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‘Goodbye Mr Chips?’ Modernising Defence Training

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Executive Summary

Training is crucial for enabling UK Defence to deliver operational success, and broadens the potential talent pool by allowing Defence to recruit people who can develop the necessary skills, rather than simply competing for pre-trained talent (which often is in short supply). The breadth and scale of military training is significant, with a clear management process – the Defence Systems Approach to Training (DSAT) – in which requirement-setters identify training needs that are passed to delivery authorities, who design and deliver the training; the requirement-setters then review the training to ensure that it provides what is needed. While this sets a structured framework for training, there are challenges Defence must overcome to improve the efficiency and effectiveness of its training system. These challenges exist across several areas: culture; system governance; processes; training delivery; the wider learning environment; and workforce capacity.

Pockets of good practice exist in Defence, and much could be gained from sharing these more widely, but lessons should also be learned from training practice outside Defence. This paper identifies improvements in four key areas to help modernise Defence training and prepare the armed forces for the challenges to come:

- Upskilling the whole training workforce by improving the training given to any personnel engaged in training others ('train the trainer').
- Improving training delivery through more personalised 'learning journeys', active learning and greater use of technology.
- A better understanding of Defence training as a system and as a crucial component of military capability via clearer lines of accountability, better use of data, and mechanisms allowing training to be more responsive to changing individual and organisational needs.
- Partnering with external organisations that can complement Defence's skillset by supplying adult education (andragogical) expertise.

Introduction

Recent defence and security reviews have identified a strategic context wherein armed forces face a 'more contested and volatile world'.[1] Simultaneously, rapid advances in technology have changed the way armed forces operate and mean that Defence must constantly refresh its skills base by bringing in new talent and, increasingly, reskilling and repurposing its existing talent. The Integrated Operating Concept[2] and the Haythornthwaite Review[3] corroborated this, highlighting the importance of people in providing the 'adaptive edge'.[4] The Defence Command Paper Refresh stated that Defence would 'better target our training and education … to upskill those that we recruit and … those already in our workforce', with 'skills at the heart of the way we access, plan and manage our workforce'.[5] Attracting and retaining the necessary talent, however, is challenging, with more people leaving the forces than are joining.[6]

Although the armed forces have shrunk substantially since the Cold War[7] and represent a relatively small draw on the overall UK population,[8] not all people are eligible – for example on health, lifestyle (drugs) or fitness grounds – or indeed willing to join. And so, while the UK population is growing in absolute

1. HM Government, *Integrated Review Refresh 2023: Responding to a More Contested and Volatile World*, CP 811 (London: The Stationery Office, 2023). Earlier reviews are: HM Government, *National Security Strategy and Strategic Defence and Security Review 2015*, Cm 9161 (London: The Stationery Office, 2015); HM Government, *Global Britain in a Competitive Age: The Integrated Review of Security, Defence, Development and Foreign Policy*, CP 403 (London: The Stationery Office, 2021).
2. Ministry of Defence (MoD), 'Integrated Operating Concept', 2021.
3. Rick Haythornthwaite, 'Agency and Agility: Incentivising People in a New Era – A Review of UK Armed Forces Incentivisation', June 2023, para. B xxvii, p. 20.
4. MoD, 'Integrated Operating Concept', p. 9.
5. MoD, *Defence's Response to a More Contested and Volatile World*, CP 901 (London: The Stationery Office, 2023), p. 20.
6. MoD, 'Quarterly Service Personnel Statistics 1 April 2023', 22 June 2023, <https://www.gov.uk/government/statistics/quarterly-service-personnel-statistics-2023/quarterly-service-personnel-statistics-1-april-2023>, accessed 6 July 2023.
7. On 1 April 1990, there were 277,500 trained members of the regular armed forces and 90,600 reserves and auxiliary forces. The comparative figures for 1 April 2023 were 133,570 full-time trained personnel and 30,360 trained reserves. See Government Statistical Service, 'Defence Statistics: 1992 Edition', 1992, tables 2.5 and 2.6, <https://webarchive.nationalarchives.gov.uk/ukgwa/20140116144657mp_/http://www.dasa.mod.uk/publications/UK-defence-statistics-compendium/1992/1992.pdf>, accessed 13 August 2023; MoD, 'Quarterly Service Personnel Statistics 1 April 2023', Chapter 1.
8. The armed forces recruit approximately 14,000 people per year: 11,982 people were recruited between 1 October 2021 and 30 September 2022; 17,070 between 1 October 2020 and 30 September 2021; and 14,582 between 1 October 2019 and 30 September 2020; meanwhile the UK population of 16–24 year olds is 7,063,477. See MoD, 'Quarterly Service Personnel Statistics', 2022, 2021 and 2020; Office for National Statistics, '16-24 Year Old Population', 15 August 2023, <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/timeseries/jn5r/lms>, accessed 26 August 2023.

terms, this growth is largely driven by migration and by increases in groups from which the military struggles to recruit. Moreover, the armed forces' nationality requirements mean they must compete with other employers for UK domestic talent. This is not unique to the UK; there are global shortages of STEM (science, technology, engineering and mathematics) skills, and Defence is in a 'war for talent'[9] against more flexible and adaptable commercial employers.

Noting the demands of new technology and forms of warfare, the Ministry of Defence's (MoD's) 2019 Defence People Strategy identified the challenges of a changing labour market and workforce expectations: in a world where more people may not commit to lengthy, linear careers, but instead choose to zig-zag in and out of professions and employers over longer working lives, Defence's traditional people model will struggle; and while the totality of the Defence offer, including pay, must be competitive, Defence cannot win the war for talent fighting on salary alone, and nor should it try to, given wider affordability challenges.[10] Greater flexibility in accessing talent developed and employed in other parts of the 'whole force', including industry,[11] would help mitigate the risk. However, without the freedom to pay full commercial salaries and differentiate pay across the workforce to target the skills that are in short supply (potentially at the expense of those whose skills are less in demand), the availability of extensive learning and development opportunities is and remains crucial for ensuring the armed forces have access to the skills they need.

