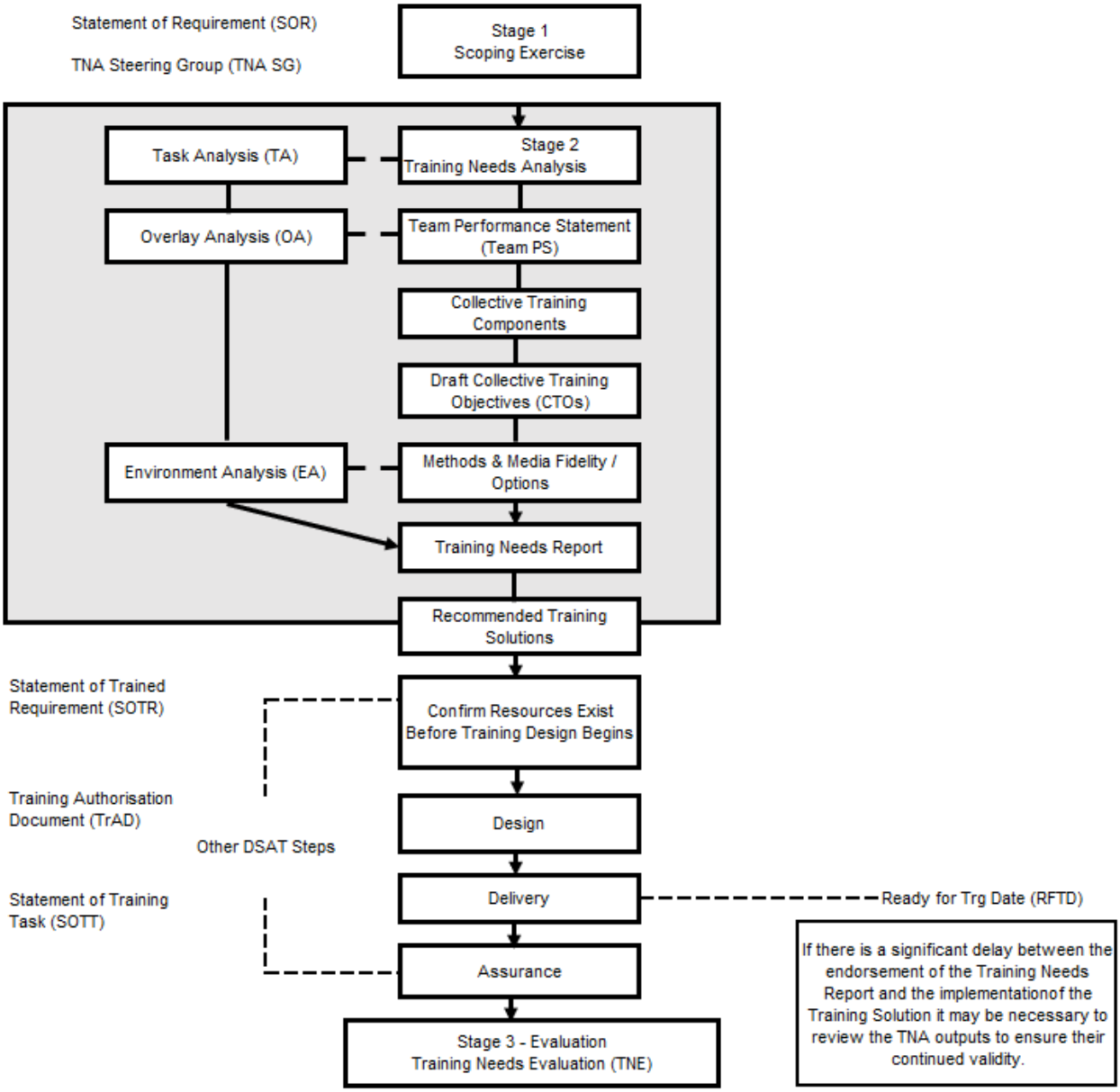

Figure 4: The CTNA Process[34]

[34] For more complex CTNAs, a user may initially conduct a Role Analysis (RA) to identify specific individual role training requirements, then conduct a CTNA to place that role into the wider collective context and provide the role-trained trainees with collective training to prepare them to operate as part of a team and deliver Mission and Joint Tasks).

11. **Why or when should a CTNA be conducted**? Before a CTNA can begin, a clear evidence-based SOR is to be produced, preferably in a written format (letter, e-mail, request form or tasking order, for example). Then, prior to the commencement of the analysis, a scoping exercise is conducted which may identify that the most cost-effective means of achieving the required Defence need, is a training solution[35]. Once the requirement for training has been established, a CTNA should be undertaken to ascertain the type and scope of the training requirement that meets the Defence need. It should be noted that a CTNA may range from a simple interview to a process lasting several months.

12. **Responsibility**. It is expected that the TRA will take the lead on the production of the DSAT activities, processes and outputs required to be completed during Element 1. The TRA may wish to delegate specific tasks but will retain overall responsibility for them. The TRA will also be expected to ensure that those activities deemed critical to the development of the Training System are conducted. A key activity is the establishment of a Collective CTNA Steering Group (CTNASG), upon receipt of a SOR, or other authority, to begin the CTNA process. The TRA is ultimately responsible to the Customer for the work conducted during this Element.

(Note that for more complex CTNAs, a user may initially conduct a RA to identify specific individual role training requirements, then conduct a CTNA to place that role into the wider collective context and provide the role-trained trainees with collective training to prepare them to operate as part of a team and deliver Mission and Joint Tasks).

3.2 Statement of Requirement

13. **Statement of Requirement (SOR) – 5.1**. The DSAT process will begin with a SOR, which states that there is a (real or perceived) need for teams to perform to specific standards and with appropriate attitudes and behaviours[36] due to a **new** or **changed** requirement. An SOR may necessitate a change to an existing training activity or require a completely new training activity to be designed, both of which require the use of the DSAT process. It may also result in no change to any training. Criteria that will affect the SOR include: new or changing Defence priorities and tasks; new equipment coming into service; external assurance results; workforce changes and skills gaps; changing legislation or Government policy.

3.3 Collective Training Needs Analysis Steering Group

14. **CTNA Steering Group (CTNASG) – 1.1**. To ensure validity and assurance of the process, the CTNA should be governed by a dedicated steering group representing all stakeholders. However, CTNA governance must also be 'fit for purpose' and appropriate to the need, with more resources and controls required to support a large and complex CT requirement, than a small one. A dedicated steering group working to an agreed CTNA methodology should manage every CTNA. The owner of the requirement should chair the CTNASG, supported by the relevant stakeholders who can provide technical, user, quality and Defence expertise. CTNASG membership may include:

[35] Equally, it may not recommend a training solution, in which case the CTNA would cease.
[36] This is approximately analogous to the Knowledge, Skills and Attitudes (KSA) Analysis in Individual Training.

a. **Training Requirements Authority (TRA)**. The complexity and size of the training requirement will dictate the level of involvement of the TRA and whether responsibilities are delegated. Training policy and training support representatives from the TRA should direct the CTNA Scoping Exercise and the TRA will normally nominate the chair of the CTNASG. Depending upon the risk assessment, the TRA may then delegate its representation to others, such as the TDA.

b. **Training Delivery Authority (TDA)**. The TDA will need to be represented at the CTNASG as it is responsible for the design stages of the DSAT process and will likely be closely tied to the Training Provider.

c. **Training Provider**. It is not vital for the Training Provider to be represented at the early stages of CTNA, unless a specific Training Provider is obvious from the outset. In that case, it is sensible to include the Training Provider in the CTNASG.

d. **Formation Command**. The Formation Command[37] is the final user of the new capability. The Formation Command therefore should be represented as it will be integral to achieving the balance of training between that delivered by the Training Provider and the remainder by the Formation Command in the workplace. In particular, stakeholders from Strategic Command and Other Government Departments (OGDs) should be included as appropriate.

e. **Defence Equipment & Support (DE&S)**. Where the training need is derived from new equipment or a service being brought into service by DE&S, representation from the Project Teams, or equivalent, is key to ensuring that the training requirement meets the technical needs of the new capability. Non-endorsing industry members should be included as apposite.

f. **Workforce Authority**. The identification of appointments/posts/billets affected by a new Defence capability, as well as training throughput to resource it, are key aspects of the scoping exercise and Team Collective / Task Analysis (TCTA). The involvement of the relevant Workforce Authority is therefore critical to the validity of the CTNA and important in ensuring that the issues that overlap between personnel/workforce and training are fully integrated and understood by all parties from the outset.

g. **Training SME**. A Collective Training management SME should attend the CTNASG in order to advise the chair on CTNA management and methodology, ensure that the CTNASG is representative of all stakeholders, compliant with the DSAT process, and that an audit trail exists.

h. **Other members**. Membership can be extended as needed to include any other interested parties. For example, it may be prudent to include representation from Diversity and Inclusion (D&I), legal or security staffs.

i. **Role of the CTNASG**. The CTNASG is responsible for ensuring that the training requirements are identified and met. It should therefore perform the following tasks, which should form the basis for its ToRs:

(1) develop and maintain a Training Support Plan (TSP).

[37] Such as, for example: a Warship, a Brigade, or an Air Wing.

(2) quality assure all CTNA activities, particularly the (Stage 1) Scoping Exercise.

(3) brief potential Contractors and act as a point of contact for any requests for information or subject matter expertise.

(4) co-ordinate the activities of all contributors to the CTNA.

(5) review and co-ordinate amendments to CTNA outputs.

(6) endorse proposals affecting the CTNA process or that amend outputs.

(7) endorse the most cost-effective training solution recommendation.

(8) assist in the design and delivery of the chosen training solution.

15. **Subjectivity**. CTNA governance is often complicated as individuals who act as stakeholders often double as the steering/working group representatives and are therefore closely involved in the development of the CTNA. In other words there is potential for an element of subjectivity in the final decisions made. The TRA may have already decided on a training solution and wants the CTNA to justify it. SMEs may have pre-conceptions regarding the operation/use of different Methods & Media (SMEs may not be training professionals and may not be fully aware of the options available); so the user should be aware of the potential to influence their decisions or statements. It is therefore much more effective for a CTNA to explore all possible options and identify the most suitable and cost-effective solution.

16. **Training Support Plan (TSP) – 1.1.1**. The CTNASG should manage the CTNA via the production and maintenance of a TSP. The TSP should identify any constraints on the CTNA in terms of training policy or funding, ensuring that all the actions required to produce cost-effective training support are identified and the appropriate agencies tasked. The TSP should also specify when the CTNA activities are to be conducted, who is responsible for the management and conduct of the CTNA process and when and how the outputs are to be assured. Figure 5 illustrates the TSP in the wider CTNA context. The TSP, governed by the CTNASG should identify the milestones sufficient to meet the **RFTD**[38]. A RFTD should be considered at this stage, agreed and stated later as a 'hard stop' point, as part of the Collective Training Authority Document (CTrAD), which is produced at the end of Element 2 (Design).

[38] RFTD is defined as the point at which all the necessary resources required to conduct training have been accepted by the TRA.

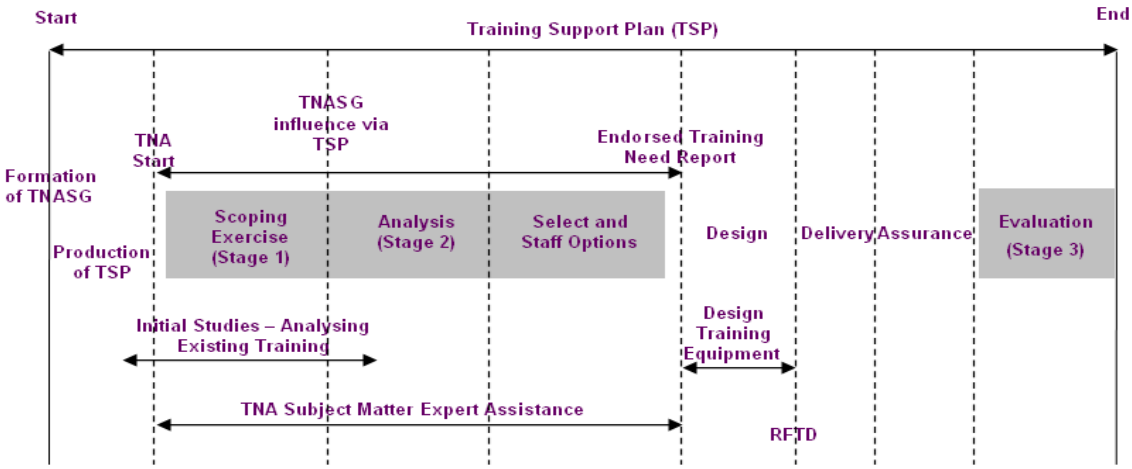

Figure 5: TSP in the CTNA Context

3.4 Scoping Exercise Report

17. **Scoping Exercise**. The scoping exercise involves the initial analysis of the requirement and, where applicable, suggested options for meeting the requirement including a broad order estimate of the resource implications associated with each option. This is articulated in the Scoping Exercise Report (1.2). The scoping exercise should be completed as early as possible and starts by acquiring as much relevant information as possible about the training need and the Customer requirement. It defines the CTNA management, risk, programming and resourcing within the boundaries of policy, assumptions and constraints. It also highlights issues that impact upon, or will need to be considered, during Stage 2. It will advise the CTNA strategy for the proposed training solution and provide the parameters of the new or changed Defence requirement where CTNAs will be, or have been, carried out. The scoping exercise does not have to be a long and protracted document and can utilise electronic references such as minutes of meetings, records of conversations to provide an auditable trail. A scoping exercise may originate from a variety of sources, for example:

a. a new or changed SOR.

b. performance deficiencies.

c. training improvements/constraints.

18. Provided that a training need is confirmed then a search of existing training activities across Defence, including the DLE, is to be conducted to ascertain if training, already designed, could satisfy, or partly satisfy, the need. The scoping exercise should then outline the aim, constraint, assumptions, proposed methodology and timescales, and provide an estimate of the resources required for the subsequent analysis and design stages.

19. The scoping exercise is the initial investigation and should derive a strategy and tentative solution for meeting the need for a training intervention. As this investigation progresses, decisions about how to apply the DSAT process should be made. For example, is it necessary to complete a full TCTA from first principles, or is it sufficient to confirm that an existing Team PS is still valid? Likewise, the strategy may recommend the process focuses on certain elements of a Role/Task/Team Performance which need further

development or perhaps recommends targeting the CTOs to ensure they support a Team PS. It may be decided that the sequence of training be reviewed if this is highlighted as a potential problem or that further consideration is given to current refresher training intervals. The scoping exercise should also cover a list of the resources required to complete the subsequent activities and an agreement as to which organisation(s) will provide them.

20. The scoping exercise should produce a report detailing what is appropriate to the training need and, importantly, make training solution recommendations. It should include:

a. references to the relevant training policies.

b. assumptions, freedoms and constraints[39].

c. the conclusions, outputs or recommendations of previous relevant studies (if any).

d. membership of CTNASG that will oversee the subsequent analysis stage.

e. recommendation to continue with the CTNA if appropriate.

f. CTNA outputs.

g. CTNA ToRs.

h. confirmation (or otherwise) that there is a training requirement that will fulfil the SOR (if there is not, the DSAT process should then cease).

i. recommended possible training solution option(s) to be taken forward into the analysis and design stages.

j. a section on risk.

23. **Training solution recommendations**. Training solution recommendations should be examined by the relevant stakeholders at the CTNASG. Taking into account time and resources, it will decide the most appropriate way of taking the requirement forward. Where a training solution is recommended and agreed at the CTNASG, a plan for subsequent analysis and design activities should be produced. If a training solution is not recommended, the DSAT process should be halted at this point. However, a response to the question, 'what should we do to address these deficiencies?' should be given. The problem may not have anything to do with training and may require:

a. a revision of procedures and/or improvements to management and supervision.

b. production of role/task aides and/or the reallocation of tasks.

c. changes in the approach to personnel selection.

d. acquisition of equipment.

e. workforce incentives, such as pay and civilian qualifications.

[39] Including current resourcing such as event design and the digital skills of trainers and designers.

24. The Scoping Exercise Report may include as documented evidence to inform future decisions:

a. **Summary of new/changed requirement**. A summary description should outline the proposed capability or technology/equipment and the benefits of the new or changed training requirement in the context of the Defence effect. This will enable the identification of the nature of the training gap and underpin areas requiring analysis (e.g. are there any changes to CONOPS; what changes are system/equipment function related; are there any impacts upon workforce structures?).

b. **Policy**. Influences concerning policy[40] can affect the CTNA strategy and can include various freedoms and constraints placed upon the Training Provider, such as: roles, tasks, structures, workforce levels, finance limits, Health and Safety requirements, minimum qualification levels for prospective role holders and/or tasks, and any accreditation or legislative issues.

c. **Previous/associated studies**. Reference to and use of previous or associated studies is strongly recommended. Information sources include previous CTNAs, Human Factors (HF) studies and evaluation reports on similar requirement(s). For major projects, where more than one CTNA is being undertaken, it can be useful to indicate the relationship between the various CTNAs.

d. **Potential training services**. The major types of training Methods & Media likely to be considered or examined should be included at this stage and then re-examined later (1.6.3 and 2.5). This will reflect the current training policy and should specify any areas requiring particular attention, such as the possible need for synthetic training, embedded training or Public/Private Partnership or Private Finance Initiative (PPP/PFI) solutions. These are *only* possible options and may change during the EA as a result of developments in policy, technology etc. An estimate of the cost of these services should be provided. Any new training solutions may have to utilise existing training facilities and associated established support elements (i.e. course design) which should be recorded in the report.

e. **Methodology**. The CTNA methodology should be tailored to suit the specific training requirement but should always provide a full audit trail. For example, in the case of a small change to training policy, a TGA or Teamwork Error Analysis (1.3.6) followed by an EA (1.6) to establish the most cost-effective Methods & Media would be sufficient. Equally, if the training is to fit into an existing training activity using similar delivery techniques and Media, then a full blown CTNA may be unnecessary. The outputs from the scoping exercise and subsequent analyses should be agreed during Stage 1 of the CTNA, which will allow the user to select the correct methodology and tools based on the constraints and information available at the time. Analysis should not be conducted as a 'check list exercise' but should only be undertaken if it adds value to the CTNA. CTNA is an iterative process and the CTNA outputs are therefore subject to continuous review.

f. **Resources**. An estimate of the resource allocation should be made to include the following:

[40] Particular reference should be made to the Service policies/directives for collective training (e.g. JTLs, MTLs and Collective Performance).

(1) sources of information required including documentation and access to SMEs.

(2) procedure for the review and CTNASG endorsement of the Training Needs Report.

(3) Cost of Ownership (COO) concerning the responsibility and allocation of funding across the affected budget holders for the design, installation, operation and supportability of the recommended training solution.

(4) sources of SME assistance, if applicable, the training workforce and facilities currently available.

25. **Collective Training Needs Analysis (CTNA) Terms of Reference (ToRs) (CTNA ToRs) – 1.2.1**. It is important that clear CTNA ToRs are produced to guide the subsequent analysis stages. They should be agreed and clearly understood by the TRA, stakeholders and the personnel undertaking the DSAT activities. A considerable amount of resources may be required to carry out these analyses and these should be made explicit within the ToRs. Although the layout of ToRs may be adjusted to meet specific circumstances there are a number of key areas that should be considered:

a. the scope and size of the CTNA.

b. constraints, risks, assumptions and opportunities.

c. outputs and reporting procedures.

d. timescales and resources available.

e. the methodology to be adopted.

26. **CTNA plan**. In order to estimate the timescales for the CTNA it may be necessary to generate a plan, for inclusion with the ToRs. A plan should detail the milestone dates for each activity to enable reviews by the relevant stakeholders. The CTNASG is responsible for ensuring that these activities take place. It need not be detailed but as a minimum it should include what is to be done, by whom and when. It can be presented simply as a written list of activities with important milestones and estimated timelines, or a chart generated from a standard software package.

27. **Training Audience (and Throughput) Description – 1.2.2**. An estimate of who will be affected by the new or changed Defence requirement is required to ensure that it is representative and to determine throughput and input standards. The Training Audience (and Throughput) Description should also include an estimate of the training population for training, the annual throughput and the input standard[41]. This information can then be used to inform and refine the SOTR (5.5) (for Collective Training the 'SOTR' is expressed through the Force Generation process). Collective Training designers are to use TAD output when considering Methods and Media Analysis.

[41] The Defence Human Factors Integration Policy for Defence Systems (JSP 912) also requires the development of a Target Audience Description so there is the potential for re-use of information here.

28. **Training audience**. Analysts should consider potential members of the training audience from across the training continuum, from individual through team to collective. This is critical to assist in determining cost-effective training options.

a. **Team and sub-team**. Seldom will individuals operate alone; they will almost always constitute part of a team. Users should therefore identify the teams and sub-teams that will require training. A team is a sub-division of an individual unit's personnel, (e.g. a ship would comprise teams operating on the bridge, in the operations room, in the ship control centre etc). Teams can sometimes then be sub-divided further into sub-teams. Users should identify the individuals who will constitute the teams/sub-teams so that the capacity and size of any potential team training solution can be determined.

b. **Collective.** The tiers of component, Joint and Combined Collective Training are defined as shown in Table 4.

Generic	Training to improve the ability of teams, units or formations to function as a cohesive entity and so enhance operational capability.
Tier 0 *(ATL ALPHA-ECHO)*	Sub-unit-level training. Tier 0 training prepares individuals to operate as teams below unit level
Tier 1 *(ATL FOXTROT)*	Unit-level training. Tier 1 training prepares units and sub-units to take their place within a tactical formation or Combined/Joint Force Component.
Tier 2 *(ATL GOLF)*	Tactical-formation-level collective training. Tier 2 training prepares tactical formations operating below the Combined/Joint Force Component level for operational employment.
Tier 2+ *(ATL HOTEL - INDIA)*	Component-level Joint collective training. Tier 2+ collective training prepares one or more Combined/Joint Components for operational employment. It may be conducted in combined or joint contexts on a UK, NATO or Coalition Partner framework basis. This Tier is of particular significance with enduring NATO requirements and the next higher HQ in such training will be the Joint Task Force HQ.
Tier 3	Combined/Joint Task Force-level collective training. Tier 3 training prepares a Combined/Joint Task Force for operational employment or a Permanent Joint Operating Base (PJOB) for an operational role. It may be conducted in combined or joint contexts and on a UK, Joint Expeditionary Force, NATO, EU or Coalition Partner framework basis.
Tier 4	Strategic-level training. Tier 4 events prepare the Defence Crisis Management Organisation (DCMO) to manage crises and provide strategic direction for, and conduct of, operations at the Political-Military Strategic level. They may involve Other Government Department (OGD)/Non-Government Organisations, other International Organisations and/or NATO and the EU.
In-Theatre	All levels as required as part of RSOI.

Table 4: Collective Training Tier Definitions

29. **Subject matter competence**. Information needs to be collected on (or assumptions made about) the role-related competences (KSAs) in which the training audience is already proficient. The training audience's level of KSA with respect to the Performance requirements is a factor, which depends mainly on previous related training, experience and recruitment profiles.

30. **Existing competences**. When identifying the training audience, analysts should also establish whether teams will be required to have any existing competences or experience levels prior to exploiting the new capability. Some of these competences may also be required by trainer/training support staff to enable them to assess performance and develop training activities.

31. **Pre-requisites analysis**. Pre-requisites analysis can be used to inform the training solution recommendations and is an important measure of competence/entry standard prior to training. This enables more accurate measures of competence 'before and after' training to be taken, thereby facilitating measures of effectiveness of the training solution in delivering the required output standards.

32. **Training throughput**. An estimate of training throughput numbers (total audience and annual throughput requirements) will inform requirements for the size and capacity of the potential training solution. This is produced through the Force Generation process.

33. **Constraints analysis – 1.2.3**. Any constraints affecting the CTNA need to be analysed and highlighted to ensure that risks regarding financial, safety and technical issues are addressed. The CTNA process should initially focus on satisfying the strategic need with the caveat that proposed training solutions are compared with the initial constraints as part of the TOA and/or EA. Further constraints are the timing/development of the CTNA, accessibility to SMEs and Intellectual Property Rights (IPR). The CTNA may be directed to examine a particular potential training solution, however, without prejudicing the final outcome. Constraints may also be identified in strategic trends, doctrine, concept documents (e.g. the Concept of Employment for a capability) or can be determined through contextual analysis (such as via PESTLE[42] or other frameworks). They should also involve consideration of all the Defence Lines of Development (DLoDs)[43]. Key constraints include:

a. **Policy**. On occasion, Defence Policy will dictate the Methods and Media to be used. The CTNA should adhere to the DTEL Rules[44] and Defence Policy for Modelling & Simulation (M&S) (JSP 939), as well as taking account of policies on the use of the Support Solutions Envelope, Integrated Logistic Support [45] and Human Factors Integration for Defence Systems (JSP 912). SCs may also mandate the use of specific training environments or solutions, which should be documented.

b. **Cost**. Restrictions may be placed on the CTNA by affordability considerations, which may restrict the number or scope of training options but could also take into account Value for Money (VfM) through-life (e.g. where investment has already been made in training and, for economic reasons[46], it is advisable to build upon existing capability rather than acquire new systems). Any analysis of cost constraints should

[42] Political, Economic, Social, Technological, Legal and Environmental.
[43] Training, Equipment, Personnel, Information, Concepts and Doctrine, Organisation, Infrastructure and Logistics, along with Interoperability.
[44] Contained within Volume 6.
[45] See http://aof.uwh.diif.r.mil.uk/aofcontent/tactical/sse/content/ksa2/gp208.htm.
[46] That is, in order to potentially optimise efficiency and effectiveness.

always consider capabilities through-life.

c. **Time**. Analysis is invariably conducted under time pressures, including the need to meet deadlines such as Initial or Full Operating Capability (I/FOC). Therefore, the CTNA should consider any prioritisation that needs to be taken account of and then constrain the analysis accordingly.

d. **Safety**. Training environments can be constrained by safety considerations, such as on the use of live fire or requirements imposed by safety cases[47]. Note that, regardless of training solution, there is likely to be a requirement to conduct operating assurance through the use of live equipment.

e. **Legal**. There may be restrictions on training due to legal requirements, such as mandated hours for aircraft control duties or flying, as well as Care and Welfare responsibilities. Acts of Parliament may also influence training options.

f. **Resource**. Analysis should take into account the unavailability or limited availability of both training audiences and potential training support requirements[48].

34. Given the significant impact these constraints may have, the CTNA should commence with their identification and risk management[49], noting the potential impact and options for mitigating any threats or the consequences of constraints. From this analysis, a constraints table, risk register and an assumptions register (including a Master Data Assumptions List as required) (1.2.4) should be compiled and maintained by the analyst and reviewed by the CTNASG, noting that a constraints analysis is an iterative process and may determine that a training intervention is not the most appropriate way to address the Defence need.

