



Ministry
of Defence

Integrated Operating Concept



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Integrated Operating Concept

dated August 2021, is promulgated
as directed by the Chiefs of Staff

A handwritten signature in black ink, appearing to read 'J. Lawson', with a long horizontal line underneath it.

Director Development, Concepts and Doctrine Centre

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Foreword

The strategic context is increasingly complex, dynamic and competitive. We live in an era of strategic competition in which long-held assumptions are challenged daily. Old distinctions between ‘peace’ and ‘war’, between ‘public’ and ‘private’, between ‘foreign’ and ‘domestic’ and between ‘state’ and ‘non-state’ are increasingly out of date. Our authoritarian rivals see the strategic context as a continuous struggle in which non-military and military instruments are used unconstrained by any distinction between peace and war. These regimes believe that they are already engaged in an intense form of conflict that is predominantly political rather than military. Their strategy of ‘political warfare’ is designed to undermine cohesion, to erode economic, political and social resilience, and to compete for strategic advantage in key regions of the world.

The *Integrated Operating Concept* is designed to deal with this challenge. It updates our thinking on deterrence, recognising that our rivals are seeking to win without eliciting a warfighting response. Hence it establishes the need to compete below the threshold of war and it distinguishes between ‘operating’ and ‘warfighting’. It emphasises the importance of integration with allies, of the levers of statecraft, and across the five operational domains – multi-domain integration. This requires a transformation of the military instrument, including the need to structure forces to operate that can be adapted at graduated readiness to warfight while retaining some forces, including the Reserve, that are optimised to warfight. The ability to warfight is fundamental to our credibility.

Defence is confronted with two imperatives. We must establish a strategic culture, posture and ‘way of warfare’ that is fit for purpose in this new era of global competition; and we must modernise at the pace of relevance to be able to handle future threats. The *Integrated Operating Concept* is designed to guide our approach to addressing these challenges in the immediate term and represents a significant shift in military philosophy.



Chief of the Defence Staff



Vice Chief of the Defence Staff



First Sea Lord



Chief of the
General Staff



Chief of the
Air Staff



Commander
Strategic Command



cyber attack

ing the industries to
sharp increases in
management and
the industry



The more competitive age has changed not just the context for operations but their conduct. We must think and act differently. This *Integrated Operating Concept* is not about **what** capabilities or structures we require – all too often our focus – but rather **how** we will be more integrated, active and agile to become truly threat driven and campaigning.

Ben Wallace, Secretary of State for Defence

Integrated Operating Concept

The *Integrated Operating Concept* sets out a new approach to the utility of armed force in an era of strategic competition and a rapidly evolving character of warfare. It represents the most significant change in UK military thought in several generations. It will lead to a fundamental transformation in the military instrument and the way it is used.

The imperative for change

The strategic context is increasingly complex, dynamic and competitive. The UK, our allies and alliances, and the multilateral system that has assured our security and stability for several generations, all face diversifying, intensifying, persistent and proliferating threats, from resurgent and developing powers, and from non-state actors such as violent extremists.

These threats blend old elements – competition for resources, territory and political power – with new approaches. Our rivals engage in a continuous struggle involving all of the instruments of statecraft, ranging from what we call peace to nuclear war. Their strategy of ‘political warfare’ is designed to undermine cohesion, to erode economic, political and social resilience, and to challenge our strategic position in key regions of the world. Their goal is to win without fighting: to achieve their objectives by breaking our willpower, using attacks below the threshold that would prompt a warfighting response. These attacks on our way of life, from assertive authoritarian rivals and extremist ideologies, are remarkably difficult to defeat without undermining the very freedoms we want to protect. We are exposed through our openness.

The pervasiveness of information and the pace of technological change are transforming the character of warfare. Old distinctions between ‘peace’ and ‘war’, between ‘public’ and ‘private’, between ‘foreign’ and ‘domestic’ and between ‘state’ and ‘non-state’ are increasingly out of date.