Moreover, the recruiting pool is widened because Defence can recruit untrained personnel and provide them with the right skills, although retaining these skilled people is a different challenge.[12] More broadly, the nation benefits when trained personnel leave the forces to join the wider economy, as such people have valuable technical, leadership and management skills. This also enables social mobility. As digital technologies develop, these kinds of human skills are likely to be in greater demand for honing the uniquely human contribution to human–machine teams.[13] Like digital expertise, these skills are expected to be in short supply, and are often harder to develop.[14]

9. The term 'war for talent' describes an increasingly competitive (global) environment for recruiting and retaining skilled staff. See Ed Michaels, Helen Handfield-Jones and Beth Axelrod, *The War for Talent* (Brighton, MA: Harvard Business Press, 2001).
10. MoD, 'Defence People Strategy: Part One', 2019. This was published internally within the MoD.
11. The 'whole force' comprises regular and Reserve Service personnel, civil servants and industry. MoD, *Defence Reform: An Independent Report into the Structure and Management of the Ministry of Defence* (London: The Stationery Office, 2011).
12. MoD, 'Quarterly Service Personnel Statistics 1 April 2023', Chapter 1.
13. Christina Balis and Paul O'Neill, 'Trust in AI: Rethinking Future Command', *RUSI Occasional Papers* (June 2022), p. 31.
14. Lizzie Crowley, 'Tackling the Future "Human" Skills Deficit Together', CIPD Voice, 25 October 2019, <https://www.cipd.org/uk/views-and-insights/thought-leadership/cipd-voice/tackling-human-skills-deficit/>, accessed 26 August 2023.

Learning and development is also highly attractive to young people, especially those from ethnic minority backgrounds, so an improved approach to training, including allowing more personalised learning journeys, could broaden Defence's appeal as an employer.[15] Meanwhile, greater flexibility and a focus on skills-based training could open up new career pathways for those already in Defence, aiding retention, but this must be accompanied by improvements to the learning environment so that it better reflects a contemporary learner's expectations.[16] Far from being an overhead or a luxury, therefore, learning and development is a vital tool for ensuring that the armed forces have the skills to deliver in the 'more contested and volatile world' described by the Integrated Review Refresh 2023. The Haythornthwaite Review identified that more agile approaches to training were needed, drawing on digital delivery, but did not conduct 'a detailed analysis of what training is needed'.[17]

Scope

This paper complements the defence and security reviews by examining how individual training and education – rather than that delivered to units (collective training) – should change to deliver more effectively the skilled workforce that Defence needs. While this paper focuses on learning and development for individual members of the armed forces, many lessons also apply to the civil service, although the breadth and depth of learning and development offered differ substantially.

This paper first describes the framework within which the armed forces conduct their training, before identifying six challenges constraining the current system's ability to maximise the value of Defence training and education. Then, drawing on examples of good practice inside and outside Defence, the paper concludes by highlighting how Defence training might be improved for greater efficiency and/or improved effectiveness of the already significant investment UK Defence makes in its people. The paper's findings are based on both primary and secondary research conducted over five months, involving 32 structured interviews with people managing, delivering or supporting individual training and education: these people range across UK Defence, international armed forces, academia and training providers. The paper also draws on literature dealing with good learning and development practice.

15. Author interview with Head of Secretariat, Haythornthwaite Review Team, online, 13 March 2023.
16. Haythornthwaite, 'Agency and Agility', Recommendation 37, p. 65.
17. *Ibid.*, para. 4.13, p. 70.

I. Defence Training Framework

The British armed services are consistently in the top 10 of UK apprenticeship providers, with 24,800 people undertaking their apprenticeships in 2022.[18] In 2023, the British Army was the top UK apprenticeship provider, with the Royal Navy third and Royal Air Force seventh.[19] Its breadth of employment is huge too, with a uniformed and civilian workforce of over 200,000, ranging from relatively low skilled manual labour through to cyber experts and nuclear scientists. The Services describe 242 different roles on their websites,[20] and civil service roles add even more. These disparate trades, some of which are unique to Defence – such as combat roles – come with specific training burdens. Despite the evident scale of training and its associated investment, the MoD cannot provide a definitive figure of how many people are in training at any one time, or the cost. Indeed, there appears to be no consistent definition of, or systematic data on, training costs.[21]

Types of Training

Defence divides training into 'individual' and 'collective' categories. Individual training concerns the knowledge, skills, behaviour and attitudes of the individual. Beyond this, collective training aims to develop units and formations in order for them to function as cohesive entities. While the Chief of Defence People (CDP) is the owner of the process for individual training, collective training responsibility sits with the individual Services, and with Strategic Command. The bridge between the two types of training is a crucial one, where the historically linear progression of individual courses followed by progressive collective training needs to be reconsidered given the smaller workforce, faster-changing skills and ever-increasing demands on forces held at readiness.

18. Breakdown of British armed services' apprenticeships: Level 2 = 11,642; Level 3 = 10,576; Level 4 = 2,415; Level 5 = 32; Level 6 = 131; Level 7 = 4. Author interview with Head of Talent, Skills, Learning and Development, MoD, 1 February 2023.
19. Apprenticeships, 'Top 100 Apprenticeship Employers Rankings 2023', <https://topapprenticeshipemployers.co.uk/files/Top100AE23.pdf>, accessed 13 August 2023.
20. Royal Navy, <https://www.royalnavy.mod.uk/careers/>; British Army, <https://www.army.mod.uk/people/careers/>; Royal Air Force, <https://recruitment.raf.mod.uk/?gclid=154b71e1cbed1f4a8e83151bd76d2c29&gclsrc=3p.ds&msclkid=154b71e1cbed1f4a8e83151bd76d2c29>; civil service, <https://www.civil-service-careers.gov.uk/>, accessed 22 March 2023.
21. Haythornthwaite, 'Agency and Agility', para. B.xvi, p. 17.

Individual Training – Phases

While much of the forces' technical training happens in Joint schools, Service-specific training still abounds, especially in the early stages of an individual's career. Even in 'Joint' schools, many courses are exclusively 'single Service', reflecting that Service's specific needs and different career structures. The MoD identifies three phases of training:

- Phase One training is synonymous with basic training: how the armed forces turn civilians into military personnel. It is delivered on a single Service basis, with separate schools and programmes for officers and non-commissioned personnel. For regulars, these are often lengthy residential programmes delivered at central locations,[22] although course duration differs by Service. For reserves, the training is usually shorter and conducted regionally or at their home unit.
- Phase Two provides initial specialist training, where individuals are trained for their specialisation. The content and duration of the training depends on the role. Courses are mostly bespoke to each Service, even where they are run in Joint schools. Some non-commissioned personnel complete Phase One and Phase Two training, usually with some additional workplace training, in just under a year. More demanding roles require longer courses, and often gaps between courses (for example, engineer or pilot roles can require many years before they become 'productive').
- Phase Three covers all individual training and education after completing Phase Two. It includes further professional and general management training linked to promotion and career development, and broader Professional Defence and Security Education (PDSE). Further professional training is generally delivered within the single Service systems that delivered Phase Two training. Promotion-based command, leadership and management training is routinely provided by the individual's Service (for example, non-commissioned officer and officer promotion courses). PDSE is delivered either by single Services (intermediate command and staff courses) or as Joint training (advanced and higher command and staff courses and Royal College of Defence Studies). There are also sponsored places for personnel to study, full time or part time, at civilian universities. Phase Three courses range from a few days to over a year. Most courses result from a specific requirement of a Service person's career.

