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Mobilisation and Training for War: Preparing to Break Glass

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RUSI

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Executive Summary

With Russian military expansion and modernisation, and a growing rift between the US and European members of NATO, the risk of protracted conflict in Europe has grown. To deter such a conflict, or deal with the risk if deterrence fails, the UK's armed forces must be ready to mobilise and expand. This paper explores how large numbers of mobilised individuals can be trained and integrated into an expanded force quickly, should that be necessary.

Policymakers and the public should be disabused of the idea that the UK's armed forces do not need to field a large force to match a potential enemy or adversary, nor that the UK can get away with leaving detailed planning until the event itself. The latest UK government's Strategic Defence Review has already implied greater mobilisation through its framing of the Russian threat, its commitment to the British Army providing a Corps to NATO, and the need to make use of the Strategic Reserve. This will not be easy given the current lack of preparedness for mobilising.

Moreover, alliance cohesion requires burden-sharing, with all members sharing the costs equitably, which suggests that Britain must be better prepared to contribute mass. Preparing for this involves mobilising, training and equipping enough people, and that has implications for industry, which must also prepare for mobilisation.

Recommendations

- **Create detailed plans for the mobilised force**, with clearer roles for the Volunteer and Strategic Reserves. Considering the small size of the current regular force, leveraging sunk costs by getting the most out of veterans and their skills will be critical.
- **The government needs training to understand if and when to mobilise**, including the consequences of not mobilising in a timely manner, balanced against the economic impact of acting too soon.
- **Capacity is currently constrained in both the mobilisation and training systems**. The UK cannot deliver a force that resembles the first echelon, given constraints in the system, the volume of personnel, the forces required and the limited time available. **This must be addressed, drawing on the mobilisation lessons from**

Ukraine to avoid emergency zero-notice mobilisation and maintain a progressive pipeline delivering a high-quality force. Study and emulate Ukrainian experience, tactics, techniques and procedures where appropriate but do not copy the ruthlessly efficient trade-offs their training pipelines necessitated for rapid mass mobilisation, as the UK is not yet in the immediate build-up to conflict.

- **The armed forces must reassess the force structures and mission-sets that the second and third echelons should adopt with a thorough review of training requirements**, and what command culture and doctrine will best align with this. It requires a fundamental reappraisal of the current approach to risk set by the Defence Safety Authority.
- **Greater capacity can be achieved through a distributed approach to mobilisation** rather than a single training and mobilisation centre, and with greater capacity for managing appeals against mobilisation. The risk of appeals could be reduced by proactive tracking of individuals in the Strategic Reserve to understand their skills, currency and personal circumstances, including civilian employment and health.
- **An expansion of the physical capacity to train the numbers mobilised is essential**. This should involve identifying civilian capacity that can be tapped, along with greater use of technology to reduce the need for dedicated (and scarce) physical infrastructure.
- **Capacity can also be increased through accelerating the training pipeline in areas where individualised training is possible.** Raising the baseline training standard, harnessing civilian skills of those mobilised and adopting individualised learning approaches would reduce the length of time needed for training. **Developing a better system of mapping and accrediting civilian skills is an essential part of this**, to maximise individual talent and reduce the training burden. Approaches such as competency-based testing may help leverage civilian skills.
- **Orient training towards building unit cohesion and collective competence**, which are crucial, and maintain this through live collective training.
- **Leverage synthetic training technology**, such as simulators and virtual worlds, with an understanding that the primary aim is to improve the effectiveness of the ability to mobilise rather than to save money, and to shorten and improve preparation for live collective training. However, bear in mind that this can also increase operational risk if misapplied or inappropriately used to replace live training. Experimentation with the technology can familiarise the training establishment with its strengths and pitfalls and ensure it is applied correctly and adds value.
- **Instructors, commanders and staff training will be a bottleneck**. These will require specific attention, preparation and respect for lead times.
- **Create a high-readiness instructor cadre within the reserves**, able to integrate veterans, contractors and commercial partners as necessary. Identify experienced instructors within the Strategic Reserve as a priority, with plans made to use them for force expansion.

Introduction

Europe's security situation is deteriorating. Russian military expansion and modernisation, and a growing rift between European members and the US within NATO, means that Europe can no longer assume it has an overwhelming technological advantage for deterring threats to European security. And if the US is focused on the Indo-Pacific or its Western Hemisphere, European armed forces are unlikely to win a first campaign season decisively enough to bring about an end to any conflict that might arise. Consequently, Europe's armed forces, including those of the UK, must be ready for protracted conflict. At present, however, Britain's regular and reserve forces are not large enough for their anticipated role in such an eventuality,[1] and the lack of preparation for expansion is a major shortcoming.[2] This paper explores how the UK can plan for mobilisation should it prove necessary.

The UK's 2025 National Security Strategy describes a demanding security situation in which 'the foundations of strategic stability are being challenged'[3] with the Strategic Defence Review anticipating the need for a 'a collective national endeavour through which the state, business, and society unite in pursuit of the security of the nation'.[4] This is likely to require some strengthening of not only the regular component, but also of the Reserves. Yet, as the Chief of the Defence Staff and others have observed,

1. Council of Reserve Forces' and Cadets' Associations (CRFCA), 'The United Kingdom Reserve Forces: External Scrutiny Team Annual Report 2024', 2024, pp. 11–12, <https://www.gov.uk/government/publications/council-of-reserve-forces-and-cadets-associations-scrutiny-team-annual-statutory-report-2024>, accessed 3 March 2026; CRFCA, 'The United Kingdom Reserve Forces: External Scrutiny Team Annual Report 2025', 2025, pp. 9–17, <https://assets.publishing.service.gov.uk/media/69380a8de447374889cd8f5a/Council_of_Reserve_Forces__and_Cadets__Associations_Scrutiny_Team_annual_statutory_report_2025.pdf>, accessed 3 March 2026.
2. Author interview with serving Royal Navy Reserve spokesperson, online, September 2025.
3. HM Government, *National Security Strategy: Security for the British People in a Dangerous World*, CP 1338 (London: The Stationery Office, 2025), p. 14, <https://www.gov.uk/government/publications/national-security-strategy-2025-security-for-the-british-people-in-a-dangerous-world>, accessed 24 March 2026.
4. Ministry of Defence (MoD), 'Strategic Defence Review: Making Britain Safer: Secure at Home, Strong Abroad, 2025', p. 2, <https://www.gov.uk/government/publications/the-strategic-defence-review-2025-making-britain-safer-secure-at-home-strong-abroad>, accessed 3 March 2026.

national defence is not the sole responsibility of the armed forces.[5] Mobilisation – for that is what is needed – goes beyond expanding the Volunteer Reserves or recalling those who have served through the Strategic Reserve, and is not the form of conscription remembered from the 1950s and 1960s, where conscripts served in basic military roles for short engagements. Instead, mobilisation must harness the whole-of-society's talents towards sustaining the country's war effort. This would employ individuals, whether in the military or as civilians, in roles that suit their specific talents, and engage industry in delivering tasks that free uniformed personnel for military roles. However, while drawing on individuals' existing skills reduces the training burden and duration, challenges remain, such as mobilising, equipping and integrating individuals into a common effort.

Britain has faced this problem before, in the run-up to both the First and Second World Wars. The 1908 Haldane Reforms[6] and creation of the Territorial Force sought to provide mass and enhance societal resilience by providing a baseline of training readiness and by closing the civil–military divide, which is similar in spirit to the options being considered today. For the First and Second World Wars, Britain mobilised to a greater or lesser degree, and the armed forces faced similar problems in both these and the Korean War. But, unlike the Second World War and the catastrophic situation brought about by the fall of France in 1940, in future the UK will operate alongside other European states as part of NATO if called to fight in Europe. Then, as now, tensions emerged between simplicity, quality and different requirements for talent management. For example, from 1936, the Royal Navy had three reserve forces. The Royal Navy Reserve (RNR) comprised professional seafarers (merchant sailors and fishermen), the Royal Navy Volunteer Reserve (RNVR) recruited and trained inexperienced volunteers from all walks of life, and the Royal Navy Volunteer (Supplementary) Reserve (RNV(S)R) recruited experienced yachtsmen. The system recognised each cadre's different level of proficiency and expanded the pool of skilled volunteers without diluting or disrupting the RNVR's higher readiness, albeit adding complexity and higher peacetime costs.

The call-up for the Korean War was more about mobilisation of the military than mobilising the whole of UK society. Although rushed, mobilisation delivered a large

5. Richard Knighton, 'Chief of the Defence Staff speech – 15 December 2025', London, 15 December 2025, <https://www.gov.uk/government/speeches/chief-of-the-defence-staff-speech-15-december-2025>, accessed 23 March 2026; Sam Kiley, Alex Younger and Rachel Ellehuus, 'Watch Former MI6 Chief and RUSI Boss Discuss Russia, Trump and the Future of the West', *The Independent*, 7 April 2025, <https://www.independent.co.uk/news/world/europe/war-putin-trump-mi6-panel-conversation-b2721259.html>, accessed 23 March 2026.
6. The Haldane Reforms, implemented from 1906 to 1912, oriented the British Army towards fielding an expeditionary force for the anticipated continental European war. These streamlined the Regular Army and rationalised almost all the various elements of the reserve forces into a two-tier system of the Territorial Force and Special Reserve. They also standardised and drastically improved training standards. See Edward Spiers, 'Learning from Haldane', *RUSI Commentary*, 19 August 2010, <https://www.rusi.org/explore-our-research/publications/commentary/learning-haldane>, accessed 3 March 2026.

number of well-trained reservists through the pool of trained, deployable and relatively current Second World War veterans. However, mobilisation was often inefficient and unpopular, with attempts to mobilise individuals in critical industries, or those unfit to serve for family or medical reasons.[7] Today's social media environment and hostile information operations could exploit such failures more aggressively and create greater challenges for mobilisation and social cohesion than in 1950.

Prolonged war requires mass, but the UK's regular and reserve forces are small, and fewer members of society have prior military service.[8] Technological changes and new modes of warfare further complicate rapid mass mobilisation because the capabilities and skills required for modern warfare are, in some areas, more complex than before, and there is a greater social divide between civilian society and the military.

This paper examines the challenges facing the UK in growing the mass needed to deliver its contributions to NATO under Article 3 (resilience) and Article 5 (collective defence).[9] Societal resilience, total defence and civil preparedness are extensively examined in existing literature, often citing Scandinavian examples as best practice,[10] but this paper focuses on the training and preparation of British forces for their contribution to NATO's collective defence. The first chapter considers the challenges facing Britain in mobilising mass. The second chapter focuses on the reserves and the need for credible second and third echelons,[11] exploring how mobilisation might be enhanced, including through reform of the 'people' and 'training' lines of development across the whole force (regulars, reservists, civil servants and contractors). The third chapter covers the training of commanders, staff officers and instructors to enable mobilisation. The fourth chapter addresses how technological advances and the modernisation of training equipment can help address the current challenges. The paper concludes with recommendations for how to train the large numbers of personnel in expanded armed forces.