Our rivals employ an expanding, diverse and largely unregulated set of information tools to influence target audiences' attitudes, beliefs and behaviours. These weapons are increasingly employed above and below the threshold of war. They challenge international norms and restrict our response options. They work in the seams of our institutions, exacerbate societal divisions and prejudices, and lead people to cooperate, wittingly or unwittingly, in the undermining of democracy.

The triumph of the narrative increasingly determines defeat or victory and hence the importance of information operations. They can be used to support conventional military operations and those utilising proxies and deniable para-military forces, military coercion, offensive cyber operations, and of course lawfare. Established techniques, such as assassination, deception, economic coercion, espionage, theft of intellectual property and subversion gain potency through the clever use of cyber, digitised information and social media. Psychological insights into how these channels can be manipulated enhance their effectiveness.

The combined effect is designed to force a rival to become politically cowed, thus achieving objectives without the need to escalate above the threshold of war. Operations previously considered merely as 'shaping' can now be 'decisive'. Russia's seizure of Crimea in 2014 provides a stark case study in which a fait accompli strategy changed facts on the ground below the threshold at which a warfighting response would be triggered.

Militias in Crimea

Following the ousting of the Ukrainian President in early 2014 and the establishment of a pro-Western interim government, Russia moved quickly to regain an influence in the country. Whilst strategic communications were focused on discrediting the new government, specialist military forces wearing unmarked clothing were covertly moved into Crimea. They began supporting and training separatist movements in the region under a cloak of ambiguity, allowing the Russian authorities to deny any responsibility and claim they were ethnic-Russian nationalist militia. Using this tactic they were able to coordinate street protests and encourage demonstrations that amplified the strategic messaging of an illegitimate Ukrainian government. Ultimately, this activity affected the perceptions and beliefs of the local population, Ukrainian leadership and the international community, allowing strategic objectives to be swiftly achieved following the deployment of conventional military forces.



The pace of technological change and proliferation is rapidly broadening and deepening the threat spectrum. As evidenced in Syria and Iraq, commercial technologies have disrupted the economics and character of warfare. They are – increasingly – cheaper, faster, lighter, smaller and stealthier. They offer a persistent and pervasive presence in the battlespace. They are readily available in large numbers and at low cost.

Such capabilities sit alongside more sophisticated traditional weapons available to well-resourced states, as well as threats from cyber and space. These high-end rivals continue to develop increasingly sophisticated military capabilities. Many have modernised and expanded their capability, as well as proliferating it to their proxies, to challenge us above and below the threshold of war, looking to counter the advantages we have enjoyed for the last 30 years such as air superiority, strategic mobility and unconstrained use of the electromagnetic spectrum. Additionally, the challenge to nuclear stability is growing. Existing nuclear states are modernising their strategic capabilities and limited tactical nuclear weapons are a credible operational consideration for some. Nor do weapons of mass effect reside exclusively in the chemical, biological, radiological and nuclear (CBRN) spheres, but extend to the cyber domain and throughout the electromagnetic spectrum.

As we look further ahead, into the next decade, the combination by then of proven technologies such as pervasive availability of data via enhanced cloud connectivity, machine learning and artificial intelligence, and quantum computing will allow not just a new generation of weapons systems but an entirely new way of warfare. A mix of crewed, uncrewed and autonomous systems look set to make a step change in lethality and utility. The pervasive nature of data – private, commercial, governmental and military combined – gathered from constellations of sensors and crunched at speed by artificial intelligence, will make it extremely hard to hide today's military signature anywhere on the globe.

Expensive, crewed platforms that we cannot replace and can ill afford to lose will be increasingly vulnerable to swarms of self-coordinating smart munitions – perhaps arriving at hypersonic speeds or ballistically from space – designed to swamp defences already weakened by pre-emptive cyberattack. The economics of warfare are changing the balance between platforms and weapons, and between crewed and uncrewed systems. In short, we face an inflection point between the Industrial Age and the Information Age – Defence will need to take the initiative if it is to retain its competitive edge.