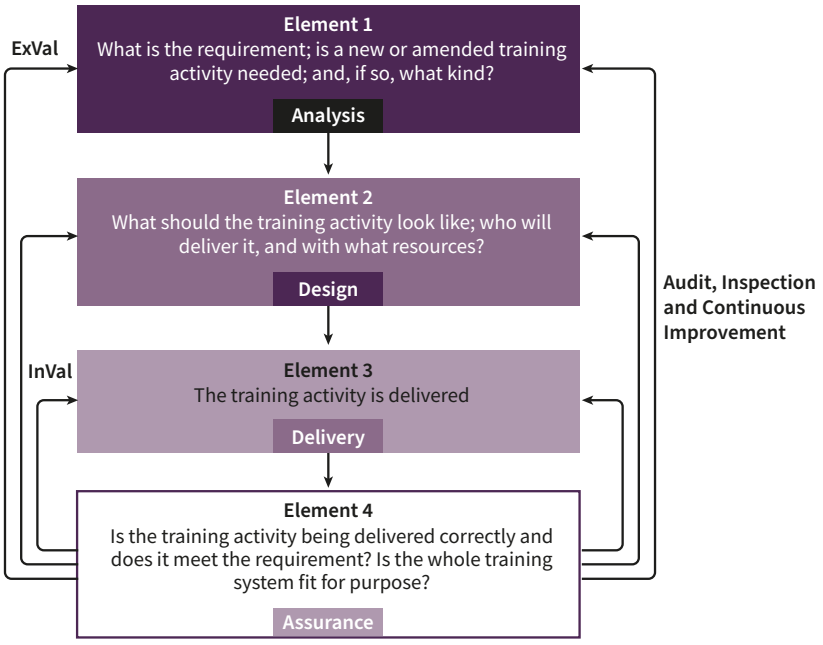
22. The locations are – Royal Navy: officer, Britannia Royal Naval College; non-commissioned, HMS *Raleigh*. Army: officer, Royal Military Academy Sandhurst; non-commissioned, training centres at Catterick, Pirbright and Winchester. Royal Air Force: officers, RAF College, Cranwell; non-commissioned, RAF Halton (RAF Honington for RAF Regiment).

Separately, individuals must complete annual mandatory training to achieve central competencies such as data protection, heat illness training, the law of armed conflict and unacceptable behaviours awareness. These are mostly delivered online and can be as short as 30 minutes.

Individual Training – Governance

Almost all Defence training is governed by the 'Joint Service Publication (JSP) 822: Defence Direction and Guidance for Training and Education'.[23] A comprehensive document (679 pages), it describes the Defence Systems Approach to Training (DSAT), covering the analysis, design, delivery and assurance of training (see Figure 1). Assurance consists of: internal validation (InVal) – did the training deliver the syllabus?; and external validation (ExVal) – did the training achieve what was intended?

Figure 1: Elements of DSAT



Source: MoD, 'Joint Service Publication 822: Defence Direction and Guidance for Training and Education: Volume 1', last updated September 2022, p. 7.

23. MoD, 'Joint Service Publication 822: Defence Direction and Guidance for Training and Education', last updated September 2022.

DSAT involves three main actors:

- Training Requirements Authority (TRA): responsible for defining the high-level training need (content and numbers to be trained) and ExVal. Generally, these authorities sit within the Commands, although CDP is the TRA for some joint training.
- Training Delivery Authority (TDA): responsible for training design, delivery (which can be outsourced) and InVal.
- Training Provider: the school or unit conducting the training.

Training Challenges

Defence gives learning and development an impressive priority and level of resourcing. Because Defence is a contingent capability, training becomes the substitute for war, as well as the preparation for it. Between operations, training is the organisation's purpose, while also contributing to the effective management of the Defence enterprise in peacetime. Consequently, Defence invests more in learning and development than most employers. Its investment in senior leadership is exceptional, with individuals likely to have spent well over a year in fully funded formal education. However, the current training system often struggles to meet the demands placed on it in terms of the need for greater agility in a more heavily committed force whose skills need replacing more often. Six challenges are identified below, but they are not universal: examples disproving the points can be found, but on balance there are more examples proving the need for modernisation across culture, system governance, process, training delivery, learning environment and workforce.

Culture

Defence invests heavily in training, and the different Defence training cultures share some – broadly common – constraining characteristics:

- **Mechanistic.** Training is largely mechanistic in nature, being part of an industrial machine that frontloads training early in a career, with later interventions taking place as people pass through career gates (such as promotions or postings). This drives an approach that generally takes little account of prior learning or the need for individual learning journeys. This kind of approach suits static environments where the skills required remain predictable over lengthy careers. However, the pace of technological change and the rapidly fluctuating demand for skills mean that frontloaded training models supporting rigid career siloes are ill-suited to today's Defence

environment. A more fluid/organic approach to talent development is needed: one that gives individuals more agency in 'whole life' learning.[24]

- **Talent definition.** Another cultural challenge is Defence's limited conception of 'talent', which is too often synonymous with those rising to the most senior ranks. Much of the PDSE offer is concentrated on this particular talent pool, where the value of higher courses is often seen as being in the act of being selected rather than in the learning itself, because selection confirms individuals are in the 'talent pool'. A broader definition of talent covers anyone 'who can make a significant contribution to organisational performance'.[25] Democratising access to learning and development would capture more of Defence's talent and improve productivity.[26]
- **Train to pass.** Linked to the way in which Defence conceives 'talent' is how that conception shapes training design and delivery. Often, this produces training that is seen as a bar to be cleared or as a badge of honour for those succeeding, rather than creating programmes that seek to help people pass.[27] The wastage rates from Royal Marines and Army Phase One training are typically 40–60% and 30% respectively, which is expensive in terms of recruitment capacity and wasteful of human talent – a problem Defence is looking to address.[28] Wastage also impacts disproportionately on certain groups; for example, women are twice as likely to receive a musculoskeletal injury during Army basic training (Phase One) and be discharged.[29] The redeployment to other roles of those who fail mitigates the impact of the current culture, but it might be better to orient training around a philosophy that aims to help people reach the required standard.
- **Accreditation.** The MoD has invested in improving the recognition of Defence-provided training and education, but has done less well in recognising learning gained elsewhere. People often have the skills Defence needs, but, because these skills were acquired elsewhere, must still undertake lengthy Defence-provided courses. While this is also true of regulars, it has a greater impact on reserves, whose civilian employment may overlap with their military role. A culture of greater openness to learning and expertise gained elsewhere, including through pre-course learning assessments that allow people to skip modules they already understand, could enhance efficiency and effectiveness.

