



The Air
Operating
Concept

Contents

Chief of Air Staff's Foreword	i
Executive Summary	ii
01. The Air Power Context	1
What Endures?	2
What Has Changed?	5
02. Our Theory of Success	9
03. The Air Operating Concept (AirOpC)	11
04. Gaining and Maintaining Advantage	14
Decision Superiority	15
Agility Advantage	18
Integrated Advantage	20
Resilience Advantage	21
05. Supporting Themes and Sub-Concepts	22
06. Key Take-aways	30

Chief of Air Staff's Foreword

This is a period of profound change as the world becomes more contested and volatile than at any time in recent history. Russia remains a threat to European security and China's rapid modernisation and growing assertiveness in the Indo-Pacific pose an increasing challenge for the UK, our allies and partners.

Defence's response is captured in the Defence Command Paper, and Development, Concepts and Doctrine Centre's capstone concepts. Within this integrated response, the RAF provides a critical contribution to Defence's role to protect the UK and help it prosper; it leads the nation's air power and is a key enabler of Integrated Action across Defence. The importance of, and demand for, air power is the greatest it has been for many years, but fundamentally, the RAF must be able to retain or regain control of the air and deter adversary interference or attack.

When circumstances change, so must we. This Air Operating Concept (AirOpC) describes my vision of the RAF's evolution to succeed in the contested and volatile future. Evolution

of our culture to engender operational mindsets in our empowered people. Evolution of our training, operations and warfighting to make our bases, capabilities and people more lethal and less targetable. Evolution of our forces to be more agile, integrated and resilient. All driven by an evolution of our decision-making to out-think our adversaries by embracing new technologies and techniques.

The AirOpC does not explain how these evolutions will happen. The 'so what?' questions the AirOpC poses will be answered through its supporting activities, and the brilliant, innovative and dedicated people that develop and deliver them. You are one of those people.



Air Chief Marshal Sir Rich Knighton
KCB ADC FREng
December 2023



Executive Summary

Defence's role is to protect the UK and help it prosper, to defend its overseas territories, people and strategic interests, and whenever required, to be its first responder to international crises. The RAF's significant contribution is orchestrating a spectrum of effects, across multiple operational domains, using the four roles of air power, and enabled by air command and control. When integrated effectively with the other operational domains and with allies and partners, these effects are critical to our success. We will create integrated effects through the **manoeuvrist approach** to operate and warfight, engendering **operational mindsets** and empowering our people with **mission command**.

Air power gives the Government the political choice to act globally, rapidly, decisively and when required, lethally. Air power capabilities provide the **freedom of action** for all operational domains to operate, by protecting our airspace and our access to capabilities in the ultimate high ground of space. They allow us to be **quick to the fight** to deliver the capabilities needed to defend our interests and those of our allies and to defeat those who choose to use hostility against us.

They give us the **deep-strike** capabilities to change the strategic calculus of our adversaries including effects within the middle and deep battlespace, which create operational depth. They open up the battlespace to create **opportunities in space and time** for our own Services and our allies, while protecting them from adversary air attacks. And they have become a leading element, and crucial enabler of Integrated Action across Defence, providing the intelligence, surveillance and reconnaissance and the command and control connectivity for our forces to succeed.

Achieving this role and our objectives will be increasingly challenging within the future operating environment (FOE), with threats becoming increasingly potent, hybrid and immediate. With UK operating bases now within range of our adversaries' weapons and their willingness to use hybrid and novel attacks, we must expect to be attacked and we need to be prepared for this.

Success within this contested and volatile future means **retaining or regaining control of the air where and when necessary**, to protect our interests and capabilities from interference or attack while continuing to create





credible and coherent integrated effects across multiple domains using air power. We will present our adversaries with multiple operational challenges which undermine their cohesion and unravel their ability to respond coherently and effectively. This will **deter** them from challenging or attacking the UK, its people, its interests, partners and allies. To be effective, conventional deterrence must be credible. If we cannot deter our adversaries, we will need to **defend** against them, and then fight to **defeat** them.

The RAF provides the vast majority of the UK's air power. A strong RAF leads to strong air power. This **Air Operating Concept (AirOpC)** will guide how the RAF responds to these future challenges and how we will work with others to strengthen national and alliance air power. The concept describes how the RAF will succeed in the FOE through an evolution of its culture, capabilities, organisation and operations to deter our adversaries and avert armed conflict, or win in conflict when required. Our activities will be driven by our **Decision Superiority Advantage** (making better, quicker decisions than our adversaries) and delivered by the **Operating Advantage** of our **Agility** (using tailored and flexible responses from varied locations), **Integration** (working seamlessly with other domains, allies and partners) and **Resilience** (being able



to endure in a protracted fight) to fly, fight and win. The RAF approach to operating and warfighting will focus on **Agile Combat Employment (ACE)** and **Dynamic Force Employment (DFE)**. These enhance survivability and resilience whilst changing the dynamics of the strategic environment by delivering persistent global presence using pulsed activities. We will focus first on the ambitions that will directly improve deterrence and core warfighting capacity. We must be able to continue operating effectively at scale, pace and range. We will use speed, precision and lethality to win in armed conflict. Air operations may be conducted concurrently across the UK, and globally, as part of integrated NATO action within the Euro-Atlantic region, and in the High North and the Indo-Pacific with partners and allies.

These changes require an evolution of our culture and mindset. We will evolve our enabling and supporting concepts, plans, strategies and activities throughout the RAF and wider defence, including: integrated Air and Missile Defence (AMD); Cyber and Electromagnetic (CyEM) activity; resilient logistics and support; implementing a whole force People Strategy; risk management and active empowerment; adaptation and innovation; and relevant training and exercising.

The AirOpC provides the impetus for follow-on work within the RAF and with the other operational domains, partners and allies. The RAF's evolution will allow us to contribute credibly and significantly to the Defence Command Paper's commitment to strengthening the UK's defence and security by being prepared for warfighting and persistent engagement and keeping pace with the changing threats posed by our adversaries.

01

The Air Power Context



What Endures?

Air power is 'the ability to use air capabilities in and from the air, to influence the behaviour of actors and the course of events'.¹ Air power effects are created globally and simultaneously, offering flexible, timely, scalable and responsive options to the UK government in support of national security objectives. These effects are comprehensive and expansive: they are kinetic and non-kinetic; they may be temporary, persistent or permanent; they are psychological and physical; they are lethal. Air power provides Height, Speed, Reach and inherent flexibility to achieve decisive effects through Agility, Ubiquity and Concentration of Force.² It offers low risk and high impact political choices. Air power is inherently joint and acts as a force multiplier for all domains. Air power is decisive in warfighting and is fundamental to success on the land and on (and under) the sea.

Air power is central to the UK's defence and security; it defends the nation against interference and attack and provides a range of credible deterrent and offensive warfighting capabilities against adversaries, including

¹ UK MOD, Joint Doctrine Publication 0-01.1, UK Terminology Supplement to NATO Term (2022), vii.

² UK MOD, Joint Doctrine Publication 0-30, UK Air Power (2022) details Air Power's characteristics, strengths and weaknesses.



our 'night one' response, with scalable effects, delivered at range. It is potent and lethal, acting globally, at speed and with precision. It supports and protects the UK's strategic nuclear deterrent. Air power gathers intelligence on threats and provides enhanced over-the-horizon understanding, while denying intelligence to adversaries. It moves people and equipment quickly over significant distances and is quick to the fight by employing lethal force on a global basis to defeat adversaries.

Air power is essential to the UK and NATO manoeuvrist approaches to warfare and enables Land, Maritime, Space and Cyber and Electromagnetic (CyEM) domains the freedom to operate. It creates opportunities in space and time for the other domains and for allied air forces, including creating effects throughout the engagement space, which creates operational depth. Air power is a leading element, and crucial enabler of Integrated Action across Defence.

Air power creates decisive effects which provide unique opportunities to amplify our advantages and enhance our ways of warfighting.