35. **Risk Register – 1.2.4**. It is advisable at this early stage to begin to build a risk register. There should be an assessment made of any risks, technical, financial, contractual and other, perceived in the design and delivery of the training. Proposals for controlling and mitigating the risks should be identified. Identification, tracking and mitigation of risk are requirements both of the QMS and during delivery. It should therefore be seen as an iterative activity that builds and becomes more meaningful as the DSAT process progresses. There is nothing specific or unique regarding risk assessment in the training environment, as opposed to any other, therefore users should adopt standard risk management practices, such as those laid out in JSP 375[50]. Risks should be reviewed regularly by the CTNASG. Where risks are identified, a plan for mitigation should be enacted and resources allocated, where necessary. It may be the risks need to be transferred to the appropriate governance body for authority to treat through mitigation, or tolerate (if mitigation is not feasible), or transfer if the risk needs to be elevated to a higher level. Risks should then be fed back into the DSAT process, in order to ensure that activities are either repeated or conducted bearing the risks in mind. Risk management is conducted continuously and is captured later in the DSAT process (5.3, 5.7, 5.11).

36. **Assumptions Register – 1.2.4**. An Assumptions Register should contain the assumptions which are the unconfirmed statements to be taken as facts. In the context of a new or changed requirement, they usually relate to policy and the use of previous or associated studies. In a CTNA, assumptions must be stated to ensure that the direction,

[47] See http://aof.uwh.diif.r.mil.uk/aofcontent/tactical/engineering/content/airworthiness/aw_safetycase.htm.
[48] For example, access to training areas and the capacity of existing training solutions or infrastructure.
[49] To be undertaken in accordance with the Cabinet Office's Management of Risk Best Practice Guidance.
[50] JSP 375: Management of Health and Safety in Defence.

outcomes and effectiveness of the CTNA are within defined boundaries. If the new requirement involves equipment using emerging technology, then analysis may be more subjective than objective during product development stages and therefore must be stated. These assumptions should be annotated in a CTNA assumptions register[51]. The user responsible for maintaining this document should do so throughout the life of the CTNA. Assumptions should be reviewed regularly by the CTNASG. As the DSAT process progresses and information becomes available then assumptions can be removed and replaced with fact. Assumptions management is conducted continuously and is captured later in the DSAT process (5.3, 5.7).

3.5 Raise Collective Training Authorisation Document

37. **Raise CTrAD – 5.2**. At this stage, once the scoping exercise is complete, a CTrAD should be raised. This is done by the TRA in conjunction with the TDA and Training Provider, if appropriate, by completing those elements of the TrAD that are applicable to this stage in the DSAT process (i.e. Element 1, Stage 1 complete) and populating it as the DSAT process progresses. The format for a CTrAD is contained at Annex B. The CTrAD is then further refined and presented for formal endorsement later in the process (5.9).

3.6 Team / Collective Task Analysis

38. **Team / Collective Task Analysis (TCTA) – 1.3**. TCTA applies to all CT Tiers as set out in Table 4; TCTA is a fundamental element of the acquisition process and may be required for:

a. determining the collective training necessary to achieve force generation and sustainment at Tier 0 and higher.

b. determining the training necessary to generate and sustain teams and sub-teams in support of force generation.

c. determining requirements for collective training when acquiring capabilities.

d. determining requirements for the acquisition of collective training systems or services.

e. providing other training input to the acquisition process.

f. determining amendments to collective training that may be occasioned by a change[52] to one or more capabilities.

g. determining amendments to collective training that may be occasioned by operational or other lessons identified.

h. as directed by collective training CEBs.

[51] As a minimum this should include the assumption, the source and the status.
[52] For example, amendments may be driven by changes in legislation, policy or any of the Defence Lines of Development.

39. **Limitations**. This Guidance sets out a generic process that can be followed in undertaking a TCTA. It should not be taken as a definitive list of activities to be followed because the wider CTNA should always be tailored to the context as appropriate. It should be read in conjunction with the Acquisition System Guidance (ASG)[53] and the Defence Logistics Framework.

40. The Team/Collective Joint and Mission tasks and sub-tasks performed by the team constitute 'the task'. The TCTA is the process of examining specific tasks detail, in order to identify all the component sub-tasks, the Conditions under which the tasks are performed, and the Standards to be achieved when performing each task. The 'role in the task' should also be considered. In this way, it will be possible to identify the teamwork requirements for effective Performance. To derive Team PS for team/collective capabilities, the Task Analysis should comprise:

a. **Higher-level context**. The Defence Capability Framework and the Joint Task List (JTL) provide the overarching context for a capability. Users should also examine strategic doctrine and the horizon scanning literature[54] to understand the place of a team or capability within the wider Defence setting.

b. **External context**. Given the generic capability statements provided by analysis of the higher-level context, the TCTA should then consider the environment within which a team or capability operates. This may be achieved in several ways:

(1) Deriving an **external team interaction table**, which notes the *interactions* with external actors or teams that occur, their *content* and *products*, and the *means* by which the interaction occurs. Table 5 provides an example:

From	To	Content	Product	Means
Team	External agent 1	*Environmental information*	*Tactical picture*	*HF communications*
External agent 1	Team	*Updated orders*	*C2*	*HF communications*

Table 5: Example of an External Team Interaction Table

(2) Deriving an **external team context diagram**, illustrating the interactions with the external environment in a graphic way. Figure 6 provides an example:

[53] Further details are available at www.kid.mod.uk
[54] For example, the DCDC Strategic Trends programme; see www.gov.uk/government/collections/strategic-trends-programme

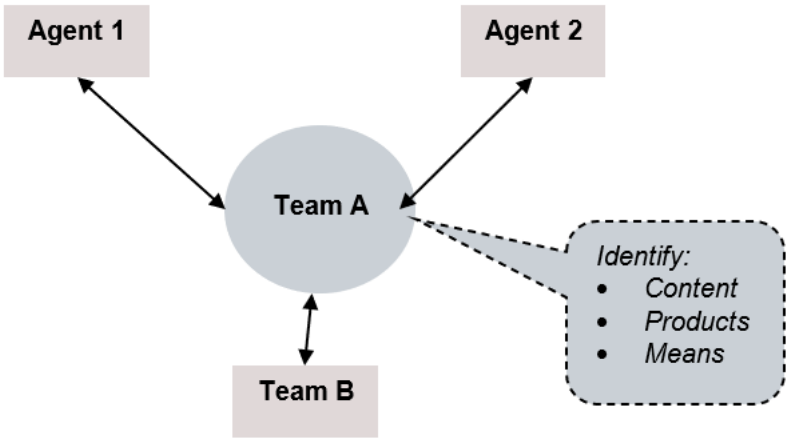

Figure 6: Example External Team Context Diagram

(3) Deriving **generic scenarios** that explain the interactions that occur with the external environment. Table 6 provides an example:

Scenario	*Title and/or reference*
Capability effect	*Joint or Mission Task List reference and description*
Timing	*When the scenario occurs*
Environment	*Where and in what context the scenario occurs (e.g. the location and the operational situation)*
Forces	*Enemy, own and neutral forces involved (as appropriate)*
Initiating conditions	*What triggers the start of the scenario*
Terminating conditions	*What triggers the end of the scenario*
Contributing outputs	*What products must be delivered by the team to achieve the effect*

Table 6: Example of a Generic Scenario Description

(4) Note that these interactions will primarily be with other actors or teams but may also include non-human feedback, such as from sensors or automated systems that provide a picture of the operational environment.

c. **Internal context**. Having identified the external context, the process is repeated for interactions within the team or capability (Key Capability and User Requirements may be informative.) Similar approaches may be used to understand how the team works, but it may also be appropriate to identify other aspects, such as the **organisational structure** governing how the team or capability operates. This may be expressed as a hierarchical tree and should specify *key roles*, without which the team cannot function or would function at a reduced level[55] (expressed in terms of risk to capability). (This also provides a means of clarifying the **training audience** from the earlier scoping exercise.)

[55] Consideration must also be given to the Whole Force.

41. **Identification of team/collective Role – 1.3.1**. The **Role definitions**[56] that apply to the members of the team or capability which should set out interfaces between an individual and others.

a. Deriving an **internal team interaction table**, noting the *interactions* that occur within the team, their *content* and *products*, and the *means* by which the interaction occurs. Table 7 provides an example:

From	To	Content	Product	Means
Agent 1	Team leader	*Environmental information*	*Tactical picture*	*Internal communications*
Team leader	Agent	*Updated orders*	*C2*	*Internal communications*

Table 7: Example of an Internal Team Interaction Table

b. Deriving an **internal team context diagram**, displaying the interactions within the team. As with the external context, these interactions may include sensors and systems. The level of complexity necessary should be influenced by the earlier constraints analysis. Figure 7 provides an example:

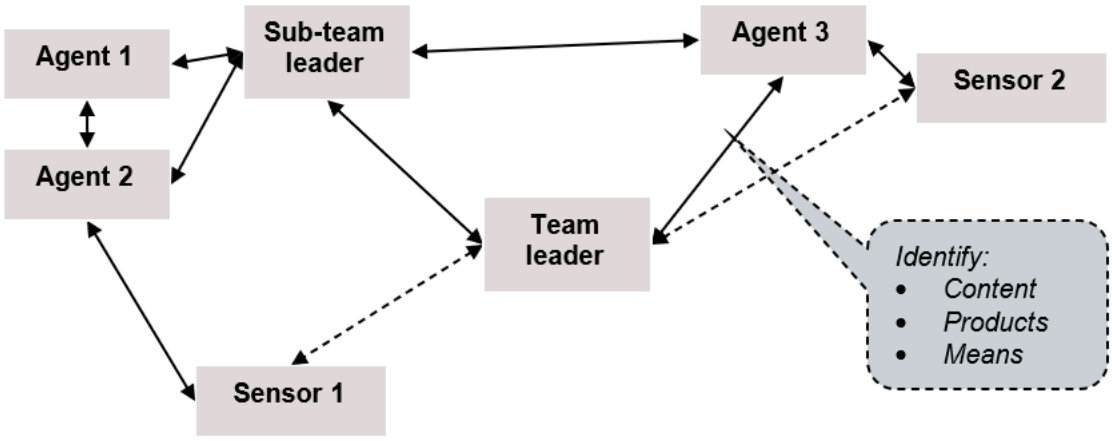

Figure 7: Example Internal Team Context Diagram

c. Other ways of analysing Team/Collective CTNA context may also be used as necessary[57].

42. **Hierarchical Task Analysis (HTA) – 1.3.2**. Once the context of a capability is understood, the next step is to build on it by undertaking HTA (in consultation with Subject Matter Experts (SMEs) as appropriate). This should:

a. start with strategic doctrine and the Strategic Command-managed JTL to identify the highest-level overarching requirement, including coherence with the input of other Commands to any joint effects.

b. take account of operational doctrine as appropriate.

[56] ToRs may suffice or else can be used to help derive Role definitions.
[57] For other examples, see Huddlestone, J.A. and Pike, J. (2011) *Training Needs Analysis for Team and Collective Training*. Human Factors Integration Defence Technology Centre.

c. identify the relevant[58] tasks from JTL-derived environmental **Mission Task Lists** (MTLs), including the specified Performance, Standards and Conditions against each task[59].

d. result in a **Capability or Team Task Scalar** specifying the operational effects to be delivered by a team or capability.

43. This framework then provides the operational context for a statement of team or collective training performance. In the event that MTL is not available to a user, the HTA will need to be undertaken. Figure 8 provides an example:

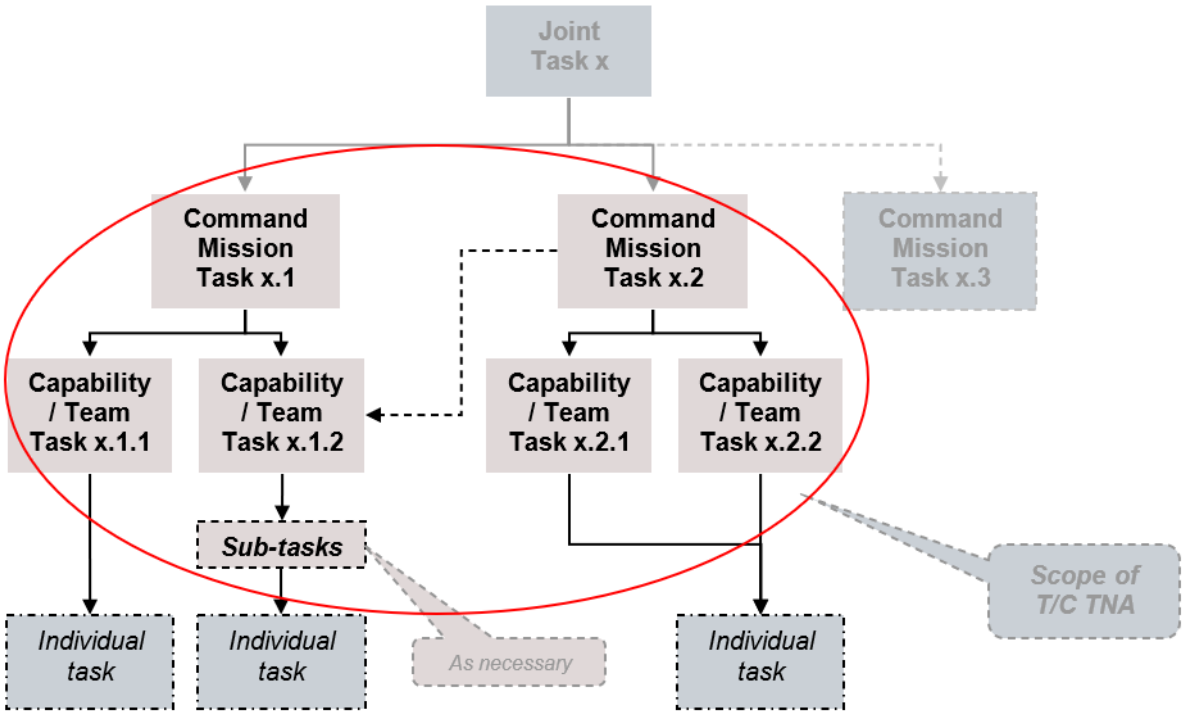

Figure 8: Hierarchical Task Analysis from Higher-level Requirements

44. The task hierarchy may also be illustrated in a table or spreadsheet, akin to the representation of a Role Scalar. When undertaking this analysis, it should be noted that each task might contribute to more than one Mission Task, as represented by the dotted lines in Figure 8. However, by identifying sub-tasks at the Command Mission Task level, it should be possible to recognise these prior to working on subsequent detail.

45. **Critical Errors – 1.3.3**. Linked to the description of teamwork (1.3.4), the user needs to appreciate what can go wrong in conducting a task and how errors should be managed. This then permits the training design process to incorporate these errors to ensure that teams have experienced and been trained in coping with and responding to them. The criticality of errors should be expressed in terms of risk to the delivery of capability.

[58] Note that the greyed-out Mission Task in Figure 8 represents a collective task that has been determined to not be relevant to the analysis.
[59] Note that this Guidance assumes that this significant task will have been undertaken by Commands in support of deriving environmental Mission Task Lists (MTLs) and the underlying Task Descriptions; otherwise, TCTA should contribute to this higher-level work.

46. **Teamwork Description – 1.3.4**. Linked to critical errors (1.3.3), the user should capture 'what good teamwork looks like' for each task, such that Performance can be assessed not just in terms of output (i.e. whether the task was completed to the required Standards) but also in terms of *Attitudes* and *behaviours*; otherwise, there is a risk that outputs are achieved with sub-optimal teamwork or, as a worst case, entirely by accident. 'Good teamwork' can be captured as appropriate but should typically include scrutiny within the team of: *coordination* (of tasks, information and resources); *communication*; *management* (of workload, conflicts and errors); *monitoring*; *planning*; and *synchronisation*. This is approximately analogous to the KSA Analysis (1.3.4) in an Individual Training TNA.

47. **Team Performance Statement (Team PS) – 1.3.5**. An important aspect of the TCTA is the *sequencing* of tasks, which is difficult to represent. A **Task Description Table** can capture this detail and should be used to describe each team task, which will then provide a statement of the required Performance against each Mission Task. Table 7 provides a suggested format. Ideally, each Joint Task and subordinate Mission Tasks should have been described by Commands in a format similar to Table 7, such that the user merely confirms or updates them as necessary. Table 8 provides a format for Team PS using a Task Description Table.

Task	*Title and number, including linked Joint and Mission Tasks in hierarchy*
Purpose	*The capability effect generated*
Initiating Condition	*When the task commences and/or what triggers its Performance*
Terminating Condition	*When the task completes and/or triggers its completion*
External context	*A description of the context, including necessary interactions*
Sub-Tasks	*Any sub-tasks necessary to complete the task*
Plan	*The sequencing of the task with other tasks*
Teamwork Description	*This should capture any teamwork behaviours necessary*
Inputs *(content, origin and means)*	
Internal	*Inputs from other team members and how they are delivered*
External	*Inputs from other teams and how they are delivered*
Products/Outputs *(content, destination and means)*	
Internal	*The products of any interactions that feed other team members*
External	*The products of any interactions that feed other teams*
Other outcomes	*Any other product of the task that should be noted; e.g. resource use*
Critical Errors	*Errors that could be expected, their consequences and their management*
Teamwork stressors	*Demands that can increase stress on the team and hence test teamwork*
Standards	*The Standards of Performance, including assessment metrics or measures*

Table 8: Team Performance Statement via an Example Task Description Table

48. The following should also be considered:

a. **Doctrine.** Doctrine provides a framework to analyse how tasks should be carried out.

b. **Teamwork stressors**. Also linked to the description of teamwork, it is necessary to capture events that could increase the stress on a team and thereby test its ability

to maintain team Performance under difficult Conditions.

c. **Standards**. The TCTA could include appropriate metrics where directed by the TRA.

d. **Readiness Consumption**. An assessment of the risk of collective skill / readiness fade.

49. Although the completion of tables for each task element of HTA will prove time consuming, this will provide sufficient detail for subsequent training design, including how the task can be split across the four components of collective training. It should also be noted that the completion helps with detailing the training 'gap'. Table 9 provides an example[60] of a completed Task Description Table:

Task	Conduct CROWN duties (M.T 1.4.04.1.5 Implement Control Measures)
Purpose	Air Battlespace Management in support of Task Group defence
Initiating Condition	On receipt of orders; on departure of own FW aircraft
Terminating Condition	On return of own FW aircraft, passing of aircraft to ATC or passing of contact for defensive response
External context	For all Task Group operations
Sub-Tasks	None
Plan	Own air units are passed from ATC and passed back on return
Teamwork Description	Management of Air Battlespace through coordination of resources, including CROWN controller(s) time on watch and division of responsibility between TG Units; coordination between CSG GWO and CROWN controller in the event of force protection manoeuvres; synchronization of aircraft control between ATC and CROWN controller; communication between AAWC Unit and aircraft; monitoring and managing CROWN procedures in the event of system failures
Inputs *(origin, content and means)*	
Internal	ATC (passing of aircraft control; internal comms)
External	AAWC Unit AWO (defensive liaison; external comms) QE Class AWO (liaison; external comms) Task Group GWO (liaison and force protection; external comms)
Products/Outputs *(destination content and means)*	
Internal	ATC (passing of aircraft control; internal comms)
External	Red or white aircraft (warnings to unidentified aircraft; external comms) Red aircraft (passing to AAWC for defensive response; external comms)
Other outcomes	Record keeping; lessons identified
Critical Errors	Classification failure; contacts reaching within x nm of Task Group
Teamwork stressors	Introducing sensor failure or degradation; additional threats; additional contacts; battle damage; communications failure; fatigue
Standards	AJPs 3.3.5(A) and 3.14, MCP 176, JWP 3-63 and JDPs 3-64 and 3-70. Metrics: Percentage of non-CROWN contacts reaching y nm of Task Group; number of critical incidents; number of FEZ, MEZ or HVA violations

Table 9: Team PS via an Example (completed) Task Description Table

[60] Illustrative content only; in particular, the Mission Task detail is subject to review and the task will map to several Mission Tasks.

50. **Teamwork Error Analysis – 1.3.6**. The concept of a collective **training gap** analogous to that in an Individual TNA (TGA) (1.4A) is inappropriate in CTNA. This is because it is very difficult to determine a starting state for a team or capability comprising personnel at differing levels of ability and experience, even if all have met their individual Role PS. Rather than considering 'gaps' between existing and required Performance, the user can instead conduct a *Teamwork Error Analysis* with SMEs, that:

a. Compares the completed task descriptions with existing training provision, focusing on Teamwork Description (1.3.4), Critical Errors (1.3.3) and teamwork stressors.

b. Identifies whether existing training achieves the necessary tasks and provides for assessment via the metrics associated with the task Standards[61].

c. Undertakes an analysis of the critical errors (1.3.3) identified and the potential for readiness consumption associated with each task[62], providing a risk assessment against a default of not training the team in the management of the associated stress.

51. This Teamwork Error Analysis then provides a way to assess what training needs to be designed during Element 2 (Design) and/or what amendments are needed to existing training.

3.7 Overlay Analysis

52. **Overlay Analysis (OA) – 1.4**. The training overlay in the TCTA is the totality of the training design, infrastructure and other support functions necessary to deliver collective training, which will then be delivered through Element 2 (Design). Unless the TCTA suggests otherwise, it should be based on the conception of collective training[63] and assurance and should clarify the anticipated **training throughput** (1.2.2) for each element, including initial surge, steady state and refresher training requirements[64], to then define the capacity requirements of the Training System.

53. **Collective training components – 1.4.1**. Using the Teamwork Error Analysis (1.3.6) associated with each task, the user should consider which components of collective training are most appropriate to train the task. The four components are:

a. **Supportive information**, or underpinning education, mental models and cognitive strategies that support task completion (e.g. the theory and doctrine behind the collective task). Supportive information is typically appropriate for learning concepts and doctrine; the characteristics of capabilities involved in a collective task; and any theory underpinning the task. Distributed training or classroom training may be especially appropriate for training supportive information. This equates to **individual training in a collective context** and should be captured in **individual** Role PS for each Role.

[61] Note that there may be a 'gap' where existing training already covers the collective tasks identified but does not evaluate it as required.
[62] Including the impact of losing key Roles, as identified within the Training Audience.
[63] See Chapter 2.
[64] Ongoing Dstl research is seeking to expand the evidence base and thinking in this area, including research on 'Development of a Model of Collective Competence Retention'.

b. **Just-in-time information**, or information displays, demonstrations and corrective feedback that is available when required, but is relied upon less as trainees achieve greater competence (e.g. **coaching** and **mentoring** from trainers and information displays to enable transition from basic to complex training). This is also useful in identifying situations where teams achieve the task but particular individuals need more individual or sub-team training. Just-in-time information typically focuses on coaching or implies designing-in information prompts that can be drawn upon to help with achieving a task. Coaching will be valuable in supporting Performance in collective training tasks and may be facilitated through SME or coaching support or else automated and/or trainee-selected prompts in simulators. These requirements should be captured to inform the development of an LSpec (2.6) in Element 2 (Design).

c. **Part-task practice**, or the repetition of recurring skills to achieve automaticity (e.g. drills or the practice of elements of the whole training task, such as threat identification or response). The user should analyse each task to identify potential part-tasks that can be undertaken to develop teamwork skills before (or in addition to) exposing the team to the whole task. Part-task practice is particularly appropriate for:

(1) sub-tasks that do not require the entire team or capability.

(2) sub-tasks with differing environmental requirements.

(3) complex sub-tasks or ones with significant risk associated, which will have been identified in Teamwork Error Analysis 1.3.6).

d. **Whole training tasks**, or experiences of complete collective tasks that are organised from the simple to the complex include trainee support in the form of 'scaffolding' that is progressively removed (e.g. practising a team self-defence event in basic conditions with trainers providing guidance and support, then gradually increasing the difficulty of the conditions while reducing the trainer support). These training tasks are appropriate for training a collective task as a whole, once the team has been sufficiently developed. Note that where generic scenarios have been developed as part of TCTA, these may be suitable for generating training tasks (with additional information provided by Task Description Tables (1.3.5)).

3.8 Draft Collective Training Objectives

54. **Draft Collective Training Objectives (CTOs) – 1.5**. On the basis of this analysis, CTNA should identify **training scenarios** that will ultimately be used to deliver collective training. These scenarios will then provide **draft** CTOs, which will be developed further into CTOs (2.1) and a (Collective) FTS (2.2) during Element 2 (Design).

3.9 Environment Analysis (EA)

55. **Environment Analysis (EA) – 1.6**. The next element of the TCTA is to identify the training environments that could be used in collective training. The EA comprises Fidelity Analysis, Training Environment Options and Methods & Media Options.

56. **Fidelity**[65] **Analysis – 1.6.1**. Fidelity analysis examines the necessary degree of correspondence between training and operational environments, should be undertaken on the rationalised training environments (1.6.3). Although Fidelity Analysis is difficult to achieve objectively and stakeholders may already have preferences for what training environment is to be preferred, the user should:

a. use SME consensus or existing Training Systems where possible (including individual Training Systems as appropriate) to determine fidelity requirements.

b. prioritise psychological over physical fidelity.

c. use the risk assessment approach in Teamwork Error Analysis (1.3.6) to assign higher fidelity training environments to those tasks that have most risk associated with teamwork errors[66].

57. Fidelity Analysis for collective training can be divided into 5 categories[67] each split into physical and psychological (Tables 10 to 14 provide detail).

a. **System fidelity requirements**, or the fidelity of a Training System.

Physical Fidelity Requirements	
Attribute	**Description**
Size	*Can the item be represented smaller or must it be full size?*
Location	*Is the spatial location of an item important?*
Spectral	*Do the colour and texture matter? What are the critical appearance attributes?*
Controls	*Are all the controls required and, if not, which are priorities?*
Feel	*Does the feel of the controls have to be replicated exactly?*
Weight	*If the system is portable, does it have to be a representative weight and balance?*
Motion	*What motion cues does it have to provide?*
Sound	*What sounds have to be produced and to what degree of fidelity?*
Psychological Fidelity Requirements	
Attribute	**Description**
Format	*Does the format of displays have to be replicated exactly?*
Content	*Can any display content be omitted?*
Response	*Does system response have to be replicated exactly or, if not, what elements can be omitted and what tolerance on system response is acceptable?*
Appearance to other system elements	*If the system interacts with other entities in the environment, what attributes must it have (e.g. an aircraft has a radar signature and heat signature)?*

Table 10: System Fidelity Requirements

b. **Resource fidelity requirements**, or elements of the training environment other than those involving people, such as equipment and logistics.

[65] Physical fidelity relates to the appearance of training equipment or environments, whereas psychological fidelity relates to the experience of tasks or functions.
[66] See Thomas, M. J. W. (2003) 'Operational fidelity in Simulation-Based Training: The Use of Data from Threat and Error Management Analysis in Instructional Systems Design', in *Proceedings of SimTecT2003: Simulation Conference*, pp. 91-95. Adelaide, Australia: Simulation Industry Association of Australia.
[67] From Huddlestone, J.A. and Pike, J. (2011) *Training Needs Analysis for Team and Collective Training*. Human Factors Integration Defence Technology Centre.