24. Haythornthwaite, 'Agency and Agility', p. 70.
25. CIPD Factsheet, 'Talent Management', 6 October 2022, <https://www.cipd.org/uk/knowledge/factsheets/talent-factsheet/>, accessed 1 May 2023.
26. Paul O'Neill, 'In a Competitive Era, Look Beyond Integration Towards Adaptability', *RUSI Journal* (Vol. 166, No. 2, 2021).
27. Author interview with Clair Mowbray, Capita Fire and Rescue College, online, 10 May 2023. Mowbray contrasts the different approaches taken by Defence and civilian fire services to those struggling with training.
28. MoD, 'FOI 2022/09959', 11 October 2022, <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1138770/FOI2022-09959.pdf>, accessed 30 June 2023.
29. MoD, 'Interim Report on the Health Risks to Women in Ground Close Combat Roles', 2016, p. 6.

This might also enhance motivation and retention since the time and effort expended in gaining skills, knowledge and expertise would be properly recognised.

System Governance

Inevitably, managing delivery against Defence's diverse training needs, delivered by a diffuse set of actors, requires breaking the whole training system into manageable chunks. However, doing so means that Defence lacks a view of the whole system, there being no single place where training strategy, training and operational risk and governance align. This means that training can become stovepiped, with the outcomes of one training element not aligned to the inputs of later courses. At one level this is reflected in the separation of the collective and individual training elements, which fragments the system for delivering forces that, collectively, can 'defeat the King's enemies'. For example, training of future commanders at most Phase One officer academies and the Joint Services Command and Staff College is done at an individual level, with relatively little involvement of the groups such officers are being trained to lead.[30] Involving these groups would have benefits, but may be impractical at scale given the bureaucratic challenges of trying to align multiple programmes (all of different length).

Fragmentation. Another problem associated with separating individual and collective training is that the feedback loop between operational need and individual training can be weak. In this context, the Army has introduced the Battlecraft Syllabus to help close the gap between the output of individual training and the input standard for collective training.[31] There are also other positive signs, with Director Land Warfare trialling new approaches that bridge individual and collective training, allowing them to be conducted in parallel, and with feedback mechanisms permitting each to shape the conduct of the other for greatest effect. In the Royal Navy, meanwhile, Project Selborne is represented at the Navy's Senior Management Board, alongside representatives of those delivering collective training.[32]

Risk transference. Even within individual training, the lack of a 'whole system' view causes problems. Training can become viewed and assessed in its own terms, and not as part of achieving something larger – that is, the ability to

30. The Commando Training Centre at Lympstone is a notable exception, but the RAF has planned for many years to try to connect officer and recruit training when RAF Halton (Phase One training site for enlisted personnel and Phase 3 training site for non-commissioned officers) closes and moves to the RAF College at Cranwell, where RAF officer Phase One training takes place.
31. Author interview with official, RSME Chatham, online, 23 June 2023.
32. Author interview with Nick Juba, Director of Learning, Capita, online, 3 April 2023.

deliver an operational output. Consequently, questions of effectiveness and efficiency can become self-referential and drive perverse outcomes, for example where course lengths are cut to reduce costs, with the training gap then passed to the frontline, which is not resourced to close the gap effectively. The RAF's Project Socrates has reduced the time in residential training by over 32% since 2015,[33] with more responsibility for training passed to the frontline – for apprenticeships, this can amount to as much as 70% of the learning. Perhaps the most extreme example was the RAF Personnel Branch training course: there was no classroom-based Phase Two training, and students went straight to their units and learned on the job. Material was provided remotely by the Personnel Administration Training Wing in the Defence College of Logistics, Policing and Administration. Consequently, units that had previously received fully trained individuals faced an additional training burden, while lacking the resources to absorb that burden or the skills to conduct the on-the-job training required. Moreover, trainees' jobs were not redesigned to allow untrained job holders to balance output and learning. The TRA recognised the risks of this approach, and a hybrid course was developed, combining four weeks of classroom training (40% of the previous classroom time) with online learning undertaken at units. In this case the vulnerabilities were noted, but this pattern of reducing the time spent in training schools is a recurring feature of Defence's 'modernisation' attempts that often merely move the risk elsewhere.

New requirements. The reverse problem also exists, with higher demand for new generic education subjects to be added to programmes to raise awareness of particular areas, most notably in Phase One training and PDSE. Interviewees for this paper highlighted constant pressure to add more training modules to courses – for example, mandatory equality, diversity and inclusion, cyber, data protection and space awareness training. While each module may be relatively short, adding a one-hour annual mandatory training package represents the equivalent of 114 people's output each year,[34] and the new Space Foundation Course for new Service personnel[35] is eight hours long. Regardless of the individual merit of any mandatory training – and all have a Defence 'sponsor' to champion the topic – elements are often added to already busy syllabuses without other material being cut to make room. In the absence of a single owner of the whole system, and given the limited (at best) understanding of direct and lost-opportunity costs, the growth of mandatory training has been relatively unchecked at system

33. Author interview with HQ 22 (Training) Group RAF official, online, 29 March 2023.
34. Based on 250,000 workforce size (159,000 regulars, 32,000 reserves and 60,000 civil servants), and an assumed productive year of 220 days or 1,760 hours, based on 260 working days, and deducting annual leave, assumption of other absences and diversions.
35. House of Commons Defence Committee, 'Defence Space: Through Adversity to the Stars? Government Response to the Committee's Third Report', Fourth Special Report of Session 2022–23, 11 January 2023, p. 3.

level; although Defence has now instituted a 1* board to review mandatory training.[36]

One weakness in the current training system, therefore, relates to developing people and organisations with the ability to see the complete system (of which training forms a part) and to see how the Training Line of Development impacts on, and is impacted by, other Defence Lines of Development (DLODs).[37] For example, catering contracts specify mealtimes that prevent out-of-hours lessons at Phase One training establishments. A system view might mitigate some of the challenges to training modernisation where it only focuses on a narrow aspect of the system and not the whole. As one interviewee put it, Defence is 'trying to transform using a system and people designed to manage evolutionary development [and] from which much of the capacity has been cut'.[38]

Process

The DSAT framework, and the way in which Defence enters into contracts with training partners, present two challenges:

DSAT

DSAT (and other valid training models) have the same basic elements: analysing the need; determining how to train; delivering the training; and operating feedback mechanisms. DSAT's problem is that in practice it is neither well understood nor properly implemented, and consequently it is slow and overly bureaucratic. This is primarily a resourcing issue: when the Services are short of personnel, training schools are not the top priority when assigning staff, and consequently there are not enough people managing the DSAT process. Moreover, DSAT is complicated. Although JSP 822 has been made more accessible,[39] its 679 pages (of which 235 relate to individual training) are impenetrable to all but those with time to read it carefully. Indeed, there are companies specialising in providing consultancy services for DSAT, including training needs analysis and course design, to supplement the expertise inside the Defence establishment. Finally, the turnover of military personnel makes it difficult to build expertise that might enable shortcuts to be employed or judgements made about the risks

36. Author interview with Defence training official, online, 29 March 2023.
37. The DLODs are: training; equipment; personnel; information; concepts and doctrine; organisation; infrastructure; logistics. MoD, 'How Defence Works', Version 6, September 2020, p. 21.
38. Author interview with official at the Defence Academy, 6 March 2023. The Defence Academy cut staff numbers by 37% between 2014–24.
39. Author interview with Head of Talent, Skills, Learning and Development, MoD, online, 7 March 2023.

and benefits of deviating from the process while abiding by the policy's spirit (even if straying from its formal stipulations).