The four core roles of Air Power will endure within the FOE and the RAF must remain capable of delivering all of them, whilst becoming increasingly innovative and adaptive within its mission sets:

Control of the air (COTA) remains fundamental to enabling the freedom of action of the joint force and is necessary for UK, allied and partnered freedom of action within the air environment. COTA also denies our adversaries use of the air and limits their freedom of action. The conflict in Ukraine has proven that an inability to gain meaningful COTA results in static, attritional warfare. Whether it's air-to-air combat or suppressing/destroying enemy air defence systems (ADS) operating in our engagement space, being able to gain COTA is our core task and central purpose. It will be highly contested and our COTA may be fleeting, generating windows of opportunity within which pan-domain effects can be created.³

Air intelligence, surveillance and reconnaissance (ISR) is required to develop increased situational awareness

³ For the remainder of this AirOpC, COTA should be understood as being achieved, when and where necessary, to achieve operational aims.

and enhance joint understanding of adversaries. The perspective, ubiquity and flexibility offered by the air domain can provide responsive ISR that the Land, Maritime, Space and Cyber and Electromagnetic domains cannot collect organically. The increasing sophistication of airborne sensors and improved data links will enhance information sharing and support faster and better decision-making.

Attack can disrupt or destroy adversary centres of gravity and other vital target sets including enemy bases and ADS, the ground-based elements of space systems and the physical elements of cyber systems. Attack missions will be achieved using a combination of effectors to conduct kinetic strike and electromagnetic attack (EA), including deep strikes into adversary territory.

Air Mobility (AM) will provide intra-theatre and inter-theatre airlift which are both essential elements of operating globally. Air-to-air refuelling will remain a crucial enabler and AM will continue to directly support Special Operations, Land and Maritime operations, including rescue and evacuation missions, humanitarian aid and disaster relief operations.

Air command and control (C2) is a critical enabler of the four roles of air power. It provides the *where, when, why, how, what* and with what of air power and, without it, air activities would be incoherent and ineffective. Air power is increasingly delivered within multi-domain operations as part of integrated action, which means that C2 must be integrated with allies and partners, and across all users of the air environment.

The RAF must be able to achieve the core roles of air power to: protect the UK, our overseas territories and citizens; actively shape the international environment, promote our interests and enhance our reputation; and contribute to international security by projecting power at pace, globally, to respond to crises. This requires the RAF to be able to control the air, to operate and warfight to defend our homeland, our territories and our people, wherever they are. We must also be able to take the fight to our adversaries. This could include integrated action across the Euro-Atlantic region as part of NATO and may also involve shaping, influencing and warfighting in the High North and the Indo-Pacific, with our international partners and allies.



What Has Changed?

The RAF faces a FOE very different to its past. Our adversaries will seek to challenge current strategic positions in key regions of the world, to achieve their objectives below the threshold of armed conflict and to 'win without fighting'. Where they can't win without fighting, they will fight. The ongoing conflict in Ukraine has demonstrated that large-scale state-on-state conflict is a future probability. Major states, including China, are becoming ever more assertive.

The rapid convergence of new technologies, including commercial, presents exceptional threats, derived through new ways of combining their effects. The rate of technological change is quicker and more widespread than previously anticipated. The FOE will be volatile and contested, with the UK under real threat from resurgent adversaries capable and willing to use hybrid attacks, above and below the threshold of armed conflict. With the proliferation and democratisation of advanced military capabilities, we will have to fight to retain or regain COTA when and where necessary in many of the regions where we are required to operate and fight. Our home is no longer a sanctuary; the RAF is required to operate from home bases within range of potent threats, something not done since the Cold War. The RAF could face composite

attacks involving hypersonic, ballistic and cruise missiles, autonomous munitions and threats posed across the CyEM domain. We know that our military freedom of action and manoeuvre will be contested, and that our people, systems, readiness and capabilities will be subjected to surveillance. If adversaries sense strategic opportunities to gain advantage, we will be tested and may be opposed, denied, degraded and attacked using combinations of traditional and novel methods. Our ability to respond quickly to these challenges will be fundamental to our continuing effectiveness. The speed at which we can adapt and integrate new strategies and technologies will determine whether our own capabilities remain resilient, credible and interoperable.

A spectrum of credible threats may be used to degrade or deny our ability to effectively generate and employ air power, restricting our and other operational domains' freedom of action, threatening our forces in the air and on the surface, and reducing our warfighting capacity:

Long-range precision weapons. Hypersonic weapons present a challenge to current missile defences and are likely to evolve into an ever more potent threat. Their high cost may limit their use to a small number of the highest

priority targets. Adversary stocks of long-range cruise missiles are numerous and, although easier to target than hypersonic missiles, they are expected to be used in large numbers from a variety of launch platforms during composite attacks. The next generation of missiles is expected to operate at supersonic and hypersonic speeds, and to include new technologies to defeat advanced electromagnetic countermeasures (ECM). Cheaper, faster, more effective and less detectable missiles are likely to drive a revolution in missile defence capabilities.

Uncrewed, remote and automated air systems.

These will become cheaper, easier to produce, and more prolific and their use is expected to become more commonplace. This includes armed systems where levels of human control are likely to change over time. They will cover a wide range of systems and roles, from large, high-altitude and long endurance aircraft to hand-launched battlefield uncrewed air systems (UAS). Swarm attacks of hundreds of coordinated UAS could be used to overwhelm ADS and counter the performance advantage of high-end defensive systems. Truly autonomous air systems, capable of operating without any human control, are inevitable.

Hybrid⁴ attack. Adversaries are expected to utilise a range of increasingly hybrid tactics to challenge the current standing and strategic influence of the UK and its allies across key regions of the world. Being aware of likely UK and allied political and legal thresholds for action, they aim to achieve their objectives below the threshold of armed conflict through hybrid activities to ‘win without fighting’⁵

Threats from emerging technologies. The increasing use of emerging technologies including artificial intelligence (AI), rapid analysis of big data sets, enhanced and persistent surveillance, pervasive social media and quantum-based computing are expected to present new attack vectors and new challenges to the delivery of air power.

Targeting RAF main operating bases (MOBs) and fixed sites. We should assume that RAF MOBs and associated fixed sites will be attacked early in any conflict, to reduce our operational effectiveness and undermine our ability to strike back. The enemy may succeed

⁴ Hybrid warfare combines conventional and unconventional military and non-military actions to achieve specific effects.

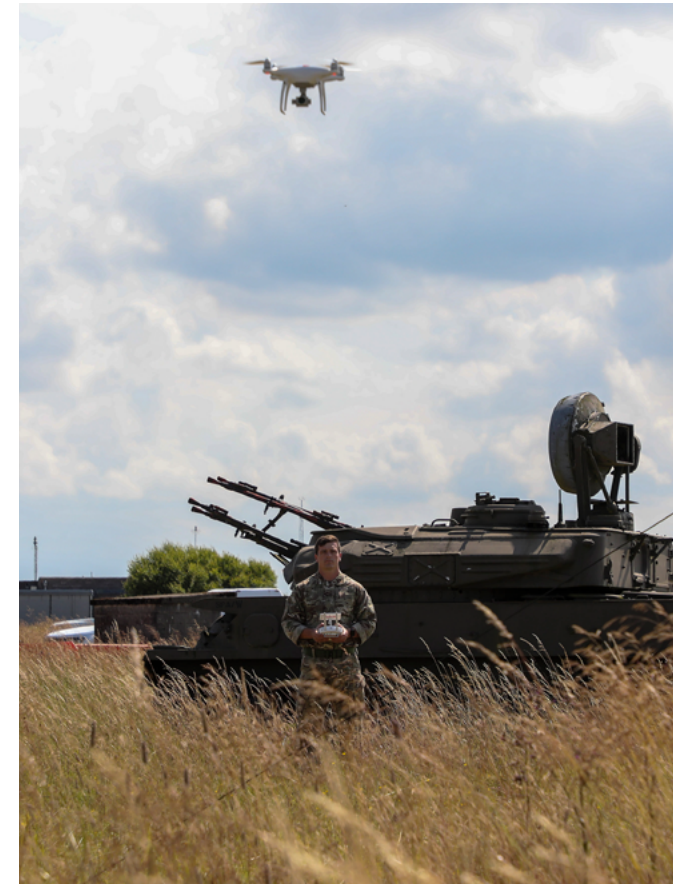
⁵ UK MOD, DCDC, Integrated Operating Concept (2021), 7.

in degrading or destroying elements of these sites, which means that resilience and contingency options must be available to retain operational capability and responsiveness.