7. Max Hastings, *The Korean War* (London: Pan, 2010), pp. 110–15.
8. See, for example, Esme Kirk-Wade, 'UK Defence Personnel Statistics', Commons Library Research Briefing, 30 June 2025, pp. 4, 11, <https://researchbriefings.files.parliament.uk/documents/CBP-7930/CBP-7930.pdf>, accessed 3 March 2026.
9. NATO, 'The North Atlantic Treaty', 6 April 1949, <https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/1949/04/04/the-north-atlantic-treaty>, accessed 27 February 2026.
10. Elizabeth Braw, 'Scandinavia's Homeland Defence: A Model for Other Countries?', *RUSI Commentary*, 13 March 2018, <https://www.rusi.org/explore-our-research/publications/commentary/scandinavias-homeland-defence-model-other-countries>, accessed 6 March 2026; Minna Ålander, 'Deepening Total Defence: Northern Europe's Strategic Advantage', *Britain's World,* Council on GeoStrategy, 3 April 2025, <https://www.britainsworld.org.uk/p/the-memorandum-14-2025>, accessed 6 March 2026; Elisabeth Braw, 'The Reserve Potential: What the UK Can Learn from Top-Performing Allies', National Preparedness Commission, 13 March 2026, <https://nationalpreparednesscommission.uk/wp-content/uploads/2026/03/NPC-The-Reserve-Potential.pdf>, accessed 13 March 2026.
11. Echelons are the different groups of forces, typically linked to levels of readiness. The first echelon comprises those immediately available to fight. The second echelon is the follow-on force (typically pre-existing reserves) and the third echelon provides strategic depth, often through the mobilisation of citizens.

Methodology

The research for this paper was conducted between June 2025 and January 2026 with funding from Raytheon. It is primarily based on interviews with officials from across the armed forces and defence industry from the UK but including the US and other NATO Allies, who agreed to speak anonymously, and is backed up by academic literature and personal experience. It draws on, but does not repeat, earlier work, such as the Haythornthwaite Review of Armed Forces' Incentivisation,[12] the Council of Reserve Forces' and Cadets' Associations' External Scrutiny Team annual reports,[13] and previous RUSI research, notably on reform of the defence training system.[14]

12. Rick Haythornthwaite, 'Agency and Agility: Incentivising People in a New Era: A Review of UK Armed Forces Incentivisation', HM Government, 19 June 2023, <https://assets.publishing.service.gov.uk/media/648ad6b8b32b9e000ca967c9/Incentivising_people_in_a_new_era_-_a_review_of_UK_Armed_Forces.pdf>, accessed 15 July 2025.
13. The CRFCA's External Scrutiny Team publishes an annual report to the UK government on the health and capabilities of the UK reserves.
14. Paul O'Neill and Patrick Hinton, '"Goodbye Mr Chips?" Modernising Defence Training for the 21st Century', *RUSI Occasional Papers* (October 2023), <https://www.rusi.org/explore-our-research/publications/occasional-papers/goodbye-mr-chips-modernising-defence-training-21st-century>, accessed 1 August 2025.

The Challenges to Mobilisation in Britain

Reginald Bidwell, military historian and editor of the *RUSI Journal* from 1971 to 1976, observed that, 'No truth has been more resolutely ignored in British thinking than that a big good army will always beat a small good army'.[15] While British and Empire forces had the necessary training, equipment and scale to undertake Operation *Overlord*, post-Cold War talk of a Britain that 'punch[ed] above its weight' is reflective of a long-standing cultural hang-up about mass.[16] This chapter considers the challenges currently facing Britain in mobilising mass.

Historically, Britain has often gone to war without sufficient planning by 'muddling through'.[17] In this instance, lack of planning has manifested as a lack of scale, both of trained personnel and of equipment and munitions. Policymakers and the public must therefore reject ideas that the British armed forces do not need to field forces large enough to match a potential adversary. Even when operating in an alliance, an equivalence of commitment through scale is needed to cement alliance cohesion, and detailed planning for expansion cannot be left until conflict starts. However, the UK faces challenges in mobilisation, including how to access the people, the capacity of the mobilisation and training systems, and the impact of an influx of mass personnel on command structures which is less familiar with the scale or training levels than professional volunteer forces.

Yet perhaps the first problem in mobilisation is the political one: when to make the decision. The mobilisation call would disrupt the economy, so going too early is expensive, but deciding too late exacerbates the problem of managing the volume in an

15. Reginald G S Bidwell, 'The Five Fallacies: Some Thoughts on British Military Thinking', *RUSI Journal* (Vol. 112, No. 645, 1967), p. 54.
16. Douglas Hurd has been unfairly blamed for a quote that was turned into an unironic and often-repeated cliché; his original point was that Britain's outsized level of influence would not be possible without NATO. See *BBC News*, 'UK's World Role: Punching Above Our Weight', 2001, <http://news.bbc.co.uk/hi/english/static/in_depth/uk_politics/2001/open_politics/foreign_policy/uks_world_role.stm>, accessed 14 July 2025.
17. David French, *The British Way in Warfare 1688–2000* (Abingdon: Routledge, 2014), pp. 232–33.

unduly compressed period and risks battlefield failure. The first training need, therefore, is for politicians to understand the trade-offs they will have to consider. In Finland, for example, incoming governments are routinely trained about their security responsibilities on taking office.[18] While many of the problems of expansion are recognised, solutions remain elusive. Promises of increased spending (still undelivered at the time of writing)[19] and the creation of more lethal and integrated forces by harnessing new technologies have not been accompanied by comparable advances in the conversation around how to recruit, train and equip the force. The Haythornthwaite Review of Armed Forces Incentivisation[20] and the British Army's new Land Training System,[21] which seeks to streamline individual and collective training, serve as relatively isolated examples of organisational reform in these areas. And while awareness of capability shortfalls has increased, key areas remain underexplored, particularly: what defence wants from the reserves; the roles of the first, second and third echelons – where only the Army has anything resembling a second echelon; logistics; and the role of technology-enabled training.

Ultimately, what mobilisation looks like depends on the purpose of the force, but this requirement has not been set in the UK, even though the External Scrutiny Team sees it as essential before the scale, structure and composition of the reserves can be determined.[22] Moreover, the Royal Navy and the RAF lack much in the way of a second echelon, with their focus on augmenting the regular first echelon. The Army is actively thinking about a second echelon, although the requirement is ill-defined. Some commentators champion for formed reserve units, arguing that organisational and unit leadership that understands their personnel, and the implications of serving part time, can deliver mass more quickly and effectively.[23] Others, including the Royal Marines Reserves (RMR), reject this, believing that individual augmentation ensures that the reserves do not operate to a lowest common denominator.[24]

18. RUSI, 'Talking Strategy Podcasts: Season 6, Episode 11, "Finland's Comprehensive Security Model"', with Secretary General Petteri Korvala, 28:56–29:49, <https://www.rusi.org/podcasts/talking-strategy/episode-11-finlands-comprehensive-security-model>, accessed 17 February 2026.
19. The continued delay to the Defence Investment Plan is preventing major investment in new capabilities; see, for example, Richard Thomas, 'A Defence Circus Like No Other: the UK and its DIP', Naval Technology, 27 February 2026, <https://www.naval-technology.com/features/a-defence-circus-like-no-other-the-uk-and-its-dip/>, accessed 6 March 2026.
20. Haythornthwaite, 'Agency and Agility'.
21. MOD, 'LTS Directive Part 1 - The Management of the Land Training System', 1 November 2025.
22. CRFCA, 'The United Kingdom Reserve Forces: External Scrutiny Team Annual Statutory Report 2024', 17 December 2024, <https://assets.publishing.service.gov.uk/media/678e7669ea48a571517acfab/Council_of_Reserve_Forces__and_Cadets__Associations_Scrutiny_Team_annual_statutory_report_2024.pdf>, para. 30.
23. Julian Brazier, 'Mass, Mobilisation and Reserve Forces', *RUSI Occasional Papers* (September 2022), pp. 20–24, <https://www.rusi.org/explore-our-research/publications/occasional-papers/mass-mobilisation-and-reserve-forces>, accessed 1 August 2025.
24. Author interview with serving Royal Navy Reserve spokesperson, September 2025.

Both positions have merit. Formed reserve units have cohesion and are rapidly usable, unlike the Strategic Reserve, which, as defence psychologist and External Scrutiny Team member Vincent Connelly has observed, 'can provide individual reinforcements but cannot grow the army with additional units'.[25] However, there will still probably be a significant qualitative gap between regular and reserve units, which on mobilisation would require extensive collective training to fill, which would have to be overseen by experienced regular personnel. A crucial question, therefore, is how close to regular standards the armed forces need their reserves to be. In this regard, the UK has formally relaxed the requirement for 'equivalence',[26] and organising around the concept of dissimilar rearmament[27] could also help reduce the training bar, making mobilisation easier.