DSAT is cyclical, but cycling through it is often slow. In many cases, ExVal occurs every five years, which, given the speed at which battlefield realities are changing – as shown by the Ukraine conflict, for example – is too infrequent. For an organisation that aspires to be agile and adaptive, this represents a significant weakness. Such evaluation need not take so long: during the Iraq operation (from 2003), the review process concerning counter-improvised explosive devices was achieved within days.[40] While this kind of rapid learning is not necessary for all skills, the ability to incorporate new knowledge – even that acquired by other institutions – more quickly into the training system will be vital if the armed forces are to compete in a world in which technology (and warfare) advances rapidly.

The separation of requirement-definition (under the TRA) and delivery (under the TDA) ensures that training delivery is assessed against the organisation's needs, allowing deliverers to focus on how learning is best enabled. This generally works well when delivery sits within the same Service as the requirement-setter and end user. It is, however, less effective where end users have weaker organisational relationships with the TDA (such as different chains of command) or for generic Defence requirements separate from an individual's core task. In these circumstances, there can be a disconnect: users and/or TRAs can demand things the TDA cannot deliver, or TDAs can prioritise what they are able to teach – or can afford to teach – rather than what is actually needed. For example, the advanced command and staff course (ACSC) prioritises 'staff skills' more than 'command'. Whether ACSC would be better placed educating joint command rather than teaching more process-oriented planning skills is worthy of consideration.[41] Meanwhile, in Army HQ, the absence of a TRA function has seen the Land Warfare Centre, a TDA, drive training requirements from the bottom up.

Management of the training pipeline is often overly bureaucratic. The statements of training requirement (SOTR) and training task (SOTT) are important tools connecting inflow (recruitment) to training and managing the capacity in the training system. As with other parts of DSAT, the concept is good, but often unresponsive in practice. Interviewees reported that it took two to three years to change the SOTR/SOTT through formal routes, a process often mediated by strategic workforce planning models (which in many cases reflected the previous

40. Author interview with Brigadier Alistair Deas (retired), Defence Training Director (Land), Babcock International, online, 12 April 2023.
41. Author interview with Lieutenant General Sir Paul Newton (retired), former Commander Force Development and Training, British Army, online, 6 April 2023.

year's task, with some allowance for under-delivery, either because people were not recruited or they did not complete their training). The consequence of this is that the pipeline slows down and people have to wait longer than is strictly necessary before they are trained.

While DSAT can work well, it is better suited to more static environments where requirements are recognisable because the technology and its use are familiar. In dynamic and transformative environments – where the principle of linear progression does not apply – it is difficult to identify a training need. Emerging technology in particular poses problems, because TRAs may struggle to define requirements in a fast-moving landscape. To mitigate this challenge, training objectives can be defined very broadly to give TDAs the freedom to iterate their training, but commercial staff might struggle to agree to contracts if Defence cannot formally articulate needs that it does not yet fully understand.

Contracting

Contracting with commercial training providers helps to ensure Defence has the requisite andragogical (adult learning) skills in the workforce and can inject fresh ideas into training. However, the contracting process is slow, and contracting for services suffers from many of the same challenges as contracting for equipment. For example, SimCentric has developed a computer-based simulation for weapons handling that reduces lessons from 16 hours to 45 minutes, and which has improved pass rates from 68% to 98%. However, its introduction has been constrained by contractual processes and the absence of a holistic training strategy that guides the balance between live and synthetic, or in-person and online, learning.[42] Even multi-year contracts are often tightly specified, and focused on inputs rather than outputs or outcomes, which limits scope for flexibility/adaptability, although there are notable exceptions in the Royal Navy and Army.

This context makes it difficult to form the kinds of partnerships that would bring most value by harnessing the complementary talents of the MoD (context and subject expertise) and contractors (learning styles and technology). Holding contractors to account for the number of classroom hours, for example, actively disincentivises forms of training that could shorten courses or which involve different means of delivery that could be more effective. Hence, contractors are effectively disincentivised from adopting innovative ways of delivering training that would reduce contact time. Moreover, by over-specifying requirements such as practical training areas and equipment, Defence either makes little use of

42. Author interview with Tom Vallings, former Assistant Head Training Plans, Land Warfare Centre, online, 23 June 2023.

expensive infrastructure/equipment (for example, 19% classroom utilisation at Lichfield[43]), or has to update training equipment regularly (which can be difficult, because it often has a lower priority than operational equipment). Further education colleges, typically less generously resourced, make more efficient use of their facilities by focusing on generic training aimed at general principles and how to apply them to different situations, rather than Defence's more workplace-specific learning approach.

The over-specification of requirements also tends to drive transactional rather than relational approaches to the task. Multi-year contracts are likely to be more effective when managed by partners rather than where one side holds the other to account for pre-specified deliverables. Evidence of the negative effect of more transactional positions can be seen in the difficulties unit commanders have in sharing information with their contractors, even where they are keen to do so.

Delivery

Much Defence training is delivered in person, as part of lengthy programmes that remove people from the frontline. The trigger for training is often less to do with an individual's needs and more because a career gate has been reached – a promotion or a posting. While these are reasonable grounds to suggest training interventions are warranted, Defence's industrial approach, where trainees are processed largely without regard to their existing skills or knowledge, lacks flexibility. It prioritises neatness of planning – common start and end dates, simpler instructor scheduling and so on – over training needs. It is also increasingly out of step with shifts in strategic workforce planning, talent management, and learning and development towards skills-based approaches that link training to skills rather than roles/jobs. The skills-based approach allows personalised training that accommodates individual's pre-existing skills and avoids unnecessary training.[44] The emerging Defence Talent and Army Skills Frameworks could provide the basis for the transition to a skills-based model.