Targeting Support infrastructure, stockpiles and our industrial base. As support is a key enabler of military activities, it will be a prime target for adversary interference and attack, within the UK and globally. Our commercial suppliers will be targeted as part of attempts to degrade our fighting capabilities. The robustness and resilience of our support and supply network to adversary attacks will be key to operational success.

Nuclear weapons. The nine states possessing nuclear weapons are expected to continue modernising their capabilities. Some commentators believe in the increasing likelihood of specific actors using tactical nuclear capabilities against non-nuclear conventional threats, as a way of limiting or de-escalating conflict.

Weapons of mass effect. The future use of weapons of mass effect by our adversaries, either state or non-state (including chemical, biological and radiological) cannot be ruled out.



Terrorism. Although attention has currently shifted towards Russia in response to its invasion of Ukraine, and to China as an increasingly potent and determined threat, terrorism remains a real threat to the UK, its overseas territories and citizens. Terrorism, such as a chemical, biological or radiological event on UK territory, could represent an effective sub-threshold attack on the UK to degrade or deny key capabilities.

Future Operating and Warfighting. The RAF's priority task will remain the defence of the homeland, providing a credible deterrence against adversary interference and attack, and a robust response should it be required. The UK's commitment to NATO requires the RAF to be able to support allies and partners across Europe, operating and warfighting from the UK as well as from overseas bases. We may be asked to operate in temperate, polar, desert and tropical regions; our people must be trained and equipped accordingly, and our equipment must be resilient to these regional temperature extremes.

Global Air Power. To present credible forces to adversaries, to influence their behaviours and, if necessary, to defeat them, the RAF must be able to operate effectively globally, individually, as part of NATO



or aligned with partners. The **High North**⁶ is increasing in strategic importance as more regions become ice-free in the summer months, and improved access to its resources may lead to increased regional competition. Heightened tensions in the **Indo-Pacific** region may require the UK to support allied operations. This presents a number of operational considerations:

In many of the regions where the RAF needs to operate, adversaries have modernised and expanded their anti-access and area denial (A2AD⁷) capabilities, meaning that the UK cannot assume COTA or unchallenged access to airspace. The RAF may need to achieve temporary access, or operate and warfight in contested, degraded and operationally-limiting areas.

⁶ The High North region is bounded broadly by the Arctic Circle, also including Scandinavia, Iceland and the adjoining tracts of the North Atlantic and North Sea.

⁷ UK MOD, Joint Doctrine Publication 0-30, UK Air Power (2022): Anti-access capabilities are those capabilities, usually long range, which are designed to prevent an adversary from entering an operational area. Area-denial capabilities are those capabilities, usually of shorter range, which are designed not to keep the adversary out but to limit its freedom of action within the operational area. Together, they are referred to as Anti-Access and Area Denial (A2AD).

Supporting deployed forces in contested regions becomes more difficult with increased range, particularly if force elements (FE) operate away from MOBs. Extended supply chains offer more opportunities for hybrid targeting by adversaries.

Force protection (FP) must be appropriate to the operational context and likely threat, as it becomes increasingly challenging when operating away from MOBs. The FP spectrum for deployed FEs and their assets could include host nation support, assistance from allies and partners and through varying degrees of organic self-protection. FEs can expect to operate within the threat range of sophisticated kinetic weapons and a range of hybrid threats across a transparent battlespace where their position is known.



02

Our Theory of Success



Our Theory of Success

Success in this contested and volatile future means **retaining, or regaining control of the air** when and where necessary, to protect and support our interests and capabilities from interference or attack, while continuing to create integrated effects using air power. This will **deter** our adversaries from challenging or attacking the UK, its people, its interests, partners and allies. To be effective, conventional deterrence must be credible. If we cannot deter our adversaries, we will need to **defend** against them, and then fight to **defeat** them.

We must assume that our freedom of action and manoeuvre will be contested, and we will be attacked and degraded in novel ways aimed at negating our existing advantages. To be able to retain or regain COTA, and to credibly deter, defend and defeat, **the RAF must:**

Understand what modern, integrated deterrence requires within the current and future strategic context and create the integrated military effects to achieve this. For the RAF, this will principally be demonstrating that we can retain or re-gain COTA.

Demonstrate the credibility of our integrated capabilities across multiple operational domains, and with allies and partners.

Continually innovate and adapt our methods of operation and approaches to warfighting to maintain our operational advantage.

Understand and out-think our adversaries and make better, faster decisions.

Influence our adversaries' understanding of our actions and intentions to influence their behaviours in our favour.

Demonstrate operating lethality and resilience, through our ability to replenish weapons, equipment and people, appropriate stockpiling of capable weapons and supplies, robust logistics and the adaptability to be able to operate and fight effectively during a protracted conflict.

Create multiple targeting challenges across all domains for our adversaries who seek to attack our fighting and supporting capabilities, making it more difficult to target us and reducing the likelihood of attack.

Protect against and, if needed, withstand attacks against our bases, equipment, people, data and logistics by adapting, evolving, surviving and continuing to operate.

If required, fight to secure and maintain COTA and operational access, and to create attack opportunities within a confused and contested battlespace.

Be prepared and able to fight, with allies and partners, potential enemies at scale in all domains, who do not fight like us and are not bound by the same moral and ethical parameters.

03

The Air
Operating
Concept
(AirOpC)



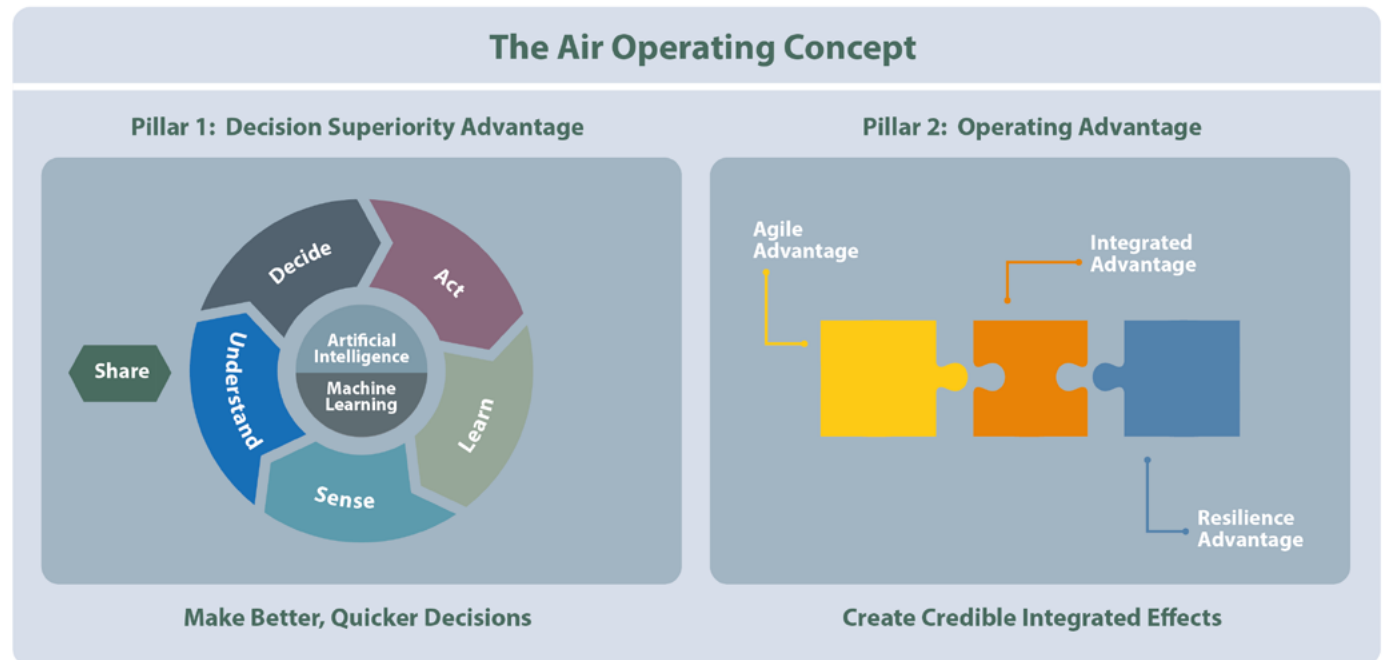
The Air Operating Concept (AirOpC)

The RAF's evolution is described in the **AirOpC** which describes how the RAF will succeed in the FOE through an evolution of its culture, capabilities, organisation and operations to deter our adversaries and avert armed conflict. We will focus first on the ambitions that will directly improve deterrence and core warfighting capacity. **The AirOpC is based upon two pillars:**

First, **Decision Superiority Advantage** will allow us to make better and quicker decisions to optimise our operational effect.