Physical Fidelity Requirements	
Attribute	**Description**
Spectral	*Do the colour and texture matter? What are the critical appearance attributes?*
Feel	*If the item can be touched, does the feel of the item have to be replicated exactly?*
Weight	*If the item is portable, does it have to be a representative weight and balance?*
Sound	*What sounds have to be produced and to what degree of fidelity?*
Psychological Fidelity Requirements	
Attribute	**Description**
Behaviour	*What aspects of behaviour have to be produced to generate interactions with the team and to respond to interactions from the team?*
Interaction information requirements	*Information required to generate interactions with the team or respond to team interactions*

Table 11: Resource Fidelity Requirements

c. **Human fidelity requirements**, or an appreciation of how complex interactions are and hence whether personnel can be modelled in a training environment by role-players, or if experts or even actual members of interacting teams are necessary.

Physical Fidelity Requirements	
Attribute	**Description**
Spectral	*What aspects of physical appearance and dress are significant?*
Language	*What language/dialect should the person speak if they interact by voice with the training audience?*
Psychological Fidelity Requirements	
Attribute	**Description**
Behaviour	*What aspects of behaviour, including stressors, have to be produced to generate interactions with the team and to respond to interactions from the team?*
Interaction information requirements	*Information required to generate interactions with the team or respond to team interactions*
Knowledge, skills and experience	*What knowledge, skills and experience are required to produce the required behaviour given the information and systems provided?*

Table 12: Human Fidelity Requirements

d. **Manned system fidelity requirements**, or how realistic systems should be that appear in the training environment but are controlled by trainers, such as enemy forces.

Physical Fidelity Requirements	
Attribute	**Description**
Spectral	*Do the colour and texture matter? What are the critical appearance attributes?*
Sound	*What sounds have to be produced and to what degree of fidelity?*
Psychological Fidelity Requirements	
Attribute	**Description**
Behaviour	*What aspects of behaviour have to be produced to generate interactions with the team and to respond to interactions from the team?*
Interaction information requirements	*What information is required to generate interactions with the team or respond to team interactions?*
Knowledge and skills	*What knowledge and skills are required to produce the required behaviour given the information provided?*
Appearance to other system elements	*If the system interacts with other entities in the environment what attributes must it have (e.g. an aircraft has a radar signature and heat signature)?*

Table 13: Manned System Fidelity Requirements

e. **Physical environment fidelity requirements**, or the fidelity of static features such as terrain that only require physical requirements, or dynamic features such as wind, waves or tide that require both physical and psychological requirements.

Physical Fidelity Requirements	
Attribute	**Description**
Appearance	*Do the colour and texture matter? What are the critical appearance attributes?*
Feel	*If the item can be touched, does the feel of the item have to be replicated exactly?*
Sound	*What sounds have to be produced and to what degree of fidelity?*
Psychological Fidelity Requirements	
Attribute	**Description**
Behaviour	*What aspects of behaviour have to be produced to generate interactions with the team and to respond to interactions from the team?*
Interaction information requirements	*Information required to generate interactions with the team or respond to team interactions*

Table 14: Physical Environment Fidelity Requirements

58. **Training Environment Options - identification – 1.6.2.** Based on the Fidelity Analysis (1.6.1), the user should next identify options for training environments. These will typically be either live or synthetic[68], further broken down into 3 categories:

a. **Live**, or a simulation involving real people operating instrumented real systems.

b. **Virtual**, or a simulation involving real people operating simulated systems.

c. **Constructive**, or models and simulations that involve simulated people operating simulated systems.

[68] See JSP 939: Defence Policy for Modelling & Simulation (M&S).

59. These 3 categories may have further attributes:

a. **Embedded simulation**, or including simulations in operational equipment, such as training modes in an operations room.

b. **Networked or federated simulation**, or the connection of several simulators, such as the Army's Combined Arms Tactical Trainer (CATT).

c. **Distributed or confederated simulation**, or the connection of simulators across different sites, such as UK participation in US Fleet synthetic training events.

d. **Synthetic wrap**, or an optimised live, virtual and constructive balance in which personnel operate real equipment in a live environment that has been extended through simulation, such as by providing an environmental picture.

60. Although these potential training environments may already have been rationalised, other considerations should be used to help identify the appropriate option(s):

a. **Safety**, including any legal requirements.

b. **Cost**, noting that this should be the anticipated through-life cost and could consider the sunk costs of already-acquired training environments or systems.

c. **Time**, specifically advantages in training time that may be achieved by not using live flying or steaming hours when only minutes on task are needed.

d. **Availability of resource**, such as limitations on exercise areas or constraints such as weather effects.

e. **Training features**, such as the ability to pause training to provide just-in-time information.

f. **Defence Lines of Development (DLoDs)** should also be examined for any implications (e.g. the doctrinal provenance in Defence Direction for Collective Training implies a need for greater interoperability in collective training, which may help with identifying potential training environments).

61. **Training Environment Option – specification – 1.6.2.** Once fidelity requirements have been analysed (1.6.1) and options identified, the potential training environments should be specified in sufficient detail to allow for subsequent selection between them. Wherever possible, the specification should include consideration of the DLoDs and should be written such that it can be employed, if selected, in the acquisition of collective training[69].

Table 15 provides an example format for Training Environment Option specification, which can also be used to capture fidelity requirements:

[69] Where TCTA is being undertaken in support of acquisition or can influence capability requirements; see https://www.kid.mod.uk/. The requirements should be sketched out such that they can be added to if the option is selected.

Training environment	*For example: part-task practice for fighter control*
Option	*For example: virtual*
Description	*A narrative description of the environment.* (When specifying what kind of Training System is needed: 'The User shall be able to control aircraft in a Task Group context in order to deliver air battlespace management… [measures of effectiveness].') (When revisiting the analysis to specify how to build the Training System: 'The System shall be capable of supporting x air tracks simultaneously in order to support workload management' [measures of Performance].')
Resources	*Consideration by DLoD as appropriate*
Training overlay	*Supporting training components* (e.g. just-in-time information) *and evaluation*
	Trainer requirements and tasks
Training environment	*Detail of relevant fidelity requirements*
Environment requirements	*An overview based on the appropriate task description(s)* (e.g. control of aircraft, management of air battlespace)

Table 15: Example Training Environment Option Specification

62. **Methods & Media Options (through Training Environment Rationalisation) – 1.6.3**. Rationalising training environments, or grouping together training tasks, can reduce the specification of training environments. Although in theory each task should be conducted in the optimum training environment, in practice this is likely to prove costly and impractical; therefore, rationalisation is necessary, typically resulting in groupings of training tasks against potential environments. In undertaking this process, both the Defence Joint Collective Training and Exercising Governance Structure[70] and the Defence Exercise Programme should be consulted to identify where exercises or other events may be available to support training. Analysis should also consider what training environments already exist (including those for individual training) and whether they can be extended or should be assumed to form part of the training solution.

63. **Summary of CTNA outputs**. Table 16 provides a summary of the key outputs of each stage of the CTNA process. Not all outputs will be appropriate, depending on the specific context. A graphic summary of how the CTNA process fits together is given at Annex F[71].

[70] See Chapter 2 of this volume.

[71] Note that it may be appropriate to conduct a shortened CTNA to provide products analogous to an Individual TNA or a Training Resource Estimate.

CTNA stage	Key Outputs
Scoping exercise	• Constraints table • Master Data Assumptions List • Risk Register
Task analysis	• Hierarchical task analysis • Team PS (via Task Description Tables) • Teamwork Error Analysis (‘gap analysis’)
Overlay analysis	• Identification of collective training components necessary o Role PS as appropriate • Draft CTOs (via training scenarios) o *Informing later AStrat, training delivery (via deployed training requirements) and ASpec and Learning Specification (LSpec) (via Collective Training Trainer Tasks)*
Environment analysis	• Methods & Media Options (via Training Environment Rationalisation) • Fidelity Analysis (via training environment fidelity requirements) • Training Environment Option identification • Training Environment Option specification
Training Needs Report	• Cost Benefit Analysis (CBA) (via training options evaluation table) • Options Evaluation

Table 16: Summary of CTNA Outputs

3.10 Risk / Assumption Management

64. **Risk/assumption management – 5.3 and 5.7**. On a continuous basis, the risks and assumptions recorded on the risk and assumption registers established during Element 1 (CTNA Stage 1, 1.2.4), should be updated. Any new and emerging risks/assumptions to both the recommended training solution and the CTNA process should be added.

a. **Risks**. Where risks are identified, a plan for mitigation should be enacted and resources allocated, where necessary. It may be the risks need to be transferred to the appropriate governance body for authority to treat through mitigation, tolerate (if mitigation is not feasible), or transfer (if the risk needs to be elevated to a higher level). Risks should then be fed back into the DSAT process in order to ensure that activities are either repeated or conducted bearing the risks in mind.

b. **Assumptions**. As the DSAT process progresses there may be a need to make assumptions where accurate or up-to-date information is unavailable, in order to continue the process without delay. As information becomes available assumptions can be removed and replaced with fact. The appropriate governance body should regularly review and endorse the assumptions and DSAT processes should be repeated if necessary.

3.11 Training Needs Report

65. **Training Needs Report 1.7.** The Training Needs Report specifies the training requirement and recommends a training solution through the evaluation of options. It should include the resources required to design and support the training. Training Needs Reports should collate all the information from the scoping exercise and analyses stages, adding an Implementation Plan and TNE strategy. It should also include a description of the CTNA methodology in terms of the data gathering and analysis techniques and clearly reference the data sources consulted. The CTNA can then be written up as a Training Needs Report that provides or supports detailed user and system requirements. Training Needs Reports should include:

a. Identification of the Performance requirement: a Team PS for each team, as identified in the TCTA.

b. Identification of the training requirement: the results of the Teamwork Error Analysis.

c. A Team PS for the team(s) affected by the recommended training solution with recommended training categories and supportive notes to amplify specific requirements to be included as appropriate to assist designers with the production of the FTS (during Element 2, Design, 2.2).

d. Implementation plan, including where responsibilities lie (e.g. conversion training, date of new legislation and/or policy change, and design). At this stage the draft CTOs endorsed by the CTNASG should be available and expressed as Performance, Conditions and Standards to enable implementation by the design team. Any recommendation regarding estimation of resources, timings and assessments should be clearly referenced to aid the design team.

e. Input to inform or refine the SOTR (for formal endorsement), to focus and direct the design stages.

f. TNE strategy.

g. The CTNASG endorsed training solution, resulting from the CBA (1.7.1) and final selection using the Options Evaluation (1.7.2). Fidelity requirements and associated risks, assumptions, constraints should be included in the Report.

66. **Cost Benefits Analysis (CBA) – 1.7.1**. In accordance with Defence and HM Treasury guidelines, an examination of the broad order costs of various options to recommend the most cost-effective training solution must be undertaken. It is important that costing and investment appraisal are undertaken strictly in accordance with the current Defence and Service or Strategic Command policies and conventions. If training specialists become involved with costing or investment appraisal, they should obtain current advice from the CTNASG or other authoritative body. CBA activity does not start at this stage of the CTNA but the result of it is included in the Training Needs Report hence its inclusion here. Like many aspects of DSAT, CBA is an iterative process with initial activity commencing much earlier in the CTNA process, as appropriate. The CBA will likely be further refined during the Method & Media selection process in Element 2 (Design, Stage 2, 2.5). An estimate of the financial risks and/or opportunities associated with each training solution option should be undertaken. Training staffs are unlikely to be qualified to conduct financial risk analysis

at anything other than a superficial level[72]. However, these analyses will be a significant factor in selecting training solution options.

67. **Options Evaluation – 1.7.2**. The final activity of the CTNA is to decide on training options[73]. To evaluate the merits of the training locations and/or environments (determined at 1.6.2) one of them should be selected as a baseline option. The selection of a baseline will depend on the context, which then permits the construction of a table to display the relative merits of each option against the baseline. Options can be assessed via several criteria:

a. The extent to which the option **meets the requirements**.

b. **Through-life cost**[74], including the costs of maintenance, trainers and integration with existing training locations/environments.

c. **Implementation time**, which may prove important to meet an operational need or a RFTD (1.1.1).

d. **Trainer load**, or any consideration of the availability and competence of trainers to support training.

e. An assessment of the **risk**[75] associated with the options.

f. **Flexibility**, or the ease with which the new training can be integrated with existing and potential future training, as appropriate.

68. It will typically be appropriate for the options evaluation to be undertaken in consultation with SMEs before presentation to the CTNASG for endorsement. Table 17 provides an example format:

Option	Meets the requirement	Through-life Cost	Implementation time	Trainer load	Risk	Flexibility
Option 1 (baseline)						
Option 2						
Option 3						

Table 17: Example of an Options Evaluation Table

69. **Recommended training solution.** As a result of this iterative process of analysis, the user should now be in a position to make an informed and fully justifiable recommendation as to the most cost-effective and, above all, safe training solution that fully meets the training requirement. The recommendation is then endorsed at the CTNASG. If it is not, the CTNA process should be repeated until a suitable training solution is generated (this is very unlikely as the process is designed to deliver the optimal solution, but endorsement cannot be assumed). Element 2 (Design) cannot commence until the training solution has been endorsed.

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[72] Trainers should therefore seek specialist advice and support from Defence, or, for industry, from specialists in the field.
[73] Examples of best practice training options to enhance the acquisition and retention of Knowledge and Skills are covered in the Competence Retention Analysis Handbook.
[74] It may be necessary to break down costs into greater detail to conduct evaluation.
[75] This may include safety considerations or it may be appropriate to assess safety separately.

4 Defence Guidance on Training Design

Policy Sponsor: TSLD, CDP

Note that Collective Training Guidance provides a set of generic processes and procedures to build on the mandated Collective Training Policy Direction set out at Chapter 2. It is recognised, however, that the scope and needs of Collective Training across Defence are wide and varied and therefore Commands have developed different approaches, processes and tools based upon the mandated DSAT elements in Chapter 2. Over time work will take place to develop the Collective Training Guidance in Vol 3 Chs 3 – 5 to meet the needs and realities of Collective Training across Defence whilst remaining DSAT compliant and to support commonality and coherence in Collective Training approach, processes and tools across Defence.

Element 2 – Design Activities	DSAT / MTS Reference
Trained Output Requirement Review	**5.6**
Collective Training Objectives (CTOs)	**2.1**
Formal Training Statement (FTS)	**2.2**
Training Performance Statement (TPS)	**2.2.1**
Workplace Training Statement (WTS)	**2.2.2**
Residual Training Gap Statement (RTGS)	**2.2.3**
Enabling Objectives (EOs) / Key Learning Points (KLPs)	**2.3**
Assessment Strategy (AStrat)	**2.4**
KSA / Teamwork Description Refinement	**2.4.1**
Assessment Specification (ASpec)	**2.4.2**
Risk Assumption Management	**5.7**
Selection of Methods and Media	**2.5**
Learning Scalar / Learning Specification (LSpec)	**2.6**
Collective Training Trainer Tasks	**2.7**
Training Design Review	**5.8**
Collective Training Authorisation Document (CTrAD) (confirming the Ready for Training Date (RFTD))	**5.9**

Blue shade box = MTS activity Pink shaded box = DSAT activity **Bold** = Mandatory activity

Table 18: The DSAT Element 2 Inventory of Activities

This Section of the Guidance outlines the Defence approach that allows training specialists to adopt a structured, methodical approach to the design of the training activity.

It sets out the 3 Stages of the design process, which may be used in order to meet the selected training solution, set out in the Training Needs Report. These design stages inform subsequent Elements and form part of the overall Training System.

4.1 Introduction

This Section provides Guidance on the processes and outputs associated with the design of the training activity (the 3-stage design process), which is Element 2 of the DSAT process, as illustrated in Table 18.

1. Training design is the process that derives achievable CTOs from the outputs of the CTNA, as agreed between the TRA, TDA and the Training Provider. It then establishes the assessment, Methods & Media and LSpec. The 3 stages of Element 2 are:

a. **Design Stage 1**.

(1) **CTOs – 2.1**. A key activity is to determine the CTOs (based upon the Performance, Condition, Standards criterion set out in the Team PS), based upon the draft CTOs produced during Element 1 (CTNA Stage 2, 1.5).

(2) **FTS – 2.2**. The FTS details the totality of the training that must be achieved to meet the requirements articulated in the Team PS. The FTS is made up of a TPS, a WTS, and a RTGS. The TPS details the CTOs that are managed and/or delivered by the TDA. The WTS details the CTOs that are managed and/or delivered by the employing unit. The RTGS details elements of the Team PS that have not been allocated to any training activity (the gap).

(3) **EOs and KLPs – 2.3**. Having completed the TPS, and to aid development of the Learning Scalar and LSpec, EOs and KLPs are produced.

b. **Design Stage 2**.

(1) **AStrat – 2.4**. The AStrat articulates the summative and formative AStrat for the 'how', 'when' and 'in what manner' training is to be assessed. From this an ASpec is generated.

(2) **Selection of Methods & Media – 2.5**. This activity ensures the most appropriate, effective and efficient selection of training Methods & Media, including any constraints that may limit options, and draws on the Methods & Media options work conducted during Element 1 (CTNA Stage 2, 1.6.3).

c. **Design Stage 3**.

(1) **Learning Scalar and LSpecs – 2.6**. Design Stage 3 structures the CTOs and their dependent EOs and KLPs in the Learning Scalar and brings together the collective outputs of analysis and design in the production of LSpecs. LSpecs enable the delivery of collective training event plans for all collective training activities. This is the content required for the Training Provider to deliver collective training events.

(2) **Collective training trainer tasks – 2.7**. Design Stage 3 also ensures that event specific KSA that trainers require to deliver training during widely variable collective training events are stated.

2. **Responsibilities**. Both the TRA and TDA are ultimately responsible to the CEB and Customer for the work conducted during the Design Element:

a. It is expected that the TRA will take the lead on Design Stage 1[76] as well as the MTS-related DSAT activities, processes and outputs, which are required to be completed during Element 2. The TRA may wish to delegate specific tasks but will retain overall responsibility for them. The TRA is likely to ensure that those activities that it deems critical to the development of the Training System are conducted; most notably a review of the work completed in Element 1 in the form of a Trained Output Requirement Review.

b. The TDA is expected to take the lead on Design Stages 2 and 3[77] activities, processes and outputs, which are required to be completed during Element 2. The TDA may wish to delegate specific tasks but will retain overall responsibility for them.

3. **JPA Competences and Qualifications**. Training Designers should refer to Chapter 5 of this volume to begin the process of establishing a competency/qualification for the training.

4.2 Trained Output Requirement Review

4. **Trained Output Requirement Review – 5.6**. Once the Team PS has been created and CTOs drafted, a review must be conducted. A Trained Output Requirement Review takes place to ensure that, based on the Role/Team PS and the draft CTOs, the training requirement would still be met. This review should be carried out periodically as directed by the appropriate governance body (such as the CEB), making this a recurring, rather than a single activity to ensure that the MTS meets the Defence mandated QMS. Records created as a result of the review are to be maintained for audit purposes. The review ensures that:

a. Defence Performance requirements are defined in the Role/Team PS.

b. Changes to the Defence Performance requirements have been incorporated into the agreed training requirements.

c. The endorsed training solution meets the agreed training requirements, which have been derived from the CTNA.

d. A SOTR (for Collective Training, the Force Generation process) is produced and endorsed to ensure that the Customer requirements are understood.

e. If the training requirement is changed, the appropriate governance body should approve the change and ensure that the DSAT processes affected are either repeated or the outputs amended to accurately capture the change going forward.

[76] Less the production of EOs and KLPs which is normally the responsibility of the TDA.
[77] As well as the production of EOs and KLPs, which form part of Stage 1.

4.3 Collective Training Objectives

5. **Collective Training Objectives (CTOs) – 2.1**. CTOs ensure that the training activity has a definite purpose such that the Defence need is met. They help ensure that the associated trainers, support staff and teams have a clear understanding of what the team are required to learn and to be able to do at the end of the learning event. CTOs form the basis of the detailed design of each of the collective training events as well as identification of appropriate training resources. Therefore, the development and maintenance of accurate CTOs is essential. CTOs were drafted during Element 1 (CTNA Stage 2, 1.5 Draft CTOs), and these draft CTOs should now be further refined and developed during Design Stage 1.

6. CTOs are precise statements of what tasks a team should be able to do, post training, in the team environment that the training was designed to prepare the team for. A CTO is measurable and has three constituent parts: the **Performance** required, the **Conditions** under which the team must perform, and the **Standard** to which the team must perform. These statements should be in the form of observable and measurable behaviours which allow the achievement of the CTOs to be confirmed through assessment. A CTO defines what a successful team is able to do at the end of a period of training, i.e. the learning outcome[78]. It does not describe the learning process or any learning experience.

7. CTOs should be derived from the respective Team PS. The determination of CTOs is a skilled process, and the product must accurately reflect the needs of the Team. The production of CTOs may be an iterative process and should be reviewed at each stage of the design process.

8. The three component parts of a CTO are summarised in Table 19:

Collective Training Objectives (three-part format)		
Performance	**Conditions**	**Standard**
What the team should be able to **Do** after training... *Use an observable and measurable action verb*	…with **What** and **Where**... *Specify the circumstances of the Performance*	…and **How** well. *State the Standard to be achieved for the Performance*

Table 19: Collective Training Objectives (Performance, Conditions, Standards)

9. **Performance**. The Performance (and sub-Performance) element of a CTO states what a team should be able to do at the end of training and should be derived[79] from the task (stated in the Team PS) and therefore has an active verb as the first word in the performance element. When writing a CTO performance for a task, the wording may need to be adjusted:

a. if the task wording is not precise.

b. if the task has more than one objective.

c. to make the Performance absolutely clear to any reader.

[78] A lesson, series of lessons, a course, exercise, collective training event or training activity.
[79] Derived from the task but not always a directly matching the task.

10. The choice of verb for the Performance element of the CTO is critical. To ensure the team has achieved the desired performance, a response must be witnessed. Performance elements need to use action verbs[80].

11. **Conditions**. The Conditions element of a CTO specifies the actual Conditions, or circumstances, in which the training Performance will take place. In training, the ideal solution is to provide the same Conditions normally experienced by the team, e.g. using the real equipment. As this is not always possible, the Conditions element must clearly indicate what the training environment can provide. The Conditions element should fully describe the environment in which the team should carry out the task. Conditions can be considered in these broad categories:

a. **Limitations to the range of Performance**. Such as, security, safety or legislative.

b. **Equipment**. Of the team and other 'teams' in the collective training environment.

c. **General situation**. Indication of location, terrain, weather, daylight, climate, the threat, psychological, physical and social factors under which the training Performance is delivered should be detailed.

d. **Support**. People, agencies, orders, standard and emergency operating procedures, manuals, references, check lists etc that are available to the team.

12. **Standards**. The Standards element specifies the Standard that should be achieved by the team at the end of training. This should be related as far as possible to the Standard required of the team in delivering their operational output. The Standards may be signposted to in other Defence publications but must be detailed enough to accurately assess if a team has achieved the Standard or not. Regarding the Team 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.

13. Determining the Standard of Performance required for all training environments is difficult. The nature of the Performance (which could be dangerous, critical, or an emergency task) and the consequence of not meeting the Standard and/or the training category should be considered. The Standard required will ultimately affect how that Performance is taught and how the team is assessed. For example, if a very high Standard is required, the team will receive a large amount of training for the Performance (creating the possibility of becoming over-trained) and may be subject to strict assessment, such as no mistakes. The Standard should be accurate. Some Performances may be subject to external rules and regulations, i.e. the Standard is dictated such as[81]:

a. Health and Safety.

b. Nuclear.

c. Weapons handling.

[80] Verbs such as 'know' or 'understand' do not adequately define an action on the part of the team and are not observable or measurable. 'Diagnose', 'assess', 'select', 'identify', 'distinguish' are much more readily witnessed and can be assessed more easily.

[81] If a performance is affected by such factors, the document or regulation should be clearly referenced in the Standards element, such as, "in accordance with publication/law/act, section X, paragraph Y, date and version."

d. Flying regulations (such as Civil Aviation Authority).

e. Legal requirements, both national and international.

14. Any restrictions in Conditions may impact on the Standards. Differences may occur if the Standard cannot be achieved because the Conditions cannot be simulated. Standards in CTOs should not be confused with the standards of tests. Whilst test standards should be set as closely as possible to those stated against the CTO, there are certain areas where compromise may be necessary when setting test standards.

15. **TO Tagging and Numbering**. CTOs should 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) or a mark in the relevant column on the training statements with amplifying comments if appropriate. To ensure that training is allocated to all tasks, the link between tasks and CTOs should be shown through an auditable numbering/identification system. This can be achieved by using the task numbers from the Team PS to identify their dependent CTOs. An example is at Table 20.

Original Team PS task number:	2.1
Single CTO derived from one task:	CTO 2.1
Multiple CTOs derived from one task:	CTO 2.1a CTO 2.1b

Table 20: Task Numbering System

4.4 Formal Training Statement

16. **Formal Training Statement (FTS) – 2.2**. CTOs are the key component of the subsequent training statements that form the FTS. This activity creates a FTS which is made up of a TPS, a WTS, and a RTGS.

a. **Training Performance Statement (TPS) – 2.2.1**. The TPS details CTOs (in terms of Performance, Conditions and Standards) to be attained by teams on collective training events. The TPS CTOs are managed and/or delivered by the TDA.

b. **Workplace Training Statement (WTS) – 2.2.2**. A WTS is rarely required in CT[82]. Where relevant, the WTS details CTOs (in terms of Performance, Conditions and Standards) to be attained by teams in the daily work environment. The WTS CTOs are managed and/or delivered by the employing unit.

c. **Residual Training Gap Statement (RTGS)**[83] **– 2.2.3**. The RTGS is the difference between the totality of the training received and the Team PS. It is the gap

[82] The purpose of CT is to Force Generate warfighting capability, and to identify risks to operating safely and warfighting capability for the Operational Commander to manage as required. The Training Audience must deliver the Performance stated in the CTPS to the Standards required under the Conditions detailed. If the TPS CTOs do not match the requirements in the relevant MTLs, the risks to operating safely and/or warfighting capability must be accepted by the TRA and managed appropriately up front (Transfer, Take, Treat, Tolerate, Terminate).

[83] Safety, legislation and/or resource constraints may prevent training taking place to achieve the Performance, Conditions and Standards detailed in the Role/Team PS. The difference between the Role/Team PS and the delivered training is known as the Residual Training Gap.

where an element of the Team PS has not been allocated a training activity. The Residual Training Gap is expressed in terms of Performance, Conditions, and Standards. The RTGS also states the reasons and consequences of any identified RTG, and management of any associated risks.