Rapid victories in wars against Iraq (1991 and 2003) beguiled Western defence planners into prioritising first battle (or short war) over long war thinking, because the first battle disproportionately shapes the logic and course of the war. This drove a desire for 'exquisite' systems, assuming they would deliver quick victories. Historically, however, long wars are more common than short ones, and adversaries see the West's limited ability to endure as a vulnerability.[28] Russia's illegal war against Ukraine, now in its fourth year, demonstrates its ability to absorb human and materiel losses through reconstitution, regeneration and adaptation,[29] to a level which is probably beyond most Western politicians and armed forces. In NATO, only the US has comparable vehicle 'boneyards', with refurbishable vehicles, a large volunteer reserve force, stockpiles and manufacturing resilience across an array of high- and low-technology capabilities. Other NATO members are moving to grow their capacity, but Britain is falling behind,[30] and must examine how to rebuild and integrate mass.[31]

While Ukrainian mobilisation in February 2022 is often lauded, and dominates case studies examining mass mobilisation,[32] its impact on force quality is sobering. Limited

25. Vincent Connelly, 'Delivering "Mass" for the British Army: Defence Reviews and Second Echelon Choices', *RUSI Commentary*, 7 March 2025, <https://www.rusi.org/explore-our-research/publications/commentary/delivering-mass-british-army-defence-reviews-and-second-echelon-choices>, accessed 1 August 2025.
26. CRFCA, 'The United Kingdom Reserve Forces', p. 22, para. 11(a)(5).
27. Sidharth Kaushal and Paul O'Neill (eds), *The Role of Dissimilar Rearmament in Allied Deterrence*, RUSI Whitehall Papers (Vol. 102, No. 1, 2024) , <https://www.rusi.org/explore-our-research/publications/whitehall-papers/role-dissimilar-rearmament-allied-deterrence>, accessed 24 March 2026..
28. Cathal J Nolan, *The Allure of Battle: A History of How Wars Have Been Won and Lost* (Oxford: Oxford University Press, 2017).
29. Jack Watling and Nick Reynolds, 'Meatgrinder: Russian Tactics in the Second Year of Its Invasion of Ukraine', *RUSI Occasional Papers* (May 2023), <https://www.rusi.org/explore-our-research/publications/special-resources/meatgrinder-russian-tactics-second-year-its-invasion-ukraine>, accessed 19 May 2023.
30. Scandinavian countries, including NATO's newest members, which maintained conscription already have large reserve forces, and Poland and the Baltic states are quickly increasing spending and mass. See NATO, 'Defence Expenditure of NATO Countries (2014–2025)', press release, pp. 4–5, <https://www.nato.int/content/dam/nato/webready/documents/finance/def-exp-2025-en.pdf>, accessed 6 March 2026.
31. Kaushal and O'Neill (eds), *Dissimilar Rearmament*; John Thomas Alderdice et al., 'Ukraine: A Wake-Up Call', HL Paper 10, House of Lords International Relations and Defence Committee 1st Report of Session 2024–25, 26 September 2024, <https://publications.parliament.uk/pa/ld5901/ldselect/ldintrel/10/10.pdf>, accessed 10 August 2025; Brazier, 'Mass, Mobilisation and Reserve Forces'.
32. Haythornthwaite, 'Agency and Agility', pp. 1–4.

training time and resources, and too few experienced trainers, undermined the quality of Ukraine's determined and brave forces. This had a particular impact on ground forces, hampered Ukraine's ability to conduct offensive operations and led to high casualty rates.[33] While NATO membership and distance from Russian territory mean British armed forces would not fight alone and would have more time to mobilise against ground forces, the low baseline of readiness for war makes preparation urgent.

Securing Enough People

The UK's military expansion beyond the relatively small (unfunded) increases proposed in the SDR to a wartime footing may not be possible on a voluntary basis. Compulsory service is practised in Switzerland and Scandinavian countries, and has been discussed, but not adopted, in Germany. While often mooted for the UK, it is not clear if this would be palatable, or indeed necessary.[34] The 1908 Haldane reforms that created a territorial army sought to avoid the need for conscription because, unlike other European countries, Britain had no history of conscription until the First World War. During the Cold War, National Service was controversial and unpopular, which probably contributed to its cessation.[35] Consequently, while meriting consideration,[36] conscription is currently unrealistic, not least because society is not ready for this, and the armed forces could not absorb or adequately train any significant conscript intake or get much military utility from them.[37] If expansion is required now, an overhaul of Britain's regular and reserve forces is a more viable path because these forces are better prepared and more flexible, and able to support crisis or wartime mobilisation and the administration, training and command of the mobilised forces. However, a small-scale trial of selective conscription to test and develop the mobilisation process, without inducting unwilling citizens, could be valuable, similar to ideas being explored in France.[38]

33. Jack Watling and Nick Reynolds, 'Stormbreak: Fighting Through Russian Defences in Ukraine's 2023 Offensive', RUSI, 4 September 2023, <https://www.rusi.org/explore-our-research/publications/special-resources/stormbreak-fighting-through-russian-defences-ukraines-2023-offensive>, accessed 4 September 2023.
34. Sidharth Kaushal and Paul O'Neill, 'Conscription in the UK: A National Disservice?', *RUSI Commentary*, 2 May 2024, <https://www.rusi.org/explore-our-research/publications/commentary/conscription-uk-national-disservice>, accessed 13 July 2025.
35. Richard Vinen, *National Service: A Generation in Uniform 1945–1963* (London: Penguin, 2015), pp. 34-76; Tom Hickman, *The Call-Up: A History of National Service* (London: Headline, 2004), pp. ix–xv.
36. Julian Brazier, 'CGS is Right: The UK Must Urgently Rebuild its Capacity to Expand', *RUSI Commentary*, 21 February 2024, <https://www.rusi.org/explore-our-research/publications/commentary/cgs-right-uk-must-urgently-rebuild-its-capacity-expand>, accessed 15 July 2025.
37. Sidharth Kaushal and Paul O'Neill, 'Conscription in the UK'.
38. Hugh Schofield, 'France to Bring in Form of Military Service, 25 Years After Conscription Was Phased Out', *BBC News*, 27 November 2025.

The Limited Scale of Today's Reserves

The UK's Reserve Forces largely comprise two elements: an active but part-time Volunteer Reserve; and a Strategic Reserve of former service personnel waiting to be activated. The former is too small and the latter is not well enough understood for the threats faced today, and work is needed to make them both credible.

The Volunteer Reserve is routinely active but boutique, yet the limited capacity for training, especially if regular instructors are needed on the frontline, suggests that mobilising even these numbers would stretch the system's capacity. Aspirations to expand it 'by 20% when funding allows (most likely in the 2030s)',[39] would exacerbate this. Moreover, reserve recruiting is currently too slow and bureaucratic. With only six attestations into the Volunteer Reserve per 100 applications, it was deemed unfit for purpose by the External Scrutiny Team.[40] And despite improvements, the average recruitment time for the Army Reserve is 209 days.[41]

While theoretically larger, the Strategic Reserve is neither well understood nor homogeneous. The call-up liability of its members is enshrined in the Reserve Forces Act 1996,[42] but although a framework exists, understanding how mobilisation would work is limited. Knowing how to contact those in the Strategic Reserve is a crucial starting point, as is understanding their current occupation and their military training. With many ex-regulars joining companies supporting defence outputs, recalling them even in war could be counterproductive. Mapping ex-regulars to critical occupations that should be exempt from call-up is essential to understanding the Strategic Reserve's useable capacity.[43] This requires specificity, because a welder or engineer at a defence contractor manufacturing critical systems, or an instructor providing defence training, might be viewed differently from a business development manager in the same organisations.[44] Similarly, ex-regulars working for companies whose output might be repurposed towards the war effort may need protection from call-up even though in peacetime they are not connected to defence. The absence of a War Book identifying protected occupations and outputs poses a significant challenge to intelligent mobilisation of the Strategic Reserve.

39. MoD, 'Strategic Defence Review', p. 18.
40. CRFCA, 'The United Kingdom Reserve Forces', p. 20.
41. Deposited Letter from Minster for Veterans and People to Andrew Mitchell, Reference: 81808, 4 December 2025, <https://data.parliament.uk/DepositedPapers/Files/DEP2025-0831/AMitchell-Recruitment_Timeline-OS.pdf>, accessed 9 January 2026.
42. Reserve Forces Act 1996, Part IV, <https://www.legislation.gov.uk/ukpga/1996/14/part/VII>, accessed 10 March 2026.
43. While the Royal Navy Strategic Reserve numbers approximately 12,000 (four times larger than the active reserve, excluding the Royal Fleet Auxiliary), only half are likely to be available for call-up, as many work in critical industries. Author conversation with Royal Navy Reserve spokesperson, September 2025.
44. Author interview with serving Royal Navy Reserve spokesperson, September 2025.

Challenges in Accessing and Retaining Talent

Attracting people to the reserves or the regular armed forces is challenging. A perception exists that today's youth is apathetic towards service.[45] The Gap Year scheme[46] could help increase public understanding of and attitude towards the armed forces, but its small numbers may attract only those already predisposed towards service. And plans to expand the Cadet organisations by 2030 (an additional 40,000 cadets)[47] are unlikely to create the recruiting pool for mass voluntary enlistment, although they raise awareness and provide a basic understanding of the threats facing the UK that may help with societal cohesion and should government decide to break the glass on mobilisation. Of course, public attitudes could change in the face of more direct military aggression against NATO and the UK, but until then, the SDR's recommended 20% growth of reserve forces may be a challenge.[48]

Growth would be aided if the British armed forces drew from all parts of society, but currently they struggle with this. Female representation remains low, at 15.9% of the reserves,[49] while ethnic diversity largely rests on Commonwealth and Gurkha recruiting; British minorities are underrepresented.[50] Various programmes to reach a broader demographic, including Project Anthony, which looks to improve diversity among the officer corps, including through a pilot internship programme to start in 2026,[51] are nascent and therefore still aspirational. And tackling the problem of mistreatment of personnel[52] would create a more permissive recruiting, retention and mobilisation environment.

45. Patrick Bury, 'The End of the All-Volunteer Force', *RUSI Journal* (Vol. 169, No. 7, 2024), pp. 34–42; Ipsos Poll, 6 May 2025, <https://www.ipsos.com/en-uk/third-britons-higher-among-men-and-young-people-would-take-arms-country-confidence-armed-forces>, accessed 9 January 2026.
46. MoD, 'Armed Forces To Launch "Gap Year" Scheme For Young People To Bolster Skills And Leadership', press release, 27 December 2025, <https://www.gov.uk/government/news/armed-forces-to-launch-gap-year-scheme-for-young-people-to-bolster-skills-and-leadership>, accessed 9 January 2025.
47. MoD, Reserve Forces' and Cadets' Associations and Alistair Carns, "'30 by 30" – New Funding to Boost Cadet Force by Over 40,000 by 2030', 20 August 2025, <https://www.gov.uk/government/news/30-by-30-new-funding-to-boost-cadet-force-by-over-40000-by-2030>, accessed 6 March 2026.
48. MoD, 'Strategic Defence Review', Recommendation 14.
49. MoD, 'UK Armed Forces Biannual Diversity Statistics, October 2025', 12 June 2025, <https://www.gov.uk/government/statistics/uk-armed-forces-biannual-diversity-statistics-october-2025/uk-armed-forces-biannual-diversity-statistics-october-2025>, accessed 6 March 2026.
50. Anthony King, 'Decolonizing the British Army: A Preliminary Response', *International Affairs* (Vol. 97, No. 2, 2021), pp. 447, 451–53; MoD, 'UK Armed Forces Biannual Diversity Statistics, April 2025', which show 12.2% of regular forces were from ethnic minorities and 6.8% of the reserves.
51. Levi Gray, presentation in 'The Strategic Cost of Racial Inequity in Defence' webinar, RUSI, 4 September 2025.
52. MoD, '2022DIN01-035: Zero Tolerance of Sexual Offending and Sexual Relationships Between Instructors and Trainees', 20 July 2022, <https://assets.publishing.service.gov.uk/media/62d7bffbd3bf7f285e78776b/2022DIN01-035-Zero_Tolerance_to_Sexual_Offences_and_Sexual_Relationships_Between_Instructors_and_Trainees.pdf>, accessed 10 August 2025; King, 'Decolonizing the British Army'.