Second, the **Agility, Integration and Resilience** of the RAF will create an **Operating Advantage** and allow us to succeed on operations and during warfighting, engendering operational mindsets and empowering our people with mission command.

These two pillars will focus our evolution over the next decade and are explained in summary below, with further detail within Section 4.



The Air Operating Concept

Decision Superiority. The RAF will generate operational advantage over our adversaries by gaining and maintaining decision superiority; easily sharing information with other domains, partners and allies using networked digital and data capabilities and robust connectivity, to support agile C2, while simultaneously disrupting our adversaries' decision-making.

Agile Advantage. The RAF will increase its agility to operate and warfight effectively against the diverse and increasingly potent threats envisaged within the FOE. We will think and act quickly and flexibly with tailored responses, moving quickly, with less support and for shorter durations than previously. This requires inherent agility of our thinking, leadership, organisation, culture, sustainment and capabilities, and especially in developing and evolving our relationships with allies and partners.

Integrated Advantage. The RAF will increase its integration across all five operational domains, and with allies and partners, to gain operational advantage. There is a technical opportunity and an operational imperative to enhance our integrated effects and improve our understanding of the operating environment.

The synergy created will allow all operational domains to optimise effects whether operating individually, or synchronised with the other domains, allies and partners, to coordinate the full range of lethal and non-lethal capabilities.

Resilience Advantage. The RAF will increase its resilience to ensure that it retains credible deterrence and lethal offensive capabilities. This will aim to change the decision-calculus of key adversaries and reassure our partners and allies. Resilience will aim to extend across the RAF whole force and will include our stockpiles, digital, logistical, training and industrial support.

The AirOpC must ensure the continuing delivery and effectiveness of our air power capabilities by seizing and synchronising a spectrum of human, technological, operational and cultural opportunities. Its success will rely upon two key tenets:

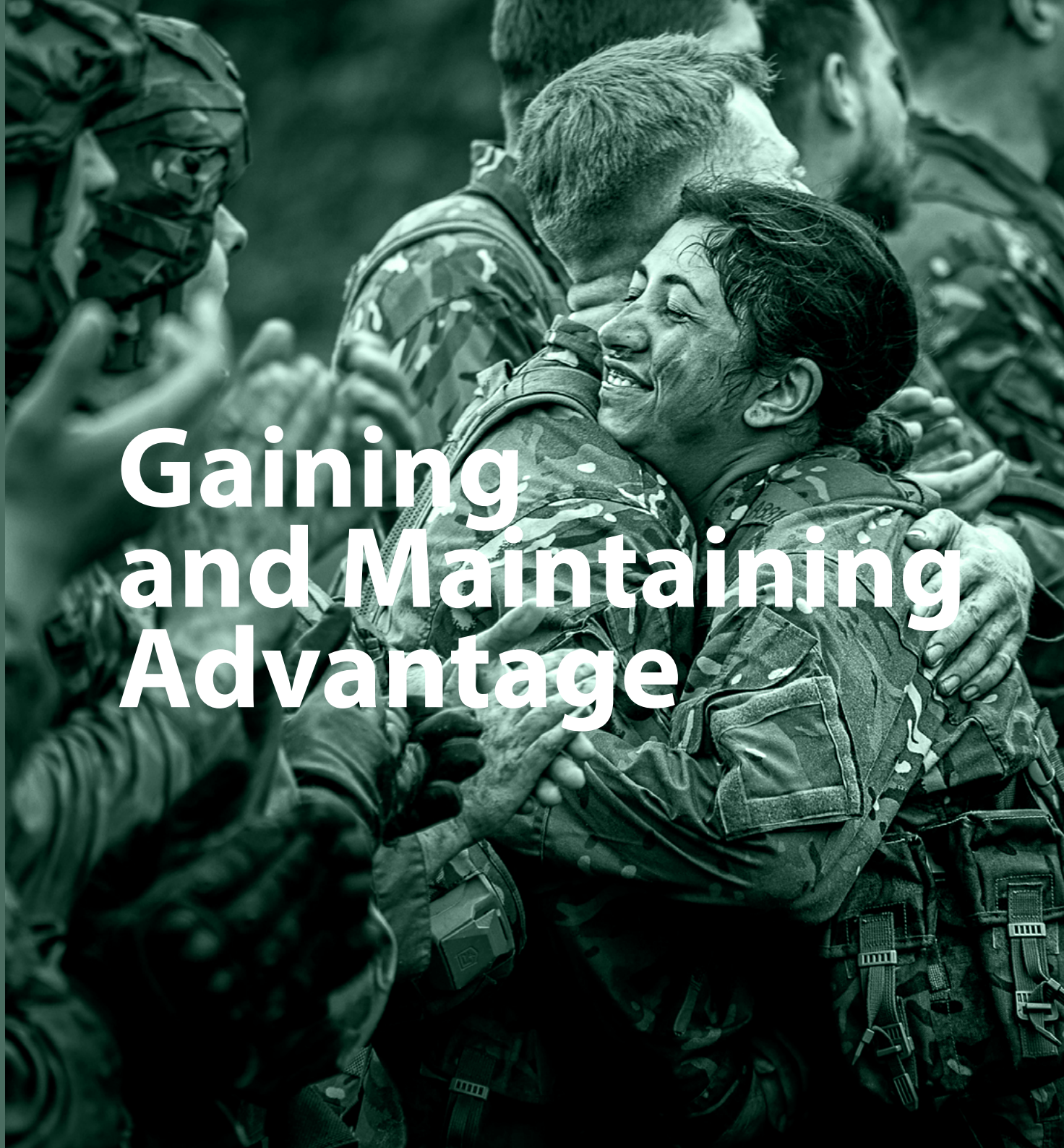
Mission Command. This is a deciding factor in manoeuvre warfare and how we derive our most powerful advantage over our adversaries. It underpins how we empower our people to operate effectively, and must be harnessed on operations, in warfare and

in day-to-day business at all grades and ranks across the whole force. To be effective, our people must be crystal clear about the purpose and mission of Defence, of the RAF, and of their respective roles.

Operational Mindset. Our culture underpins the way our people feel, think and behave and is key to how we operate, fight and adapt to change. We must nurture our culture to ensure we have the correct mindset to prevail on operations and in warfare, and that we continue to modernise.

04

**Gaining
and Maintaining
Advantage**



Decision Superiority

Decision Superiority will be developed and maintained to maximise air power and integrated effects against our adversaries. This will harness, process and fuse available data and information, creating information advantage, and allowing us to make better and quicker decisions than our adversaries to maintain operational advantage over them.

Our network of platforms, sensors and C2 nodes must be linked seamlessly, using ubiquitous digital connectivity and reliable data sharing. Wherever possible and practicable, it should be combined with those of our allies and partners. This will ensure that we maintain comprehensive understanding of the contemporary operating environment, including our adversaries, our allies and ourselves. Demonstrating that we know what adversaries are doing provides a powerful deterrent to interference and attack, and it can be used to shape and counter their actions.