The old distinction between foreign and domestic defence is increasingly irrelevant. When 'fake news' appears to originate not abroad but at home, it gains credibility and reach, stoking confusion, disagreement, division and doubt in our societies. This has been particularly evident with the significant uptick in disinformation and misinformation during the coronavirus crisis. 'Home' is no longer a secure sanctuary whence we may choose to launch interventions unhindered. 'Away' is no longer a regional horizon but a global one, involving space and the electromagnetic spectrum. Similarly, the 'front' no longer lies in some distant theatre of operations, but is within the port, airfield, or barracks. It sits across the electromagnetic spectrum; it is in space and inside our networks; it

is already loitering in our supply chains. Sub-threshold operations are continuously executed at reach by malign actors who seek to undermine our military readiness, our critical national infrastructure, our economy, our alliances and our way of life. This raises questions about military resilience, particularly in our strategic base, and this has been brought sharply into focus by the coronavirus.

Our rivals, in short, use an array of capabilities, including their militaries, below the threshold of war and in ways outside of our legal and political norms. They have proven themselves willing and increasingly able to confront us at home and away, and to operate with freedom throughout the spectrum, from peace up to the threshold of war. In this highly dynamic and fluid security context we cannot remain reactive in our processes, capability development, and – most importantly – in our approach to using the military instrument. And the threat of unwarranted escalation leading to miscalculation is clear and present. We must acknowledge that we are in a state of strategic competition, which can veer to confrontation, and as the threats and opportunities continue to evolve, so too must we. More of the same will not be enough.

Malicious cyber campaigns

In December 2018 the UK and its allies announced that a group known as APT10 had acted on behalf of the Chinese Ministry of State Security to carry out a malicious cyber campaign against Europe, Asia and the United States (US), named Cloud Hopper. This group was almost certainly responsible for a campaign of activity against managed information technology service providers, which targeted global companies within the health care, defence and aerospace sectors. This gave the group potential access to sensitive commercial information for the likely purpose of intellectual property theft and subsequent exploitation. Capable actors are increasingly tailoring their tactics to evade security tooling, as illustrated in the compromise of Solarwinds Orion enterprise security software suite in 2020. In this case, actors modified a software update which was then installed by thousands of clients globally across a range of sectors, then subsequently exploited them using tailored and sophisticated techniques.



How we respond

Our response starts by recognising that we need a more active approach to deterrence when confronted with rivals who seek to defeat us without inducing a warfighting response. This must acknowledge that while the character of warfare is changing, the nature of war does not change, it is always about the violent interaction between people. Our response will be integrated, and it will require significant modernisation, for the pace of technological change means we must move from an Industrial Age of platforms to an Information Age of systems.

We will continue to resource our strengths.

- a. **The quality of our people** enables our adaptive edge, and by moving beyond a ‘closed-loop, base-fed approach’ we will have a better chance of accessing the best talent and skills.
- b. **Allies, partners and NATO** remain central to the pursuit of our strategic ends. It is the only Alliance that can generate sufficient mass and integrate the conventional and nuclear forces capable of credibly deterring the most dangerous threats to our security. But the centrality of NATO does not mean ‘NATO only’. We must look beyond NATO to other alliances and partnerships, giving real meaning to interoperability and burden sharing and constructing our campaigns with allies in mind.
- c. **Innovation and experimentation enable modernisation** and while we have access to world-class science and technology capabilities, we must recognise that the engine room for innovation often lies outside of government. We need to create a systematic programme in which military professionals can air operational challenges with industry, technologists and academia to determine the most appropriate mix of technologies to provide our future competitive edge.
- d. **Respect for the rules, conventions and protocols of war** are a centre of gravity which must be protected. But the pace of technological change and the blurring of ‘peace’ and ‘war’ means that our legal, ethical and moral framework needs updating to deny our rivals the opportunity to undermine our values.
- e. **Integrated action** is a doctrine that requires commanders to think beyond the enemy and consider the additional effects that need to be applied to the many other actors (particularly local populations) who are relevant to the achievement of the objective, before orchestrating the appropriate mix of physical, virtual and cognitive actions. Importantly information advantage enables improved understanding, assessment, decision-making and execution.