The didactic nature of much Defence training was repeatedly highlighted in the interviews conducted for this paper: that is, instructors leading students through the learning. This approach also means lessons often focus on facts and concepts,

43. As reported in 2018, Lichfield's average classroom utilisation was 19% (peaking at 33%). See document released by MoD under Freedom of Information Request 2019/02577, Defence Infrastructure Organisation, survey report, 'DMS Lichfield Utilisation Survey', 19–23 March 2018, <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/823011/20190412-FOI02577_Bracken.pdf>, accessed 25 August 2023.
44. Ryan Roslansky, 'You Need a Skills-Based Approach to Hiring and Developing Talent', *Harvard Business Review*, 8 June 2021.

rather than on the higher-level objectives described in Bloom's revised taxonomy,[45] reducing the return on training in comparison to those that provide a more active and social learning experience. Pockets of good practice do exist, such as the 'flipped classroom' approach at the Royal School of Military Engineering (RSME) at Minley,[46] but elsewhere lessons often transfer knowledge from instructors to students who are largely passive recipients. This is often a function of lesson design, instructor experience and classroom layout that reflects historical teaching environments, albeit with electronic rather than chalk boards. 'Reflective learning' is often driven out by the desire to be more 'efficient', either forcing students to extend their learning days in order to reflect and make sense of what they have been taught, or restricting the learning to facts that can be taught easily but which are not fully contextualised or understood.

In a move accelerated by the Covid-19 pandemic, Defence is making more use of remote learning. However, interviewees expressed concern that Defence was facing 'remote learning fatigue', which could make the otherwise admirable investment in learning and development demotivating. This may not be true for the reserves, where more online learning and shorter residential training might be better suited to the time that Reservists can commit. But Reserve units lack the connectivity and expertise to deliver Reserve training, and moving too much training online at the expense of in-person delivery also risks creating a sense of isolation that weakens the Reservist's attachment to their unit. A balanced, system-level view is needed.

Learning Environment

An effective learning environment requires appropriate furniture, lighting, temperature, air quality, ventilation, ICT infrastructure, connectivity and adaptable classrooms,[47] as well as support facilities such as accommodation and catering. A critical purpose behind the Defence Training Review was to enable investment in infrastructure by reducing the size of the Defence training estate,[48] but the quality of the learning environments in Defence varies greatly. New environments purpose-built for the Defence Academy and at Worthy Down contrast with older sites where classrooms and facilities are poor, and students

45. See Charlotte Ruhl, 'Bloom's Taxonomy of Learning', SimplyPsychology, 20 February 2023, <https://www.simplypsychology.org/blooms-taxonomy.html>, accessed 1 May 2023.
46. The 'flipped classroom' is an active learning approach in which classroom time is less focused on instruction, in favour of higher-order thinking. See, for example, Harvard University, 'Flipped Classrooms', <https://bokcenter.harvard.edu/flipped-classrooms>, accessed 25 August 2023.
47. OECD, 'Framework for a Module on the Physical Learning Environment', 20 December 2017, p. 24.
48. MoD, 'Modernising Defence Training: Report of the Defence Training Review', 2001, <https://webarchive.nationalarchives.gov.uk/ukgwa/20121026055214/http:/www.mod.uk/NR/rdonlyres/E62FD5CB-1A3D-4331-875C-DE55D751B37A/0/dtr_report_vol1.pdf>, accessed 1 May 2023.

cannot get a hot shower. While progress has been made, with 1,600 hectares (2%) of the built estate disposed of between 2015 and 2021 to fund improvements elsewhere,[49] the training estate still struggles to provide the appropriate infrastructure (such as flexible classrooms and WiFi in accommodation areas) that is essential for maximising the benefits of new technology.

Conversely, parts of the estate are so lean that the training system lacks surge capacity. Even for training regular personnel, it is taut; training just 70 Ukrainian engineers in the UK required stopping some Phase Three training. If the UK were required to surge train reserves to enable the regular Army to deploy, capacity would be lacking.[50] In addition, reserves struggle to access courses,[51] training areas and ranges, while contracts for support facilities on bases often mean that there is a reduced service at weekends when reservists are able to train.

Workforce

While military instructors are experts in their subject, they often lack the andragogical skills to most effectively communicate their expertise. Instructors are typically selected for their technical competence and subsequently trained as instructors under the Defence Trainer Competency Framework. This Level 3 programme runs over the first 12 months of the instructor's appointment. So while Defence instructors are up to date in their subject matter expertise – a challenge for many civilian colleges[52] – they have a low level of proficiency in supporting learning. In comparison, further education teachers require undergraduate or postgraduate teaching qualifications (Level 6 or 7), or a Level 5 teaching apprenticeship.[53]

It is not just instructors who lack deep knowledge and skills. TRAs and training support staff such as course designers and those developing training materials receive little training. Analysing and determining how best to close training gaps, and knowing what learning technology is available and how it can be best employed are not easy, but these skills are often assumed to be acquired through osmosis or with limited formal interventions (for example, the Defence Online

49. Gareth Davies, *Optimising the Defence Estate: Ministry of Defence*, HC 293 (London: National Audit Office, 2021), p. 31.
50. Author interview with Deas, 12 April 2023.
51. Council of the Reserve Forces' and Cadets' Association, 'External Scrutiny Team Annual Report', 2020, p. 15; and Council of the Reserve Forces' and Cadets' Association, 'External Scrutiny Team Annual Report', 2022, p. 17.
52. Author interview with Martin Doel, Visiting Professor, University College London (Institute of Education), London, 13 April 2023.
53. See Department for Education, 'Teach in Further Education', 7 March 2023, <https://www.gov.uk/guidance/teach-in-further-education>, accessed 13 August 2023.

Learning Course, for those responsible for developing online learning, lasts two days). Moreover, the lack of training for those people managing training means that they are often unfamiliar with the DSAT process and can default to slavish adherence to the letter of the process rather than deviating from the formal rules to achieve its intended purpose where necessary.

II. Modernisation Opportunities

The process of modernising Defence training is continuous, and we must start by acknowledging where training is done well. Good practice exists, which can and should be shared. While Defence's formal training structures help ensure learning and development happen systematically – in ways that many commercial employers are unable to replicate – the structure also brings constraints, leading to somewhat rigid, industrial approaches. A teacher from the Victorian age would find much that was familiar in Defence training – much more than they would find in more dynamic contemporary higher education settings. Defence training needs to become more digitally relevant, but this does not mean merely replacing classrooms with online learning – both modes of learning have their place, but effective distributed learning needs to be resourced and enabled, including changing the organisational culture to enable individuals to undertake self-education. This paper identifies four areas for modernisation: people; delivery; building knowledge of the system; and partnering.