4.5 Enabling Objectives / Key learning Points[84]

17. **EOs – 2.3**. An EO is defined as a statement of Performance, Conditions and Standards that describes the KSA necessary for the team to achieve all or part of a CTO. An EO sets the destination of a learning event and specifies what teams can do at the end of a period of training that they could not do at the start. Where Conditions and/or Standards are common to a number of EOs, there is no requirement to duplicate the Conditions and Standards elements. In hierarchical terms, an EO is subordinate to a CTO.

18. **KLPs – 2.3**. The material required to achieve the EO is further broken down into a number of relevant KLPs, derived from the KSA Analysis and/or Teamwork Description conducted in Element 1 (CTNA Stage 2, 1.3.4. KLPs state the Knowledge and Skill requirements, as well as the Attitude needs. The KLPs provide a sequenced framework for the development of the training activity and specify a Learning Outcome. KLPs are subordinate to EOs.

19. **Formatting and numbering**. The EO and subordinate KLPs have to be recorded. A numbering system is usually employed to show the relationship between the CTO and EOs, and EOs and KLPs. The system also shows the sequence in which the EOs and KLPs will have to be achieved in order to achieve the CTO. It is important that an audit trail allows the original task to traced through the CTO to the EO and KLPs. One recommended method is a numbering system, such as that shown in Table 21.

Task 1.1				
	CTO 1.1			
		EO 1.1.1		*1st EO to be achieved*
			KLP 1.1.1.1	*Taught 1st*
			KLP 1.1.1.2	*Taught 2nd*
			KLP 1.1.1.3	*Taught 3rd*
		EO 1.1.2		*2nd EO to be achieved*
			KLP 1.1.2.1	*Taught 4th*
			KLP 1.1.2.2	*Taught 5th*
			KLP 1.1.2.3	*Taught 6th*

Table 21: Example of Task/CTO/EO/KLP Formatting and Numbering

[84] It is possible that at this stage, work conducted by the TRA to this point, is handed over to the TDA. So, once the FTS is completed, it is handed over (along with any and all other relevant work) to the TDA to produce the EOs/KLPs, ASpec, LSpec etc.

4.6 Assessment Strategy

20. **Assessment Strategy (AStrat) – 2.4**. Tests and assessments are used for a variety of purposes, but most importantly they are used to ensure that the CTOs have been achieved by the trainees. The AStrat is the document describing the overarching assessment policy for the course/module and the associated rationale. It must include the consequences of failure of specified elements of the collective training event. It is also important to ensure these tests and assessments are reliable, valid and administered correctly. Assessment is usually a major consumer of resources, particularly time, and the AStrat can also influence Method & Media selection[85]. It is, therefore, important that the AStrat is endorsed by the TRA and appropriate governance body (such as the CEB) once the EOs/KLPs have been determined. A carefully conceived AStrat will achieve:

a. A justification for all testing on the basis of the overall assessment that has to be made, such that a team is qualified to deliver the required operational output. In particular, the strategy should explain how the overall grading is determined.

b. An overview of the sort of assessments to be used, the points during the training when they will occur, where the testing tools (e.g. observation forms, exercise scenarios) are held and how the results of tests are to be interpreted and acted upon.

c. A record of decisions taken about the best approach to assessment and a guide for the later development of assessments.

d. Valid assessment where assessments match the requirements of the CTOs.

e. Influencing the manner in which training is delivered.

f. Improving reliability and integrity of assessments through effective assessment administration.

21. **Elements of the AStrat**. The AStrat should include clear direction for:

a. The assessment of each of the CTOs. This should be based upon practical summative assessments supported by selected enabling assessments in either practical or theory format.

b. The formative assessment of team progress. This might include a statement of purpose, an assignment of responsibility, a caution about the use of formative test results, and guidance on test feedback to trainees.

c. A policy for the assignment and interpretation of grades.

d. A policy for the action to be taken upon team failure of a (valid) assessment. As appropriate action will depend upon many variables, it is recommended that this policy be flexible rather than restrictive; it would be better to establish a procedure (such as, a Review Board) during which each case will be considered against criteria such as:

(1) Resources required to repeat the assessment, without compromise of assessment conditions and assessment standard.

[85] Initial options for which were considered in Element 1 (CTNA Phase 2, 1.6.3).

(2) Requirements for additional learning and/or practice.

(3) Likelihood of team success during the re-assessment.

e. A policy for determining pass or failure. This can be a statement such as, “to successfully complete this training, trainees must achieve all CTOs,” or, “pass all summative assessments”. The inclusion of such a simple statement provides focus to the assessment.

f. A policy for the maintenance of assessment records. This should state a clear requirement for:

(1) A record for each team which includes a summary of all assessment results (formative and summative) that will inform any collective training assessment reports.

(2) A consolidated tabular record of summative assessment results. This record, accumulated over several repetitions of a training activity, provides valuable information for InVal of training in general and evaluation of assessments in particular.

22. Where assessment is required, the overall AStrat will be used to produce the ASpec, as well as tests.

23. **KSA/Teamwork Description Refinement – 2.4.1**. Prior to the development of the ASpec, from the AStrat, it is important to revisit the Teamwork Description (1.3.4), which was conducted as part of Element 1. Refinement of the Teamwork Description will ensure that the ASpec is appropriate to the requirement and ensures that assessment is developed taking into account what is to be assessed (i.e. assessing a Skill requires a different form of assessment than testing Knowledge or measuring Attitudes).

24. **Assessment Specification (ASpec) – 2.4.2**. While the AStrat gives an overview of the training assessment, where testing is required, the detail is provided in the ASpec. An ASpec is defined as a specification describing the organisation, type of assessment, marking details, pass/fail criteria for the assessment of CTOs and the consequences of failure. It provides practical details required to assess the achievement of the Standards specified by an associated CTO. The suggested format for an ASpec is at Annex I. The factors listed in Table 22 should be considered.

Assessment number/title	All assessments should be uniquely identifiable. The assessment title should indicate the assessment purpose and relate to the collective training event name
Programming of assessment	The ASpec is to indicate when the assessment is to be conducted. When programming an assessment, consideration should be given to the type of assessment, scheduling of the collective training event and to the most appropriate assessment pattern
Type of assessment	The ASpec must detail the type of assessment being employed, such as Formative or Summative.
Duration of assessment	The ASpec must detail the maximum time allowed for the team to complete the assessment. Adequate time must be allowed to complete the Performance being assessed. Where appropriate, time allocated should reflect the time taken to complete the task in real life with appropriate allowance for lack of experience/practice.
TOs and EOs assessed	All CTOs, and where applicable, EOs covered by the specified test are to be detailed on the ASpec
Marking details	The ASpec must contain sufficient detail to show how the assessment is marked, the aim being to achieve maximum reliability in marking. This is best achieved through the provision of marking guides and checklists, which should be referenced
Assessment criteria	The assessment criteria stated in the ASpec are to reflect the Standard specified in the FTS. Consideration should be given to whether the same criterion applies to all parts of the assessment, such as, an assessment requiring an overall 80% mark may require 100% on safety related items
Consequences of not meeting the assessment criteria	The consequences of not meeting the assessment criteria, including repeated unsuccessful attempts, must be specified.

Table 22: ASpec Factors

25. **Assessment terms and concepts**. The terms and concepts for assessment are:

a. **Purpose**. The main purpose for assessment is achievement measurement. This is designed to measure team learning and to use the measure taken as a basis for assessment.

b. **Assessment suitability**. The main factors affecting test suitability can be considered under:

(1) **Assessment validity**. Defined as the extent to which an assessment measures what it was designed to measure.

(2) **Assessment reliability**. Defined as the extent to which an assessment will provide the same measurement when it is repeated. To be considered reliable, an assessment must measure consistently and accurately.

(3) **Assessment usability**. An assessment may be valid and reliable but will not feasible if it is impracticable to implement.

c. **Formative and summative assessments**. Assessment results are sources of information that can be put to many uses. Assessments can be classified by the type of assessment made using the results:

(1) **Formative assessment**. Also known as progress assessments, formative assessments are administered at intervals during a training activity to gain data for feedback to teams (and trainers) on team progress. They provide the basis for action to be taken by both parties to promote team success. The outcome of the assessment is to determine how much progress the team has made thus far. Formative assessments should be used regularly to make teams aware of their achievements and the areas in which they need to improve further.

(2) **Summative assessment**. Summative assessments are used to determine whether teams have achieved the CTOs, or significant EOs, which are deemed prerequisite to further training. They provide the required data to assign pass/fail grades and are conducted at the end of training or at the end of each stage of training. The outcome of the assessment is to determine whether the team is competent to carry out the task without supervision.

d. **Frames of reference**. Assessments are designed as instruments to measure team Performance and ability. Like any measurement tool, assessments require a frame of reference in which to operate, otherwise the measurement cannot be quantified. Assessments can be categorised as using either of the following frames of reference:

(1) **Criterion reference**. These assessments measure whether a team has achieved a certain Standard. The team either passes or fails by reference to the criteria set in the assessment.

(2) **Norm reference**. These assessments measure a team's relative standing against its peers. They are used to rank or order teams rather than measure the achievement of specific objectives.

e. **What to assess**. Teams should at some point demonstrate that they can meet the required Standard of Performance for each CTO. If areas are not assessed, the Customer has no guarantee that the team has achieved the required Standard. However, it is not always possible to assess all training outcomes. Therefore, choices may have to be made, e.g. whether to assess:

(1) All the Skills or Knowledge?

(2) All practical Skills?

(3) All CTOs separately and/or in combination?

(4) All EOs/ KLPs?

f. **Assessment formats**. There are two main ways in which assessments can be presented:

(1) **Practical assessments**. These assessments are used to assess the achievement of a Skill or Skills, both mental and physical. They can assess either the product of the Skill, or the process involved in employing the Skills and should have an associated checklist to ensure both reliability and objectivity in assessment.

(2) **Theory assessments**. Theory assessments measure the Knowledge which supports team skills by taking a sample of what must and should be known. These assessments are usually in written form although oral assessments can also be used. To achieve validity, theory assessments require much care in construction and scoring.

26. **Marking of assessments**. All assessments should be conducted in a reliable and equitable manner. This is to be achieved by ensuring the standardisation and moderation of the marking process.

a. **Standardisation**. Defined as a methodology for ensuring team responses or behaviours are judged using predefined criteria, in order to provide a consistent basis for assessing all teams.

b. **Moderation**. Defined as a methodology for ensuring the marking of assessments is equitable.

27. **Collective training assessment**. In addition to the requirements described above which are relevant to collective training, assessing the **value of collective training** can be achieved through:

a. After Action Reviews (AARs) to determine the response of a force or FE (Force Element) to the collective training received;

b. The use of assessment data against the specified Standards to determine the extent of learning transfer and the ongoing use of system data, where available, to determine the extent of collective Skill fade[86];

c. The use of ongoing mentoring within forces or FEs to determine the extent to which behaviours have improved;

d. The use of ongoing risk management within forces or FEs to determine the extent to which the operational requirement can be met;

e. Assessment against the Standards identified in the TCTA. These Standards need to provide metrics or, where metrics are not possible or are inappropriate, other forms of assessment (e.g. relative measures of Performance).

4.7 Selection of Methods and Media

28. **Selection of Methods & Media – 2.5**. It is important to consider the most appropriate and effective blend of training Methods & Media that provides the most effective balance of performance, cost and time in achieving the required CTOs. During Element 1 Methods & Media options (1.6.3) were developed and considered as part of the CBA (1.7.1), in order to ensure that the Options Analysis (1.7.2) recommended a training solution with realistic Methods & Media options. These options should now be further refined as part of the Design process by exploring, in order:

[86] Data could be provided by Combat, Platform or Maintenance Management Systems, for example.

a. **Methods**. These are the strategies or techniques used to achieve the required KSA.

b. **Media**. These are the tools and means used to apply the Methods selected.

29. The selection of Methods & Media should consider the requirements identified by the Teamwork Description (1.3.4) and the Training Audience Description (1.2.2). It should also consider additional factors, such as, characteristics of trainers, cost-effectiveness, training efficiency and availability of learning resources and identified Constraints (1.2.3).

30. **Methods factors**. Collective Training is usually but not exclusively delivered through exercises[87]; it can occur through other methods such as platform or simulator drills and scenarios. There are many different factors that can influence the selection of the strategy or technique for acquiring Knowledge, mental and physical Skills and Attitudes or achieving the required Team performance. EOs (2.3), Teamwork Description (1.3.4), and Task (1.3) Analysis all contribute to this[88]. To help determine the training effectiveness of the different Methods, these factors should be considered.

a. **Learning factors**.

(1) **Type of learning**. The Method used to deliver training depends on whether learning is categorised as Knowledge, a mental or physical Skill, or an Attitude.

(2) **Retention ability**[89]. The appropriate selection of training Methods improves the effectiveness and efficiency of learning. Wherever possible, a learner-focused approach should be adopted (although this is not always as simple as it seems as it can be time consuming and resource heavy). A learner-focused approach aids information retention by considering the needs of the teams and increasing their involvement in the learning process. The more active the team is in the learning process, the higher the rate of retention.

(3) **Learning preferences**. Learning takes place when learners/teams reflect on what they have done[90], or from what others have done[91]. Therefore, it is imperative that for the effective and efficient acquisition of the required KSA, time is built into the programme, to facilitate learning through reflection. People learn from reflecting on their own, or others' experience. Therefore, enabling experiential learning is the most effective and efficient way of enabling learning.

b. **Team/Learner characteristics**.

(1) **Motivation**. Learners are motivated to learn when they know the relevance of the learning, and when they are enabled to learn through a learner-centric way.

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[87] An exercise is a time bound and chronologically sequenced series of scenarios (simulated, live or a combination) that provide a realistic narrative within which the principal learning and assessment activities take place. These include Tabletop Exercises (TTX) and Wargaming.
[88] Training Optimisation Final Technical Report provides descriptions of training interventions which appear to have value for enhancing training.
[89] See the CRA Handbook.
[90] Kolb, 1984.
[91] Bandura, 1977.

(2) **Literacy level**. Information should only be presented to learners in a form they can cope with. Information should not be at a level that they cannot comprehend, nor should it be at a level which will patronise.

(3) **Team Numbers**. The size of the team will impact on the range and type of training methods that can be used.

c. **Practical constraints**. Facilities and resource availability are likely to limit the choice of Method and the most appropriate Media are not always practical or within budget. The medium may be unavailable; there may not be time to meet all the CTOs; it may be difficult logistically or financially; or the team may be of mixed ability and unable to make the best use of the Media selected. Where resources to support the optimum training Method are not available, lack of availability is likely to affect the successful achievement of the CTOs. Such constraints should be captured in the Constraints Analysis (1.2.3) and/or the Risk Register (1.2.4). The TRA and Customer should be advised of this fact and made aware of the likely consequences.

d. **Trainer attitude and ability**. A question that will need to be asked is: can, or will, the trainers be able to use the Media selected? Trainers are unlikely to use Media that they do not understand, which increases their workload, or which is complex to manage. If new training Methods are to be introduced, then due regard must be given to ensuring that trainers are both willing and able to cope. To avoid such issues designers should:

(1) involve trainers in the Design process as early as possible.

(2) identify any additional trainer training requirements.

(3) develop a trainer training strategy to enable trainers to explore new technologies followed by localised CPD activity to ensure awareness is maintained on TEL developments, including opportunities for TEL exploitation.

e. **Training designers**. Training designers should maintain awareness of emergent Technology Enhanced Learning (TEL) e.g. synthetics, and have a working knowledge of the DLE as a minimum. The requirement to design training to meet the needs of different types of learners, including skill fade and learner-centric approaches in an increasing resource constraint environment places the training designer at the centre of the training design process. Training Providers and 3rd Party Contractors will need to ensure their training designers are provided with sufficient training, expertise and resources in order to design training to meet the needs of Defence. The TDA should ensure the following:

(1) Liaison with the DLE Subcategory Manager for potential DLE inclusion;

(2) Creation of a DLE front page for every specific collective training event;

(3) For any collective training design, key training design personnel should be invited to the CTNA WG where appropriate to plan for TEL interventions;

(4) Training Providers/3rd Party Contractors to develop a training designer training strategy and plan to enable training designers to intelligently utilise TEL to facilitate a blended learning approach so as to optimise efficiencies. This

should be followed by ongoing coaching CPD to ensure training designers maintain TEL and blended learning currency.

(5) Where applicable, ensure OEM that Training Providers'/3rd Party Contractors' training designers are provided with OEM Train the Trainer (TtT) training prior to RFTD for all NTS capabilities.

(6) Ensure the training designers are provided with all TEL training documentation (hardcopy, electronic (Word, PDF, Interactive Electronic Training Manuals/Publications (IETM/Ps), media prior to any training design.

(7) Develop a trainer training strategy to enable trainers to explore new technologies followed by localised CPD activity to ensure awareness is maintained on TEL developments, including opportunities for TEL exploitation. As a minimum, trainers should be able to facilitate learning using the DLE.

f. **Time availability**. Care should be taken to avoid false economies.

g. **Need for transfer of learning**. The training Method chosen should minimise the difference between the training environment and the expected operational environment as much as possible in order to maximise teams' acquisition of learning.

h. **Priority of learning**. It is unlikely that the various CTOs to be trained will all be of equal importance to the teams in their future roles. Some Skills may be used on a daily basis while others may only be used sporadically but, when they are used, are essential. This requires Performance to be maintained at a consistently high Standard. The consideration of skill fade factors and/or the analysis of Critical Errors (1.3.3) may have a significant influence on the Method selection. In subjects where the possibility of skill fade could have dire consequences, consideration must be given to ensuring that appropriate Methods & Media are implemented to enhance retention. This may or may not require the allocation of extra training time.

31. **Media factors**. The process of selecting training Media requires a good understanding of the EOs and knowledge of the available resources. The main consideration in selecting appropriate Media must always be its effectiveness in supporting learning (both initial acquisition and refresher). Although the quality of 'presentation' must not be neglected, what really counts is content (consider: are the Media capable of presenting training stimuli for learning?). Often one medium is not enough for presenting the stimuli required and so a multimedia or 'blended learning' approach is required.

32. **Variety of Media**. Consideration should be given to the characteristics of Media, in terms of whether they are essential or optional:

a. **Essential Media characteristics**. Essential Media characteristics control the clarity of the message. For example, learning a foreign vocabulary requires print (to recognise words) and audio Media (to pronounce them). Training designers should consider:

(1) media that is appropriate to deliver the desired learning outcomes.

(2) media that provides an appropriate level of fidelity.

(3) media that can cope with team throughput.

b. **Optional Media characteristics**. Optional Media characteristics improve the quality of the training. There are some considerations that can influence selection:

(1) attractiveness to the learners (teams): colour, animation, illustration.

(2) media that, from experience and research, improves learning efficiency.

(3) media that allows the efficient management of training.

(4) media that has low risk of failure (for whatever reason).

33. **Methods & Media selection process**. The selection of the most effective and efficient way to meet a training requirement involves identifying a range of possible training solutions, in terms of the Methods & Media options that can be used. The choice of options will be dependent upon the requirement, training policy, training throughput and established good practice. These are evaluated by comparing the training and cost-effectiveness of each option (1.7.1), from which the most suitable solution can be chosen and recommended with supporting justification.

34. Typically it is the Knowledge category of the KSA spectrum which can be handled most flexibly through DLE. The DLE is the primary Virtual Learning Environment for Defence and should be considered in the first instance to facilitate various methods and media as part of a blended approach. Defence Direction and Guidance for Technology Enhanced Learning (TEL) is contained within Volume 6.

35. The Methods and Media Tool is the mandated and auditable process for determining the optimal blend of methods and media against performance, cost and time.

36. A particular training Media may appear to be best suited to a particular training activity but can only be adopted as the solution if all resourcing issues (effectiveness, workforce, equipment and facilities etc) combine to produce the most effective, efficient and economic overall through-life package. It is therefore important to determine the personnel, facilities and equipment required to train, and cost them over the lifetime of the training activity including Design, Delivery and Evaluation. Cost-effectiveness can be analysed at a simple level by comparing costs for a number of different areas. Examples where appropriate are:

a. travel and subsistence costs.

b. training equipment hardware/software (initial costs and running costs).

c. equipment maintenance costs.

d. training materials and production of their cost.

e. exercise area overheads.

f. accommodation and food where appropriate.

37. When developing a training solution, it is important to make the estimates as accurate as possible and record the actual costs incurred in order to provide a basis for estimates in the future. Advice should be sought from Finance Teams. Once cost and training effectiveness data have been gathered a balance should be made between the two. This may involve a broad qualitative comparison that assisted in the selection of the recommended training solution[92]. Approval for resources and expenditure should be sought as soon as possible so that training is in place in time to support the Defence need. The selection and subsequent development of the training solution should include the following elements:

a. A list of Methods & Media considered.

b. A description of the Methods & Media options that will partially or fully meet the training requirement, as described by the CTOs.

c. An estimation of the relative effectiveness of each Media option.

d. The training penalties of each option stated in terms of the degradation of the Performance, Conditions and Standards as specified by the CTOs.

e. A refinement of the CBA (1.7.1) using a broad order of costs.

4.8 Learning Scalar

38. **Learning Scalar – 2.6**. In order to assist with the development of the LSpec, it may be useful to order any EOs and KLPs (2.3) that are linked to the CTOs (2.1), into a scalar that will assist in the sequencing of the training activity. A Learning Scalar will also help to teach in order (building KSA), prepare lesson plans/events, and develop the LSpec. An example is at Figure 9 (note that EOs/KLPs can be expressed either vertically (taught in that order) or horizontally (taught in any order)).

[92] This activity was initially conducted in Element 1 as a CBA (CTNA Stage 2, 1.7.1).

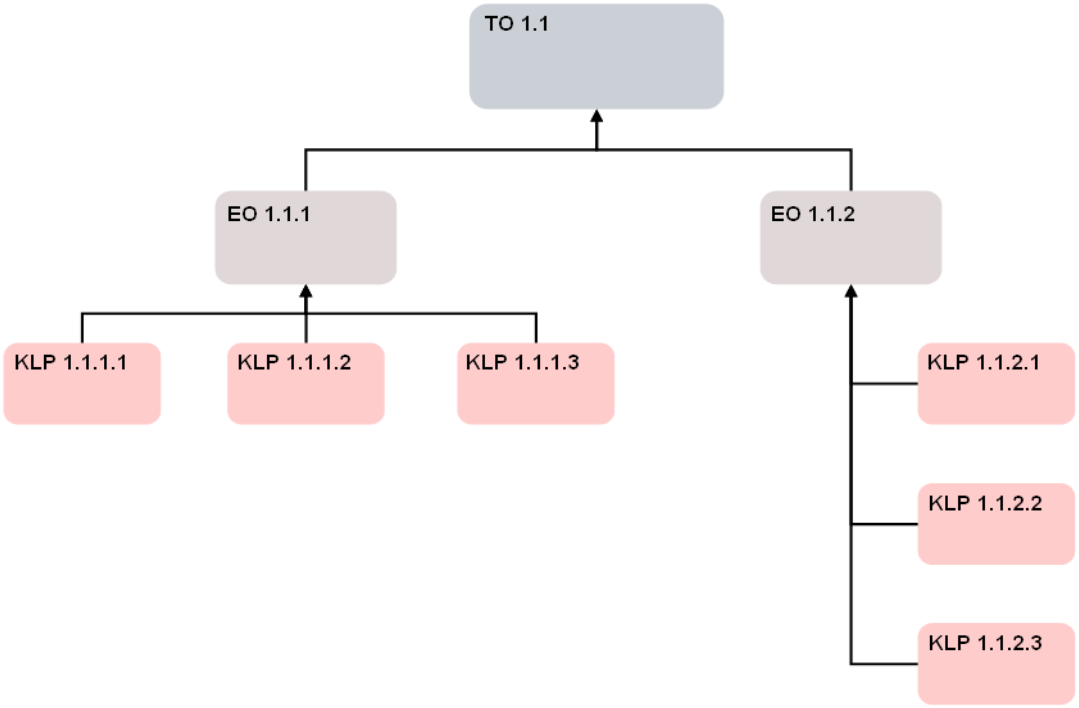

Figure 9: Example of a Learning Scalar

4.9 Learning Specification

39. **LSpec**[93] **– 2.6**. A key aspect of the Training System is its execution, i.e. the training being delivered to teams. It is therefore at this stage that the result of the previous Analysis stages and Design stages are brought together to enable the trainer to produce collective training event plans to ensure effective training wherever it is delivered. This is done through the generation of LSpecs; the main purpose of which is to control the execution of training i.e. what is taught and how it is taught.

40. LSpecs are produced from the outputs from the Design stages covered previously that produce an AStrat and Methods & Media selection. Depending on the nature of training, LSpecs can be succinct or very detailed. They contain the details of the EO and associated KLPs, the relevant assessment/test, Method & Media selected, time allocated and resource requirements and essential references. Thus, the lesson, or event, to be delivered and all the information needed by the trainer to deliver training, including the structure and sequence of training, is contained within the LSpec. It covers 2 main areas: administrative details of the course, and the execution parts of the training delivery. There may be more than one execution part if there are a series of lessons, or events, required to achieve a single EO.

a. **Administration**. This part of the LSpec outlines the administrative details of the training activity.

b. **Execution**. This part of the LSpec lists all the essential details of the lesson/s, including a summary of the structure (through the listing of the KLPs). It can also be used to evaluate the training delivery.

[93] The term ‘Learning’ has replaced ‘Instructional’ to denote that the specification will seek to generate a learning environment, rather than be conducted as just a process to simply enable instruction, or training.

41. The most important part of the LSpec is the Development section (within the Execution) as it deals with the material to be taught and includes the structure of the main body of the lesson, or event, via the sequencing and development of KLPs. It should include all essential information on content with reference to the use of any Methods, Media and teaching activity. All the material delivered is based on the CTO as well as:

a. **EO**. Each LSpec should be based on an EO which contributes to the main CTO. However, there may be instances where more than one EO is covered within one LSpec (where the material is very closely related) and should therefore be taught as an integrated whole. An LSpec may also cover more than one lesson or event.

b. **KLPs**. In order to achieve the EO, it is broken down into a number of relevant KLPs. KLPs are sequenced to ensure that the lesson develops logically and the EO is met.