As an essential warfighting function, our C2 capability must provide a 24/7/365 threat monitoring function, with the ability to respond to the full spectrum of operational challenges. It must provide commanders with fused and timely information and intelligence at



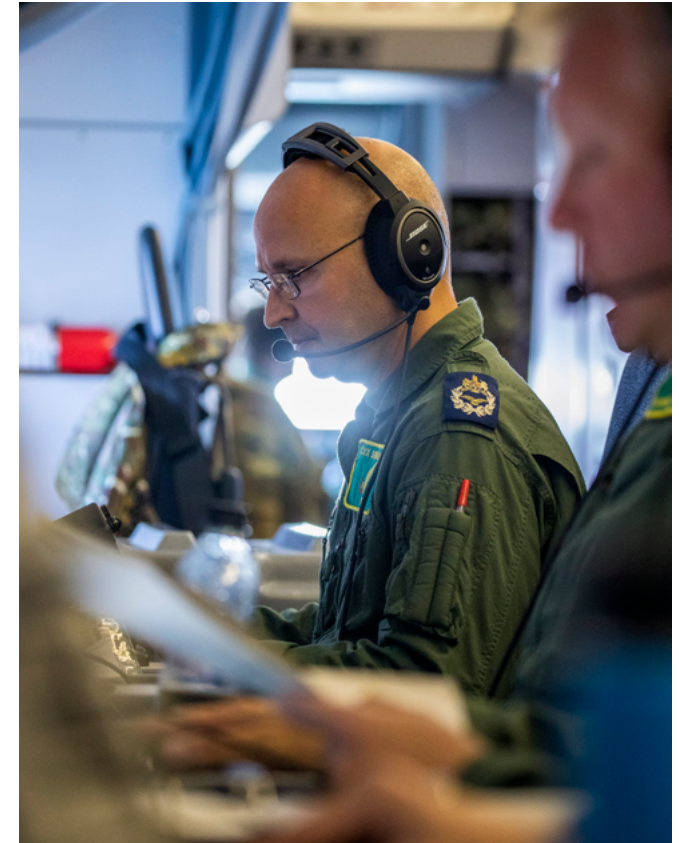
the speed of relevance and faster than our adversaries. Our C2 capability must be interoperable with those capabilities of the other operational domains, and with our allies, using agile and integrated C2 plans.

For agile FEs, C2 must be flexible, responsive, survivable and sustainable. We must assume that our C2 and ISR systems will be targeted throughout a conflict so our C2 must be inherently agile and resilient, to continue functioning effectively when elements of it are disrupted, degraded or denied. ACE and DFE exercises and training must simulate lost-communications and disrupted, degraded and denied C2. Mission command and effective empowerment will be fundamental to operational success in such scenarios.

The Decision Superiority Cycle. This aims to achieve faster and better decision-making and requires us to complete this cycle more quickly, and with better information than our adversaries, to out-think and out-maneuvre them. By simultaneously disrupting our adversaries' decision-making, we will gain Decision Superiority, knowing how to create the best effects at

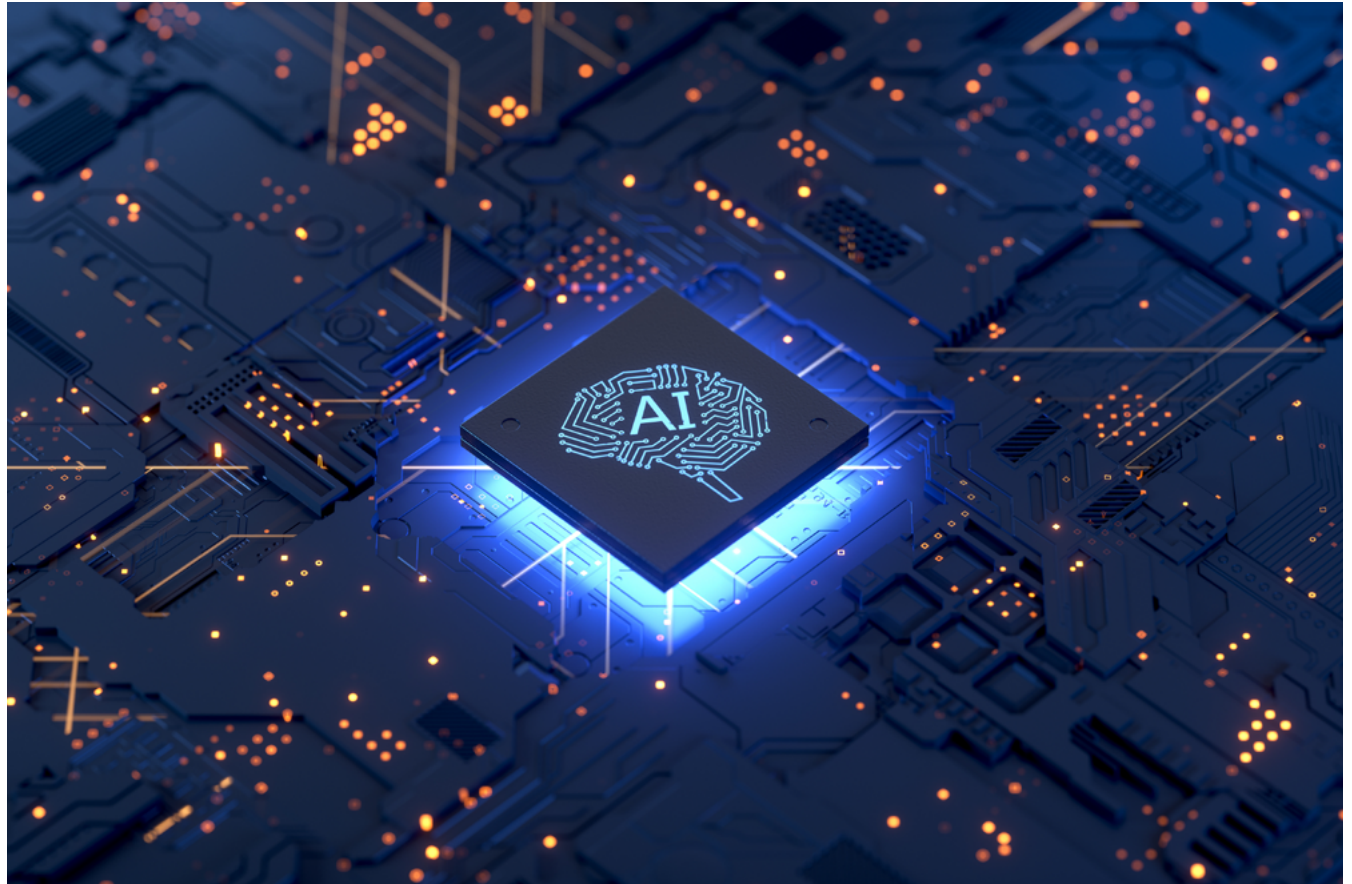
the most appropriate time. Our adversaries will try to do the same to us, so we must optimise in response to reactions from our adversaries to ensure that we win:

- a. We will **sense** using integrated and multi-domain ISR to provide high quality information on adversary capabilities, actions and intentions. This must include finding new ways to provide intelligence and understanding, whilst managing the very real risk of gathering too much information.
- b. We will develop our **understanding** by filtering and analysing information, identifying opportunities, creating actionable intelligence and prioritising targets.
- c. We will **decide** on the best course and time of action, and **act** to create integrated effects with the other operational domains.
- d. We will **learn** what worked well, and what did not, thus identifying ways to optimise the future effects of our air power.



e. **AI** and **Machine Learning** (ML) will be integral to quickly and effectively processing large data sets, to derive the signals that commanders and operators can interpret and can act upon. The effective use of AI and ML will reduce the risks of overwhelming analysts with data by helping to identify and process the most pertinent information. They will be invaluable in developing options for commanders to consider, refining those options, generating tasking orders and re-planning in real-time.

The Decision Superiority Cycle will enable our Agile, Integrated and Resilient forces to execute current plans, whilst concurrently collecting information for the next **sense** cycle.



Agility Advantage

Increasing Agility. Operating and warfighting with increased agility is both a defensive strength and an offensive advantage, which combine to make a powerful deterrent against adversary interference or attack. It will make our forces more flexible and able to operate with greater reach. It will make them more survivable if attacked and better able to fight back. The RAF has been agile throughout its history, yet agility has become less common in recent decades, especially 'at home'. We must be able to operate effectively away from large MOBs, using agile and resilient support and a cross-skilled⁸ workforce operating outside their specialisations to minimise numbers deployed. Agility is as much a cultural challenge as it is one of capacity; agility must be integral to the way the RAF thinks, organises, trains and operates to be credible, and ready for the unpredictable FOE. Demonstration of the RAF's agility will actively shape the perceptions of key audiences, including allies and especially adversaries.