How people are treated, including remuneration, clearly has an impact on recruitment and retention, and were featured in the Haythornthwaite Review, which had broad implications for the structure of the armed forces personnel system.[53] In particular, it considered the means for improving access to specialist and civilian expertise in areas such as cybersecurity, AI and data science. Through its various provisions for greater variety in how groups are managed, including flexible careers, lateral entry and encouraging zig-zag[54] and secondment opportunities, future reforms could enable mobilisation by making reserve service more rewarding and providing a flexible framework that supports a heterogeneous force.

The Challenges of Mobilising Resources

While mobilising people is crucial, without the ships, aircraft, ground vehicles, weapons, uniforms and stores, the mobilised armed forces can neither train properly nor fight. The equipment mobilisation challenges mirror those of reconstitution. While this has caused Russia problems in Ukraine,[55] Western armed forces have an industrial base more oriented towards exquisite systems in small volumes that are less able to scale quickly without being redesigned.[56]

The SDR and the newly created National Armaments Director Group give some guidelines on this question. Broad structural changes, including the Strategic Reserve Corps, the split between 20% traditional capabilities, 40% reusable drones and autonomous systems, and 40% disposable or 'attritable' drones and munitions, and the aspiration for Reconnaissance-Strike to increase lethality tenfold, are key Army objectives. For the RAF, the SDR aspires to more E7s and to augment the P8 and A400M force, but without firm commitments.[57] As with too many other capabilities, these depend on the much-delayed Defence Investment Plan. The SDR offers least clarity with respect to the Royal Navy on how force structures will change, aside from a commitment towards the AUKUS partnership and the expansion of the nuclear attack submarine (SSN) fleet to up to 12 vessels, although, as has been noted, the language states that this is an aspiration or numerical cap rather than a firm plan for a fleet of

53. Haythornthwaite, 'Agency and Agility'.
54. Zig-zag career models must include the ability to move backwards and forwards in a more flexible manner than one-way lateral entry into either the defence industry from the military or into the military mid-career without prior service.
55. Watling and Reynolds, 'Meatgrinder'; Watling and Reynolds, 'Stormbreak'; Jack Watling, Oleksandr V Danylyuk and Nick Reynolds, 'Preliminary Lessons from Ukraine's Offensive Operations, 2022–23', RUSI, 18 July 2024, <https://www.rusi.org/explore-our-research/publications/special-resources/preliminary-lessons-ukraines-offensive-operations-2022-23>, accessed 18 July 2024.
56. Thomas Haydock and Jack Meeker, 'Lessons in Reconstitution from the Russia-Ukraine War: Gaining Asymmetric Advantage Through Transformative Reconstitution', *Military Review* (Vol. 105, No. 1), January–February 2025), pp. 26–41.
57. MoD, 'Strategic Defence Review', p. 115.

this size.[58] Technologically, the senior service is 'moving towards a dynamic mix of crewed, uncrewed, and increasingly autonomous surface and sub-surface vessels and aircraft'.[59] The centrality of data, digitisation and autonomous systems reflects that of the Army, but the SDR was less precise in its direction, and the Royal Navy has developed the Hybrid Navy concept and Atlantic Bastion,[60] but neither the Royal Navy nor the RAF has clearly articulated what a second echelon might look like or how it might be equipped.

Recognising the dependence on industry, the 2025 Defence Industrial Strategy identified the need to expand the domestic defence industrial base.[61] This requires a closer relationship between defence and industry, with the former investing in UK business to create a financially sustainable marketplace that allows industry to invest in production capacity with confidence. While an industrial assessment is beyond the scope of this paper, the resourcing issues associated with future mobilisation, and the need to match available equipment and weapons with both the training pipeline and the force to be deployed, must be a consideration.

Limited Capacity in the Mobilisation System

A centralised Reserves Training and Mobilisation Centre (RTMC) was created to manage mobilisation, first at Chilwell, now at Bassingbourn.[62] This made sense economically and operationally when the UK was activating volunteers in relatively small numbers as individual augmentees in regular formations. However, even mobilising approximately 6,000 reserves for Operation *TELIC* in 2003 caused problems, with inadequate notice and pay issues,[63] while other, large(ish)-scale mobilisations caused problems with reservists called out only to find that they did not have roles and were subsequently stood down. This was frustrating for individuals and could create ambivalence, resulting in appeals against future mobilisation. In 2003, a quarter of those who were issued call-up notices did not report for service, and overall fewer than

58. *Ibid.*, p. 104.
59. *Ibid.*
60. HM Government, First Sea Lord Speech to DSEI, London, 10 September 2025, <https://www.gov.uk/government/speeches/first-sea-lord-general-sir-gwyn-jenkins-speech-at-dsei-2025>, accessed 9 January 2026.
61. MoD, 'Defence Industrial Strategy: Making Defence an Engine for Growth', CP 1388, September 2025, <https://www.gov.uk/government/publications/defence-industrial-strategy-2025-making-defence-an-engine-for-growth>, accessed 3 February 2026.
62. The creation of the centre was announced in 1998; see UK Parliament Select Committee on Defence, 'Reserves Call-Out Order 1998, etc.', September 1998, para. 4, <https://publications.parliament.uk/pa/cm199798/cmselect/cmdfence/1109/110905.htm>, accessed 6 March 2026. It was supported by the Defence Select Committee in its Fourth Special Report; see Defence Committee, 'Government Response to The Armed Forces Covenant Report', UK Parliament, 16 June 2025, <https://publications.parliament.uk/pa/cm5901/cmselect/cmdfence/1034/report.html>, accessed 6 March 2026.
63. Brazier, 'Mass, Mobilisation and Reserve Forces', p. 23.

62% of those called up were accepted for deployment, primarily for medical/dental fitness reasons and appeals from employers.[64]

In the event of a European war, mobilisation numbers will be larger, and it is likely that problems will be greater, especially if the less well understood Strategic Reserve is involved. More appeals, in absolute and relative terms, should be anticipated, requiring greater capacity in the adjudication as well as the general mobilisation systems. Expanding capacity, by reversing the centralising philosophy that created one RTMC, would prevent the capacity bottleneck inevitable in a single entry-point. It would also provide redundancy against an attack targeting the UK's capacity to generate forces. Multiple local mobilisation centres would improve capacity, resilience and the cohesion that underpins operational delivery. All three services need to map, and routinely interrogate the Strategic Reserve to determine its capacity for use and to understand who is unavailable because they are in critical civilian roles, unfit or needed elsewhere.[65]

64. House of Commons, Select Committee on Defence, 'Defence – Third Report', Session 2003–04, paras 112–13, 22 October 2003, <https://publications.parliament.uk/pa/cm200304/cmselect/cmdfence/57/5702.htm>, accessed 6 March 2026.
65. Author interview with serving Royal Navy Reserve spokesperson, September 2025.

Training Individuals and Groups

In most cases, reservists held for contingency purposes – that is, those not routinely contributing to operations during peacetime – are not trained to the standard needed for wartime. This means that their training will have to be topped up to meet operational performance standards. Whether through the volunteer or strategic reserves, or wider mobilisation, reservists will have to be trained in volumes and at a speed far greater than in peacetime, or recent conflict levels. Currently, capacity is lacking in the training system, and training takes time. This chapter addresses those issues, before considering the contribution made by training to the psychological elements of mobilisation: individual resilience and unit cohesion.

Expanding Training Capacity

Much like the mobilisation system, training capacity has reduced as the armed forces shrank. The Defence Training Review and Optimising the Defence Estate programmes disposed of training bases and training areas, and reduced accommodation, catering and classroom capacity to match the peacetime needs of smaller forces.[66] These cuts are a bottleneck to mobilisation, and have an impact on reserve access to exercise areas, which is likely to extend the training period after mobilisation and consume more of the training system's capacity. Supplementing military facilities by identifying suitable training spaces in academia or industry, and outdoor training areas that could be used, would increase capacity to cope with mass mobilisation, and potentially close the gap between the baseline level of reserve training and the wartime requirement, reducing the post-mobilisation training time.

66. MoD, 'Modernising Defence Training: Report of the Defence Training Review', 2001, pp. 34–35, archived via The National Archives, <https://webarchive.nationalarchives.gov.uk/ukgwa/20121026055214/http:/www.mod.uk/NR/rdonlyres/E62FD5CB-1A3D-4331-875C-DE55D751B37A/0/dtr_report_vol1.pdf>, accessed 24 March 2026; National Audit Office, 'Optimising the Defence Estate', HC293, 11 June 2021, <https://www.nao.org.uk/wp-content/uploads/2021/06/Optimising-the-defence-estate-Summary.pdf>, accessed 24 March 2026.

Reducing the Training Time while Remaining Effective

Two key factors impact the time it takes to train and the level of effectiveness achievable: what must be taught, and how the teaching is delivered.

Training Requirement

What is taught depends on the required training end-state and the trainee start-point. The end-state is shaped by the role(s) people are expected to perform, in what conditions, including the equipment they are to use. Clarity about the roles and equipment of the second and third echelons is therefore essential. For example, whether they operate the same equipment as the regular forces or whether the assumption is that simpler capabilities will be operated that can be taught more quickly (dissimilar rearmament)[67] raises questions about how the second echelon is prepared to use equipment not used by the first echelon. This might require standing second echelon trials and training units, probably working with industry partners who prototype the dissimilar systems, to develop the tactics, techniques and procedures (TTPs) for equipment that is earmarked for, but not yet in use with, the armed forces. Accepting this dissimilarity and making it an organising principle could make a virtue of the fact that first and subsequent echelons are not likely to be interchangeable.

Job design also drives the training requirement: the more complex the job, the greater the training burden. Among the first echelon, workforce reductions have led to 'multiskilling' to maximise the limited resources. Mobilised forces, which can be held in greater volume because they are paid for only when used, might be better developed as single-skill individuals because they can be held or brought to readiness more quickly, even if individually they are less flexible. This may make mission command less appropriate if individuals cannot develop the expertise to exercise their instincts effectively. Russia, for instance, does not organise around mission command because its strategy depends on large volumes of poorly trained mass for whom mission command is impossible. However, if the first and subsequent echelons are too different, a rethink will be needed on how the subsequent echelons are trained and how the echelons operate together. There will still be a role for the first echelon in training and quality, even if training mobilised forces is largely outsourced to the second echelon, because the first echelon is likely to provide much of the command structure, as a kind of skeleton to which the additional mass can be added. This concept of a skeleton reflects the Reichswehr's original planning approach in the 1920s when its regular numbers were capped by the Treaty of Versailles.