Integrated for advantage

The central idea of the *Integrated Operating Concept* is to drive the conditions and tempo of strategic activity, rather than responding to the actions of others from a static, home-based posture of contingent response. This means employing the military instrument to compete below the threshold of war, gaining advantage through offering a wider breadth of political choice and credible military options that can be threatened or used to break the will of our rivals. But maximising advantage will only be realised through being more integrated: within the military instrument, vertically through the levels of warfare – strategic, operational and tactical; across government and with our allies; and in depth within our societies. Cohesion, trust, shared values, social habits and behaviour all form vital lines of defence against our adversaries’ sub-threshold attacks on our societies and

decision-making. On the new sub-threshold battlefield, assuring societal resilience constitutes deterrence by denial.

We need to create multiple dilemmas that un hinge a rival's understanding, decision-making and execution. This requires a different way of thinking that shifts our behaviour, processes and structures to become more dynamic and pre-emptive, information-led and selectively ambiguous. In essence, a mindset and posture of continuous campaigning in which all activity, including training and exercising, will have an operational end. This suggests our posture will be:

- **Integrated across all five operational domains** – space; cyber and electromagnetic; maritime; air; and land. This ‘multi-domain integration’ will change the way we operate and warfight, and the way we develop capability. We are moving beyond ‘joint’. Integration is now needed at the tactical level of war – not just at the operational level where the term ‘joint’ applies. Effective integration of space, cyber and electromagnetic, maritime, air, and land achieves a multi-domain effect that adds up to far more than simply the sum of the parts – recognising that the overall effect is only as powerful as the strength of the weakest domain.



Figure 1 – Multi-domain integration goes beyond ‘joint’ and adds up to far more than the sum of the parts

- **Integrated nationally** as part of cross-government and broader national integration. Comprehensive integration acts as a force-multiplier of all the instruments of national power. We need a mindset that magnifies the employment of the military instrument as part of a ‘total’ national enterprise involving industry, academia and civil society.

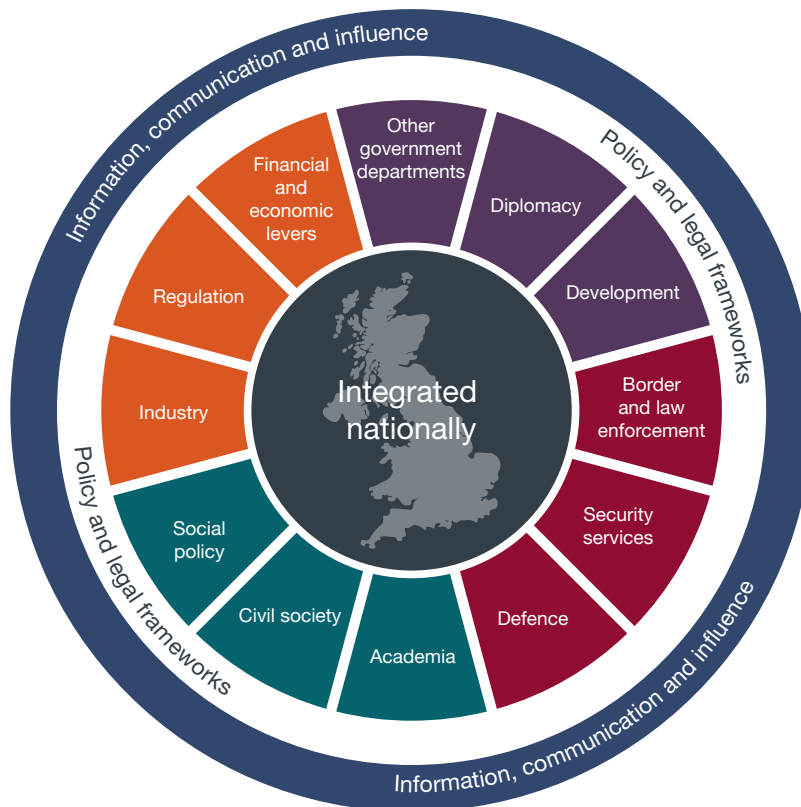


Figure 2 – The military instrument must be integrated within a total national enterprise