Agility = Deterrence. By credibly demonstrating that our FEs can operate and warfight globally,

⁸ Cross-skilling gives personnel skills and competencies more usually associated with another specialisation. An example is an MT driver trained to refuel a fast jet. With cross-skilling, both specialisations still exist.

integrated with allies and partners, this will deter adversary attack, interference and competition.

Agility = Offensive Advantage. Agility provides opportunities to generate and project air power from our network of agile, adaptable and optimised basing options, providing commanders with multiple options, using the inherent flexibility, speed and reach of air power. The model of rapid, short and unpredictable dispersals will deny or deceive adversary understanding of our disposition and intentions. Future operating and warfighting may include using NATO and Joint Expeditionary Force bases, civilian bases, austere operating strips, aircraft carriers or other operational opportunities that arise, both at home and abroad.

Agility = Defensive Strength. The current laydown of large MOBs with predictable, static air systems and support facilities represents a range of high value targets which, if attacked, would significantly degrade the RAF's ability to warfight. This laydown no longer represents an effective strategy or a deterrent to current and future threats. If a determined adversary is expected to attack our forces and deny the RAF its MOBs, the RAF must be prepared and able to continue to operate away from them as the

best option to protect our forces. Rapid, short and unpredictable dispersals to agile, adaptable and optimised bases are hard for adversaries to track and very difficult to target, increasing their survivability and resilience. FEs will further complicate our adversaries' understanding of our force disposition using deception, camouflage and concealment from observation, and improved physical protection, such as employing blast walls and hardened aircraft shelters and facilities.

Agility will primarily be achieved through **Agile Combat Employment (ACE)** and **Dynamic Force Employment (DFE)**:

ACE is the flexible and scalable dispersal of capabilities to agile and adaptable bases. It can be proactive or reactive, and enhances the RAF's survivability, resilience and flexibility by harnessing the offensive advantages and defensive strengths of agility into a coordinated and coherent concept of operations. To promote rapid deployment and re-deployment of air capabilities, ACE will involve minimal footprint and only essential support. ACE transcends the air domain and may be applied across the integrated or combined force.



DFE is the episodic and flexible use of FEs and their effects to shape the strategic environment. It exploits inherent unpredictability to generate uncertainty for adversaries. DFE will use the inherent flexibility of air power to achieve persistent yet non-permanent engagement at range, with global reach, using pulsed activity to concentrate effort and reduce the enemy's ability to target its FEs.

ACE and DFE are already being exercised and refined to develop an agile, integrated and resilient concept of operations. This process will continue with increasingly ambitious dispersals and deployments which will provide confidence in our ability to deter, defend and defeat, and develop our operational mindset. Experience from Scandinavian air forces, which have practised and refined ACE over many decades, suggest that success is 70% mindset and 30% equipment. They are 'comfortable being uncomfortable' and ready to rapidly develop back-up plans to maintain successful outputs.

The RAF will need to conduct a comprehensive assessment of the operating locations which it can use within the UK, involving a range of traditional and novel locations. It will also need to assess the degree of protection, concealment and dispersal

achievable within MOBs which may reduce the requirement to disperse elsewhere. For the key capabilities that cannot be moved, appropriate protection and redundancy is required.

The RAF will be operating alongside other air forces who have their own ACE models, which means we must be prepared to integrate our models of ACE and DFE with those air forces we will be operating with, depending on the operating location. ACE and DFE in NATO's High North will differ significantly from ACE and DFE across the Indo-Pacific.

Integrated Advantage

Integration is an essential element of how we operate and warfight. The opportunities afforded by modern technologies will transform how we integrate, coordinate and share data in real time across operational domains, with allies and partners. Multi-domain integration connects sensors and effectors from all domains into a wider 'system of systems' than previously possible, to integrate seamlessly and maximise the use of space, cyberspace and the electromagnetic spectrum (EMS) for operational advantage. Integration represents both a technological opportunity and an operational imperative:

Technological opportunity. The RAF will rapidly innovate and adapt how it operates and warfights, integrating and networking its array of 4th generation (i.e. Typhoon) and 5th generation (i.e. F-35) air systems, automated systems and iterative next generation capabilities. This includes incrementally adopting new technologies and capabilities to ensure that the RAF remains lethal and effective. As adversaries will continually seek opportunities to negate our advantages and undermine allied operations, the RAF must continue to innovate and adapt to respond effectively to evolving threats.

Operational imperative. Integration is fundamental to our interoperability with partners and allies and is essential for multi-domain and multi-national action. Interoperability of systems, equipment, processes and cultures will become a force multiplier if they are inherent within evolving capabilities, as opposed to being an impediment or disabler if not integrated effectively. New threats and crises will necessitate current and future alliances and partnerships being more dynamic, where our ability to integrate and become interoperable at pace will be key to our success.



Resilience Advantage

Resilience is the ability to continue to operate and warfight before, during and after attack. It is an essential element of the RAF's ability to provide credible deterrence and to be a sustainable fighting force. While the agility of ACE will increase our survivability, enhanced agile support is required to make our warfighting capabilities resilient.

The transparency of the future battlespace and the rapid targeting cycles used by our adversaries provide them with the ability to detect and target mobile systems, including aircraft on the ground and their support facilities. As our operating bases will be within range of adversary precision weapons, denying them targeting opportunities will require a combination of traditional and novel techniques, and a significant change in organisation and mindset to make these effective.

Dispersal, Deception, Protection, Camouflage and **Concealment** will be utilised in innovative ways across operational domains, augmented by information operations, to maintain our resilience and preserve warfighting capability. Reversionary planning, runway repair and facility repair will be essential to sustaining post-attack operations, especially where our capabilities rely upon immovable headquarters and support facilities.

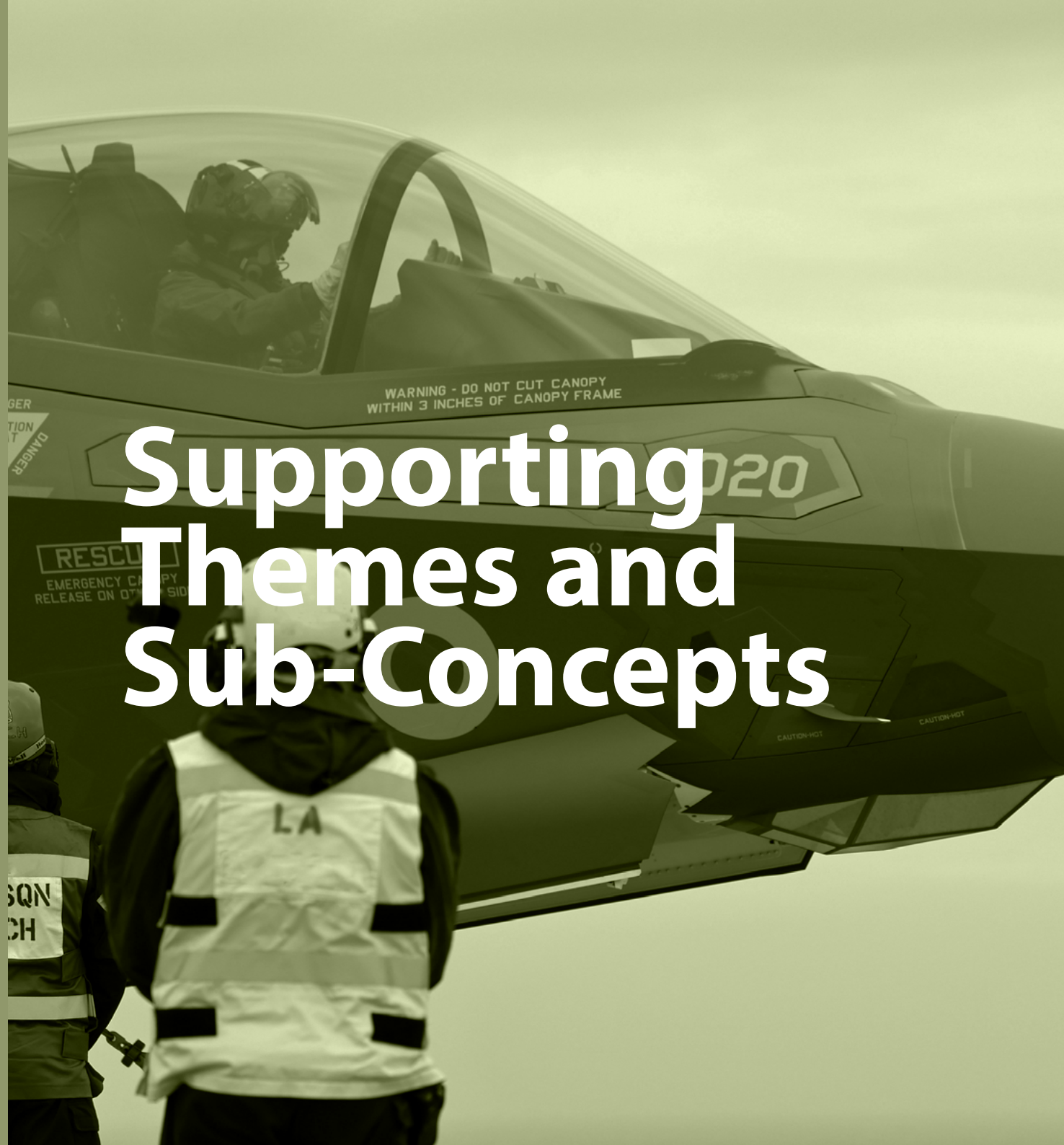
Hybrid attacks may see our capabilities degraded or denied in novel and unexpected ways. There are limitless ways to attack our capabilities, and those of our allies and partners. We must plan to operate within degraded or denied environments, to dynamically adapt to attacks whilst continuing to deliver the four roles of air power and remaining integrated.