42. The main components that contribute to any LSpec are summarised in Figure 10.

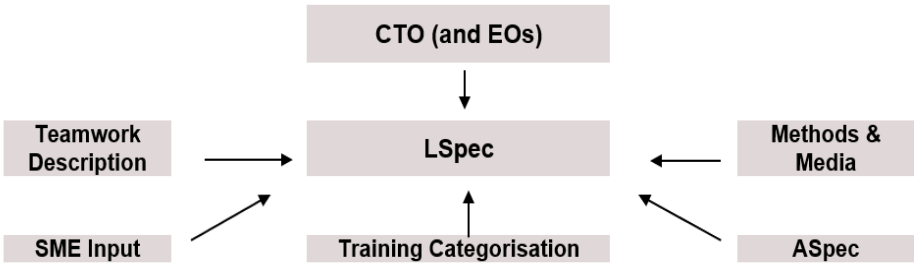

Figure 10: LSpec Contributing Components

43. A suggested procedure for writing LSpecs is summarised in Table 23.

Action	Data Source	*Comments*
Select the EO(s) for the lesson/event	Teamwork Description	*Serials may have more than 1 EO. EOs may require more than 1 lesson to cover*
Select the KLPs for the EO	Teamwork Description EO Standards	*Refer to the EO Standards*
Place the KLPs in a logical sequence	Hierarchical Task Analysis	
Conduct Method & Media analysis on the EO	Method & Media selection Training Categorisation	*Training Categories will give guidance on amount of emphasis to be placed and Method & Media to be employed*
Development part of the LSpec	CTOs/EOs SME input (Training Categorisation)	*Compile each lesson in sequence building in all the necessary information. (Training Categories will give guidance on amount of emphasis to be placed during training.)*
Administration part of the LSpec	LSpec development ASpec CTO/EO Conditions	*Resources, assessment details, timings, can be identified from the data sources*

Table 23: Suggested LSpec Writing Procedure

44. **Management of LSpecs**. If there is an inconsistency in what is taught, teams may fail to achieve the KLPs, EOs, CTOs and consequently the FTS. A system is required by Training Providers to ensure that LSpecs are controlled and managed. Management of the LSpec is important to ensure:

a. a recognised amendment procedure to avoid unauthorised changes.

b. the correct issue of an LSpec is being used.

c. a record is kept of the current amendment state.

4.10 Collective Training Trainer Tasks

45. **Collective training trainer tasks – 2.7**. The training OA conducted in Element 1 (CTNA Stage 2, 1.4B) considered trainer tasks, i.e. the tasks that would need to be conducted by trainers in support of collective training. This may include coaching, mentoring, role-playing, delivery and assessment. This may therefore involve the need for additional environment or task-specific training of the trainer (i.e. additional trainer training, such as range safety, which are additional to normal requirements because of the location and may not have been identified earlier). These evolving requirements should be captured in the LSpec if they were not identified during Element 1. This will help to identify and refine the Deployed collective trainer training requirements covered during Element 3 (Delivery, 3.2.4).

4.11 Training Design Review

46. **Training Design Review – 5.8**. It is important that at about this stage, a review of the training design takes place, in order to ensure that it has generated the outputs necessary to deliver a successful training activity, with the optimum blend of Methods & Media, based upon the training need. This ensures that the Training Design process has adhered to the appropriate Design stages and checks those processes against the specific training requirement. It is also important that the management and governance processes allow differing groups and teams involved in the Delivery stages to be kept aware of each other's progress, updated and generally communicated with as required. The key components of a training design review are:

a. Design inputs. Inputs relating to Performance requirements should be determined and records maintained. These inputs should be reviewed periodically for continuing validity. They may include:

(1) Core and functional Performance requirements.

(2) Applicable statutory and regulatory requirements.

(3) Information derived from previous, similar design activities.

(4) Organisational requirements essential for design.

b. Design outputs. The outputs of the Design stages should be provided in a form that enables them to be checked against the design inputs and should be approved prior to release. They may include:

(1) Appropriate information for the acquisition of training solutions, the delivery of training, the assessment of the team, the accreditation of the training and the evaluation of the Design process itself.

(2) The agreed CTOs (between the TRA and TDA).

(3) Where applicable, the prerequisites required by the team prior to the commencement of the training activity (team entry standards).

(4) The standards of the team on completion of the training activity.

c. Design stage review. At defined intervals, systematic reviews of each stage of the Design Element should be performed in order to:

(1) evaluate the ability of the results of the Design stage(s) to meet requirements specified in the CTOs.

(2) identify any problems/issues and propose necessary remedial actions.

(3) maintain Quality Records.

(4) ensure that resulting training activity is capable of meeting the requirement.

47. Control of Design changes. Design changes should be identified and reviewed, verified and approved by the appropriate authority (such as the TRA, and/or the CEB) before implementation. The review of design changes should include evaluation of the effect of the changes on related design activities and/or related training outputs already being delivered. Records of the results of the training design review and any necessary actions should be maintained by the TDA.

4.12 Collective Training Authorisation Document – Confirming the Ready for Training Date

48. **CTrAD – 5.9**. Following on from the initial raising of the CTrAD at the end of Element 1, Stage 1 (5.2), and now that the Design stages (Element 2) are complete, formal authority to begin training is to be sought. This is done by the TRA and relevant stakeholders updating the CTrAD and formally endorsing it (usually at a CEB). The RFTD should also be confirmed and used to refine team throughput planning (1.2.2) conducted during Element 1. The suggested format for a CTrAD is at Annex B. Without CTrAD endorsement, Element 3 (Delivery), cannot commence.

5 Defence Guidance on Training Delivery

Policy Sponsor: TSLD, CDP

Note that Collective Training Guidance provides a set of generic processes and procedures to build on the mandated Collective Training Policy Direction set out at Chapter 2. It is recognised, however, that the scope and needs of Collective Training across Defence are wide and varied and therefore Commands have developed different approaches, processes and tools based upon the mandated DSAT elements in Chapter 2. Over time work will take place to develop the Collective Training Guidance in Chapters 3 – 5 to meet the needs and realities of Collective Training across Defence whilst remaining DSAT compliant and to support commonality and coherence in Collective Training approach, processes and tools across Defence.

Element 1 - Analysis Activities	DSAT / MTS Reference
Statement of Training Task (SOTT)	**5.10**
Defence Trainer Capability (DTC)	**3.1**
Preparing Training	**3.2**
Lesson / Event Planning	**3.2.1**
Assessment of Learning	3.2.2
Remedial Training Strategy	3.2.3
Deployed Collective Trainer Training	3.2.4
Programming, Scheduling and Resourcing of Training	3.3
JPA Competences / Qualifications / TAFMIS / DLMC	3.3.1
Risk Assessment	5.11
Piloting of Training Activity (3 Stages)	3.4
Collective Training Risk Management	5.12
Management of Training Deficiency (Inability to train / failure of training)	3.5
Training Quality Manual (TQM)	**5.13**
Training Quality Policy, Training Targets and Quality Records	**5.13.1**
Trainee and Trainer Management (with supervisory Care Directive (SCD))	**5.14**

Blue shade box = MTS activity Orange shaded box = DSAT activity **Bold** = Mandatory activity

Table 24: The DSAT Process DSAT and Element 3 Inventory of Activities

This Guidance outlines the Defence approach that allows training specialists to adopt a structured, methodical approach to the delivery of the training activity in order to facilitate learning. It sets out the main activities that may be used to deliver training, in order to provide the endorsed training solution. These deliver the training effect and form part of the overall Training System.

5.1 Introduction

43. This Section provides Guidance on the processes and outputs associated with the delivery of the training activity, which is Element 3 of the DSAT process, as illustrated in Table 24.

44. Learning does not start and finish on a collective training event. An agile force is one whose people learn continuously, from experience and from each other, as well as from collective training events. Learning requires the support of SQEP trainers. Wherever the collective training takes place, the underlying principles and standards for the delivery of Defence training remain the same. Training provision is the process conducted by the Training Provider that enables and allows teams to learn. It is the outputs that ensure trainers are trained, learning activities are piloted, programmed and resourced, learning is prepared for, training deficiencies are managed, risks are assessed, and teams are appropriately cared for.

45. **Responsibility**. It is expected that the Training Provider will take the lead on the DSAT activities, processes and outputs required to be completed during Element 3 (Delivery). The Training Provider will also be expected to ensure that those activities that it deems critical to the development of the Training System are conducted; most notably the production, on behalf of the TDA, of the agreed Collective Training events, which when endorsed, sets the training task to be delivered. The Training Provider is ultimately responsible to the TDA, the TRA and Customer for the work conducted during this Element.

5.2 Statement of Training Task

46. **Statement of Training Task (SOTT) – 5.10**. Once accepted by the appropriate governance body (such as the CEB), the SOTR is used as the source document to develop the SOTT. The purpose of the SOTT is to allow the Training Provider to take the agreed output-based requirement and develop it into a deliverable training solution for the following year. In addition to the information already contained in the SOTR, the SOTT should contain, as a minimum:

a. The training activity profile (number of courses/exercises etc with start and finish dates).

b. The total team input number and the disaggregated (the number of teams per training activity) number by training activity.

47. The SOTT may eventually differ from the SOTR. In-year changes to the SOTT should be managed by the CEB but an audit trail is to be maintained by both the CEB and the SOTR Coordination Organisation to show why differences have occurred. Where differences occur within a contractual arrangement, penalties may apply. Although not an exhaustive list, the following issues may result in changes to the SOTT from what was originally endorsed in the SOTR:

a. Funding bid when the SOTR was agreed is not successful.

b. Impact of any Urgent Operational Requirements (UORs).

c. Changes to the Team PS.

d. Results of InVal.

e. Any potential long-term gapping of trainers.

f. Impact of in-year funding constraints.

g. Recruiting targets not being met.

h. Impact of operational tempo.

i. Historic failure rates in determining input to achieve output SOTR.

5.3 Defence Trainer Capability – see Chapter 7, Section 7.1

5.4 Preparing Training - see Chapter 7, Section 7.2

5.5 Lesson / Event Planning

48. **Event planning – 3.2.1**. Event planning is an essential part of the training delivery process. A good collective training event plan considers all the needs and expectations of the training audience (1.2.2), prepares for any 'what ifs' and enables the trainer to feel confident that nothing has been left to chance. Event plans must be based on the LSpec and be based on a learner-centric approach. They are created by the trainer using the LSpec and a trainer should request support in developing their Lesson Plan should they need it[94].

49. One of the key benefits of planning learning is that it encourages the trainer to think about any potential barriers to learning and to plan how to overcome these. In addition to the information taken from the LSpec, lesson plans may also include information on:

a. **Timings**. A key part of the skill is in planning timings. Time is at a premium in most training environments and an event which runs over time or which fails to deliver all of the planned KLPs in the time allowed is likely to have a significant impact on other parts of the schedule.

b. **The environment**. Clearly the environment can have an impact on learning, and, for the trainer, this is even more relevant, given that the environment could vary from a hi-tech simulation suite to a shell-scrape in a forest on exercise. Whilst it may not always be possible to choose the best environment in which to conduct training, good planning will ensure that the potential barriers presented by less than perfect surroundings are reduced or removed. Event plans should contain sufficient information on how the environment will be managed, including the safety brief and risk assessment.

c. **Motivation**. A lesson/event where motivation has not been considered and planned for is unlikely to be very successful. Good trainers consider their training

[94] Examples of lesson plans are on the DLE.

audience (1.2.2) and plan approaches which will motivate teams. Awareness of possible demotivators is important as is how to remove or avoid them. Table 25 shows examples of both motivators and demotivators that might be relevant to military training whatever the training environment.

Motivators	Demotivators
Time for reflective feedback is included	Feedback is either delivered to the team or not delivered at all.
Recognition of achievement/progress	Repetition of previous training
Pride in team/unit	Fear of failure
Comparison with peers	Poor relationship with trainers
Previous high performance	Previous poor performance/assessment
Training has relevance for team	Training seems irrelevant or pointless
Training is challenging but achievable	Training is too difficult or too easy
Delivery Methods are engaging/strong trainer role model	Delivery Methods are overly trainer-centred

Table 25: Training Motivators and Demotivators

d. **Team interaction**. Even with full use of TEL and modern learning delivery approaches, some training events may still need a more directed delivery approach. This is to be avoided whenever possible not least because it is the learner-centred approach that ultimately helps the team to develop confidence and competence. Facilitation of learning means the trainer will relinquish much of the power but none of the overall control.

e. **Confirmation of learning outcomes**. It is not enough just to deliver the training event according to the LSpec; for training to be effective the trainer also needs to know that learning has actually taken place. It is therefore important to plan not only the activities but the Methods of confirming learning outcomes.

50. **Event planning considerations for the workplace environment – 3.2.1**. Whilst the generic guidance above on lesson/event planning is relevant to all training environments, there are some special considerations for training that is undertaken in the workplace. Event planning for workplace training is just as essential a part of the training delivery process. Depending on the delivery Method to be used, a workplace event plan similar to those used in a more structured training environment may be appropriate. Where CTOs are delivered over a longer period of time in-role, the trainer will need to be much more flexible in their approach and the planning process should reflect this. The use of LSpecs and event plans remains the same.

51. Where workbooks or portfolios are used to stipulate the training to be delivered, planning may focus more on identifying and organising opportunities for learning to take place in the work environment. In this case, the trainer may wish to plan a programme of workplace Tasks that will present the trainee with the opportunity to practise a Skill under supervision, or to learn new Knowledge and Skills through workplace experience. The Standards to be achieved should be clearly stated and the trainer should know the process for assessing and recording completion of the CTOs. The workplace environment may be very different from a more structured training environment and will have its own advantages and disadvantages. Potential barriers to workplace learning include:

a. **Distractions**. Learning in the workplace is a much more informal environment and the trainer may have less control over distractions like background noise and interruptions. While this may create a much more realistic context for the team, it may also hamper the delivery of new information and could impact on safety. Good planning will ensure that the risks are properly assessed and, where it is likely that noise or other distractions will impact on learning, the plan should contain information on how this should be managed.

b. **Team interaction**. Workplace training is ideal for a learner-centric approach to training and ultimately helps the team to develop confidence and competence. In order to facilitate learning, the trainer must be prepared to step back and allow the team to learn from experience, even if this means allowing them to make mistakes where safety permits.

c. **Confirmation of learning outcomes**. For workplace training to be properly effective, the trainer should plan not only the tasks and activities to be conducted but also the Method of confirmation to be used, whether this is just through question and answer session, observing completion of a task, summarising the KLPs at the end of a task or allowing the team to summarise themselves what has been learned.

52. **Assessment of learning – 3.2.2**. Assessment is an essential aspect of any training which must be properly understood and applied. Assessment requires the trainer to determine whether learning has occurred which requires making a judgement on team Performance and progress, then to decide whether the team is sufficiently competent in a particular Role or Task. The proper conduct of assessment in training can have a major impact on training time and resources, but ultimately will contribute directly to Defence outputs. Trainers should be able to administer assessments in training in a fair, valid and reliable manner in accordance with the AStrat and ASpecs. This is achieved through standardisation of conduct and moderation of marking:

a. **Standardisation**. Standardisation is achieved by adhering to the direction given in the AStrat and ASpecs. If an assessment is conducted using the same instructions every time, all trainees should receive exactly the same assessment, regardless of when, where and by whom the assessment is conducted.

b. **Moderation**. Moderation of marking can also help to ensure that the marking of assessments by different trainers is equitable and fair. In this case, a random sample of marked assessments is marked again by another trainer without first seeing the original score or grades awarded. The resulting scores are then compared to see if they agree. Where scores do not agree, trainers should consult with other trainers, and as a team, identify where the marking system is flawed and adjust scores/grades accordingly. Any problems with the marking criteria should be highlighted to the DTS, DTM or Chain of Command.

53. **AStrat**. The AStrat is useful as it ensures that the assessments are reliable, valid and administered correctly. An AStrat will give clear direction on:

a. summative assessment of each CTO.

b. formative assessment of team progress.

c. how grades should be assigned and interpreted.

d. action to be taken upon team failure of a (valid) assessment.

e. a policy for determining pass or failure.

f. a policy for the maintenance of assessment records.

54. **ASpec**. While the AStrat gives an overview of the training assessment, the detail of how the assessment is to be conducted is contained in the ASpec. It contains all the information needed to conduct a valid assessment including the type of assessment, marking details, pass/fail criteria for the assessment of CTOs and the consequences of failure. Trainers should always use an up-to-date ASpec when planning an assessment. The main purpose of the ASpec is to control what is assessed and how. Trainers must assess all of the EOs and KLPs as specified in the ASpec and not make any changes that alter these. The manner in which the assessment is conducted is determined by the ASpec. Designers strive to provide as much realism as possible, sometimes by using simulation, instrumented or scenario-based activities and so unauthorised changes to the realism of a practical assessment may make it invalid. If limited resources make it difficult to deliver the assessment in the recommended way or the ASpec appears too restrictive, the DTS, DTM or Chain of Command should be informed.

55. **Assessment of learning considerations in the workplace environment – 3.2.2**. Whilst the generic guidance on assessment of learning is relevant for all training, there are some special considerations for the workplace training environment. The proper conduct of assessments in the workplace is critical to the assurance of Defence outputs, since it requires making a judgement on team performance and progress and to decide on whether they are sufficiently competent in a particular task to be qualified to work without supervision. Trainers should be able to administer assessments in a fair, valid and reliable manner according to the specifications provided. This is particularly important because workplace assessments may not be conducted under the same conditions that would usually be expected in more structured training environment.

56. **Types of assessment**. Workplace assessments are generally practical in nature and are used to test individuals or teams in the achievement of a Skill, or Skills, both mental and physical. They can assess either the product of the Skill or the process involved in employing the Skills and should have an associated checklist to ensure both reliability and objectivity in assessment. The WTS will often require the trainees to be assessed on a Skill that has already been practised and assessed in a simulated environment, but which now needs to be confirmed in a live environment. It is important that workplace assessments are conducted in a context that properly reflects the real challenges of the Role or Task. Workplace assessments can be either formative or summative. The detail of what should be assessed and how it should be assessed is contained within the training documentation and should include:

a. AStrat and ASpecs.

b. A workbook or other document containing a description of the Performance, Conditions and Standards to be achieved. It is important to ensure that the required Performance is assessed under all the Conditions stipulated (such as, field conditions, without support) and to the Standards specified. This may involve reference to a particular Service manual or handbook which is to be detailed in the training

documentation. Any uncertainty as to how the assessment should be conducted and/or recorded should be referred to the DTS, DTM or Chain of Command.

57. **Recording assessments**. Recording assessments is an essential activity for all training environments to provide:

a. A record for each team which includes a summary of all assessment results (both formative and summative), as well as a record of action taken; this record is then used to guide the team's report.

b. A table consolidating all the summative test results for all teams. This record, accumulated over several repetitions of a training activity, provides valuable information for InVal of training in general, and evaluation of assessments in particular.

c. Supporting information for the assurance (audit, evaluation and inspection) and accreditation of training.

58. **Remedial training strategy – 3.2.3**. Consideration should be given to developing a remedial training strategy (which would form part of the overall AStrat) that is appropriately programmed and resourced. Teams that fail assessments or otherwise do not meet the required standard of performance within the prescribed conditions should be given all available and practical opportunities to be provided with additional, or remedial, training in order to both give the team the best possible opportunity to pass the training activity. This will ensure the costs and resources expended on training are not wasted. Re-testing should only be conducted once the team has received remedial training to fill the Knowledge, Skill or Attitude gap. Re-testing without remedial training will likely be a waste of resource. A remedial training strategy should consider:

a. the resources, time and trainer capacity necessary to deliver additional training.

b. the most cost-effective way to deliver additional training (such as integrating remedial training with other or later training activities).

c. programming in revision and refresher training and conducting regular summative assessments to minimise the chances of failure ('training in' rather than 'selecting out').

d. assessment variability (such as varying scenarios) to ensure that teams do not learn how to pass the assessment rather than learn to perform the task to the required standard.

e. identifying as early as possible teams that are likely to need additional training (i.e. catching the problem early, where it will take less effort to correct than it would at the final assessment).

f. use of blended learning methods to provide additional training opportunities.

g. clear policy that explains the conditions under which teams may expect additional training and where they may not; the policy should also lay out the team's responsibilities for taking charge of achieving their own learning outcomes.

59. **Improving training**. Training Providers have responsibility for day-to-day management of the InVal process for training, including management of the assessment

strategies and feedback mechanisms used. Trainers must make sure that they understand the local procedures for internally validating training.

60. **After Action Review (AAR)**. An After Action Review (AAR) is generally used in team and collective training as a mechanism to facilitate reflective feedback (usually through instrumented events) for the trainees. AARs are usually conducted at natural pauses in the tempo of an exercise or collective training event and are often conducted 'in the field' by the collective trainers (also known as Observers or Mentors). Occasionally, the AAR process is confused with an informal or unprepared 'de-brief' where the mechanics of the collective training event undertaken are explained but its relevance, or otherwise, to the CTOs, Mission Task List (MTL) or doctrine is often missed. Also, there is a view that AARs rely solely on the subjective opinion, experience and judgement of the collective trainer, rather than a sound and well-developed series of objectively assessable CTOs. Therefore, the Training Provider should ensure that AARs are used as a mechanism to assess trainees against a specified Standard. An AStrat with ASpecs should be developed for collective training events and the AAR process should be used to implement them in order to ascertain if the team has achieved the required Standard as laid out in the CTOs. If the team was unsuccessful, consideration should be given to remedial training and re-assessment, if resources allow.

61. **Deployed collective trainer training – 3.2.4**. In addition to the assessment of skill fade in collective tasks, which should have been undertaken as part of setting Standards in Element 1 (CTNA Stage 2, 1.4), as well as consideration of the sustainment of generated forces, users should also consider any requirements for **deployed training** as part of the OA[95]. This will ensure that trainers are capable and current for the training activity. Where a trainer's ability to conduct a task is likely to fade over time, they may need to train while deployed or to re-role as necessary to support structured agility[96]. Any requirements for deployed training should be based on Teamwork Error Analysis (1.3.6).

5.6 Programming, Scheduling and Resourcing of Training

62. **Programming training – 3.3**. The Training Provider should produce and maintain an annual programme of all training activities. Any changes which arise within the current Training Year (TY) should also be reflected in the annual programme of training activities. There is no suggested methodology for programming. A common-sense approach should be used and a clear understanding of the freedoms and constraints available to programmers will ensure that training activities:

a. Use available resources efficiently and to maximum effect.

b. Match the most effective and efficient Method & Media to the desired learning outcome.

c. Generate variety, stimulation and interest.

d. Programme different activities intelligently that build progressively.

e. Build in time for movement, administration, rest, meals and breaks.

[95] That is readiness consumption - see Defence Direction for Collective Training in Chapter 2 of this volume.
[96] See Defence Joint Operating Concept, DCDC, dated Mar 14, para 3.18.

f. Consider environmental, seasonal, weather or light factors if required (for outdoor practical and collective training);

g. Use a standardised programming format that builds routine and publish changes to the norm early;

h. Simulate, replicate or use realistic or real Conditions;

i. Have a method of informing trainees (teams) and trainers of unavoidable, short notice changes to the programme;

j. Minimise the administrative or non-training burden to the team (trainees).

63. Programming is usually carried out by a centralised design cell or Training Provider as a headquarters function. In larger Training Providers it is essential that trainers adhere to the programme as resources will need to be carefully managed to meet the needs of a high number of teams on different training activities.

64. **Scheduling training – 3.3**. Once training activities are programmed the elements should be sequenced, or scheduled, in order that the training is conducted in the correct order to optimise both the acquisition and retention of the KSA. This ensures that training is built up and CTOs and their dependent EOs and KLPs are delivered in the order that maintains the integrity of their dependencies (i.e. that the achievement of a CTO may require dependent EOs/KLPs to be conducted in a particular sequence in order to ensure that the trainees' KSA is built up progressively). Where there is a need to change the event schedule, this should always be approved by the event manager and trainers should aim to avoid short notice changes wherever possible.

65. **Resourcing training – 3.3**. Resourcing the training activity is intimately tied into its programming and scheduling. The Training Provider, supported by the TDA and other stakeholders, should ensure that the activity is properly resourced. This is to implement and maintain the Training System, continuously strive to improve its effectiveness, and enhance Customer satisfaction by meeting the TRA's training requirements.

a. **Human resource**. The personnel involved in all aspects of DSAT, particularly in the delivery and evaluation of the training activity should be trained and competent to carry out their Roles. It is the responsibility of the TDA, enforced by the Training Provider, to ensure that all training staff are provided with the appropriate training and have relevant experience.

b. **Infrastructure and environment**. The Training Provider, supported by the stakeholders, should also determine, provide and maintain or book the infrastructure and working environment needed to achieve the trained output, which includes:

(1) buildings, workspaces and associated utilities;

(2) training equipment and support equipment (both hardware and software) and training estates (with associated facilities);

(3) supporting services.

66. **JPA competences – 3.3.1**. Processes should be put in place to ensure the accurate and timely capture of new competences and qualifications resulting from the training activity. JPA is the Defence information management system that captures and records this information for career and workforce purposes. Where new competences, resulting from a new or changed training activity, need to be added to JPA, reference should be made to JSP 794.[97]

5.7 Risk Assessment

67. **Risk Assessment – 5.11**. In addition to the ongoing process for assessing and registering risk, as part of the MTS, Training Providers should conduct a health and safety risk assessment of the training environment and all training activities. This assessment should be documented, maintained as a Quality Record, recorded in the training documentation and made available at the point of delivery. Teams should be made aware of the risks associated with a particular training activity or training environment prior to the training activity taking place.

5.8 Piloting of Training Activity

68. **Piloting of training activity – 3.4**. To help identify any issues or problems early, a pilot collective training event should be conducted. Piloting of a training activity is defined as, *'the first delivery of a newly designed training activity under 'realistic' conditions'*. The purpose is not only to prove what works, but also to highlight problem areas so they can be revised as necessary. Checking the training activity in this manner will ensure it is cost-effective and, therefore, meets the requirement. The aim of a pilot is to establish how well the following perform when used for real with actual teams undergoing collective training:

a. programme.

b. documentation.

c. materials.

d. event plans.

e. location/environment.

f. resourcing, training support and administration.

69. **Planning**. Planning the pilot requires answers to the following questions:

a. when will the pilot be conducted?

b. which teams will be on the pilot?

c. which trainers will be used?

[97] JSP 794: Defence Policy for Administration of Personal and Professional Development (AP&PD) on JPA.

d. how much time is required?

e. are all the resources available and allocated?

f. what revisions can be made during the pilot? (i.e. what alternatives are available?).

70. **Pilot stages**. Ideally, there should be 3 stages to the pilot:

a. **Stage 1: One-to-One**. An initial assessment of the training material should be conducted using 1-3 small teams as 'guinea pigs'.

b. **Stage 2: Small Group**. Medium-sized teams who are representative of the intended team to be trained, undertake the training together. Those conducting the pilot observe closely and frequently gather team and trainer opinions by questionnaires and interviews.

c. **Stage 3: Field**. The first fully staffed 'production' collective training event, with genuine teams and all the allocated training resources and administrative support. 100% of the training delivered is monitored.

71. In practice, resources rarely permit the full application of one-to-one and small group trials, and training activities tend to commence with a field trial. Nonetheless, these procedures should be applied to test and revise at least those portions of a training activity which involve high-cost Methods & Media and/or where failure to achieve Standards has to be avoided at all costs.