- **Engaged internationally** to enhance our understanding and help pre-empt strategic threats, to detect and attribute hostile state actors and to seize strategic opportunities. This will enhance our capacity to operate below the threshold of war. This will necessitate Defence actively exporting the UK 'brand' to project global influence and promote (and protect) prosperity. It also requires us to become 'allied by design' to improve interoperability and burden share more effectively, thus amplifying our weight and mass, particularly through NATO.
- **More assertive** to demonstrate our Defence and national resilience globally; to demonstrate our political will and lethal and non-lethal capability to confront threats early, to present our adversaries with multiple dilemmas to enhance our deterrence posture, and to be poised to seize opportunities. It will require greater investment in research and development and exploitation of the UK's science and technology base with the deliberate energy and common purpose previously reserved for 'wartime'. Key to all this will be a renewed focus on the resilience, readiness, reach and responsiveness that enables us to withstand shocks and assures our capacity to operate and warfight.
- **Continuously hunting for and exploiting information to fuel information advantage** – the competitive edge that underpins integration. At the heart of this is data: collected by the internet of things; hosted by the cloud; automated by robotic processing; and applied by artificial intelligence.

Delivering the concept: the conceptual component

The character of the strategic context requires a strategic response that integrates all of the instruments of statecraft: defence, diplomacy, development, intelligence and security, and trade policy. A credible capability to deter war remains central to our military purpose. In an era of strategic competition our deterrent posture needs to be more actively managed and modulated, necessitating the introduction of a fifth 'C' – that of competition – to the traditional deterrence model of comprehension, credibility, capability and communication. This recognises the need for more active deterrence: which includes a more competitive posture and way of operating to better compete below the threshold of war in order to deter war, and to prevent our adversaries from achieving their objectives in fait accompli strategies.



Figure 3 – Competition – the fifth 'C' of deterrence

Competing involves a campaign posture that includes continuous operating on our terms and in places of our choosing. It will also require actions to be communicated in ways that may test the traditional limits of statecraft. The willingness to commit decisively hard capability with the credibility to warfight is an essential part of the ability to operate and therefore of deterrence. They are not mutually exclusive.

The *Integrated Operating Concept* is therefore based on a new conceptual framework – the Integrated Operating Framework – to differentiate military activity between 'operate' and 'warfight'.