People

Arguably the single biggest contribution to modernising Defence training could be achieved by upskilling those engaged in the management, oversight, support and delivery of training materials. Good practice exists in the Royal Navy and at RSME Chatham (where contractors have invested in upskilling Defence's instructional staff to Level 4 qualifications, beyond the level provided by Defence[54]), and the Defence Academy has supported its staff in gaining higher qualifications. Naval educators are also given membership of the Society of Education and Training, and significant effort is put into online support and coaching to enable their development. But the people involved in designing training programmes, as well as those doing training needs analysis, deciding on training methods and designing materials, would all benefit from having their skills supplemented, and from continuing professional development. Selection for training duties

54. Capita, under Project Selborne, and Holdfast (supporting RSME) provide enhanced training to Defence staff. Author interviews with Nick Juba, Capita, 3 April 2023, and Brigadier Guy Boxall, Commandant, RSME, online, 23 June 2023. Previously, the Defence Academy trialled a postgraduate academic practice course for instructors, which was stopped as a savings measure; author interview with former member of Defence Academy Directing Staff, 17 March 2023.

should take account of the soft skills needed for effective andragogy, not merely technical expertise or command authority.

The constant churn in the Defence training workforce, with individuals changing every two to three years, is also problematic. Longer tours that build greater andragogic expertise, or the creation of a cadre undertaking repeated tours in learning and development (with instruction as a career anchor) could help mitigate other risks in the system and allow the investment made in upskilling to be used for longer periods. But this should be done without compromising the up-to-date operational knowledge that Defence instructors provide their students.

Defence also needs to ensure that there are enough staff to operate the training system, which may mean raising the priority of many of the posts. Some efficiencies could be found by reducing duplication of effort, for example using centres of excellence for common material that is produced once and used many times. The Defence Academy’s Education and Research Department, which produces common content modules for many courses, could potentially improve productivity in this regard, but needs to be allowed to prioritise its main programme.

Increased use of online learning could expand capacity in the training system while utilising fewer dedicated training staff, but this would place new burdens on course designers and the frontline. Line managers and others involved in facilitating unit learning would need preparation for their new responsibilities, and jobs would need to be redesigned to reflect that jobholders are not fully trained and need time and space to learn in the role.

Taking a whole force view and combining operationally current and upskilled Defence instructors with commercial partners possessing deep training expertise enhances the value of both groups. The contractors for the Royal Navy (Selborne) and the Army (Holdfast) have a greater responsibility for training management than elsewhere, providing training supervisors and managers, and design and governance functions, that supplement the military instructor’s recent frontline experience. They also act as intelligent customers promoting good practice from outside Defence. Working in partnership also helps protect capacity in the training system, preventing key posts being left unfilled when shortages of Defence personnel necessitate deploying military personnel to higher priority tasks. However, the partners need to be able to share information, be free to adapt training quickly by cycling through the DSAT process faster when necessary, and be able to adopt modern learning practices – all of which require trust between the parties.

Delivery

Learning is a fundamentally social activity, so classroom-based training will remain crucial, even as Defence becomes more digitally oriented. Given increased skills, training designers and instructors will be able to make lessons more active and less didactic, and thus engage students in higher levels of learning such as analysis, evaluation or creation.[55] Investing in instructor development can move classroom learning up the pyramid of Bloom's taxonomy, supporting collective reflection and social learning. Combined with online learning, these approaches could enhance learning outcomes as well as shorten residential programmes (where appropriate), democratise access and support reserves.

A revised culture of learning that recognised that individuals might follow different paths based on their prior learning/experience (such as RSME's fixed mastery/variable time approach), underpinned by better accreditation of non-Defence training, would enable faster – and more personalised – progression through training. A routine part of course design should be to identify shortcuts through the syllabus, allowing people demonstrating existing competence to avoid lessons that have no learning value for them. This move towards a more organic process requires acceptance that students would have different learning journeys. It might also allow training and trainees to contribute to the frontline more directly, with training outputs focused on benefiting users – for example, by conducting engineering training at units whose equipment needs repairing, rather than instructors 'breaking' equipment for students to fix before it is broken again for the next class. It could also open the way for fortuitous course combination, where compatible programmes coincide and can allow collaborative learning; for example, the Fire and Rescue College, wherever possible, combines the Incident Command Course with firefighter development courses.[56] Currently, however, this approach might be challenging for Defence's preference for training standardisation.

Accepting that individuals may have different learning paths requires both a cultural shift by Defence and a solid foundation in the basics for the students. Experience at the BT telecoms group shows that training on every variant of a given technology can be rendered unnecessary if students have a strong foundation in the core principles and are then given access to technology that can provide specific online instruction, through access to videos showing how a particular task can be completed.[57] A greater focus on universal principles and a reduced

55. Lorin Anderson and David Krathwohl, *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives* (New York: Longman, 2001).
56. Author interview with Mowbray, 10 May 2023.
57. Private presentation by BT Future of Work, March 2022.

emphasis on the particular could also make the training estate more efficient by allowing the flexible use of space that was previously dedicated exclusively to one particular purpose. This could also address the endemic issue whereby training struggles to keep pace with frontline capabilities (a situation that is likely to get worse as Defence embraces the idea of 'spiral development' on the frontline).

Two elements that could contribute to enabling a shift towards more effective training delivery are technology and individual learning.

Technology

Coupled with the use of learning technologies, such as AI-enabled online learning and virtual reality (VR), more blended approaches better suited to personalised learning journeys could be enabled. AI-enabled content could respond to student inputs, guiding them through online courses, while VR could support forces sent to the frontline without a training stock, or allow those on the frontline to learn before equipment arrives on which they have not been trained.[58] These technologies require investment in the enabling infrastructure to create an open architecture to support technology-agnostic learning systems that allow students to use their own devices for accessing unclassified materials.

Individual Learning

Delivery is built on the foundation of a high quality learning environment. Such an environment should embody a greater willingness to allow self-directed learning (without automatically resulting in pressure to reduce course lengths) and widen access to content, not merely for those that trigger an entitlement (a role-based approach) but for encouraging those who wish to own their personal and professional development. Helping students to learn how to think (rather than what to think) by combining more student reflection time with classroom discussions focused on higher-value learning outcomes would add value to both Defence and the students.

58. The 'urgent operational requirement' purchase of the Mastiff protected vehicle for Iraq and Afghanistan covered operational stock, with training platforms lagging behind. VR could have helped train engineers before deploying, and allowed those with previous experience to refresh their competencies before returning to theatre. Babcock is currently experimenting with a VR Land Rover to test the utility of this approach. Author interview with Deas, 12 April 2023.