67. Kaushal and Paul O'Neill (eds), *The Role of Dissimilar Rearmament in Allied Deterrence*.

As well as the training end-point, the learning gap depends on the trainee's start-point. And while militaries must almost always train personnel on military skills, with combat role skills being the most starkly exclusive to military service, those in the Strategic Reserve will have some skills of varying degrees of currency. Those mobilised could also have some relevant civilian skills, in fields such as medical, cyber, information, logistics or non-combat drone operation. Recognising that individual start-points will be different and embracing individualised training pathways could reduce training time and free up capacity.[68] To this end, extending accreditation beyond the few civilian qualifications the military currently recognises (or records) would improve future mobilisation;[69] the Pan-Defence Skills Framework and adoption of professions should help this.[70] However, the process is not simple. Civilian accreditation is patchy, and where it exists it is often not clear, making mapping and quality assurance problematic. National reform here could increase the nation's ability to harness talent. In the interim, expanding the recognised qualifications and introducing a competency-based accreditation of civilian skills into recognised military qualifications through a 'test first and train where required' approach would improve capacity and are potentially 'quick wins'.

Training Delivery

Two aspects of training delivery are relevant: the balance between the risk taken in training and that taken on operations; and the approach taken to training itself (that is, its pedagogy).

Balancing Risk

Operation Interflex[71] – the basic infantry training of Ukrainians in the UK – has shown how dramatically reducing training time to a fraction of its normal length is complicated within the current risk framework and duty of care requirements in the UK[72], as overseen by the Defence Safety Authority, and should be re-evaluated. However, taking risk in training is controversial. The 2009 Haddon-Cave report identified a culture of complacency, compounded by cost cutting, and has shaped British defence's approach to safety and risk.[73] While this approach seeks to balance risk and operational output,[74] without high-intensity operational activity against which

68. O'Neill and Hinton, '"Goodbye Mr Chips?"', p. 21.
69. *Ibid.,* pp. 9–10.
70. Author interview with defence contractor, November 2025.
71. MoD, 'Operation Interflex Reaches Three-year Milestone', 26 June 2025, <https://www.gov.uk/government/news/operation-interflex-reaches-three-year-milestone>, accessed 6 March 2026.
72. Author observation of Operation Interflex Final Training Exercise (FTX), December 2023.
73. Charles Haddon-Cave, *The Nimrod Review: An Independent Review into the Broader Issues Surrounding the Loss of the RAF Nimrod MR2 Aircraft XV230 in Afghanistan in 2006,* HC 1025 (London: The Stationery Office, 2009).
74. Rob Wilson, 'The Challenges of an Air Safety Culture and Delivering Air Power', KCL Freeman Air and Space Institute, 23 August 2023, <https://www.kcl.ac.uk/the-challenges-of-an-air-safety-culture-and-delivering-air-power>, accessed 1 August 2025.

risk could be balanced, and with ever-greater resource constraints, some have argued that there is a culture of risk aversion,[75] despite the fact that current doctrine[76] acknowledges that:

- Risk is inherent to defence.
- Training risk should be reduced to 'As Low As is Reasonably Practicable' (ALARP).[77]
- Risk should not be shifted from training to operational activity.

Historically, training practices were often 'sink or swim' – and unsafe by modern standards – and avoidable training casualties are clearly an unacceptable failure of duty of care. To say nothing of the personal impact, in purely functional terms, they result in fewer personnel for receiving units and increased medical expenses, and risk brutalising trainees, which can foster problematic behaviours. Still, they highlight a difficult issue that requires a measured and carefully managed approach: high-risk training is most likely to be conducted improperly if rushed during mass expansion, yet it is essential to take risk in training to reduce operational risk and protect personnel. As the old adage goes, 'train hard, fight easy'.

Consequently, the problem may not be policy guidelines designed to make activity safer, but whether the incentive structures work as intended, or whether risk aversion leads to inappropriate risk transfer to operations. Considering the stringent requirements for assurance and extensive paperwork, some downstream policy areas need reform, including incentives. Indeed, asking commanders and instructors to take more risk in training to achieve greater effectiveness or efficiency on operations, but leaving them exposed to being held personally responsible for training accidents or deaths with career-limiting/-ending impact or prosecution and possible imprisonment, provides little incentive for accepting additional training risk, even if it reduces operational risk. This is particularly contentious with uninhabited systems, where safety requirements constrain their use in training, despite their ubiquity on the battlefield.[78]

75. Fin Monahan, 'Military Culture and Fighting Power' , Paper 17, Freeman Air and Space Institute, King's College London, December 2023, <https://www.kcl.ac.uk/warstudies/assets/paper-17-fin-monahan-military-culture-and-fighting-power-v2.pdf>, accessed 3 February 2026.
76. MoD, 'JSP 375: Management of Health and Safety in Defence', Version 1.6, September 2024, <https://assets.publishing.service.gov.uk/media/66fd298c3b919067bb482a90/Management_of_health_and_safety_in_defence__JSP_375_Directive_and_Guidance_.pdf>, accessed 3 March 2026; MoD, 'JSP 822: Defence Training and Education V7.0 (Feb 24)', Volume 3: Collective Training V3.0, <https://assets.publishing.service.gov.uk/media/65ce3eefe1bdec001132220e/JSP_822_V7.0__Vol_3_V3.0_-_Collective_Training.pdf>, accessed 22 March 2026.
77. This is underpinned by UK health and safety legislation. See The Health and Safety at Work etc. Act 1974, S 37, <https://www.legislation.gov.uk/ukpga/1974/37/contents>, accessed 6 March 2026.
78. Julian Brazier with Christopher Hockley, 'Maritime Reserves: Grasping the Opportunity', *RUSI Occasional Papers* (September 2023), pp. 2, 15–16, <https://www.rusi.org/explore-our-research/publications/occasional-papers/maritime-reserves-grasping-opportunity>, accessed 15 July 2025.

Pedagogy and Andragogy – the Methods of Training

The other training delivery factor is the pedagogy and andragogy – that is, the methods used, whether for younger or less advanced learners without prior contextual understanding, or those more experienced and advanced. In either case, learning is a process where the learner moves through stages of: unconscious incompetence; conscious incompetence; conscious competence; and unconscious competence, sometimes referred to as 'muscle memory'.[79] Although this model was developed for individuals rather than teams, it is also used to explain to groups their learning pathway and to train instructors. It highlights that training must be progressive to avoid cognitive overload.[80]

One key to accelerating the speed of learning is motivation. A motivated learner will assimilate information and perform faster than someone less committed. Both kinds of students, however, learn best when the task is perceived as neither too hard nor too easy, hence the value of individual learning pathways.[81] While individualised pathways might seem counter to the 'efficiency' of standardised training, the advantages of faster and more effective individualised learning offer an attractive offset, albeit requiring expert instructors.

Modern psychology also offers ways to enhance training effectiveness, and is becoming increasingly influential within military training.[82] One concept which has been adopted within military training is 'metacognition': the understanding among trainees (and instructors) of how they think and thus learn and develop new skills and attributes.[83] Metacognition reinforces effective modern pedagogy, allowing trainees to learn from failure and regulate difficult emotions, such as frustration and anxiety, during challenging training. It also helps instructors regulate their approach to trainees, although it also demands greater expertise from them.

79. Frank A DePhillips, William M Berliner and James J Cribbin, *Management of Training Programs* (Homewood, IL: Richard D Irwin Inc., 1960), p. 69.
80. John Sweller, 'Cognitive Load During Problem Solving: Effects on Learning', *Cognitive Science* (Vol. 12, No. 2, April–June 1988), pp. 257–85; John Sweller, Jeroen J G van Merriënboer and Fred Paas, 'Cognitive Architecture and Instructional Design: 20 Years Later', *Educational Psychology Review* (Vol. 31, 2019), pp. 261–92.
81. Celeste Kidd, Steven T Piantadosi and Richard N Aslin, 'The Goldilocks Effect: Human Infants Allocate Attention to Visual Sequences That Are Neither Too Simple Nor Too Complex', *PLOS One* (Vol. 7, No. 5, May 2012), p. e36399.
82. Joseph Kline, presentation at RUSI Land Warfare Conference 2023, London, 27 June 2023.
83. Stan Gully and Gilad Chen, 'Individual Differences, Attribute–Treatment Interactions, and Training Outcomes', in Steve W J Kozlowski and Eduardo Salas (eds), *Learning, Training, and Development in Organizations* (Abingdon: Routledge, 2009), pp. 9–12, 21–22.

Instructors are clearly crucial to the learning process. Experienced instructors can accelerate student learning, but the training that military instructors receive is often limited.[84] Improving the pedagogy by upskilling regular instructors, or creating a specialist training capability, either under contract or as a specialist part of the reserves – perhaps drawing on teachers or training providers – would enhance the mobilisation system. However, the first echelon struggles to find enough instructors, exemplified by the RAF's dilemma about whether to strip the best people from the frontline to train others.[85] A specialist capability, therefore, seems more realistic. This might entail a high-readiness instructor cadre to be activated early and prepared to receive others. Whether this is a purely reserve function, contracted or a combination depends on the availability of the expertise.

In whatever guise, specialist instructors familiar with the training system can open creative opportunities for effective training, despite constraints. The importance of expert trainers is their role in:

- Balancing risk and safety with the provision of challenging, high-quality training.
- Maintaining standards.
- The impact of those two factors on the ability of a force to swell or expand quickly without sacrificing quality and thus undermining duty of care towards mobilised citizens.

Another crucial part of providing effective training is getting the lessons from a war into the training system quickly. The Defence Systems Approach to Training (DSAT) is thorough but can be cumbersome and, without reform, could struggle to keep pace with the need for fast access to lessons.[86] Moreover, the lessons process also requires an overhaul. Extracting lessons from conflicts and exercises and incorporating them into training is notoriously difficult. Historically, this has relied on rotating individuals into training from operational duties, and on written updates. This works in part, but during a dynamic conflict for which a country is mobilising, it is likely to fail. Given the pace of change, the lessons-learned process requires further enablement and the systematic collection and input of data into the training system without it being mediated only through individual instructors. The use of AI to distil and disseminate lessons from the frontline could speed up the process when paired with experienced instructors able to operate within the DSAT process.

84. O'Neill and Hinton, '"Goodbye Mr Chips?"', p. 17.
85. Cab Townsend, 'Training – A Vital Part of RAF Warfighting Capability', *Air and Space Power* (2024), pp. 110–12.
86. O'Neill and Hinton, '"Goodbye Mr Chips?"', pp. 12–14.