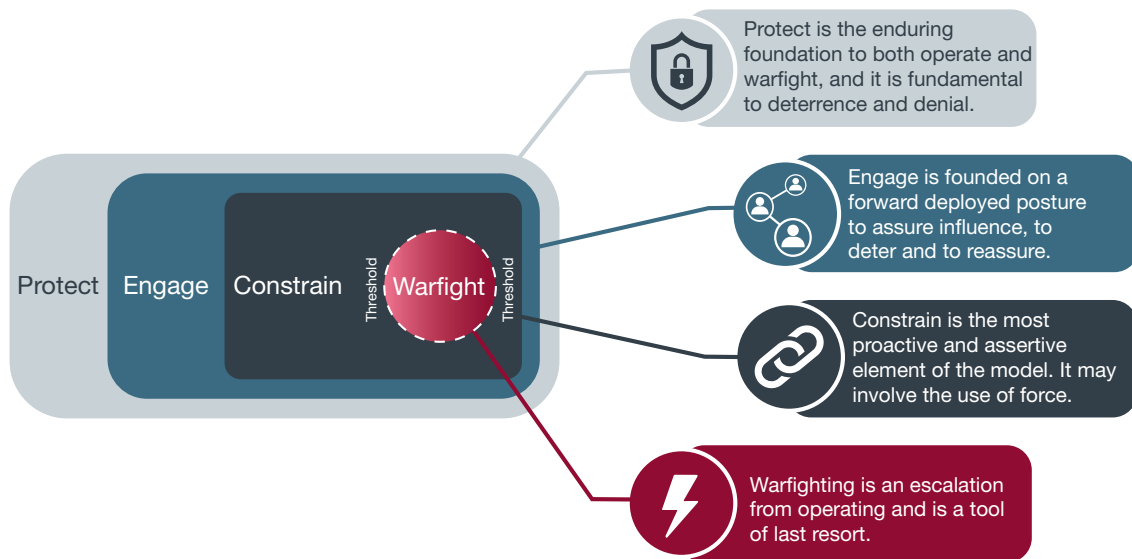


Figure 4 – The Integrated Operating Framework

Operating includes the complementary functions of protect, engage and constrain.

Protect

Protect is the enduring foundation to both operate and warfight, and it is fundamental to deterrence and denial. Protect is focused on the UK, our Overseas Territories and the Crown Dependencies. Its purpose is to prevent modern threats exploiting our vulnerabilities. It encompasses: hardening Defence's critical infrastructure and contributing to the resilience of critical national infrastructure; sustaining the continuous at sea deterrent; countering air, maritime and cyber incursions; and reinforcing and enabling civil authorities in countering terrorism and in civil emergencies.

As the nature, reach and persistence of the threats that adversaries can bring to bear against the home base have radically evolved, our contribution to domestic security and resilience is likely to increase in scale and importance. The coronavirus pandemic has demonstrated the essential contribution of an adaptable and skilled Defence workforce to other government departments during a period of national and global crisis. It has also highlighted that natural hazards and other risks can cause as much disruption to the UK's core interests as security threats. We will therefore need to be able to respond rapidly to a wide range of national and overseas events and crises from environmental hazards through to malicious attacks by terrorists or states, including CBRN incidents. Indeed, extreme threats to the UK and our allies have not gone away. Meeting these challenges will require us to mitigate Defence's own vulnerabilities, and to recognise the critical role of protect is not just enabling Defence's freedom of action but is contributing to maintaining our way of life – as such, it is non-discretionary.

Engage

Engage is founded on a forward deployed posture to assure influence, to deter and to reassure. Activities that establish and maintain the human networks, enhanced through digital connectivity, are the foundation on which posture is established and are at the heart of engage. Our global military footprint is an expression of our international and alliance resolve and can be modulated and enhanced through a blend of Defence attachés, strategic hubs, permanently forward-based forces and stockpiles, episodic training and exercises, and mobile command and control nodes. Building partner capacity through **train, advise and assist** operations strengthens coalitions, enhances regional security and provides an alternative to the offers of our rivals, by securing influence and denying it to them. Engage also involves developing appropriate channels of communication with rivals to build understanding, avoid miscalculation and to underscore credibility. All engage activities should contribute to insight and understanding.

As with protect and constrain, engage is not an isolated or sequential activity within a linear model. It is an enduring function to pursue our foreign policy objectives and shape conditions for stability and is therefore a critical component of how the force will operate. It requires a longer-term campaigning mindset focused more on posture and the use of the force as part of an overall operational design; thus, securing the political and policy permissions to achieve desired effects will be vital. Persistent engagement, prioritised in places where we can achieve impact against prominent challenges, will increase our ability to pre-empt and manage crises before they escalate and minimise the opportunities for state and non-state actors to undermine international stability.