Building Knowledge of the System

The training of individuals sits within wider force-generation and HR systems. Steps are being taken to improve connections and feedback loops between individual and collective training, but it is too early to judge the success of these initiatives. A high-level strategy that considers individual training, setting the framework for thinking about in-person and remote learning, simulation, use of AI (including generative AI) and establishing agreed definitions of technology and data would help. This might also acknowledge the limitations of the DSAT process in practice and encourage a more dynamic model – one that accepts more risk against standardised training outputs by being willing to exploit emerging opportunities that add greater value, either to the students or to the frontline. For example, using trainees to repair equipment at frontline units, or allowing courses to train together when they coincide, even if that is not the same on every occasion.

It might also encourage closer relationships between TRAs and TDAs, with either the requirement responsibilities siting within the delivery authority, or placing a small TRA team to work alongside the TDA. This would enable the delivery organisations to become centres of expertise at the leading edge of thinking about how skills are employed and forging stronger relationships with the frontline, doctrine centres and allies. TDAs, therefore, would seek out improvements and propose changes to requirements, rather than wait for often overstretched TRAs to identify new requirements. The alignment of many of these functions under Director Land Warfare in the Army could be a useful test case for this approach.

Beyond training, the overall HR ecosystem is less integrated, with often cumbersome processes hindering connections between strategic workforce planning, recruitment, training and career management. The mechanical SOTR/SOTT process that connects recruitment and training remains challenging, although early results from Project Selborne's use of AI through its new schedule optimisation engine allow an immediate digital recasting of the SOTR/SOTT plans when the situation changes or a new operational requirement is introduced.[59]

A necessary foundation for the modernisation of training is to improve the quality and flow of data across the training schools, across the Commands between Joint TDAs and Service TRAs (through strengthened Customer Executive Boards), and between the MoD and contractors. Doing so – as Ofsted has regularly demanded in its inspection of training establishments – would inform choices and improve management of a more fluid system. It would also permit technology

59. Author interview with Nick Juba, 3 April 2023.

to mitigate the need for human experts that are difficult to find, and could offer a more dynamic approach to recruitment and training that reduces wastage.[60]

The simplification of DSAT is welcomed,[61] but must be accompanied by upskilling and the resetting of risk tolerance, or Defence will merely be adding new process to reduce the chance of errors by those not steeped in it. Another important change would be for the knowledge, skills, experience and behaviours that individuals require to be mapped to organisational needs (and therefore shape the training and learning designed to fulfil those requirements). The Pan-Defence Skills Framework could help in this regard. Defence also needs to systematise the good work it did in responding to the Covid-19 pandemic when, moving rapidly, it embraced changes that under normal circumstances would have taken a long time to implement. While commendable, these changes now often exist as exceptions to the usual system, and need to be made 'normal'.

Partnering

A whole force approach to learning and development is paying dividends in some areas of Defence, where, as Haythornthwaite hoped, the complementary skills of Defence and contractor personnel mitigate risks, enhance outputs and help Defence remain at the cutting edge of training.[62] However, best practice needs to be shared more widely, and more sophisticated arrangements are needed in the training system as much as they are in procurement.

Just as Defence's skills requirements are not static, neither are the science of learning nor learning technologies. Commercial requirements in contracts spanning over 20 years that specify inputs cannot take account of changing andragogical practice, technologies or even system capacity. More partnership-focused models, such as those at the Defence Academy and Royal Navy, offer significant advantages, especially where they include funded requirements for training innovation and allow the partner to maximise the use of the infrastructure, such as the Holdfast contract at RSME. For example, Project Selborne's eight output-based key performance indicators drive effective partnership behaviours aligned to the Royal Navy's strategic goals, where sharing people creates a single workforce (civilian and military) that contributes to the sense of shared endeavour and priorities. More broadly, however, Defence must recognise that external learning expertise is valuable, and be more realistic about its own uniqueness.

60. Patrick Hinton, 'Put Latent Data to Work: Using Technology to Improve Personnel Management in Military Forces', *RUSI Journal* (Vol. 168, No. 1–2, 2023).
61. Author interview with Brigadier Kirsten Dagless, Head of Talent, Skills, Learning and Development, online, May 2023.
62. Haythornthwaite, 'Agency and Agility', Recommendation 35.

Conclusion

The skills challenge in Defence is becoming more acute, with traditional roles becoming more complex and new technologies requiring new skills. Moreover, in looking for recruits that possess these skills, Defence is competing directly with employers who have greater flexibility to pay market rates. The extensive training organisation Defence operates is a vital tool for ensuring sustained delivery of its operational outputs. This organisation is a great strength, and an attractive part of the Defence offer to its people, being more systematic and structured than that of most employers.

However, this training system is expensive, and requires modernisation to help it meet the challenges it faces.

Foremost among the challenges is one of culture. The traditional conception of training in Defence is an 'industrial' one, where people are raw materials fed into a process that homogenises them via the delivery of standardised training, largely regardless of individual needs. This rather mechanistic approach was effective when skills and careers were static, but is less suited to the rapidly-evolving environments that Defence operates in today. The lack of a 'system view', in which an individual's training is situated within a broader ecosystem, has hindered modernisation attempts and resulted in risk being displaced rather than removed.

The second challenge is that although the DSAT process that shapes the development of training is conceptually sound, the failure to resource it properly in practice means that it struggles to deliver, while the process by which Defence contracts for training partners also creates problems.

Thirdly, training delivery has failed to keep pace with advances in the understanding of andragogy, often as a result of how the Defence training workforce is itself resourced, trained and employed.

The final challenge is that many of the essential enablers underpinning the learning environment are missing, including the data, infrastructure and capacity needed to manage fluctuating demand.

Responding to these challenges is complex, but must involve sharing existing good practice, as well as incorporating the lessons that can be learned from others. Key elements of any response would include:

- Upskilling the Defence training workforce – not just instructors, but staff across the training system, including TRAs, training managers and designers, and those validating the learning.
- Adopting a less mechanistic, more organic approach to delivery – one that facilitates unique individual journeys through the training system, gives more power to learners, and provides the right learning environment, enabled by modern learning technology.
- Building a stronger understanding of the systems within which training sits, including the individual/collective training continuum, and better use of training data and its connection with recruitment and career management, which is how Defence applies the skills people have learned. The shift also needs to normalise the (impressive) response to the Covid-19 pandemic that often stands out as an exception to the standard approach.
- Building stronger partnerships with providers who can complement the strengths Defence instructors bring to the training system (their up-to-date operational knowledge and ability to contextualise the learning) through a stronger understanding of andragogy and best practice outside Defence.

The key strength of Defence's training organisation – its highly structured approach – also makes it relatively rigid, and thus less able to react to rapidly changing needs. Modifying the structure to make it more flexible – rather than abandoning it – offers the best way forward, but success will only be possible if training modernisation is considered within its broader contexts, taking a 'whole system' approach that considers the effects of changes in one part of the system on the other parts. Without this broader understanding, training modernisation could merely transfer risk elsewhere rather than remove it.

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