Rethinking how training is delivered, therefore, requires questioning the underpinning training philosophy. A historical failing of British military training is a reluctance to 'train to pass', often resulting in high wastage rates. Too often, training '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'.[87] Under mass mobilisation, excessive wastage would undermine the ability to field forces at the relevant scale, and increase the number of people being mobilised to compensate for the training failures, putting further pressure on the already constrained mobilisation, kitting and training systems. One solution could be to embrace the General Service Corps model. Introduced in 1942, conscripts received their basic training in the Corps while subject to intelligence and aptitude tests for other more suitable roles, so the talent of all could be used effectively.[88]

The Psychological Contribution of Training

As well as delivering technical content, training provides a psychological contribution, which is arguably more important for mobilised forces than for regular service personnel. This is about not only providing the psychological tools individuals need to operate in the battlespace, but also the collective's need for cohesion and trust.

Psychological Preparation – Individual

At its most extreme, the individual's psychological preparation includes battle inoculation – a necessary component of training the combat arms. Passivity in combat was more common in both world wars and in Korea than cowardice.[89] To overcome this, Army live-fire exercises during the Second World War involved instructors firing at the feet of straggling trainees or using improvised pyrotechnics to increase realism and psychological pressure, both of which were apparently effective, but unlikely to satisfy peacetime risk assessments. And while bayonets might be viewed as near-obsolete, the training in and act of fixing bayonets remains a powerful psychological tool for inspiring soldiers to leave cover and advance.[90] Psychologically preparing individuals, especially those mobilised at short notice, for the rigours of combat and the risks of killing or being killed is vital, but while individual psychological resilience is important, resilience is a collective phenomenon built during collective training and through strengthening social bonds.

87. *Ibid.*, p. 9.
88. Alan John Keefe Pigott, *Manpower Problems: The Second World War 1939–1945* (London: The War Office, 1948), pp. 12–39.
89. Joanna Bourke, *An Intimate History of Killing: Face-To-Face Killing in Twentieth-Century Warfare* (London: Granta, 1999), pp. 73–74.
90. *Ibid.*, pp. 73–77, 88–93.

Psychological Preparation – Collective

Cohesion is a prerequisite for military effectiveness and is notably more difficult to cultivate among non-professional, rapidly mobilised forces.[91] It is socially oriented, combining group loyalty (horizontal cohesion) and leadership (vertical cohesion), and is essential for motivating soldiers to face danger and pursue battlefield objectives. While vertical cohesion is important in task performance, horizontal cohesion prevents combat stress-related problems.[92]

Although the role of cohesion in force generation is contested,[93] two elements deserve mention because they describe and allow the measurement of desired outputs: battlefield performance (determination and flexibility) and staying power (the ability to continue fighting effectively even as conditions and prospects worsen).[94] Today's threat picture suggests that having staying power is vital. The Russian military has demonstrated remarkable staying power despite poor battlefield performance. The British military's strong (albeit imperfect) military culture of professionalism and high standards has delivered good battlefield performance and staying power, but this cannot be assumed beyond the all-volunteer force during mass mobilisation. One cannot surge trust.

Psychological preparation also supports competence in collective action. The Royal Navy and the RAF tend to use reservists as individual augmentees, but this is different for the Army. Combined arms combat operations are not the same as group cohesion – one is about skills, the other psychological – but they are connected and developed through the same activities. This is an issue for the peacetime military, principally related to the time available for collective training and equipment availability, although the carrier strike group is a forcing function for the Royal Navy. Progressing from individual to successively more complex iterations of collective training is time-consuming, and many units never reach the final level of live collective training. Technology can help – the British Army's Land Training System[95] and the RAF's Gladiator system[96] are intended to improve collective training, combining live and

91. Darryl Henderson, *Cohesion: The Human Element* (Washington, DC: National Defense University Press, 1985), pp. 3–6; Guy L Siebold, 'The Essence of Military Group Cohesion', *Armed Forces and Society* (Vol. 33, No. 2, 2007), pp. 286–95.
92. Department of Military Psychiatry, *Evaluating the Unit Manning System: Lessons Learned to Date* (Washington, DC: Walter Reed Army Institute of Research, 1987), p. 3.
93. Robert J MacCoun, Elizabeth Kier and Aaron Belkin, 'Does Social Cohesion Determine Motivation in Combat?: An Old Question with an Old Answer', *Armed Forces & Society* (Vol. 32, No. 4, 2006), pp. 646–54.
94. Jason J Castillo, *Endurance and War: The National Sources of Military Cohesion* (Redwood City, CA: Stanford University Press, 2014), pp. 18–22.
95. John Hill, 'British Army launches its new Land Training System', *Army Technology*, 10 April 2024, <https://www.army-technology.com/news/british-army-launches-its-new-land-training-system>, accessed 6 March 2026.
96. See Royal Air Force, 'RAF's Gladiator Support Contract With Boeing Defence UK Extended For Two Years: Bridging Contract For RAF's Synthetic Training System', 19 December 2025, <https://www.raf.mod.uk/news/articles/rafs-gladiator-support-contract-with-boeing-defence-uk-extended-for-two-years/>, accessed 9 January 2025.

synthetic actors. However, it is critical that cohesion is as much a goal as collective competence, and that is harder to achieve through simulation.

Mobilisation poses challenges for the current training system, which could not cope easily with the training task. Capacity needs to be increased by adding new capacity and reducing the training pipeline so more people can pass through it to the frontline. Reducing the training requirement and improving how people are taught could accelerate the process, but there are limits on this. Training needs to be realistic, which requires a review of the appetite for risk in training, and to provide psychological as well as technical preparation of individuals and units. Balancing the need for speed with credible training is crucial for mobilised forces.

Training Commanders and Staffs

While generating mass is not simple, the challenges of rapid growth increase greatly when applied to how the larger force is to be commanded. This chapter considers the particular issues faced when looking at generating and sustaining the brains of the new force: the commanders and their staffs.

Experience is hard to generate through mass mobilisation. Staff officers and command teams cannot be surged overnight. As late as 1944, the Second World War British Army suffered from the pre-war shortage of mid-level staff officers. The inability to train enough individuals, coupled with mass expansion prior to Operation *Overlord*, resulted in a shortage of professionally trained senior commanders at Division and Corps levels and among headquarters staff.[97] Even professional militaries not facing wartime mobilisation struggle with these issues,[98] but wartime expansion exacerbates this. For instance, since Russia's full-scale invasion of Ukraine, Russia's armed forces have struggled with a lack of preparation for urgent recruitment, the rapid loss of their most valuable strata of experienced unit-level leadership, and an operational tempo that was barely sustainable.[99] To be effective, mobilised forces need to attach to professional command and headquarters staff systems as the backbone that gives the force structure and strength, so training commanders and staffs at all levels is vital.

97. David French, *Raising Churchill's Army: The British Army and the War against Germany 1919–1945* (Oxford: Oxford University Press, 2000), p. 264.
98. Milan Vego, 'The Bureaucratization of the U.S. Military Decision-Making Process', *Joint Force Quarterly* (Vol. 88, No. 1, 2018), pp. 34–45.
99. Michael G Anderson, 'A People Problem: Learning from Russia's Failing Efforts to Reconstitute its Depleted Units in Ukraine', Modern War Institute at West Point, 26 January 2023, <https://mwi.westpoint.edu/a-people-problem-learning-from-russias-failing-efforts-to-reconstitute-its-depleted-units-in-ukraine/>, accessed 1 August 2025.

The main problem for staffs is where inexperienced officers overlook capabilities by not understanding what they can draw on, either from their own combined arms sub-units or from the joint force at large. This is compounded by the requirement for mobilised and relatively inexperienced officers to be promoted quickly into staff positions, and pressure to keep staffs small and dispersed to reduce the threat to command posts and headquarters from targeting and precision fires.[100]

The use of technology, such as AI, is a double-edged sword. While AI might increasingly undertake routine analysis, human staff officers will be expected to understand AI's output. Learning new data analytics and planning tools on the job, especially if these tools only become available when staffs are already deployed, may be problematic.[101] However, such training can be relatively quick, provided that exercises have data of sufficient fidelity and volume to simulate modern operations and the software and systems with which to train.[102] But, in human–AI teams, the human value-add is more in interpretation and intuition (known as System-I thinking[103]), which is built on disciplined study and experience, neither of which is easy to acquire by those mobilised. Hence, it is likely that reinforcing headquarters will be a job primarily for those with regular service, perhaps supplemented by mobilised individuals who understand data science and the technology.[104]

The British armed forces' command philosophy is also training-intensive. Command is delegated far beyond the formation headquarters under the manoeuvrist doctrine and mission command. This is a strength, but the training is lengthy and expensive, and unsuited to rapidly mobilised individuals without prior experience. However, among regulars and volunteer reserves, the culture of mission command and delegation of responsibility and capability onto junior non-commissioned officers (JNCOs) allow much collective training to be conducted in a decentralised manner by units.

100. Milford Beagle, Jason C Slider and Matthew R Arrol, 'The Graveyard of Command Posts: What Chornobaivka Should Teach Us about Command and Control in Large-Scale Combat Operations', *Military Review* (Vol. 103, No. 3, May–June 2023), pp. 10–24.
101. Jim Perkins, 'Lessons from the Army Reserve's First Operational Data Team', *War on the Rocks*, 18 July 2025, <https://warontherocks.com/2025/07/lessons-from-the-army-reserves-first-operational-data-team/>, accessed 11 August 2025.
102. Michael Schwille, Scott Fisher and Eli Albright, 'We Wanted to Implement Data-Driven Operations During an Army Exercise—Here's What We Learned', Modern War Institute at West Point, 25 January 2024, <https://mwi.westpoint.edu/we-wanted-to-implement-data-driven-operations-during-an-army-exercise-heres-what-we-learned/>, accessed 1 August 2025.
103. Daniel Kahneman, *Thinking Fast and Slow* (New York City: Farrar, Straus and Giroux, 2011).
104. Christina Balis and Paul O'Neill, 'Trust in AI: Rethinking Future Command', *RUSI Occasional Papers* (June 2022), pp. 29–31, <https://www.rusi.org/explore-our-research/publications/occasional-papers/trust-ai-rethinking-future-command>, accessed 9 January 2026.

Command training starts at unit level before the first centralised courses at establishments such as the Infantry Battle School (Dering Lines).[105] Personnel need a good understanding of their role and responsibilities as junior commanders. This shapes the provision of individual Command, Leadership and Management (CLM) training and Professional Defence and Security Education (PDSE) to support the effectiveness and efficiency of unit collective training. Centralised training focuses either on qualifying individual leaders and instructors to deliver training at their units or developing collective unit competence, because commanders also require training, which they cannot easily self-develop. Working well, this process contributes to the development of competent, high-quality and cohesive units that can succeed on operations.