Countering violent extremist organisations in Africa, 2020

To foster cooperation and enable stabilisation across North and West Africa, the UK participates in an annual exercise in the region that is focused on tackling violent extremist organisations (VEO). Led by the US and involving in excess of 1500 personnel from more than 30 African and partner nations, the UK Armed Forces makes a significant contribution to training, advising and assisting across a spectrum of activities. Areas of focus include developing the command and control of operations,



improving tactical skills and enhancing intelligence sharing between nations. A sustained approach to training and advising in this way builds the capacity of African nations to counter the threat, thereby reducing sanctuary and support for VEOs. At the same time it increases the ability of UK forces to integrate with all participating nations, which provides the opportunity to build stronger networks and a forum for better understanding for all.

Our effectiveness will be enhanced by driving the tempo of strategic activity in a sustained, dynamic, calibrated approach that is integrated with other government departments and the international engagement networks of our allies. Persistent engagement will enable a fusion of real time, accurate understanding to inform the development of options, decision-making and influence, and will help us to achieve strategic advantage. Overall, enhanced presence and greater commitment will strengthen our partnerships and create the unity which our adversaries fear. It will contribute to trade and prosperity, deter adversaries and reassure our allies.

Constrain

Constrain is the most proactive and assertive element of the model. It may involve the use of force, for example, by escalating beyond **training, advising and assisting** to **accompanying** partners to enable them to act offensively; restricting a rival's choice of action by deploying armed forces or strategic effects to demonstrate reach and responsiveness; shaping an adversary's behaviour through covert and overt activity; contesting the cyber domain to protect our networks; challenging assertions of sovereignty through deployments and freedom of navigation operations that aim to constrain fait accompli strategies; and prevent an adversary from achieving escalation dominance. The potential level of intensity and violence encountered mean that constrain operations may well involve combat operations and require nuanced judgements about risk.

The intensity at which constrain activity takes place will not be fixed. It will be modulated in relation to the nature of the broader relationship that the UK has with our rivals at any one time. Constrain will require us to demonstrate the will and capability – lethal and non-lethal – to confront threats early. Only through a more confident, consistent and active approach will we enhance deterrence and be able to seize opportunities as they arise. This will require a force that is agile, resilient and 'front-footed' in mindset and posture. And we will be more effective as part of an integrated wider government approach to addressing conflict and instability, and alongside allies and partners where we can present adversaries with multiple dilemmas to shape and alter their decision calculus. The credibility of constrain activity will at times require us to operate with our partners in hostile environments to counter and deny state and non-state threats. It must therefore be underpinned by the will and capability to reconfigure, surge and apply hard power when the threat demands it.

The protect, engage and constrain functions are interdependent and must not be thought of as a linear progression. Their successful application requires a mindset that thinks in several dimensions so that escalation and de-escalation is dynamically managed up and down multiple ladders and across domains. One might actively constrain in the cyber domain to protect physical infrastructure in the space domain. The primary aim is to orchestrate effects and modulate activities to deter rivals and de-escalate to keep the competition below the threshold of war.

Warfight

Warfighting is an escalation from operating and is a tool of last resort. It is characterised as a contest between the regular armed forces of states, including irregular elements. Distinct from combat operations within 'operate', warfighting demands an appetite for significant political and military risk and financial commitment. It is a highly resource-intensive activity with often protracted and unrestrained violence. In its ultimate form, warfighting requires the full resources of the state. Warfighting will also be subject to a distinctive legal framework, including international conventions and the Law of Armed Conflict. The ability and willingness to commit hard capability to fighting wars, up to and including declared war in a NATO Article 5 context, is the foundation of our influence and deterrence. Above all we must never lose sight of always being prepared to fight the war we might have to fight. History may not repeat itself, but it does have a rhythm. And invariably the enemy ensures that we don't get a choice.

The consequences of warfighting can be politically, physically and psychologically costly – decisively so. We should therefore seek to warfight in ways that alters this calculus such as securing decisive outcomes at greater reach across all domains; use of a very different balance of human-machine teams; and constantly searching for opportunities to de-escalate to a favourable sub-threshold status. And warfighting will never be a stand-alone activity; it will always be concurrent with the operate functions. Even in the case of large-scale conventional warfare, military activities of a highly irregular variety are also likely to be prosecuted. Belligerents will shift back and forth in modes of warfare as their circumstances require.