Beyond our equipment, resilience should be inherent across our whole force including our reserves, contractors, support solutions and the wider population. Preserving and creating resilience in our people will be at the centre of all air power thinking, planning and training. Regular and realistic exercises will test our resilience and identify opportunities for improvement.



05

Supporting Themes and Sub-Concepts



Supporting Themes and Sub-Concepts

People and Culture. People are critical in achieving the ambition of the AirOpC. Our people and culture must enable Decision Superiority and the operational advantage it enables, utilising Agile, Integrated and Resilient operating and warfighting. The RAF will recruit, train, develop and lead a whole force with the skills, experience, adaptability and resilience to face future operational challenges at home and overseas and succeed in warfighting. Culturally, the RAF will regain its operational focus, inculcating agility and dynamic operational employment into through-career, education, training, exercising and operational employments, so that agility and operating dynamically become a key part of our DNA. Thinking should no longer focus on distant front lines and rear echelon support; the front line is now everywhere that the RAF operates its air systems, infrastructure and people and all are within range of potent long-range precision weapons and hybrid tactics. Within our cadre of aviators, we will develop and encourage agile mindsets, able to manage risk and operate independently and innovatively to achieve their operational aims. This approach will involve pushing risk management and ownership down to the lowest appropriate levels and embracing a level of disruptive and creative innovation necessary to succeed on operations.





Partners and allies. It is unlikely that UK forces will face a peer adversary alone; the global order is such that the RAF will most likely operate and fight alongside NATO partners in a Northern European or High North campaign, or as part of a coalition force in the Gulf or Indo-Pacific regions. The RAF must understand which capabilities are most useful to its partners and allies and it must retain expertise in those it provides for allied and coalition operations and warfighting. This might be access to RAF bases, potent weapons systems, AM, AAR, ISR, specialist aeromedical evacuation or FP. It might include diplomatic engagement and taking responsibility for a region to free-up allied forces for another region. To challenge the mass and potency of peer adversaries, all coalition partners must be able to integrate and contribute effectively towards a larger effort.

Enhancing cooperation. The success of our ACE and DFE ambitions will depend upon how effectively we can integrate activities and operations with those forces we will be flying and fighting alongside. We must engage proactively with those forces to understand their own ambitions and approaches, to ensure that they understand ours, so that we can achieve synergy of effects and deliver added value when we are operating and fighting together.

We must also ensure that we have the flexibility to support others in ways which are inherent to combat air power yet with levels of agility not previously envisaged.

Uncrewed air power. UAS will continue to transform the delivery of air power through performance and capability enhancements, and covering a wide range of systems and roles, from large, high altitude long endurance aircraft to hand-launched battlefield ones. It is possible that many missions could be flown by UAS, either autonomously or semi-autonomously. They offer significant benefits by reducing operating risk in contested airspace and being agile in providing localised support directly to users and integrated effects as part of a network. AM developments promise to transform battlefield logistics, supporting isolated or deployed ground forces. The air domain will see significant numbers and capabilities of UASs, both friendly and hostile, in all operating regions. AI may develop to be the critical enabler for UASs, effectively delegating C2 to autonomous units executing Mission Command and providing organic real-time coordination. Air, land and maritime forces will utilise UASs in the same shared airspace as crewed air systems and this is an area of the airspace that needs to be understood, deconflicted and coordinated.

Air and Missile Defence (AMD). UK integrated AMD will be continually challenged by emerging air and missile threats. An effective and integrated AMD system deters adversary attack by protecting defence capabilities and critical national infrastructure. The RAF will optimise its offensive and defensive counter air contribution to the national integrated AMD Enterprise and demonstrate its leadership of air battlespace management and its role as AMD Commander with a truly multi-domain approach. There is already a huge increase in the nature and type of air domain threats, from small UASs to large aircraft, from long-range cruise missiles to decoy projectiles, from unpredictable hypersonic missiles to loitering balloons. UK AMD systems will also be targeted by attacks through cyberspace and the EMS intended to reduce, degrade or deny their use. Low detectable and/or fast-moving targets will compress the C2 decision cycle. By 2035, it is anticipated that most missiles (including anti-ship cruise missiles) will operate at supersonic, or even hypersonic, speeds with new technologies designed to defeat advanced ECM. A weaponised and/or ISR-capable persistent UAS, or swarms of UASs, over a UK military site could cause considerable disruption and reputational damage, with such capabilities already possessed by many states and which could feasibly be developed by non-state groups.

A2AD. Technological proliferation and the democratisation of technology, combined with the increased availability of advanced weapons systems to both state and non-state actors means that adversary A2AD capabilities will challenge our freedom of action. This will require multi-domain action to create the regional and temporal effects necessary to realise our operational aims. Ukraine has demonstrated that it is possible to attack important targets protected by ADS, including the ADS themselves, through integrated action. Our multi-domain solutions to operate effectively within these contested areas will include innovative CyEM capabilities, precision and stand-off weapons, the use of uncrewed and low observable air systems, layered defence and automated systems. Some activities and decisions will be novel, such as using AI to reduce targeting cycles and to defend automatically against swarming UASs. The RAF must continue to invest and innovate in these areas to retain the operational edge and is best able to contribute to this enterprise by being agile, integrated and resilient.

Innovation and Adaptation. The most innovative and adaptable force will be the most successful. Innovation generates operational advantage by introducing new capabilities, and new ways of employing them, to optimise individual and combined effects. Adaptation

allows our capabilities to remain effective when faced with our adversaries' relentless capability developments. The scope and scale of their technological advances are significant and present a threat to RAF operations in many regions of the world, especially with their 'home advantage'. The RAF has a long history of invention, innovation and the life-long evolution of capabilities and must stay ahead of new and changing threats using rapid and continuous capability upgrades to ensure it can retain or re-gain COTA. It must also seek technological solutions to emergent threats such as cyber-attacks, denial of space-based services, competition for control of the EMS and protecting forces from small UASs. Innovation and adaptation are not easy or guaranteed, we may make mistakes, we may occasionally fail, yet we must innovate and adapt to learn how to get the very best from our air systems, bases, and supporting equipment. As these developments can only be achieved through the flexible thinking of an empowered whole force. It is as much a conceptual race as it is an arms race.

Agile Support. The agility and capacity of our support and logistical capabilities will be critical to achieving our ACE and DFE ambitions. Success depends upon what happens on the ground as much as what happens in the air.