Furthermore, trainer and instructor quality determine the effectiveness of training,[106] enabling training at scale in a distributed manner. And although the training system is stretched through overcentralisation, the importance of ensuring common standards, not least for safety reasons, has placed distributed training under pressure. This will complicate mobilisation, with too many people to push through today's centralised system, balanced with a desire to maintain the duty of care owed to vulnerable mobilisees. New training standards and assurance mechanisms and greater use of simulation are needed to assure the safety of decentralised training, which seems vital to providing the capacity needed for mobilisation. The training needed for operating mobilised forces goes beyond those being mobilised and requires appropriate training for even first echelon commanders and staffs to understand the forces at their disposal, their capabilities and their limitations. The nascent synthetic environment programmes in these areas need to account for interoperability across different services. Neglecting this considerably weakens the utility of the mobilised force.

105. British Army, 'Infantry Battle School', <https://www.army.mod.uk/support-and-training/our-schools-and-colleges/infantry-battle-school/>, accessed 3 March 2026.
106. David R Glerum et al., 'The Trainer Matters: Cross-Classified Models of Trainee Reactions', *Journal of Applied Psychology* (Vol. 106, No. 2, April 2020), pp. 281–99.

Enhancing Training through Technology and Partnership

Mass mobilisation poses challenges to British armed forces in training delivery, especially in capacity and content. Technology and partnering with others can help against both vectors, as well as making those called up more effective. This chapter focuses on the opportunity to address capacity and delivery issues described earlier. And while the use of technology and partners is hardly new – the RAF pioneered synthetic training during the Second World War,[107] and all services use external partners to train their first echelon – the opportunities have not been maximised,[108] and certainly not for second or third echelons.

Expanding Capacity

The lack of infrastructure within the defence estate constrains surge capacity. Distributed learning can help where individuals can learn without having to gather, for example to learn individual technical skills. However, distributed learning may not be as appropriate for collective training or developing trust and cohesion. And while defence is moving in this direction, through the Defence Learning Environment – the main portal that service personnel currently use for e-learning – the pace is slower than the sense of urgency highlighted in the SDR and speeches by senior officers and intelligence agencies.[109] Expanding the ambition and tools for accessing learning

107. Trevor Nash, 'The RAF's Leading Role in the Development and Application of Synthetic Training Equipment', *Air and Space Power Review* (Vol. 26, No. 1, 2024), pp. 54–74.
108. O'Neill and Hinton, '"Goodbye Mr Chips?"'.
109. Roly Walker, 'General Sir Roly Walker's Closing Keynote Address at RUSI Land Warfare Conference 2024', 25 July 2024, RUSI Land Warfare Conference, 2024, <https://www.youtube.com/watch?v=rDIip1V5c5Y>, accessed 25 February 2026; Blaise Metreweli, 'Speech by Blaise Metreweli, Chief of SIS, 15 December 2025', London, 15 December 2025, transcript available at <https://www.gov.uk/government/speeches/speech-by-blaise-metreweli-chief-of-sis-15-december-2025>, accessed 3 March 2026.

remotely, using personal devices wherever possible, would open access to the Volunteer and Strategic Reserves, and potentially the whole population, without requiring physical space. And while this is likely to be more relevant to generic skills, it could help hold the country at a higher level of readiness than today – an enabler of the 'whole of society' approach.

Where people must gather for classroom-based in-person activity, military facilities could be supplemented by using civilian infrastructure in education and training institutions and industrial facilities. And with more investment in apprenticeships and other training opportunities in a growing defence industry,[110] there are opportunities to learn from how industry trains its workforce, and to apply that to the military. Whether industry facilities are available would depend on whether it was also recruiting to ramp up support to a country at war.

Opportunities also exist to harness non-regular personnel to supplement the instructor cadre. This could involve drawing on reservists, perhaps as a specialist instructional function (as previously described), or contracting civilian partners to lead on preparing the second and later echelons and release first echelon forces for the frontline. Currently, however, the demand on industry is not clear, and policymakers must explore those areas where industry may be better positioned to oversee, provide or contribute to training, and which activities should be retained inside defence. Expanding the use of synthetic training, including simulation and virtual environments, could increase industrial and contractor involvement in running the systems, but defence must also remain an intelligent customer, requiring some in-house expertise. The use of ex-regulars as contractors and Full-Time Reserve Service by the armed forces in running simulators offers a useful model,[111] but where

110. The government plans 50,000 new apprenticeships – see Department for Work and Pensions, '50,000 More Young People to Benefit from Apprenticeships as Government Unveils New Skills Reforms to Get Britain Working', press release, 7 December 2025, <https://www.gov.uk/government/news/50000-more-young-people-to-benefit-from-apprenticeships-as-government-unveils-new-skills-reforms-to-get-britain-working>, accessed 11 January 2026. The government has announced plans to open five defence technical colleges – see Josh Mellor, 'Five Defence Technical Excellence Colleges to Open by 2026', FE Week, 8 September 2025, <https://feweek.co.uk/five-defence-technical-excellence-colleges-to-open-by-2026/>, accessed 11 January 2026. Defence companies are also expanding their schemes – see, for example, BAE Systems, 'Record Number of Young People in Training at UK's Largest Defence Company', 2 December 2025, <https://www.baesystems.com/en/article/record-number-of-young-people-in-training-at-uks-largest-defence-company>, accessed 11 January 2026, and Babcock, 'Babcock Boosts Graduate and Apprentice Recruitment with Record Intake', 10 December 2025, <https://www.babcockinternational.com/news/babcock-boosts-graduate-and-apprentice-recruitment-with-record-intake/>, accessed 11 January 2026.
111. Defence Equipment & Support, 'DE&S Secures UK-based Training for Shadow Crews', 9 March 2023, <https://des.mod.uk/uk-training-shadow-crews/>, accessed 6 March 2026; Norbert Neumann, 'Team Fisher Reaches First Milestone in Royal Navy Training Modernisation', *Naval Technology*, 19 October 2021, <https://www.naval-technology.com/features/team-fisher-future-training-unit-royal-navy-capita-training>, accessed 6 March 2026; CAE Defense and Security, 'CAE in the United Kingdom', <https://www.cae.com/defense-security/regional-operations/cae-united-kingdom/>, accessed 6 March 2026.

these individuals are also in the Strategic Reserve, they may be more valuable supporting the training of others than returning to duty.

Pipeline speed has an impact on training capacity: shorter courses allow more people to be trained in a set period, even if the total numbers in training at any time is fixed. And technology offers exciting possibilities for shortening the time in training. With dual-use technology, harnessing mobilisees' civilian skills could reduce the training burden.

One area heavily impacted by mobilisation will be logistics, with more people to support and equip, but also the need to disperse stockpiles and forces to enhance resilience. Drawing on civilian logistical expertise is logical, thus an expansion of logistics reserves, or expanding enabling contracts (where appropriate), should be a priority.

Where individuals need training, distributed learning offers opportunities to grow or sustain knowledge and skills at higher levels than today, reducing the training gap on mobilisation. And even where people must gather, technology can assist. First, simulation, augmented and virtual reality (AR/VR)[112] can increase the speed of learning against traditional approaches, reducing course lengths, especially when coupled with individual learning journeys. Second, by allowing digital access to equipment, the need for the equipment itself, and the space to house it, is reduced. This makes more first echelon equipment available for operations and opens up greater access to civilian training infrastructure, such as classrooms. When ordering new equipment, especially for second or later echelons, defence should, where relevant, require manufacturers to provide digital twins for AR/VR training, or require access to the AR/VR material the company is producing for training their own workforce. Crucially, training modernisation must adhere to the core principle that it prepares individuals and units better for live collective training, rather than supplanting it.

Reforming Training Delivery

Training is driven by the requirements of the task. In a period of mobilisation, second echelon training is unlikely to be identical to that provided to the first echelon. First, the equipment is likely to be different, and second, the time available to train is short. Worse, defence does not yet know with what it will equip the second and later echelons. Trials and training units will be needed to test emerging products, and once identified as having merit, training material must be produced for when the equipment is rushed into service. Part of the contract for successful bidders of dissimilar equipment, therefore, should be to work with defence in developing training. Consequently, a design principle should be ease of maintenance and use so training times can be reduced, perhaps

112. PWC, 'The Effectiveness of Virtual Reality Soft Skills Training in the Enterprise: A Study', 25 June 2020, <https://www.pwc.co.uk/services/technology/immersive-technologies/study-into-vr-training-effectiveness.html>, accessed 11 January 2026.

through better user interfaces made possible through R&D spending on making civilian apps more user-friendly and intuitive.[113] This may also be relevant to the first echelon because, as experience in Ukraine shows, the pace of technological innovation means that new or adapted equipment will be reaching the frontline continuously.[114]

However, not every aspect of the mobilised force will be different, and clarity is needed on where they will use, and thus train on, the same equipment. Training stocks of these items will be needed, and potentially expanded to accommodate the larger training pipeline.

Technology could enable a lower-skilled mobilised workforce to achieve higher levels of productivity through reachback to deep experts when necessary. This would allow for shorter courses, perhaps focused on enduring principles and some of the more common systems, but accepting that those areas not covered will have to be supported by reachback and AR. The ability to do this has already been demonstrated by industry and in Ukraine.[115] However, it requires resilient infrastructure because electronic warfare can be expected to target communication systems; although this is likely to be more of a problem for the frontline than within the UK, it would be unwise to assume no interference with the internet.

Reaching Live Collective Training

In relation to collective training, synthetics offer significant opportunity. The US Army and US Marine Corps (USMC) have invested heavily in this, with the creation of 'a new training environment that is flexible, supports repetition, reduces overhead and is available at the point of need'.[116] The intention was to reduce facility-based training, and allow units to avoid travelling to centralised training locations or train while deployed elsewhere.[117] Their framework has been comprehensively adopted by the British Army's Land Training System, representing a cascade of live, virtual and constructive training.[118] In this progressive approach:

113. Nick Reynolds, 'Getting Tactical Communications for Land Forces Right', *RUSI Journal* (Vol. 166, No. 5, 2021), pp. 64–75.
114. Watling, Danylyuk and Reynolds, 'Preliminary Lessons from Ukraine's Offensive Operations, 2022–23'.
115. Author conversation with official from Babcock Land Systems, July 2025.
116. Joyce M Conant, 'Augmented Reality May Revolutionize Army Training', press release, US Army, 9 August 2017, <https://www.army.mil/article/191942/augmented_reality_may_revolutionize_army_training>, accessed 12 September 2025.
117. *Ibid.*
118. The UK lags far behind the US in this regard, with the MoD's Gladiator system used primarily by the RAF and likely to form the backbone of Royal Navy and Army synthetic training in future. With the project still in the 'market engagement' phase, the timeline for development and wider adoption remains unclear. See George Allison, 'UK Considers Expanding the Use of Sythentic [*sic*] Training', *UK Defence Journal*, 8 March 2026, <https://ukdefencejournal.org.uk/uk-considers-expanding-the-use-of-sythentic-training/>, accessed 9 March 2026.