72. During the pilot, it is important to safeguard the interests of the teams. The teams should not be disadvantaged because they attended a pilot. The following actions should therefore be considered:

a. trialling parts or all of the materials before the pilot (e.g. a particular demonstration to ensure it works and how much time it takes).

b. allocate additional time to the pilot to allow for changes and revisions.

c. adopt intensive InVal procedures during the pilot, so issues are identified early and where possible rectified.

d. ensure that teams that fail part or the whole of the pilot have the opportunity to be retrained and/or retested.

73. **Data collection**. A major activity during the pilot will be data collection. A comprehensive system of obtaining feedback is the only way of interpreting what is happening. Table 26 provides suggested information for data collection.

Ways to Collect Data	Possible Questions/Observations to Assist with Collecting Data
By observation of lessons/events	Time used Training requiring clarification Training causing team hesitation Training drawing incorrect team responses

Information from teams during events	Omissions of content Difficulties with concept Difficulties with sequence Typographical or spelling errors in text and other media Inadequate graphic or visual presentations Unclear directions
From teams and trainers after events	Level of interest Level of difficulty Level of understanding of objective or teaching points Potentially irrelevant material Sufficiency of team practice Adequacy of feedback to the team Detail and clarity of directions Particular learning problems Suitability of visual aids Suitability of assessments Likes and dislikes Team confidence Administration Recommended changes
What data is required before the training activity, such as team entry level or trainer background?	
What Methods will be used (e.g. daily questionnaires, post training discussions)?	
Who will collect the data?	
How often will data be collected?	
What statistical methods or supporting software is required?	

Table 26: Data Collection Information

74. It is important that the methods chosen to collect data can be used to both evaluate and assess the pilot. All data collected has to be analysed to determine what conclusions may be drawn and what implications they may have. The result of this process is a list of realistic recommendations, supported by the data that should be compiled as a report and submitted to the appropriate governance body (such as the CEB) for approval and action. The data collection and analysis for the pilot should consider:

a. How will the data be analysed (e.g. using statistical methods on assessment results)?

b. How often will the data be analysed during the pilot and recommendations provided?

c. How will the data be presented, (e.g. bar charts, summary tables etc)?

d. Who will be involved in the analysis and final recommendations?

75. **Stakeholder involvement**. Depending on the type of Training Provider there may be up to 7 key stakeholders involved in the pilot:

a. training management staff.

b. training design staff.

c. InVal staff/cells.

d. trainers.

e. dedicated assessment staff (where employed).

f. teams being trained.

g. TRA.

76. Each stakeholder has distinct responsibilities, but few are mutually exclusive. The success of the pilot relies heavily on a collaborative approach to achieve all the tasks. Many activities rely on input from more than one stakeholder. Clearly, feedback from InVal will result in changes to the training activity during its lifetime. It should be made clear who is responsible for implementing these changes and maintaining the training activity.

5.9 Collective Training Risk Management

77. **Collective training risk management – 5.12**. The management of risk to capability by the TDA through collective training shows the TRA what has been trained and where shortfalls exist, or risk is being taken in declaring a team or capability ready for operations[98]. This risk management (captured in Figure 11) should, as a minimum, cover:

a. Any risk owing to *an inability to train* some elements of the collective operational task(s) (i.e. the difference between the operational Performance required and the training available). This risk implies that a generated force, Force Element (FE) or team is *not ready* to undertake untrained tasks.

b. Any risk owing to *a failure of one or more assessments*. This risk implies that a generated force, FE or team has been trained but is not wholly competent to undertake certain tasks.

[98] Note that even where training is successful and readiness is certified, there is also a risk that readiness will be consumed over time and will need to be regenerated or sustained, typically through deployed training.

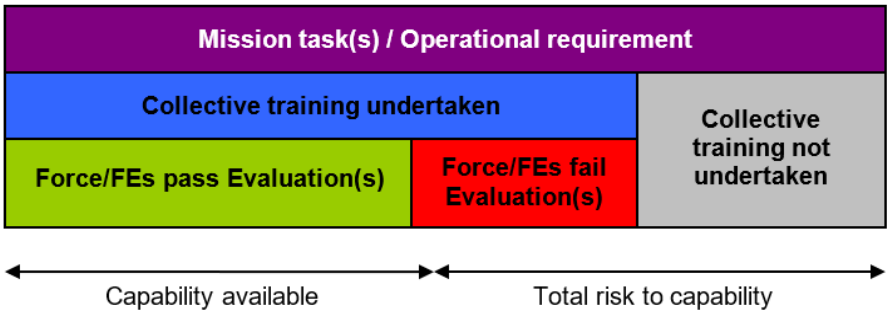

Figure 11: Risk Management of Collective Training

78. **Certification of collective training**. Certification of collective training confirms the achievement of force generation and is conducted by the TRA[99] in order to ensure that a force or FE can be deployed and that any associated risks are accepted. A process to achieve this should be developed by Commands in alignment with the Capability and Readiness Assessment Framework (CRAF) process, such that data or management information provided by TDA assurance processes can support TRA decisions on accepting risk to ongoing operations. Certification involves two related considerations: assessment of readiness and readiness consumption.

5.10 Management of Training Deficiency

79. **Management of training deficiency – 3.5**. Managing risks to the trained output (i.e. the Teamwork Description of the teams undergoing collective training) is different from assessing and managing risks associated with the Training System. The responsibility for the management of training deficiency lies with the Training Provider. Where risks or issues resulting from identified training deficiencies cannot be mitigated by the Training Provider such training deficiency-based risks should be elevated for treatment or toleration etc. Identifying and raising training deficiencies shows the stakeholders where training shortfalls exist or where risks have been taken owing to either an inability to train certain CTOs (due to weather constraints or equipment casualties, for example) or a training failure that has been picked up through the assurance process. Such deficiencies suggest that teams may not hold the competences that the training should have delivered. These are essentially unplanned but unavoidable training gaps which should therefore be captured, and the appropriate governance body informed so that a decision can be made to treat, tolerate or transfer the training deficiency. A Training Deficiency is not the same as the Residual Training Gap. The Residual Training Gap is agreed by the TRA early on in the DSAT process and is articulated in the RTGS.

5.11 Training Quality Manual

80. **TQM – 5.13**. The TQM is the CEB-endorsed document that sets the requirements, both in process and output terms, necessary to set and maintain the Defence-mandated QMS. Each TQM will be unique to the specific requirements of the Training System for

[99] Note that a force commander may self-certify as ready to conduct operations based on the risk assessment of the TDA, but the final approval rests with the TRA. Commands may use different authorities to certify achievement of force generation but in all circumstances the allocation of certification responsibilities must be clear and agreed with the TRA, with any risk accepted.

which it is written. It is recommended that work begins on the TQM as soon as is practical. It is common for the Training Provider and TDA to produce the TQM but the document must also reflect appropriately the activities of the TRA. An aide-mémoire for a TQM is at Annex J, and should include:

a. The scope of the MTS, including the details of, and justification for, any exclusions.

b. **Training Quality Policy – 5.13.1**. This should set out the rules regarding the establishment and maintenance of the QMS to ensure that the Training System delivers training that meets Defence mandated training requirements. Therefore, the Training Quality Policy should:

(1) be appropriate to the purpose.

(2) include a commitment to comply with requirements and Continuously Improve (CI)[100] the effectiveness of the MTS.

(3) ensure that training targets are established and provide a framework for establishing and reviewing them.

(4) be communicated and understood within the organisation as to the importance of meeting TRA as well as statutory and regulatory requirements.

(5) be regularly reviewed for continuing suitability.

(6) articulate how reviews and evaluations of the MTS will be conducted.

(7) ensure the availability of resources to support the MTS.

c. **Training targets – 5.13.1**. These ensure that the Training System remains effective, efficient and appropriate to the training need. They should be designed to ensure that the Training System meets the requirements for the trained output. They should also be measurable and consistent with the Training Quality Policy.

d. **Quality records (and their control) – 5.13.1**. Records should be established and maintained to provide evidence of conformity to requirements and of the effective operation of the MTS. Records should remain legible, readily identifiable and retrievable. A documented procedure should be established to define the controls needed for the identification, storage, protection, retrieval, retention time and disposal of records. In addition, documents required by the MTS will need to be controlled. A documented procedure should therefore be established to define the controls, as required:

(1) to approve documents for adequacy prior to issue.

[100] Continuous improvement should be embedded in the routine business of delivering training and underpinned by a culture that empowers staff and generates trust so that individuals feel able to step forward with new ideas. In the context of the DTC, the role of the DTM and DTS, in particular, is critical in creating and maintaining this culture of continuous improvement, by promoting the adoption of good practice, the exploitation of learning technologies and the provision of CPD at all levels. That said, all training staff should be made aware of their role in the continuous improvement process.

(2) to review and update, as necessary, and re-approve documents.

(3) to ensure that the current revision status of documents are identified.

(4) to ensure that relevant versions of applicable documents are available at points of use.

(5) to ensure that documents remain legible and readily identifiable.

(6) to ensure that documents of external origin are identified, and their distribution controlled.

(7) to prevent the unintended use of obsolete documents and to ensure they are identifiable as obsolete should they need to be retained.

(8) procedures established for the MTS, or reference to them (including analysis, design, delivery and assurance of training).

(9) a description of the interaction between the processes of the MTS (such as the DSAT process itself) including the documents needed to ensure the effective planning, operation and control of the Training System processes.

e. **Evaluation Strategy – 4.1**. The Evaluation Strategy is part of Element 4 (Assurance).

5.12 Trainee and Trainer Management

81. **Trainee and trainer management – 5.14**. In order to ensure the Training Provider, supported by all stakeholders, is compliant with the Defence mandated QMS, procedures for the management of teams and trainers should be established and maintained. It is natural for commanders to focus on the teams being trained but the welfare of trainers and support staff is of equal importance. These procedures should comply with all extant statutory legislation and other applicable Government directives. Records to confirm whether or not a team attended a particular training activity, and the results of assessments should be maintained. Where appropriate, the Training Provider should identify the team by suitable means throughout the training activity. The Training Provider should identify the status of the team with respect to the team's achievements against the requirements of the training activity. Training activity entry requirements should be documented and be accessible to all relevant authorities responsible for preparing or controlling teams undergoing training. Procedures should also be established, documented and maintained to verify that teams have met any required prerequisite Standards. The Training Provider should ensure that appropriate team and trainer induction is provided and documented, and that welfare support is provided.

82. The Training Provider is responsible for the care of all personnel that live and work within the training establishment or environment. However, particular attention should be paid to the Care and Welfare of teams undergoing training.

6 Defence Guidance on Assurance of Collective Training (Evaluation and Continuous Improvement)

Policy Sponsor: TSLD, CDP

Assurance is an all-encompassing term used to describe the evaluation, audit and inspection activities of the Training System which are conducted both internally and externally and ensure that training activities meet the principles of the DSAT process.

Mandated assurance processes include:

- Training Needs Evaluation
- Evaluation Strategy
- Evaluation - InVal
- Evaluation – ExVal
- Continuous Improvement
- 1st Party Audit and Inspection
- 2nd Party Audit and Inspection
- 3rd Party Audit and Inspection

Assurance governance groups and boards include:

- 3* / 2* People Leadership Team
- 1* TSLD PAG
- Customer Executive Board
- Working Groups / Steering Groups

Element 4 – Assurance Activities	DSAT / MTS Reference
Training Needs Evaluation (TNE)	**1.8**
Evaluation Strategy	**4.1**
Evaluation - InVal	**4.1.1**
Evaluation - ExVal	**4.1.2**
1st Party Audit and Inspection	**4.2** (See Volume 5)

2nd Party Audit and Inspection	**4.3** (See Volume 5)
3rd Party Audit and Inspection	**4.4** (See Volume 5)
Continuous Improvement (CI)	**5.15**
3* - Integrated Campaign SG (ICSG)	**5.16** (See Chapter 2)
2* - Campaign Development Group (CDG)	**5.17** (See Chapter 2)
1* - DJTEC & ASGs	**5.18** (See Chapter 2)
Customer Executive Board (CEB)	**5.19** (See Chapter 2)
Working Groups / Steering Groups (WGs/SGs)	**5.20** (See Chapter 2)

Blue shade box = MTS activity Purple shaded box = DSAT Assurance activity
Green Shaded box = CTNA Stage 3 activity **Bold** = Mandatory activity

Table 27: The DSAT Process DSAT and Element 4 Inventory of Activities

6.1 Introduction

1. This Section provides **Guidance** on the processes and outputs associated with the evaluation of training activity and the Training System as a whole which is part of Element 4 of the DSAT process, as illustrated in Table 27.

Important! Detailed direction and guidance on the audit and inspection activities of Element 4 (Assurance) can be found in Volume 5 and must be read in conjunction with this volume. Information on training governance activities can be found in Volume 3, Chapter 2, Section 2.3.

2. Assurance activities are conducted by most stakeholders including those internal to the Training System as well as by bodies external to it (thus ensuring independence and a lack of bias). Assurance activities do not focus solely on the provision of training (although this is a key activity) but also on the DSAT process and the Training System as a whole, including the MTS. In addition to evaluation, audit and inspection, Element 4 activities include: Stage 3 of the CTNA (TNE) and other governance and management processes that are key to the MTS. Assurance activities are detailed in the TQM which is endorsed at the CEB. The DSAT QMS is key to assisting those involved in the assurance of Defence training. The DSAT QMS is the standard that is met when the outputs of the DSAT Elements and the MTS activities are delivered correctly. DSAT assurance needs to focus on the mandated requirements of the MTS (outlined in Volume 1) and the mandated requirements of Collective Training (outlined in Chapter 2). Information, which must be managed iaw JSP 441, will support the assurance process. JSP 822 has been mapped with the ISO 9001 quality management processes for equivalence. The activities (as shown in Table 27) are:

a. **CTNA, Stage 3 - TNE – 1.8.** This assesses and reports on the effectiveness of the CTNA 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 CTNA outputs contributed to the provision of a training solution that meets the Defence requirement. This completes the CTNA process.

b. **Evaluation Strategy – 4.1.** The Evaluation Strategy is a document that will detail what training will be evaluated and how.

c. **InVal (4.1.1) and ExVal (4.1.2).** A specific sub-set of evaluation is Validation which is further split into InVal and ExVal. InVal examines whether the CTOs are being

met and ExVal uses both qualitative and quantitative data to determine the degree to which training prepares teams for the specified Role and whether the Role remains valid.

Important! Detailed direction and guidance on the audit and inspection activities of Element 4 (Assurance) can be found in Volume 5 and must be read in conjunction with this volume. Information on training governance activities can be found in Volume 3, Chapter 2, Section 2.3.

Responsibilities. The following are most likely to fulfil these assurance roles/activities[101]:

a. **TRA**:

(1) Evaluation Strategy.

(2) ExVal of the training activity.

b. **Training Provider**:

(1) InVal based upon the Evaluation Strategy written by the TRA.

6.2 Training Needs Evaluation

3. **TNE – 1.8.** Whilst the TNE is the final part of the CTNA process (Element 1), it is discussed in this part of the JSP as it is an evaluation activity. The purpose of the TNE is to evaluate the effectiveness and efficiency of the CTNA process and the training solution that was recommended at the end of Stage 2 (Analysis). First, it should evaluate the CTNA process by identifying areas for improvement, learning lessons and seeking to tailor the CTNA methodology through the process of CI. Second, it should evaluate the recommendation by reviewing the training solution it proposed. The rationale for this is that it may be some time (years) after the Training Needs Report (completed at the end of Element 1 (CTNA Stage 2, 1.7) is published that the TRA will once again be in a position to evaluate the recommended training solution and the CTNA process by which it was generated. Implementation and management of the TNE outputs (likely to be recommendations to improve both current and future CTNA processes as well as the current Training System) will depend upon the nature of the CTNA processes used and the resultant Training System, but the strategy for the TNE should have been included in the Training Needs Report. The key output of the TNE should be an assessment of how well the CTNA products and associated management processes contributed to the provision of a training solution that meets the Defence requirement. The TNE should consider for evaluation:

a. Management of Element 1 (CTNA Stages 1 and 2).

b. Training effectiveness[102]: has the chosen training solution met the need? This is fundamentally an ExVal where the approach recommended in categorising any training non-compliance is to:

[101] Any deviation from the recommended delineation of responsibilities detailed on the DSAT Hierarchy of Activities should be recorded on the CTrAD.

[102] Guidance on how to optimise the assessment of training effectiveness can be found in Appendix A of 'Pragmatic Guidance in support of the Evaluation of Training Effectiveness'.

(1) Evaluate against the CTNA recommended training solution and any other recommendations that were fully implemented.

(2) Identify any capability shortfalls as a result of CTNA recommended training solution and any other recommendations that were not implemented.

(3) Identify any capability shortfalls that resulted from not being addressed in, or being de-scoped from, the CTNA.

c. Training efficiency (such as cost-effectiveness).

d. Availability, reliability and maintainability of any training equipment.

e. Management of the training delivery.

4. The results of the TNE should be presented as a report to the appropriate stakeholders. It may include the contents of Table 28.

Aims of the Element 1 (CTNA Stage 3) TNE report	• Aims and objectives of the training need and/or requirement • Training System acquired • Summary of the findings from the CTNA TNE
Review of the processes	• Review of the CTNA development techniques and procedures • Review of the MTS management techniques and procedures • Adherence to Standards and effectiveness of the Standards • Performance against budget (such as, cost of SME input, cost of contracted out CTNA) • Quality of Element 2 (Design)
Review of the products	• Functionality • Performance • Ease of use • Availability, reliability and maintainability of the training equipment • Upkeep and support aspects • Security • Documentation • Training effectiveness • Training efficiency
Actual running costs compared with estimates	
Assessment of existing requested changes	
Conclusion and recommendations	

Table 28: TNE Report Contents

5. **Evaluation Strategy – 4.1.** Writing an Evaluation Strategy is a key activity that is the responsibility of the TRA. Evaluation is defined as ‘the process of making a judgement as to the worth of training to Defence. It allows Defence to monitor the impact of training and assess what has been achieved, whether it was effective, efficient (i.e. represents VfM) and how it contributed to the achievement of Defence outputs’. Evaluation processes and procedures should ensure that training is:

a. **Efficient and effective.** The input effort to deliver the training should be the minimum required to meet the output standard which should meet Defence's requirements.

b. **Focused.** The training should be focused on operational/business goals. The trained output should be able to perform their job competently.

c. **Necessary.** A requirement for training must be identified.

d. **Flexible.** The training must be responsive to a change in circumstances.

e. **Appropriate.** The training product should match the employment need.

6. The Evaluation Strategy is likely to include these individual elements, which collectively make up the whole approach to evaluation:

a. **InVal.** Conducted by the Training Provider.

b. **ExVal.** Conducted by the TRA.

7. Kirkpatrick's evaluation model [103] is a goal-based evaluation model that divides evaluation into 4 levels of measurement: Reaction, Learning, Behaviour and Results. In a Defence context, it would be useful to ask the following questions:

a. **Level 1** - **Reaction**. Did the team perceive the training as useful when compared to their expectations? This question is answered through InVal.

b. **Level 2 - Learning.** Were new Skills and Knowledge acquired and Attitudes developed? This question is answered through InVal.

c. **Level 3 - Behaviour.** Has Behaviour changed as a consequence of training, and can this be measured when the team is carrying out the Role? This question is answered through ExVal.

d. **Level 4 - Results.** Was there a measurable impact on business performance and was Value for Money (VfM) achieved? This question can be answered partially through ExVal if agreed training costs are available[104].

8. In devising an Evaluation Strategy, the TRA develops a long-term action plan for achieving successful training. This requires the development of a strategy which aims to assess the total worth of a training activity. An Evaluation Strategy should therefore articulate the training to be evaluated, the types of evaluation to be applied and the roles and responsibilities of the people involved in the process. The Strategy should cover the whole cycle of training, starting when a training need is first identified and continuing until the required Defence outputs are achieved. It is not always necessary, beneficial or possible to evaluate all activities. The TRA should define those areas to be targeted in their Evaluation Strategy and define the link to the requirement. The Evaluation Strategy is based upon the 4 Stages of Evaluation in Defence as outlined in Table 29.

[103] Kirkpatrick, D.L. (1967), Evaluation of Training in, 'Training and Development Handbook,' edited by Craig, R.L. and Bittel, L.R. London: McGraw Hill.
[104] Although these are likely to remain ROM based.

Stage	Function	Purpose	Benefit
1	**InVal**. Measure the immediate reaction of the trainee	To measure the perceived effectiveness of the training activity	Improved efficiency and effectiveness of the training activity
2	**InVal**. Measure the learning transfer achieved by the training activity	To determine, by applying quantitative or qualitative assessment methods, to what extent trainees increased their Knowledge and Skills and changed their Attitudes (KSA)	Improved efficiency and effectiveness of the training activity and measurement of the Standard achieved by the trainee
3	**ExVal**. Measure changes in Behaviour of trainees as a result of the training activity and how well the KSA have prepared trainees for their Role. Measure if the requirement is still valid	To determine the subsequent impact on performance after the training activity and therefore the validity of the training in preparing trainees for their Role. To ensure the requirement is still valid.	Improved efficiency and effectiveness of the Defence through the employment of competent personnel
4	**ExVal**. Measure the contribution of training to the achievement of business/operational goals	Overall organisational benefits attributed to training.	Assurance that the effective business/operational focus of training is being maintained and that the investment has had the desired effect and, where possible, VfM is measured.

Table 29: The 4 Stages of Evaluation in Defence

9. When planning evaluation activity, the following factors should be considered:

a. **Importance/impact.** The actual or perceived impact of the training activity on Defence performance.

b. **Cost.** The cost of the evaluation compared to the realised or potential/perceived benefit of the training activity.

c. **Outputs.** Utility of the outputs of evaluation (e.g. can the results of the evaluation be used to improve the effectiveness and efficiency of the training?).

d. **Frequency.** The frequency of the training activity.

e. **Availability.** The availability of evaluation data.

f. **Feedback.** Feedback from InVal or ExVal that requires further investigation.

10. The benefits of adopting and implementing an Evaluation Strategy are various. Examples are:

a. Clear communication and strategic direction for the evaluation of training.

b. A framework from which the TRA can readily ascertain and/or demonstrate whether training is effectively contributing to the achievement of Defence outputs. More specifically, it assists the TRA, TDA or Training Provider to:

(1) Ascertain whether training is meeting Defence's needs.

(2) Ascertain whether training is being delivered efficiently and effectively.

(3) Ascertain whether the refresher training strategies were successful.

(4) Quantify the learning transfer achieved by the training activity.

(5) Identify a consistent baseline against which to measure benefits.

11. **Responsibilities.** The production of the Evaluation Strategy is the responsibility of the TRA and should be set out in the TQM (Element 3, 5.13).

12. **Developing an Evaluation Strategy.** An Evaluation Strategy will involve the systematic collection and interpretation of evidence leading, as part of the process, to a judgement of value with a view to action. The term 'systematic' implies that the required information is defined at the outset; 'interpretation of evidence' and 'judgement of value' introduce a critical consideration; and 'with a view to action' highlights that evaluations are intended to provide recommendations for the modification and improvement of training. Any Evaluation Strategy, therefore, should:

a. be systematic.

b. ensure provision of a critical analysis of current training.

c. be linked to risk management to enable review of mitigation strategies.

d. give a clear indication of improvements to training.

13. Ultimately, the Evaluation Strategy should be appropriate, proportionate, responsive and targeted on the needs of the Defence to help ensure that the costs of the evaluation activities do not outweigh the benefits. It should state:

a. The evaluation stages to be applied to each training activity.

b. The frequency with which each evaluation stage should be applied.

c. The responsibilities of the various stakeholders at each stage of evaluation.

d. The sources from which information will be obtained.

e. The methods of data recording and analysis.

f. The reports that will be raised.

g. The staffing chain for addressing report recommendations.

6.3 Internal Validation (InVal)

14. **InVal – 4.1.1.** InVal is a process used by the Training Provider to determine the efficiency and effectiveness of training delivery. To achieve this, InVal measures:

a. The immediate reaction of a team to a training activity (Evaluation Stage 1; see Table 29).

b. The learning transfer achieved by the training activity (Evaluation Stage 2; see Table 29).

15. **Responsibilities.** The Training Provider is responsible for the conduct of the InVal process which involves personnel from a range of backgrounds including trainers and trainees:

a. **Trainer.** Trainers have responsibility for day-to-day management of the InVal process including management of the AStrat and feedback mechanisms used during the training activity. Trainers also inform the InVal process through the provision of post-training feedback.

b. **Team.** Teams provide the primary source of feedback, through both test results and feedback, for the InVal process. The information is usually gathered through the completion of a questionnaire or through response to questions posed during post training discussions or interviews. In addition, the assessment of team Performance will provide data which can be used to measure the transfer of learning.

c. **InVal team.** At large training establishments InVal teams may be tasked to conduct the InVal process. InVal teams offer the advantage of impartiality and can provide a ‘big picture’ overview of training effectiveness.

16. **Sources of data.** There are numerous sources of InVal data:

a. **Training documentation.** Training documentation should be checked to ascertain that all Standards from the TOs have been transferred to the LSpecs, that the AStrat includes the testing of all TOs and that any lesson plans (or equivalent) comply with the LSpecs.

b. **Formative**[105] **and summative**[106] **tests.** Tests may be practical, written or oral in nature and can be used to ascertain that the trainees have assimilated the KSA required to achieve the Standard as specified in the TOs. They can also be used to diagnose the strengths and weaknesses of trainees and test potential success, progress and achievement. An unusually high number of failures may indicate faults with the Training System rather than trainee performance.

c. **Trainer performance monitoring.** Trainer performance monitoring can be used to ensure that training is being delivered in accordance with the LSpecs.

d. **Team logs**. Teams can be requested to complete logs on either a daily or weekly basis and should be required to submit written feedback regarding the training they have received.

e. **Observations.** The observation of procedures is especially important in Skills transfer and relates particularly to the areas of speed, sequencing, manual dexterity and safety. Observations can take either a structured form, requiring the use of coded schedules, or can be unstructured, where the trainer uses their judgement about which events are considered important.

f. **Feedback questionnaires.** Questionnaires can be used to capture trainee opinion on any aspect of training. They can be used to collect both qualitative and quantitative data. Timing needs to be considered to reduce the chance of trainees forgetting information. Questionnaires can also be used to gather information from trainers.

g. **Post training discussions.** A discussion, or focus group, at the end of training enables teams to air their views, to amplify comments made on questionnaires and for the trainers to gauge the initial reaction to training. It is considered appropriate to use staff who have not been involved with the delivery of the training activity to manage and conduct the discussion process. If 'external' staff are used in this way it may not be possible for these staff to answer questions or criticisms and this must therefore be done by the Training Provider. Irrespective of who conducts the discussion, the content of the discussion should be planned as for any interview, producing an aid or schedule to follow. Information from other sources will suggest the areas needing more/less attention or none at all and can include:

(1) The collated responses to the questionnaire.

(2) Reports from preceding training.