An important and complicating feature of conflict is the relationship between strategic and nuclear thresholds; they are no longer synonymous. Some states are now significantly increasing and diversifying their nuclear arsenals. They are integrating nuclear weapons into their military strategies, threatening to use nuclear capabilities below the strategic threshold to gain advantage over the UK or its allies in a conventional conflict either through coercion or action.

In parallel, the increase in global competition and proliferation of disruptive and often dual-use technologies expands the range of options to achieve strategic effect such as long-range precision strike weapons; offensive cyber operations; information operations; artificial intelligence; and weapons aimed at degrading space-based infrastructure. These non-nuclear capabilities increasingly share traditionally highly compartmentalised nuclear warning, surveillance and communications systems, and blur the increasingly complex interface between conventional and nuclear conflict. They have the potential to threaten strategic stability through miscalculation and rapid escalation, or by offering incentives to move first and fast in a high-end conventional fight.

Both elements introduce more complex routes for escalation, across the threshold of war and to the nuclear threshold. In response, we must improve our ability to manage and de-escalate a multi-domain crisis in which there will be asymmetries of capabilities, domains and interests. This will require us to be better able to detect, understand, attribute and act in response to aggression across the full range of possible threats. Exercising whole-of-government responses alongside NATO and like-minded partners will be a vital part of improving understanding and addressing the challenges of managing conflict escalation.

Delivering the concept: the physical component

It is clearly not possible to immediately abandon the current force structure and create a bespoke one from scratch. Important operations continue, legacy programmes and platforms retain utility. We must mobilise to better mitigate today's challenges, improving readiness and enhancing resilience, while also modernising the force to meet the threats of the 2030s and transforming our culture to become constantly adaptive. Any decisions and actions taken now must take account of the force we need in the future and be aligned with the guiding principles of what the future force must be able to do. As we develop what will be the *Future Operating Concept* for this force, trend analysis suggests that it will involve an intense competition between hiding and finding, thus it will:



- have smaller and faster capabilities to avoid detection;



- trade reduced physical protection for increased mobility;



- rely more heavily on low-observable and stealth technologies;



- depend increasingly on electronic warfare and passive deception measures to gain and maintain information advantage;



- include a mix of crewed, uncrewed and autonomous platforms;



- be integrated into ever more sophisticated networks of systems through a combat cloud that makes best use of the mass of data;



- have an open systems architecture that enables the rapid incorporation of new capability, and rapid integration into the network;



- be markedly less dependent on fossil fuels and be more self sufficient;



- employ non-line-of-sight fires to exploit the advantages we gain from information advantage; and



- emphasise the non-lethal disabling of enemy capabilities, thereby increasing the range of political and strategic options.

We might think of these as ‘sunrise’ capabilities, with the corollary being ‘sunset’ capabilities that could be used for a while in the emerging operating environment but will increasingly become too vulnerable or redundant in the Information Age. This modernisation will require us to embrace combinations of information-centric technologies to achieve the disruptive effect we need. Predicting these combinations will be challenging. We will have to take risk, accept some failure and place emphasis on experimentation by allocating resources, force structure, training and exercise activity to stimulate innovation in all lines of development, with a responsive commercial function at the leading edge. This will enable adaptive exploitation as opportunities become clear.

Conclusion

The *Integrated Operating Concept* calls into question the traditional approach that structured the armed forces to warfight and adapted them for all other missions. We now need to structure forces to **operate** that can be adapted at graduated readiness to **warfight** while retaining some forces, including the Reserve, that are optimised to warfight. Distinguishing in this way between **operating** and **warfighting** represents a fundamental shift in military philosophy. It requires us to think very differently about the employment of the military instrument as a more active approach to deterrence; and it establishes the doctrine needed to compete decisively with our adversaries who do not distinguish between peace and war.