Without servicing, fuel, spares and weapons, air systems are impotent, either stuck on the ground or unable to achieve anything meaningful in the air. ACE and DFE requires agile Support and sufficient stockpiles to maintain operations and warfighting, as well as the logistics to get them where they are needed. The *Support Operating Concept*⁹ (SptOpC) describes the plan for how the Support function is likely to develop in the coming decade, including adopting approaches towards self-sufficiency to provide operational advantage through Support. As Support is such a key enabler for military activities, the SptOpC highlights that Support will be a target for adversary attack, at home and globally. Furthermore, the Support construct will need to be sufficient to enable the strategic base outload for the UK as well as providing support as a transit nation for allies and partners.

Training and exercising. Our next generations of aviators will have greater digital skills and more enhanced data awareness than their predecessors. They will be developed using the increasing utility of networked simulation, synthetic training and digital twinning. This will allow training using more bespoke approaches, including increased

⁹ UK MOD, Strategic Command, Support Operating Concept (2022).





connectivity and regularity of training opportunities with our allies and partners, using synthetic environments that are secure from adversary observation. Our future success cannot just be in the cockpit, it must be developed throughout every aspect of our capability. This is especially important in how we develop our next generation of air power leaders, and in our programme of air C2 training.

Risk and empowerment. The RAF approach to risk and empowerment must evolve to enable the AirOpC; our empowered and responsible warfighters must be able to use their initiative to be successful. The RAF has a formidable safety record, with peacetime risk appetites and regulations denying or reducing its riskier activities. Yet high levels of safety can be seen as a peacetime norm but could be an impediment to effective warfighting. The RAF has become used to pre-deployment work-ups that delineate a home-based training regime from an operational one. The RAF must have the ability to train and operate as it will fight, as a key indicator of its preparedness and capability. Loosening regulations, raising risk appetites and increasing empowerment, when appropriate and beneficial, will provide the ability to 'train hard to fight easy'. If the RAF plans to take live armed aircraft into civilian airfields when warfighting, it must be prepared to practise this in

peacetime and have the relevant permissions to do so. If the RAF expects dispersed FEs to make dynamic and empowered risk-based decisions, we must train and exercise in that way. It is also essential to reduce the complexity and volume of bureaucracy across the entire organisation that hinders change, stifles innovation, prevents activity taking place and engenders a state of learned helplessness among our people. We must develop and embrace a 'how can we make this work' culture.

Industry and supply chain capacity and resilience.

The RAF's relationship with industry is critical to maintaining resilience in warfighting. Defence procurement can sometimes be a long and slow progress, with lengthy contracting processes, cost and development overruns, and limited production runs of niche capabilities. Within a warfighting scenario we need to be able to support and replace equipment, attritable capabilities and expendables at scale and pace, and be able to upgrade existing capabilities and introduce new capabilities with minimal delay. This will require increased support and supply-chain resilience to ensure that our logistical support capabilities can match the scale and pace of operations and warfighting.

Energy diversity. The RAF response to the energy transition¹⁰ is to preserve and, where possible, enhance its operational advantage through better energy choices and innovative use of new technologies or approaches. This is a future operational imperative and supports the RAF's Net Zero 40 aspirations. RAF aircraft are already able to operate using a 50% blend of synthetic aviation fuel (SAF) and development of synthetic fuel continues. Net Zero bases will be developed using a range of green initiatives. These changes could provide a benefit to resilience and endurance by utilising a wider range of energy options and creating a larger target set for adversaries to attack.

Sustainability. As part of its ambitions to operate in increasingly sustainable ways, the RAF will aim to utilise an array of sustainable technologies to increase self-sufficiency. This could streamline future logistics in deployed locations. It is important to note that sustainability must always be balanced against our ability to win.

Electromagnetic Warfare (EW). The RAF will refocus on EW, maintaining its freedom of action within the EMS

¹⁰ UK MOD, Strategic Command, Sustainable Support Strategy (2022), 11.

and retaining its operational advantage against a range of adversaries who have access to EW capabilities. This will include reinvigorating and exploiting EA capabilities, including near real time EW updates, combined with enhancing countermeasures and mitigating against attacks by adversaries. It will also encompass operating in scenarios where access to the EMS is degraded or denied.

Air Security. Credibly securing and protecting our bases, FEs, capabilities and data is critical to achieve the AirOpC's aims of deterring our adversaries and being able to defend against them and fight to defeat them. COTA starts on the ground; without secure and resilient capabilities we cannot expect to succeed. The Air Security Concept sets out the RAF's approach to security in an era of persistent competition and the evolving character of security threats, including terrorism, espionage, sabotage, subversion and organised crime. The FOE presents a significant threat to the RAF and its people from our adversaries gathering information and data on our disposition, intentions and capabilities. We must actively focus on preventing this information and data from being used to undermine our activities and advantages, denying adversaries from easily understanding us. We can assume our competitors

are combining personal social media information, open-source media reporting, cyber intelligence and multiple other sources to understand what we are doing and what we will do next. Cyberspace has made the front line omnipresent, and our commanders must be as cognisant of the associated threats in the battlespace, as our people need to be in their homes.

Implications for other operational domains. While the full scale of the RAF's agile, integrated and resilient ambition has not yet been determined, this may affect our requirements from the other operational domains and what we are able to offer them in terms of supporting effects. Wherever possible, the aim will be to create greater synergy and to amplify effects across the operational domains. We need to highlight and articulate what we can provide for the other Services in our role as a key integrator of cross-domain effects.

The **Medical Operating Concept**¹¹ describes the approach that Defence Medical Services will take to support agile and deployed warfighting, complemented by RAF medical services (RAFMS) Core Doctrine¹² which sets the fundamental guiding principles and capabilities required to deliver RAFMS operational medical support and aerospace medicine. The FOE will present new and unfamiliar healthcare and wellbeing challenges, including unique patient groups, injury patterns, operating environments and locations. Solutions will require careful consideration across the spectrum of aeromedical evacuation options, plus medical planning and logistics, primary/secondary healthcare and patient holding facilities.

¹¹ UK MOD, Medical Operating Concept (2022).

¹² Royal Air Force, AP7003, *Royal Air Force Medical Services Core Doctrine* (2013).



06



Key Take-aways

Key Take-aways

The AirOpC describes how the RAF will succeed in the FOE by evolving into a more **Agile, Integrated and Resilient** force. This force will employ its operational advantage with **Decision Superiority** through the manoeuvrist approach to operating and warfighting.

The **four roles of air power** will endure, yet missions will evolve and adapt to deal with potent and evolving threats, and we will maximise the effectiveness of the air domain through our leadership of air battlespace management and air C2.

We will **succeed** if we retain, or regain, COTA when and where necessary, so that we have the freedom of action to protect our interests and capabilities from interference or attack and continue to create air power effect and enable integrated effects. COTA also denies our adversaries use of the air and limits their freedom of action.

Success starts with **deterring** our adversaries from challenging or attacking the UK, its people, interests and allies; by demonstrating that the UK military, with credible partnerships and allies, can operate

effectively at scale, pace and range, using speed, precision and lethality to win in armed conflict. If deterrence is not effective, we will first **defend**, and then fly and fight to **defeat** our adversaries. We will do this, integrating seamlessly with our other operational domains, our allies and partners. This will be achieved by presenting our adversaries with multiple operational challenges which undermine their cohesion and unravel their ability to respond coherently and effectively.

This represents **an evolution** for the RAF, in its thinking, organisation, management, training and operating, based on enabling and supporting **concepts, plans, strategies and activities** throughout the RAF and wider defence. We will focus first on the AirOpC ambitions that will directly improve deterrence and core warfighting capacity. ACE and DFE exercising and refinement will develop an agile, integrated and resilient concept of operations focussed on operating, warfighting and winning, using agile innovation.

This evolution requires **operational mindsets** and is delivered by empowering our people with **mission command**.

The AirOpC provides the headmark for follow-on work within the RAF and other operational domains, partners and allies. The AirOpC is the start of a vital evolution in air power. This document has deliberately focused mostly on the RAF to ensure the core of UK air power is fit for the fight. The RAF will step boldly towards this Concept and will work tirelessly with others who contribute to and draw on Air Power. The RAF's evolution will allow us to contribute credibly and significantly to the Defence Command Paper's commitment to strengthening the UK's defence and security by being prepared for warfighting and persistent engagement and keeping pace with the changing threats posed by our adversaries.