(3) Past problem areas.

(4) Issues raised by unsolicited or informal feedback.

(5) Analysis of assessment results.

h. **Interviews.** Interviews can be conducted in order to collect trainees' reactions to training. They have the advantage of being flexible and allow subjects to be explored

[105] Formative assessments are conducted during training to identify any weakness in learning or training and to aid the retention of successful learning.
[106] Summative assessments are designed to measure achievement at the end of a period of training.

in depth. However, interviews can be time consuming and are normally only used to obtain opinions from small numbers of trainees and trainers. Interviews can take both structured and unstructured forms.

i. **Unsolicited feedback.** Unsolicited feedback may come from trainees, trainers and training support staff through involvement in informal discussions. Data gathered through this means can be used to usefully inform the InVal process and should not be treated in isolation.

j. **Other tools.** In addition to the tools listed, activities such as audits of the Training System and management reports can provide useful additional data to inform an InVal.

17. **Timing**. The data required to inform the InVal process can be collected before, during, or at the end of, the training process:

a. **Before training starts.** When specifying the content of a training activity, it may be necessary to establish what the trainees already know, or what trainees can do, by means of pre-course diagnostic testing. Failure to recognise that trainees can perform certain tasks or possess certain Knowledge can result in training that is inefficient or irrelevant. It is also important to gauge trainee expectations. These tasks can be achieved through completion of a pre-course questionnaire or a pre-course discussion with the information gained used by trainers to enhance the relevance of the training.

b. During training.

(1) **Measuring learning transfer.** Formative assessments are conducted during training and can be used to measure the learning transfer. Assessing trainee performance during training enables training problems to be identified and dealt with as they arise and allows the Training Provider the opportunity to measure trainee progression towards the achievement of TOs.

(2) **Team reaction.** Team reaction to the training that has been received can be captured during, as well as after, training. Questionnaires, logbooks and unsolicited feedback are methods through which team reactions can be captured.

c. At the end of training.

(1) **Measuring learning transfer.** The testing and assessment of trainees at the end of training provides a vital indicator of overall training effectiveness. The results of summative assessment can be used to help the Training Provider identify which areas of an activity caused trainees difficulties; they can also be used for assessing the effectiveness of the Training System as a whole. An essential element of the InVal process is the analysis of test results in order to assess the effectiveness of the tests themselves.

(2) **Team reaction.** Feedback mechanisms, such as questionnaire-based critiques, and post training discussions, can provide information against which team reactions to training can be gauged. Team assessment results, coupled with reaction to training, will allow trainers to evaluate team performance and will facilitate the formulation of judgements regarding overall training effectiveness.

18. **Analysis of data.** The InVal process can generate considerable qualitative and quantitative feedback, some of which may be contradictory. In order to ensure that any changes made to training are positive, it is essential that a robust analysis of feedback data is implemented. When analysing data it is important that an analyst is familiar with the concepts of validity, reliability and triangulation:

a. **Validity.** A measuring instrument is valid if it measures what it is intended to measure. For example, in training the most valid measuring instrument for a practical Skill is a practical test. A written test may well test whether the team knows what to do in a practical task but not if they can actually do it.

b. **Reliability.** A measuring instrument is reliable if it gives consistent results. For example, a test or questionnaire, when administered to two very similar groups, would not be reliable unless it gave similar results. If it is a reliable measuring instrument it should also give similar results when it is administered twice to the same group at different times.

c. **Triangulation.** The term triangulation is used to describe the use of 2 or more data gathering techniques to investigate the same phenomenon. Confidence in the findings is enhanced when the techniques yield similar results. For example, if the outcomes of a questionnaire-based survey correspond to the findings of an observational study of the same phenomena, the more the analyst will be confident of the findings. In addition to the use of 2 or more data collection tools, triangulation can also be achieved using 2 or more analysts using the same research instrument.

19. **Presentation of findings.** Once data has been gathered and analysed, it becomes evidence to support the conclusions and recommendations of the InVal. It should, therefore, be summarised and incorporated into a report, although it may be appropriate to hold a meeting of stakeholders and record the findings in minutes. For a training activity to be deemed internally valid it must be proven, by triangulation of data, that all training and testing meets the requirements of the TOs as contained in the FTS. For the InVal teams to be able to identify a course as being internally valid they must be able to positively state that:

a. All Standards have been transferred from the CTOs in the FTS to the LSpecs.

b. The trainers are training to the LSpecs.

c. Training is being delivered to the correct Standards and Conditions.

d. The CTOs are being tested to the correct Standards and Conditions as per the ASpec.

e. The trainees have assimilated the Knowledge and Skills to achieve the required Performance.

20. The InVal report is primarily an internal document, but it can also be distributed to those responsible for conducting ExVal where appropriate. The InVal report should be used as a management document to identify where, or indeed if, changes to training should take place. It may also form useful evidence for any major changes to the Training System which would be discussed at the appropriate governance body (such as the CEB). InVals also form part of the MTS and contribute to ensuring that the Training System meets the Defence mandated QMS.

6.4 External Validation (ExVal)

21. **ExVal – 4.1.2.** ExVal uses both qualitative and quantitative data to determine the degree to which training prepares teams for the specified Role and whether the Role remains valid. ExVal should also measure business improvements. ExVal is applied after teams have completed a training activity and have had the opportunity to apply what they have learnt in the workplace. ExVal measures:

a. The changes in Behaviour of teams as a result of the training and how well the KSA have prepared teams for their Role; and whether the requirement is still valid (Evaluation Stage 3; see Table 29).

b. The contribution of training to the achievement of business/operational goals (Evaluation Stage 4; see Table 29).

22. **Aims.** The first aim of ExVal (Stage 3) is to determine the success of training in preparing teams for their Role and whether the requirement is still valid. The following must be considered:

a. **Timing.** Initially, after training, a team's motivation will be increased. Performance, however, frequently suffers as people try to 'unlearn' old behaviours and practise new skills. Therefore, the timing of ExVal should be determined by both the length and complexity of the training activity that is being validated. Usually, an ExVal would be implemented between 6-18 months after the completion of training. On the other hand, if too long a period is left between the training event and the ExVal, it will be difficult to ascertain which KSA have been acquired as a result of training and which have been learnt subsequently.

b. **Methodology.** Some measurement of Behavioural change may have already been made during the assessment of team performance during training. However, in order to ascertain the full impact of training on individual performance in the workplace, further analysis must be undertaken. The process through which data is collected and analysed in order to inform ExVal should be planned. This is typically via questionnaire-based feedback mechanisms[107]. Questionnaires will normally be distributed to both team members and their respective line managers at least 6 months after the completion of training. The questionnaire should examine the degree to which the

[107] Although questionnaires will be the main method of gathering data, the user should not rule out the other tools available, such as minutes of meetings, visit reports and data relating to Role performance that is obtained through observation of the trained individual in the working environment and through interview.

CTOs relating to a particular training activity remain relevant to the employment area they were designed to support. The questionnaire should also serve as a mechanism through which data can be gathered on wider aspects of the training process and must be responsive to the needs of all stakeholders. The questionnaire should also give Training Providers a common method of determining how applicable and effective the training was in affecting the trainees' Role Performance. Data should also be gathered from trainers. Activities such as audits of the training process, trainer monitoring, management reports and other data gathered through the InVal process can all be used to inform ExVal.

23. The aim of Stage 4 Evaluation is to assess overall benefits to the organisation of a particular training activity and whether it offered VfM. This Stage of evaluation is challenging in an organisation the size of the MOD. Defence Performance and Risk reporting mechanisms mean it is possible to measure whether training has directly contributed to Defence outputs by measuring performance against the Defence Strategic Objectives which are, essentially, Defence's organisational goals. To evaluate business benefits to the organisation, training should be linked to the Defence Tasks and their subordinate SC objectives. Those conducting Stage 4 Evaluation should bear in mind that there are many other factors external to training which may impact business performance (such as redundancy programmes, leadership in the workplace etc). JSP 507 provides guidance on the evaluation of projects including the assessment of whether VfM was achieved.

24. **Responsibilities.** It is the responsibility of TRA to conduct ExVal. The TRA may employ an ExVal team for the planning, coordination and implementation of the ExVal and for the dissemination of the results. In doing so the team will need to draw on the experiences of many of those involved in the training process who should be encouraged to take individual responsibility for the conduct of ExVal. Wherever such a responsibility is accepted then CI of the training is more likely. The main contributors include:

a. **Team members.** Provide information, by questionnaire and/or interview, that informs the ExVal process of their opinions as to how well the training prepared them for their in-Role tasks.

b. **Line managers.** Ranging from the team members' immediate supervisor to their unit or organisation commander (or equivalent), such personnel usually prove to be more objective sources of information as to how the training has prepared the team for their Role.

c. **Subject Matter Experts (SMEs).** Recognised experts in the subject matter for which the training was designed should be identified and consulted. An SME working within a Training Provider should not, however, be disqualified from making a contribution purely on the grounds of their current employment.

25. The methods of gathering and analysing data used in ExVal will vary according to the object, scope and Stage of the ExVal itself. The final ExVal report should be used to identify where, or indeed if, changes to training should take place. It may also form useful evidence for any major changes to the Training System which would be discussed at the appropriate governance body (such as the CEB). ExVals also form part of the MTS and contribute to ensuring that the Training System meets the Defence mandated QMS.

6.5 Continuous Improvement

26. **CI – 5.15.** The TRA, supported by other stakeholders, must seek to ensure that the Training System continuously improves. This is not a function that takes place at a specific point in the DSAT process but should (as the name suggests) be continuous. CI should not only be applied to the training activity to improve the training (both in terms of cost effectiveness and training delivery) but also to the Training System as a whole. CI is included as an MTS process and should be captured in the TQM. CI can also result from Self-Assessment Reports, recommendations contained within audits, inspections and evaluations, the results of which should be studied in order to identify and then implement improvements. It may be that the appropriate governance body (such as the CEB) authorises any CI recommendations. It may also be acceptable for the Training Provider to implement improvements to training that are obviously beneficial. What can be implemented, by whom, and at what level, should be articulated in the TQM and can include:

a. making the Training System more resource efficient (resource savings).

b. making the Training System more cost efficient (financial savings).

c. making the training easier for the trainer to deliver.

d. making the training easier for the team to assimilate.

e. reducing bureaucracy without reducing training capability or denuding the DSAT QMS.

f. increasing the quality and standard of training without increasing costs or resources.

g. increasing the desire to learn, through imaginative, creative activities and events, without increasing costs or resources.

7 Defence Direction for the Defence Trainer Capability in Collective Training

Direction Sponsor: TSLD, CDP

House of Commons Defence Committee (HCDC) Inquiries, audit reports and research provide evidence that safety in training must remain paramount, with risks reduced to as low as reasonably practicable (ALARP) and tolerable. In response to report findings, the DTC was initiated in 2014. DTC professionalises the training cadre and through its robust governance and assurance processes ensures that all Defence trainers, trainer supervisors and training managers are suitably qualified and experienced. It outlines the requirement for a professional development pathway to continuously meet the required quality standard and competence and attracts externally recognised national qualifications.

Training and education of people is a key enabler in delivering Defence Missions and must be agile to the rapidly changing contexts and demands. Defence seeks to maximise talent through training and education and building a sustainable diverse and skilled workforce for the future[108]. Defence must meet the expectations of the workforce, and both motivate and engage people. Defence training and education therefore has a pivotal role in delivering this People Strategy and it is underpinned by a robust and effective Defence Trainer Capability (DTC).

In the context of limited resources and time, Customers, Training Requirements Authorities (TRAs), Training Delivery Authorities (TDAs) and Training Providers (TPs) must apply JSP822 intelligently, and thereby own and manage the inherent risks that arise; they must therefore comply with DTC policy or explain why they are unable to do so and how they have mitigated the consequent risks.

Parts of the DTC are aligned to education standards for the Further Education (FE) sector. The Defence Trainer Competency Framework (DTCF) has been mapped against these standards in order to demonstrate how Defence Trainers meet the criteria to gain externally recognised qualifications.

Defence Trainer Capability (DTC) training is a requirement for all trainers involved in the delivery of Collective Training. Currently there is no CT-specific DTC training

[108] Defence People Strategy Part 1 dated 2020.

available; this is an issue identified for action by DOC Audit 19/05 Collective Training. In the interim, where appropriate, trainers involved in CT may attend Ind Trg DTC training provided by DCTS.

7.1 Defence Trainer Capability (DTC)

1. **DTC – 3.1**.[109] The DTC will deliver Defence Trainers that are fit for purpose. Trainers[110] are not only the focus for teaching knowledge and skills but also for inspiring, encouraging, supporting and challenging teams, through strong leadership, role modelling and coaching. Well-motivated teams become independent learners, who continue to regulate their learning wherever they are. Whatever their ability levels, teams require regular feedback and support to help them assess their knowledge and skills so that they can learn to identify and set their own goals for further professional development.

2. **Defence Trainer attributes**. Defence Trainers need to be able to inspire, motivate and challenge teams, understand their learning needs and expectations, and be able to draw on the right tools and techniques to get the very best from them. To be fully effective, trainers should therefore understand and fulfil both the Roles of the specialist trainer and that of leader, which include:

a. **Role modelling**. Through the adoption and promotion of the Service core values, trainers lay the foundations for the behaviours that build team cohesion and underpin operational effectiveness. Role modelling is therefore a core responsibility.

b. **Facilitating inclusive learning**. Trainers should create an inclusive learning environment where all teams have the opportunity to learn and reach their full potential. Good trainers are able to facilitate learning in the most appropriate way to suit the needs of the teams. Trainers will need a sound understanding of learning theory and a broad range of skills including the use of modern teaching techniques, learning technologies and coaching.

c. **Assessment of learning**. Assessment is an essential part of training delivery and trainers are often asked to make critical decisions regarding teams' progress through training and subsequent achievement of the required standards. The proper conduct of assessment has implications for training time, resources and effective capability. Good trainers are able to administer assessments in training in a fair, valid and reliable manner in accordance with the AStrat and ASpecs provided.

[109] This DTC content is large specific to – and similar to – DTC policy for individual training. This will be replaced by CT-Specific DTC content in due course.
[110] Trainers can carry out many roles be they in training establishments, the workplace, higher education delivery and mentoring.

d. **Care and Welfare**. Team welfare has a big impact on how successful teams are in training. Trainers need to create an environment of mutual support and respect where team members feel safe and know that their contributions are recognised and valued. Commanders have specific responsibilities relating to Care and Welfare; these are detailed in Volume 4 of this JSP.

3. **Delivering effective training**. The Defence Trainer course provides new trainers with an understanding of how trainees (teams) learn and a range of tools and techniques to employ. Trainers should also be aware of the unique nature of the training environment and the codes and boundaries which must be applied to ensure that training remains safe and effective for all.

4. **Realities of training**. Trainers will be required to deal with a whole range of issues that might affect the length of time available to conduct a collective training event. In all cases, trainers should understand the following when adapting training delivery to meet the realities of training:

a. All KLPs should be delivered in accordance with the LSpec. Where it has been necessary to adapt or miss out KLPs, trainers must inform their DTS, DTM or Chain of Command, preferably with suggestions as to how these can be made up at a later date. If the KLPs cannot be delivered, then a deficiency report should be raised.

b. Assessments should be delivered in accordance with the ASpec. If the assessment cannot be delivered in the time available, then the DTS, DTM or Chain of Command should be informed, and the assessment rescheduled for a later date.

5. **Evidence-based approach**. Evidence-based teaching (EBT) has been firmly embedded into the Defence training environment. It has proved to be highly effective in improving direct learning outcomes (achieving CTOs) and indirect outcomes (e.g. encouraging independent learning, developing social skills, promoting the desire to learn). Detailed guidance on a range of EBT methods is given to trainers during the Defence Trainer course and is available on the Defence Trainer DLE.

6. **Coaching**. The purpose of using coaching techniques is to unlock a team's potential in order to improve and maximise performance. It is about helping teams learn for themselves rather than delivering training to them. Coaching techniques form an integral part of the trainer's toolbox. Everything should be geared towards ensuring that teams are successful. Often that simply means responding positively and constructively to their efforts and setting new challenges for them. There will also be times when a more focused approach is needed (e.g. to develop a team that is struggling, or to motivate a team that is finding training too easy). Coaching techniques form the basis of the Defence trainer course, and of learner-centric training to ensure the effectiveness and efficiency of training are maximised.

7. There is no single definition of Mentoring in Defence as the word has different meanings depending on the context. For example, Informal Workplace Training includes mentoring schemes where a trusted colleague shares knowledge and experience over a period of time to assist a new colleague; there are mentoring schemes to assist foreign forces to manage their own security; and mentoring is more prominent in Collective Training. Each has different aims. Where mentoring is mentioned in this JSP, it is referring primarily to the Role of the Defence Trainer Supervisor (DTS) who acts as a mentor for Trainers. In

the DTS context the definition of Mentoring is: 'where a trusted colleague shares knowledge and experience over a period of time to assist a new colleague'.

8. **TEL**. Technology provides trainers with a wide range of different tools that can help to present new Media, increase trainee interaction and improve trainee engagement by making the training more personalised. While the use of learning technology can be a very powerful training tool in the right circumstances, it should only ever be used where it enhances learning and never just for the sake of it. TEL is a particularly fast-developing area, which now covers a much broader and more complex range of technologies, meaning that there are an increasing number of ways in which technology is being exploited across Defence. Learning technology is currently used extensively in collective training to support learning across blended live, virtual and constructive training environments, bringing greater realism to training, enabling remote and connected training, and increasing team engagement in training. Trainers must be able to employ common technology, specifically the DLE and simulation/synthetics technology, in collective training events.

9. Trainers should be introduced to the learning technologies available in their unit during the unit induction programme. Trainers should never discount the use of a learning technology because they do not know how to use it, but instead they should watch and learn from other Defence Trainers or ask for training from their DTS and/or chain of command. Advice and guidance on developing downloadable training video can be obtained via the TEL Knowledge Hub.

7.2 Preparing Training

10. **Preparing Training – 3.2**. The effectiveness of training delivery will be measured by the Training Provider and appropriate governance body according to whether the intended outcomes (the CTOs) have been achieved successfully. This is determined through the formal assessment process, but there will also be other indirect outcomes of training (e.g. motivation to learn and creating independent learners) which will need to be considered when planning and preparing effective training. These are not as easy to measure, but they are important if teams are to perform to the best of their ability. To ensure that all the desired outcomes are achieved when preparing training, the following principles of training delivery[111] should be applied:

a. Trainer as role model:

(1) Training is underpinned by leadership; therefore, one of the key principles of Defence training delivery is that Defence Trainers must act as role models for their teams. Effective learning relies upon trust: teams must trust that their trainers are truthful, equable and consistent in what they say and how they behave. Teams will often emulate their trainers' behaviours either consciously or subconsciously and can pick up good or bad attitudes and behaviours in this way. Trainers, therefore, should be models of integrity and good practice from which their teams can learn.

(2) The Defence Trainer Competency Framework sets out the requirement for "*trainees' attitudes and behaviours to be shaped by the trainer's example*" in

[111] Further advice on the trainer's responsibilities for the preparation and delivery of training can be sought from the Defence Centre of Training Support (DCTS). The topic is also covered in DTC training.

Competency Group 1. Competency 1.1 links role modelling to single Service Core Values and standards, behaviour, bearing and dress and showing respect for others, while other trainer behaviours relevant to role modelling are identified within the remaining competencies for that group, e.g. leading trainees, actively promoting Diversity and Inclusion, maintaining discipline, fostering a safe and supportive environment to ensure trainee welfare.

b. Learner-centred training:

(1) Trainers need to provide training in a way that recognises trainees' life experiences and allows them to take ownership of their own learning[112]. In this way, they are motivated to learn and become independent and 'agile' learners.

(2) Learner-centred training means enabling trainees to actively take part in their learning, rather than passively receiving instruction. It means teaching trainees how to think and solve problems by drawing on their past experiences, using common sense and logic to research and evaluate evidence, then reflecting on their findings to reach conclusions. Learner-centred training uses active training techniques and lets trainees learn from each other and from their own mistakes. It promotes deeper learning, which is meaningful and memorable, rather than surface learning which is easily forgotten. It is the most effective and efficient way to provide learning.

(3) The DTCF sets out the requirement for "*learning events to be learner-centric and structured to the learning process*," in Competency Group 2 and the requirement that "*individuals are actively engaged in the learning process*" in Competency Group 4. Application of the Present, Apply, Review (PAR[113]) model is identified in Competency 2.1 as appropriate for the promotion of active learning. Competency 4.1 identifies the need for trainers to manage both individual and group needs during learning events.

(4) The PAR model is chosen by Defence as the easiest to understand and employ. It should be used as the basis for planning and facilitating all lessons. Trainers should reflect regularly on how learner-centred their lessons are and share good practice where a particular learner-centred approach has worked well (or even if it has not). They should also seek feedback from their trainees on which methods and techniques are most effective from their point of view. The PAR model reflects Kolb's Learning Theory, which is that people learn from reflecting on their experiences, i.e., they do something and reflect on how successful it was, in order to draw conclusions, supporting by the trainer, on what they will do differently next time. Whilst having the experience themselves is preferable, if this is not possible, then the next best option is to consider the experience that somebody else has had, reflect on how successful it was, and draw conclusions, supported by the trainer, on how they will do it differently to be more successful.[114]

c. Self-regulated learning:

[112] The art or science of teaching adults is often termed 'andragogy' (Greek for adult-leading) as opposed to pedagogy (child-leading) which is a more traditional trainer led approach to training.
[113] Petty, G. (2009). Evidence Based Teaching (2nd ed). Nelson Thornes.
[114] Social Learning Theory, e.g., Bandura (1977).

(1) Making training learner-centred also encourages teams to self-regulate their learning, i.e. they monitor their own knowledge and skills and make decisions on how they can progress. Teams who self-regulate their learning are motivated to learn through-life and are confident of their ability to learn, and so they are more likely to take action to remain competent and current in their job role. Trainers can teach teams to self-regulate by prompting them to set and reflect on individual goals, using feedback to then identify and review what they did to achieve the goal. Concentrating more on what the team did (or did not do), rather than the actual outcome, helps to develop these self-monitoring capabilities. Learning from mistakes is also a very effective tool in self-regulated learning and teams need to be given the freedom to make mistakes where safety, time and resources permit.

(2) The DTCF sets out the requirement for "*learning events to meet both organisational and individual goals*" in Competency Group 2 and the requirement for trainees to "*set realistic personal goals based on self-assessment and constructive feedback*" in Competency Group 4. Competency 2.2 requires the trainer to apply the 5 components[115] of the self-regulated learning process and Competency 4.2 highlights the importance of goal setting, feedback and learner self-reflection. Trainers should aim to use these basic coaching techniques both when delivering lessons and when working with individual teams undergoing training.

d. Inclusion in training:

(1) Team performance is directly related to team potential and to any barriers which prevent them from performing effectively. All trainers will be required to work with a mix of teams who may be affected by one or more of these barriers. Failure to address this can have a significant impact on teams' motivation, performance and retention. Trainers must therefore ensure that everyone in a team has the same opportunity to learn, develop and succeed. That means preventing barriers from arising where possible and helping teams to deal with barriers when they do arise. This is known as inclusion in training.

(2) The DTCF sets out the requirement for learning events to be "*aligned with trainee motivation*" and for resources to "*actively engage the learner*" in Competency Group 2. The requirement for trainees to "*feel supported and able to relate their learning and development goals*" and that their "*achievement is used as a motivational tool*" is set out in Competency Group 4. All the competencies in Group 2 and Competencies 4.1 and 4.2 highlight the importance of considering both group and individual needs when planning, preparing and facilitating learning.

(3) Collective Training events should be planned to provide both support and challenge for teams, so that all ability levels can achieve progress. Trainers must be able to support teams in dealing with a range of different barriers to learning, including those linked to welfare, discipline and specific learning needs. Where the barrier is linked to team attitude, e.g. confidence, motivation or stress, the trainer will use coaching techniques to assist the team in dealing with this.

[115] Readiness, Resourcefulness, Resilience, Reflectiveness, Responsibility.

e. Technology in training:

(1) Learning technology can also help the promotion of self-regulated learning by providing easy access to learning resources, for example through a Virtual Learning Environment (VLE) such as the DLE. Giving trainees access to learning resources promotes independent learning skills and can encourage deeper study of a subject. Where in the past trainers would have encouraged further reading by providing teams with handouts and references to textbooks, technology now opens up the possibilities and provides a much wider range of resources that are often more engaging and accessible.

(2) Learning technology offers significant benefits to learning provision; however, in all cases the principle of appropriateness must be applied. The DTCF sets out the requirement for the trainer to identify "*appropriate opportunities for the use of technology enhanced learning resources*" in Competency 2.3 and the requirement to draw on "*a range of appropriate delivery methods and media, including new and emerging technologies*" in Competency 4.1.

(3) Advice and guidance on developing TEL can be obtained through the DTEL Knowledge-Hub on the DLE or through MODNet.

f. Standardising training:

(1) In order to ensure that training is analysed, designed, delivered and assured to a set standard, Defence uses the Defence Systems Approach to Training. A great deal of work goes into the design and development of training to make sure that it is relevant, realistic and prepares Defence personnel properly for the jobs they have to do. Well-designed training, however, can still fail if it is not delivered in the way it was intended.

(2) Event documentation (specifically the LSpec, AStrat and ASpec) is the trainer's crucial link to the DSAT process. It provides the authority to deliver standardised training and forms the basis for the production of event programmes, event plans and assessments. Training must be delivered in accordance with the relevant specifications and so if any part of the event documentation is not available for a specific event, trainers should inform the event manager immediately. Trainers or teams may highlight issues with training content, for example, pertaining to currency or relevance. In this case, it is important to use the DSAT system correctly to highlight shortcomings. Alterations to Collective Training Objectives (CTOs), Enabling Objectives (EO) or Key Learning Points (KLPs) within the course documentation can only be achieved by following local event change processes, which must include the Training Delivery Authority. Trainers must be absolutely clear on their boundaries when adjusting event content and should be fully briefed on the process for requesting updates or amendments to event documentation.

11. **LSpec**. LSpecs contain the information the trainer needs to deliver training, including the structure and sequence of training (as detailed in the Learning Scalar). The main purpose of the LSpec is to control what is taught and how it is taught. The trainer should teach all of the KLPs as specified in the LSpec. If there is an issue with the KLPs (e.g. if they are no longer current or relevant) then the DTS, DTM or Chain of Command should be informed. The benefits of using the LSpec include:

a. ensuring the material taught is based on the specified CTOs.

b. providing details of suitable Methods & Media, so the material is delivered in an effective manner.

c. helping ensure consistency between trainers and different training activities.

d. saving preparation time.

12. The manner in which the KLPs are delivered is determined to some degree by the LSpec, but there is flexibility for the trainer to impart their own style and experience. If it seems that the LSpec is too prescriptive and is limiting the trainer's ability to deliver the training effectively, then this should be discussed with the DTS, DTM or Chain of Command.