- Constructive training is 'laptop-based', with digital avatars and simulated environments – for example, the British Army's game-based simulators for Rehearsal of Concept drills.[119]
- Virtual training involves simulators – for example, real personnel, in simulated environments, with convoy, flight, gunnery and driving simulators.
- Live training involves real personnel in live environments, and is the most traditional part of the approach, albeit augmented with simulation.

Constructive and virtual training in synthetic environments covers individual and collective skills simultaneously and can cohere the skills from all stages during the final elements of live collective training, which remains essential to habituating the force to technical, tactical and operational logistics and maintenance considerations. While this could result in an irrational, risky and overwhelming training programme, synthetics can provide a safe and rational progression when grounded in learning theory, which prevents training organisations adopting the fashionable even when it does not fit their needs.[120] Adversarial training, and training to the point of failure, are important in advanced training and refining skills, but are difficult to conduct, and in live training, this carries risk. Synthetics offer the prospect of validating collective skills early, with trainees responding to realistic stimuli rather than words of instruction or notional scenarios. Although smoothing the path between different training modules, this does not guarantee positive validation but does allow instructors to have better awareness of where and why problems and errors are occurring, assisting rectification. Here, structured after-action reviews (AARs) and debriefs are essential; indeed, for more complex training events, they may be necessary to identify where a training serial was successful, where problems occurred and what lessons or improvements should be extracted, as although these may not have been obvious to participants, they are considered essential for learning and improving future performance.[121] Synthetic environments or equipment to collect data in live environments show particular promise and can help smooth some of the inherent contradictions when trying to achieve multiple training objectives.

The Royal Navy and the RAF are further ahead in synthetic collective training among the first echelon, especially where skills are difficult to train live. Examples include anti-submarine warfare – because it is near-impossible to incorporate real submarines into adversarial or force-on-force live collective training on a routine basis – and fifth generation aircraft missions, where doing so might reveal classified capabilities. Synthetics

119. Shaun Chandler, 'Infantry Battle School 2020: Reviving Infantry Trade Training', *British Army Review* (No. 176, Autumn 2019), pp. 46–47.
120. Jan Cannon-Bowers and Clint Bowers, 'Synthetic Learning Environments: On Developing a Science of Simulation, Games, and Virtual Worlds for Training', in Steve W J Kozlowski and Eduardo Salas (eds), *Learning, Training, and Development in Organizations* (Abingdon: Routledge, 2009), pp. 229–61.
121. Nathanael L Keiser and Winfred Arthur Jr, 'A Meta-Analysis of the Effectiveness of the After-Action Review (or Debrief) And Factors that Influence its Effectiveness', *Journal of Applied Psychology* (Vol. 106, No. 7, 2021), pp. 1,007–32.

are typically used where tasks occur infrequently, are expensive or too dangerous to train live, but the approach can offer realistic training at reduced cost and facilitate the progression of training to make it more economical and less risky, even in more straightforward areas. It is in these areas that it will be vital to supporting mobilisation.

The Challenges of Technology-Enabled Training

Despite the opportunities, synthetics are not mature, even for the well-resourced US military, and less so in the UK. Haptics for training weapons systems and tactical combat increasingly add to realism,[122] but while close combat training for small units and flight simulators are quite advanced, 'current training systems don't have much in terms of electronic warfare and cyber operation'.[123] Domain integration remains underdeveloped, but need not be a block to the use of synthetics in supporting mobilisation. More challenging is the fixed nature of the facilities, which rely on connectivity and power, leaving them vulnerable to attack. However, the sophistication (and resources) of the gaming industry potentially offer solutions; they may be less perfect than the exquisite systems, but good enough for playing a part in the learning journey of those mobilised for war.[124]

Getting experience into training is a challenge for analogue systems (see Training Individuals and Groups, above) and it also affects digital systems. Although the increasingly networked nature of modern warfare offers opportunities, practical issues remain. The first is how to get battlefield data from wars where Britain is not involved in combat operations. British support to Ukraine has not translated into obtaining high-fidelity data from the conflict, and extensive open source intelligence, while useful, complicates statistical analysis due to selection bias. Equally, the decentralised nature of the Ukrainian Armed Forces means that even their internal data is inconsistent. For a second echelon that needs to learn quickly from the experiences of the first, data access is problematic. And if the training environment is insufficiently realistic, training data may compoun,d rather than reveal, mistakes.

122. Cheryl Marino, 'Reality Check: Haptics Improvements to Army Simulation Training Makes Virtual Environments Feel More Realistic', *Army AL&T Magazine* (Spring 2025), pp. 16–21, <https://www.lineofdeparture.army.mil/Portals/144/PDF/Journals/AL-T/Spring-2025/RC_PDF_UA.pdf>, accessed 12 September 2025.
123. Stew Magnuson, 'I/ITSEC NEWS: 2024 Called "Major Year" for Army Training Simulators', *National Defense Magazine*, 28 November 2023, <https://www.nationaldefensemagazine.org/articles/2023/11/28/2024-called-big-year-for-army-training-simulators>, accessed 11 September 2025.
124. Global Data Analyst, 'Can the Gaming Industry Help the Military?', *Army Technology*, 15 October 2024.

The second is that, aside from data availability, uneven technological maturity means that there are questions about how synthetics should be adopted and/or the risk mitigated. If the expansive model of the US Army's Synthetic Training Environment (STE) or its USMC equivalent, Project Tripoli,[125] are adopted by the British armed forces, and done at pace, this early adoption would involve significant experimentation and adjustment, and probably missteps and rectification, and the UK often struggles to embrace or fund early adoption.

Questions of assurance can militate against early adoption, but conversely, technology can help with instrumentation to support analysis and performance measurement of training outcomes. AARs feed into this assurance and could potentially resolve data problems and address concerns about erosion of standards, while still allowing for distribution of training.

Under mass mobilisation, synthetics must be scalable. The US shift from facility-based training is not necessarily better; sometimes, facilities may be the cheapest, most effective option. Instead, facility-based training should be considered in tandem with other options, with synthetics offering flexibility and compression of training times rather than direct cost savings. And while synthetics cannot overcome many of the inherent challenges of balancing the needs of separate arms, nor can they eliminate the requirement for expensive live training where it may be difficult to run multiple serials to both train and validate simultaneously.

Synthetics offer many opportunities for enabling effective training, by reshaping the progression of training and providing opportunities to include collective elements in constructive and virtual training. However, challenges include the need for accurate and timely data for training, and the different levels of maturity of different systems means that advances will be uneven, with some services and arms able to move faster than others. Despite this, synthetics offer cost-effective flexibility and scalability, even under conditions of mass mobilisation.

125. Conant, 'Augmented Reality May Revolutionize Army Training'; USMC Training and Education Command, 'Project Tripoli Update 2025', 21 August 2025.

Conclusion

To meet the threats facing the UK described in the National Security Strategy and the SDR, mobilisation will be required, even if only of the reserves. Current thinking about mobilising has not fully considered how to train the large numbers of personnel in expanded armed forces. The following recommendations could provide solutions to these problems.

Recommendations

- **Create detailed plans for the mobilised force**, with clearer roles for the Volunteer and Strategic Reserves. Considering the small size of the current regular force, leveraging sunk costs by getting the most out of veterans and their skills will be critical.
- **The government needs training to understand if and when to mobilise**, including the consequences of not mobilising in a timely manner, balanced against the economic impact of acting too soon.
- **Capacity is currently constrained in both the mobilisation and training systems**. The UK cannot deliver a force that resembles the first echelon, given constraints in the system, the volume of personnel, the forces required and the limited time available. **This must be addressed, drawing on the mobilisation lessons from Ukraine to avoid emergency zero-notice mobilisation and maintain a progressive pipeline delivering a high-quality force.** Study and emulate Ukrainian experience, tactics, techniques and procedures where appropriate but do not copy the ruthlessly efficient trade-offs that their training pipelines necessitated for rapid mass mobilisation, as the UK is not yet in the immediate build-up to conflict.
- **The armed forces must reappraise the force structures and mission-sets that the second and third echelons should adopt with a thorough review of training requirements**, and what command culture and doctrine will best align with this. It requires a fundamental reappraisal of the current approach to risk set by the DSA.
- **Greater capacity can be achieved through a distributed approach to mobilisation** rather than a single training and mobilisation centre, and with capacity for managing appeals against mobilisation. The risk of appeals could be reduced by proactive tracking of individuals in the Strategic Reserve to understand their skills, currency and personal circumstances, including civilian employment and health.

- **An expansion of the physical capacity to train the numbers mobilised is essential**. This should involve identifying civilian capacity that can be tapped, along with greater use of technology to reduce the need for dedicated (and scarce) physical infrastructure.
- **Capacity can also be increased through accelerating the training pipeline in areas where individualisation is possible.** Raising the baseline training standard, harnessing civilian skills of those mobilised and adopting individualised learning approaches would reduce the length of time needed for training. **Developing a better system of mapping and accrediting civilian skills is an essential part of this**, to maximise individual talent and reduce the training burden. Approaches such as competency-based testing may help leverage civilian skills.
- **Orient training towards building unit cohesion and collective competence**, which are crucial, and maintain this through live collective training.
- **Leverage synthetic training technology**, such as simulators and virtual worlds, with an understanding that the primary aim is to improve the effectiveness of the ability to mobilise rather than to save money, and to shorten and improve preparation for live collective training. Bear in mind that this can also increase operational risk if misapplied or inappropriately used to replace live training. Experimentation with the technology can familiarise the training establishment with its strengths and pitfalls and ensure it is applied correctly and adds value.
- **Instructors, commanders and staff training will be a bottleneck**. These will require specific attention, preparation and respect for lead times.
- **Create a high-readiness instructor cadre within the reserves**, able to integrate veterans, contractors and commercial partners as necessary. Identify experienced instructors within the Strategic Reserve as a priority, with plans made to use them for force expansion.

The questions identified in this paper go beyond the military; they are fundamentally political. The authors' conclusion arguably mirrors that of the 1934 Defence Requirements Committee, when Britain's three service chiefs recommended that the government explain to the British public that defence spending would have to increase given the security situation in Europe; this recommendation that was not followed, with disastrous results when the British Army was 'mauled by the Wehrmacht and pushed out of mainland Europe in 1940'.[126] Today, this is a difficult sell with the cost-of-living crisis, and requires leadership, because the first duty of government is to protect the public and keep the country secure.

126. David French, *Deterrence, Coercion and Appeasement: British Grand Strategy, 1919–1940* (Oxford: Oxford University Press, 2022).

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