8 Defence Direction for Robust Training in Collective Training

Policy Sponsor: TSLD, CDP

Properly conducted Robust Training is a basic principle of training in Defence and as such is linked to measurable Collective Training Objectives (CTOs) and outcomes. It is deliberately designed to induce an element of pressure in order to challenge trainees mentally and physically, so that they draw on reserves of willpower and stamina to achieve the outcome sought. The aim therefore of Robust Training events is to develop physical and mental resilience in order to prepare appropriately for the challenges of operations worldwide. It is entirely practical to deliver such training without compromising welfare and Duty of Care responsibilities, but it must be regulated to prevent Robust Training being replaced with harsh or inappropriate training that prevents the overall training effect from being delivered.

This Defence Direction assists Commanders[116] involved in all phases of training, in planning appropriate and proportionate training that is challenging, engaging and robust, whilst ensuring that risks are identified and mitigated, so that the trainee is protected from uncontrolled misuse of the term to deliver harsh training, unlinked to a specified training outcome or objective. Commanders should consider this Direction in conjunction with the 'Commanders Managing the Training Environment' Direction. This is contained within this JSP as are other policies relevant to ensuring a realistic and safe training environment. In addition, all training should be designed and delivered in line with the Direction given in this JSP.

This chapter is currently being developed, and therefore Defence Direction for Robust Training in Collective Training will appear here in Version 7.

You can find more information on Robust Training, especially the principles of Robust Training in Volume 2.

[116] 'Commanders' covers those commanding/in-charge of any form of Collective Training. (This includes Reserve units).

9 Annexes

A Generic ToRs for Collective Training CEBs

B Collective Training Authorisation Document (CTrAD)

C Suggested Format for the Recording of Outputs to Inform Refresher Training Requirements

D Team Performance Statement

E Fidelity Analysis Example

F Team/Collective Training Needs Analysis Process Summary

G Formal Training Statement (FTS)

H Assessment Specification (ASpec)

I Learning Specification (LSpec)

J Training Quality Manual Aide-Mémorie

K Generic CEB Agenda and Risk Management Suggested Formats

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Generic TORs for Collective Training CEBs

The purpose of a collective training CEB is to provide a mechanism for stakeholders to develop the scale and content of collective training to match the operational requirement within the available budget and in accordance with relevant Defence and sS policies. The CEB should ensure that training responsibility, authority and accountability, along with resources, are all aligned and that training risk against contingent capability is managed.[117]

Accountability

1. The CEB is chaired by the TDA (or TRA) and holds the TRA and TDA to account for their collective training responsibilities; the CEB reports formally to the TRA.

2. Standalone Collective Training CEBs are only required where the necessary functions cannot be met by other existing structures.

Membership

3. The CEB should include:

   a. a chair to be provided by the TDA (or TRA).

   b. TRA representatives.

   c. TDA representatives.

   d. FinMilCap (environmental and/or Joint) representatives.

   e. Environmental Training Acquisition Organisations where established and/or DE&S TLoD representatives.

   f. Defence policy organisations representatives as appropriate, including TSLD.

[117] CEB responsibilities can be incorporated within other meetings in accordance with Command direction provided that delegation is agreed, recorded and assured.

g. additional stakeholders as appropriate, including Partners across Government (PAGs) and Industry.

h. Training Provider(s) as appropriate.

i. Resources and Plans representatives as appropriate.

Responsibilities

4. The CEB is responsible for:

a. informing the management of risk against contingent capability via collective training.

b. the acceptance of requirements from TRAs.

c. the endorsement of evaluation and certification methods as part of collective training assurance.

d. the direction of collective CTNA as necessary.

e. the deconfliction of resource requirements arising from late notice or emergent operational requirements by trading training priorities against available funding.

f. monitoring adherence to the DSAT QMS.

g. authorising all Collective Training events through completion of a Collective Training Authorisation Document (CTRAD).

h. governing collective training through:

(1) holding TRAs to account for providing justified requirements, for risk acceptance as part of certification, for checking coherence in requirements across Commands, and for ensuring the Training DLoD is resourced.

(2) holding TDAs to account for providing the required collective training, for risk assessment as part of evaluation, and for checking coherence in collective training across Commands.

(3) liaising with Service and Strategic Commands as necessary to ensure that collective training is included in Command Plans and assessed against appropriate metrics as part of the Holding to Account process.

(4) liaising with the DJCTEC for the delivery of Defence-wide exercises in support of assurance.

(5) monitoring performance against key targets in management plans.

(6) liaising with other collective training CEBs.

(7) directing the work of CEB WGs.

Authority

5. The chair is authorised to task working groups in pursuance of the CEB's primary purpose. The CEB has the authority to liaise with Service and Strategic Commands, MOD departments, PAG and Industry as appropriate in support of its primary purpose.

Frequency of Meetings

6. CEBs should normally meet biannually.

Collective Training Authorisation Document (CTrAD)

Collective Training Authorisation Document[118]				
CT Activity and Administration Details[119]				
CT Activity Title:				
CT Activity Code (where applicable):				
CT Activity Purpose:				
CEB Title:				
TRA/Lead TRA:				
TDA/Lead TDA:				
Training Provider/Lead Training Provider:				
Training Audience (and Throughput) Description, Version and Date:				
Training Needs Report Date (where applicable):				
DMTL/MTL Tasks agreed and Date:				
CTOs agreed and Date:				
CT Activity Assurance Processes (Evaluation/Validation/Certification) agreed and Date:				
CT Activity Assurance Responsibilities agreed and Date:				
CT Activity duration:				
CT Activity frequency, per annum:				
No of CT Activity trainees:				
Stakeholder Authorisation[120]				
	Signature[121]	**Name**	**Title/Post**	**Date**
TRA Authorisation of CT Activity:				
TDA Authorisation of CT Activity:				
TP Commitment to Deliver CT Activity:				
CEB approval of CT Activity:				
Next CT Activity, Training Audience and Throughput review date[122]:				
Additional Notes (*Resource requirements etc, including any deviation from the recommended DSAT process*).				

[118] All CTrADs must be reviewed at least once every 3 years.
[119] MCs can adjust these headings to accurately fit their context, provided agreement on the training requirement, delivery and assurance is recorded on the CTrAD.
[120] These boxes must be completed prior to CT Activity taking place.
[121] Signatures can be 'e-signatures' if the CTrAD is attached to an email, for example.
[122] This should be regularly such as annually, or when changes are made to the training need or requirement; or as an absolute minimum, every 3 years.

Suggested Format for the Recording of Outputs to Inform Refresher Training Requirements

1. In order to develop an optimised training system it is important to consider both how Knowledge, Skills and Attitudes are acquired and how they are retained over time. Understanding the rate at which different types of Knowledge and Skills fade can inform training design and the setting of refresher training intervals. In order to conduct refresher training interval analysis, it can be useful to use a more detailed breakdown of Knowledge and Skills than that discussed in Section 1.3.4A – Initial Knowledge, Skills, Attitudes (KSA) Analysis. Literature from psychology and cognitive science suggests that Knowledge and Skills can be broken down as shown in Table 1.

Type	Description	Task Examples
Continuous Psychomotor Skills	The ability to perform (repeated) motor actions that do not have distinct beginnings or endings.	Flying aircraft, driving, soldering and welding.
Discrete Psychomotor	The ability to conduct physical tasks with discrete beginnings and endings. These physical tasks have a procedural element.	Weapon handling e.g. assembling and dis-assembling a rifle; exchange steering box assembly.
Explicit Knowledge	Explicit knowledge required to conduct a task such as facts, principles, concepts, and theories.	Quality and engineering hygiene measures; safety regulations; knowledge of how to use hand tools and testing equipment.
Decision Making	Application of cognitive processes such as judgement, problem solving, reasoning and analysis in order for an individual to arrive at a decision.	Fault diagnosis
Procedural Skills	Ability to remember a sequence of steps and their order so as to execute a task. Application of this type of skill relies on the working memory capacity of an individual, and hence the procedural aspect of the execution of the task is inherently cognitive in nature. Motor or physical elements are minimal.	Fault finding; Navigating through menus and submenus on a digital Battlefield Management System to execute a command.

Table 1: Knowledge and Skills Domains

2. Without practice, continuous psychomotor skills and explicit knowledge are retained for the longest; discrete psychomotor and decision-making skills have moderate retention over time and procedural skills fade the most quickly. The retention of Knowledge and Skills over time is moderated or influenced by how often the task is performed or practised. Table 2 shows the impact of task performance frequency on the retention of the different types of Knowledge and Skills. For example, if discrete psychomotor skills are performed very frequently then the retention level is High. However, if performed infrequently then the retention level is reduced to moderate.

Type	Frequency of task performance	Retention level
Continuous Psychomotor skills Explicit Knowledge	Very Frequent	High
	Moderately Frequent	High
	Infrequent	High
Discrete psychomotor skills Decision- making skills	Very Frequent	High
	Moderately Frequent	Moderate
	Infrequent	Moderate
Procedural skills	Very Frequent	Moderate
	Moderately Frequent	Low
	Infrequent	Low

Table 2: Effect of Task Frequency on Knowledge/Skill Retention

3. The retention level of the Knowledge and Skills for a given task should be taken into account when setting refresher training intervals. Further guidance on refresher training analysis is available from the Competence Retention Analysis Technique (CRAT) User Guide. It is important to note that a number of role-related factors (in addition to frequency of task performance) can also influence Knowledge and Skill fade, e.g. designing equipment, job aids and operating procedures in accordance with good practice (which includes built-in user feedback for equipment and interfaces, logical steps within procedures).

4. Training methods, media and assessment regimes which ensure the effective acquisition of knowledge and skills in the first place also help to reduce skill fade. Table 3 provides a summary of training 'strategies' which can be used to improve knowledge and skill retention. The first column indicates which types of knowledge and skill the strategy is relevant to.

Training Strategies	Description
Job aids (Relevant to all knowledge and skill types)	Provision of a job aid. Job aids can reduce operator memory load and the likelihood of skill fade. Their influence depends on their quality and practicality.
Feedback (Relevant to all knowledge and skill types)	Provision of quality feedback. Detailed feedback stemming from a learner's performance, combined with a chance to improve performance, is important to skills acquisition. Reducing the frequency of feedback during training promotes long term retention and skill transfer.
Communicate utility of training (Relevant to all knowledge and skill types)	Training is perceived as having high utility when a link is perceived between required performance and outcomes valued by trainees. Those who perceive training as valuable are more likely to apply newly acquired knowledge, skills and behaviours to the job than trainees who do not.
Assessment enhanced learning (Relevant to all knowledge and skill types)	Assessment enhances retention, whereas continuous training without assessment has a limited effect on retention. When used frequently during initial training, assessment of performance enhances skill acquisition and retention. Assessment combined with the provision of feedback on performance assists learning and retention.
Provision of recognition cues (Procedural skill type)	Providing recognition cues to learners has been shown to have a beneficial effect on learning and retention, particularly in the retrieval of aspects of long, complex or procedural tasks. For example, recognition cues can be used to 'prompt' a user as to what the next step should be in a task performed on a digital Battlefield Information Management System (BIMS).
Part-task training (e.g. continuous and discrete psychomotor and procedural skill types)	Tasks can be decomposed into components e.g. subtasks. Part-task training involves trainees learning and practising these task components in isolation. Once mastered the whole task should be practised. This strategy is particularly beneficial for very complex tasks with cognitive (e.g. procedural) and psychomotor components.
Appropriate simulation fidelity (e.g. continuous and discrete psychomotor, procedural, and decision-making skill types)	When the acquisition of cognitive skills (procedural/decision making) is required, it is the psychological fidelity of a task and not its physical fidelity that drives skill acquisition and consolidation. However, where cognitive and psychomotor skills are combined high fidelity simulation helps the consolidation of skills.

Training Strategies	Description
Procedural instructions (Procedural skill type)	Structure instructions in a way that will induce learners to expend the cognitive effort needed for effective learning. Inclusion of more general steps helps learning transfer; they force the learner to try to understand the system or domain and engage in effortful cognitive strategies. Inclusion of examples with general instructions supports initial performance, because it helps the learner understand what they needed to do.
Refresher Assessment (e.g. discrete psychomotor, procedural and decision-making skill type)	Assessment of core knowledge, skills and behaviours reduces the burden on refresher training. Training is only required for those task components where performance is below the required level of proficiency. This can exploit advances in new training technologies for the assessment of core knowledge, skills and behaviours at any point in time (individual and collective). Decision-making skills can be assessed using novel scenarios.
Standardised and recorded assessment (Relevant to all knowledge and skill types)	Recording trainee performance helps trainers in making objective assessments of learners' skill acquisition and in targeting the provision of feedback.
Match between training and operational environment (Relevant to all knowledge and skill types)	Retention is enhanced if the training context and situational cues are similar to those which are experienced in the operational environment. Individuals should be exposed to as many different situations and content-based scenarios as possible to promote knowledge and skill transfer.
Overlearning (overtraining) (e.g. discrete and continuous psychomotor, and procedural skill types)	Overlearning refers to the continuation of practising a task after error free performance has been achieved. It can enhance speed of performance after accuracy has reached a ceiling. Effective for both psychomotor and cognitive skills, although any benefits provided are stronger for tasks with a cognitive element (e.g. memory for procedures). Overlearning can benefit, e.g. the acquisition and retention of safety critical drills which can be proceduralised. **It has little effect on long-term retention.**
Variable practice training (Relevant to all knowledge and skill types)	Varying the practice of knowledge and different skills so that items are intermixed across the training programme rather than repeated in concentrated blocks; this enhances long term retention after extended periods of no practice. Acquisition can take less total time and the retention can be 50% better. The optimal inter study interval in distributed training protocols lies between 10-30% of the retention interval with longer inter-study intervals enhancing retention more than shorter inter-study interval. A longer-than-optimal spacing is better than shorter-than-optimal spacing.

Training Strategies	Description
Active learning (Procedural and decision-making skill types)	Active learning can be more effective than guided learning. The instructor creates a training environment in which the trainee can: i) learn to organise new information into existing mental frameworks which hold prior knowledge in order to generate new knowledge about the context; and ii) practise the application of newly acquired knowledge and skills. Knowledge, skills and behaviours attained at a higher (cognitive) level are retained for longer. An example is error management training where trainees are given the opportunity to make errors and learn from them. Trainers should do the following: i) Present trainees with a series of practice examples illustrating the range of different conditions that they may subsequently encounter in the field including any unusual situations; and ii) Encourage trainees to think about these situations, make errors and learn from them. Guided training can be blended with active learning for complex tasks by directing trainees in how to explore training resources and make errors so that it is clear that they are an expected aspect of training. This ensures that trainees experience the same set of errors and do not feel responsible for them.
Task-oriented training (e.g. knowledge and decision-making skill types)	Use the context of a given task to train the knowledge, cognitive skills and behaviours required instead of teaching material at an abstract level without reference to how it will be applied on the job. This strategy optimises the level of original learning and retention.
Standard training scenario (Relevant to all knowledge and skill types)	Use of standard scenarios that are progressive in difficulty would allow students to build on knowledge and skills already gained. Standardisation also enables comparisons to be made between students and training facilities as all trainees would have a standard background.

Table 3: Training Strategies to Improve Retention of Knowledge and Skills

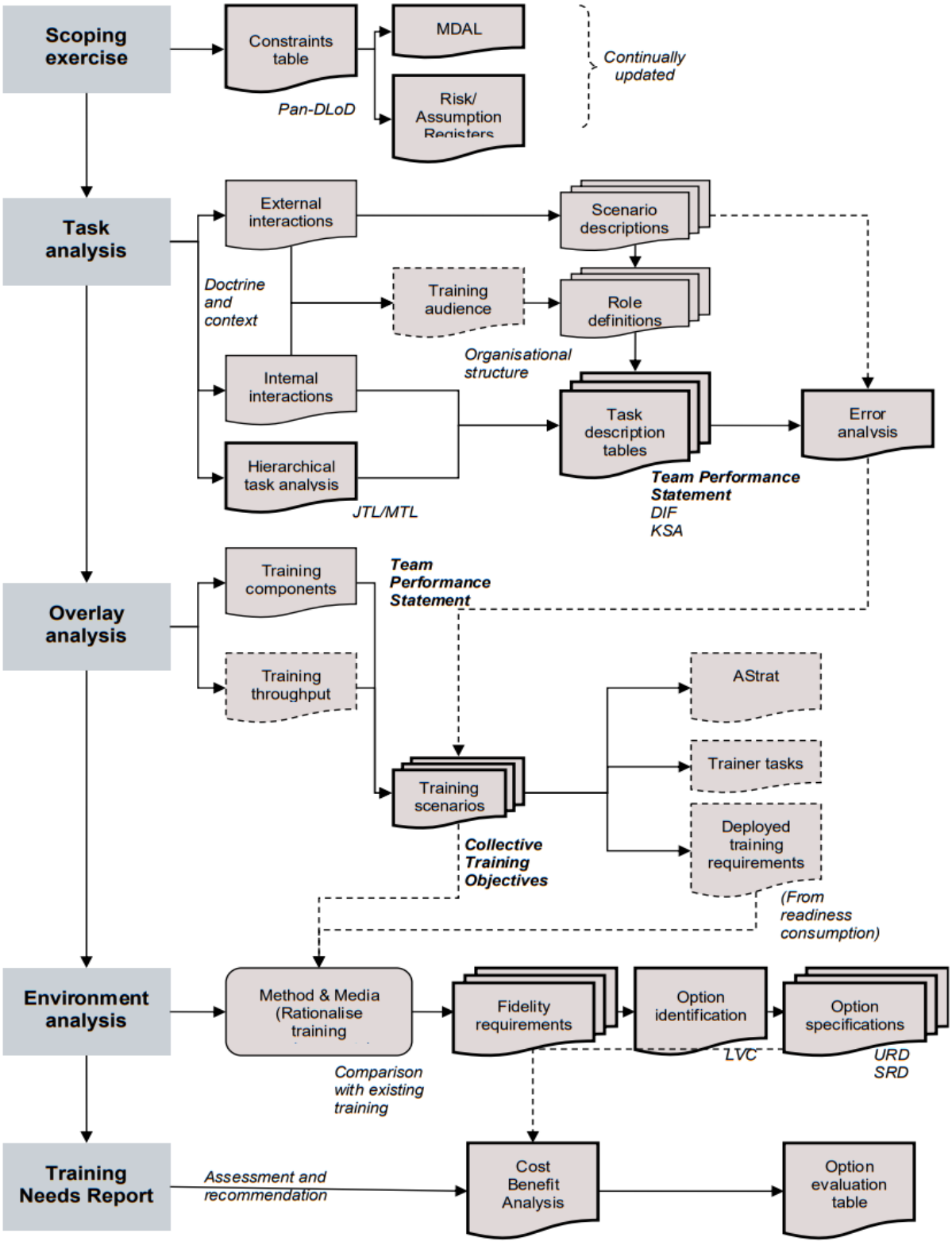
Collective Training Team Performance Statement Example (Team PS)

Currently being developed for JSP 822, Version 7.

Collective Training Fidelity Analysis Example

Currently being developed for JSP 822, Version 7.

Team / Collective Training Needs Analysis Process Summary



Collective Training Formal Training Statement (FTS) Example

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Collective Training Assessment Specification (ASpec) Example

Currently being developed for JSP 822, Version 7.

Collective Training Learning Specification (LSpec) Example

Currently being developed for JSP 822, Version 7.

Training Quality Manual (TQM) Aide-Mémoire

Training Quality Manual (TQM)			
1	**The Management of Training System (MTS) Structure**		
	1.1	Training Quality Policy	Set out the rules regarding the establishment and maintenance of the QMS
	1.2	Processes, sequences and interactions	How the trainees, training, trainers and Training System interact (could be diagrammatical)
	1.3	TQM scope and documentation of the MTS	TQM scope and reference material
	1.4	Exclusions from the TQM	Lists any omissions from the DSAT process that are therefore not covered in the TQM
	1.5	Control of Quality Records and documents	Sets out the procedure for control of records that demonstrate the QMS of the Training System
2	**Management of training**		
	2.1	Management commitment	States the commitment to achieving a quality Training System
	2.2	Training Targets	Identifies and lists suitable and measurable targets to measure the standard of training against
	2.3	MTS planning	Ensures that the MTS adheres to the QMS as laid down
	2.4	Responsibility, authority and communication	Communicates changes to the Training System and TQM updates, ideally through a QMS Working Group
	2.5	Management review	Sets out the procedures for the review of the QMS against the Training System and training need
	2.6	Resource management	Sets out the procedures for ensuring resourcing matches the requirement
	2.7	Human resource management	Sets out the procedures for ensuring staff are appropriate to the requirement competent/qualified, which is documented and maintained
	2.8	Infrastructure and work environment management	Sets out the procedures for ensuring the infrastructure and environment meets the requirement
	2.9	Training activity management	Sets out the procedures for the routine management of the training activity
	2.10	Managing the Customer/Supplier interface	Sets out the procedure for managing the Customer requirements, usually through the CEB
3	**Training documentation**		Sets out the procedure to ensure the currency, approval and fitness of training documentation and their control as Quality Records
4	**Analysis**		Demonstrates adherence (or otherwise) to DSAT process
5	**Design**		Demonstrates adherence (or otherwise) to DSAT process
6	**Delivery**		Demonstrates adherence (or otherwise) to DSAT process

	6.1	Control of Training Delivery	Sets out the procedure to ensure the delivery of training meets the QMS, such as competent trainers, up to date documentation etc.
	6.2	Risk assessments	Sets out the procedure for the management/mitigation of risks (See JSP 822 and JSP 375)
	6.3	Trainee and trainer management	Sets out the procedure for the supervisory care, welfare etc of trainees (See JSP 822, Volume 4)
	6.4	Trainee Records	Sets out the procedure to ensure that all record pertaining to trainees are treated as Quality Records
7	**Assurance (Audit, Evaluation and Inspection)**		Demonstrates adherence (or otherwise) to DSAT process
8	**Acquisition of Training solutions**		Sets out the procedure for the acquisition of alternate/complementary Method & Media options

Generic CEB Agenda and Risk Management Suggested Formats

As a general guide the WG will produce all the information at a lower level and hold detailed discussions whilst the CEB will serve to address Identified risks, assumptions and issues, agree proposed COA and seek further Direction and Guidance as required.

Ser	Item	Possible Outcomes	Lead	Decision Support Information Reference
1	Chair's opening remarks	Introduce attendees, set the context for the CEB and provide any H&S or domestic instructions	Chair	
2	RoDs of last meeting	Confirm accurate record/update on progress since last meeting	Chair	RoADs
3	Action Grid Review	Confirm the action grid is up-to-date and that allocated actions have been progressed	Chair	Action grid
4	CEB Objective 1: **Training Delivery** – Report on TY1 and current Training Issues to include trainer numbers, trainer issues (training, volunteers), Methods & Media selection, statistics (Throughput, failure rate, FTPR), infrastructure issues, resource constraints, end of training reports, feedback etc	Summarise TY Examine whether training is cost-effective and represents VfM Question whether alternative Methods & Media should be considered Confirm sufficient training resources to deliver SOTT Evaluate statistical trends Endorsement of the FTS and AStrat	TDA	• TY1 report • TY1 SOTT (predicted v actual) • Establishment data • DTC returns • Training risks • Statistics
5	CEB Objective 2: **Near-Term Training requirement -** (Content) Future requirement and prioritisation	Identify current training requirements changes Identify future developmental requirements Agree and endorse changes to Role PS and FTS Acceptance of CTrAD/Role PS from appropriate TRA Development of appropriate Joint or Defence training activities	TRA	For all training activities where updates are required: • Role PS • FTS (TPS + WTS + RTGS) • CTrAD • Developing requirements • WG Reports

Ser	Item	Possible Outcomes	Lead	Decision Support Information Reference
6	CEB Objective 3: **Near-Term Training requirement** (Volume) – Endorsement of the SOTR for TY 2 (commencing the following Apr)	Consider SOTT against SOTR Identify risk and agree COA Amend CTrAD as necessary Endorsement of the SOTR for TY 2 Clarification on the implications of any future changes to TY 2. De-confliction of any resource requirements that arise from late notice (less than 12 months from commencement of training) SOTR imbalance by trading SC training priorities against available funding. Report uptake and performance against the SOTT Retention of an audit trail to show why differences between SOTR and SOTT have occurred	TRA	• SOTR - TY 2 • SOTT - TY 2 • CTrAD
7	CEB Objective 4: **Trainee Flow and Future Requirements** (Volume) – discussion of trainee pipeline flow and initial recruitment to inform predictions for TY 3 and 4	Consider SOTR against SOTT Identify risk and agree COA Amend CTrAD as necessary Pursue the optimisation of training, including the efficiency of training pipelines Ensure that appropriate co-ordination is in place between multiple CEBs, where they exist Consideration (in broad terms) of the training requirements currently predicted for TY 3 and 4 and the anticipated ability to deliver that requirement with the resources available Report uptake and performance against the SOTT Retention of an audit trail to show why differences between SOTR and SOTT have occurred	TRA	• SOTR – TY 3 and 4 • WTS • RTGS
8	CEB Objective 5: **DSAT QMS Compliance & Assurance activity**	Examine what assurance activity has taken place (InVal, ExVal) Confirm DSAT compliant – when did the last documentation review take place? Identify risk/agree COA/commit to seeking further Direction and Guidance Task activity to address concerns (including bespoke WGs). Approve AStrat which should include Remedial Training measures iaw JSP 822.	TDA TRA	• 1st party audits • InVal reports • ExVal reports • 2nd party audits • Inspections • Ofsted inspections
9	CEB Objective 6: **Injuries in Training**	Where relevant, identity type and scale of injuries and if required agree appropriate COA Examine injury trends	Chair	• Training Injuries data capture to be provided by SMO

Impact to Training	Likelihood						
	7 Extreme (will definitely occur frequently)	**6 Severe** (will definitely occur regularly)	**5 High** (will definitely occur on occasion)	**4 Mod** (will probably occur regularly)	**3 Low** (will probably occur on occasion)	**2 V Low** (likely to occur on occasion)	**1 Minimal** (Unlikely to happen)
6 Total (Trg Failure)	10	10	9	8	7	6	5
5 High (Trg Compromise)	10	9	8	7	6	5	4
4 Significant (Trg activity Compromised)	9	8	7	6	5	4	3
3 Moderate (Trg Supporting Effect Fails)	8	7	6	5	4	3	2
2 Low (Low Impact to Trg activity)	7	6	5	4	3	2	1
1 Negligible	6	5	4	3	2	1	1

Frequently = Daily
Regularly = Weekly
On Occasion = Monthly

ID of Risk (Step 1)	Analysis of Risk (Step 2)			Plan/Manage Risk (Step 3-4)					Remarks
	Like	**Imp**	**Risk**	**Proactive Measures**	**Reactive Measures**	**Like**	**Imp**	**Res Risk**	