# King's Research Portal

*Document Version*
Publisher's PDF, also known as Version of record

[Link to publication record in King's Research Portal](#)

King's
College
LONDON

# The Integrated Review In Context: Defence and Security in Focus

October 2021

Edited by Dr Joe Devanny and Professor John Gearson

# CONTENTS

# ACKNOWLEDGEMENTS

# Introduction: Defence and Security in Focus

## Dr Joe Devanny
## Professor John Gearson

> **THE REVIEW'S EMPHASIS ON THE NEED FOR A STRATEGIC 'TILT' TO THE INDO-PACIFIC WAS UNDERLINED BY THE ANNOUNCEMENT IN SEPTEMBER OF THE (AUKUS) AGREEMENT BETWEEN AUSTRALIA, THE UK AND THE UNITED STATES TO ENHANCE DEFENCE COOPERATION, INCLUDING THE PLANNED ACQUISITION BY AUSTRALIA OF EIGHT NUCLEAR-POWERED SUBMARINES.**

> **NO ONE CAN DENY THE GROWING STRATEGIC SIGNIFICANCE OF THE INDO-PACIFIC, BUT UK POLICIES, HERE AS ELSEWHERE, SHOULD NOT BE AS EMBARRASSED BY OR RELUCTANT TO ACKNOWLEDGE THE IMPORTANCE OF COOPERATING WITH EUROPEAN ALLIES, AS HAS REGRETTABLY APPEARED TO BE THE CASE UNDER JOHNSON'S PREMIERSHIP TO DATE.**

When the Centre for Defence Studies at King's College London decided to divide its collection of essays on the Integrated Review into two volumes, we did not expect that, between the publication of the first and second volumes, initial perceptions of the Review would be challenged by two significant events. First, the fall of the Afghan government following the withdrawal of US military support and under Taliban offensive, an outcome that, if not unexpected, was nonetheless striking in its speed, a tragedy for millions of Afghans, and deeply sobering in its exposure of the limits of what countries like the UK can realistically accomplish in its international policies.

Second, the Review's emphasis on the need for a strategic 'tilt' to the Indo-Pacific was underlined by the announcement in September of the (AUKUS) agreement between Australia, the UK and the United States to enhance defence cooperation, including the planned acquisition by Australia of eight nuclear-powered submarines. In one sense, this was an unremarkable agreement, in that the three parties are long-time allies and closely cooperate, for example, in the 'Five Eyes' intelligence partnership. But in other senses the agreement was more interesting and controversial. For the former US national security adviser John Bolton, AUKUS was 'a sit-up-and-take-notice moment, perhaps a genuine pivot'.

Some commentators have focused on the disturbing implications of the agreement for nuclear non-proliferation, but much of the commentary focused instead on the geopolitical implications, both the focus of the agreement on countering the rising power and influence of China, and on the outrage the agreement caused in France, where its abrogation of a pre-existing agreement for Australia to buy French diesel-electric submarines was perceived and denounced as a perfidious act by supposed allies.

The apparent failure – in Canberra, London and Washington, D.C. – to consider how to mitigate French diplomatic reaction to the AUKUS agreement highlights a specific broader failure of UK diplomacy under the Johnson government to properly integrate the European and broader international dimensions of its policies. No one can deny the growing strategic significance of the Indo-Pacific, but UK policies, here as elsewhere, should not be as embarrassed by or reluctant to acknowledge the importance of cooperating with European allies, as has regrettably appeared to be the case under Johnson's premiership to date. This is an example of the reality of 'Global Britain' conflicting with the domestic political narrative crafted by Johnson's government to defend its Brexit policies. The Integrated Review itself was an artful effort to square this circle, particularly in its treatment (both explicitly and by omission) of the European elements of UK defence and security – an issue recognised by Professor Sir John Sawers in our first volume.

As the introduction to our first volume noted: 'Different prime ministers can change the machinery, rhythm and direction set from the centre of government.' Another revelation, in the months following the first volume's publication, elicited by the parliamentary Joint Committee on the National Security Strategy, was that Boris Johnson had decided that, as a matter of routine business, he should chair fewer meetings of the National Security Council – by the Committee's calculation, Johnson will spend roughly 65% of the time routinely dedicated to national security meetings by Johnson's predecessors. The Joint Committee is less well known than the quality of its work – or the imagination of its communications team – deserves, and in that respect, it is not alone amongst legislative oversight committees. But this finding is valuable for efforts to understand the Johnson premiership: absent crises, Johnson has ostensibly decided to ration the precious resource of prime-ministerial time in ways that reduce its dedication to national security affairs. This is a conscious choice. It may even be the right one for this premiership – although that, in itself, is a notion amenable to more than one interpretation. Does this matter? To the extent that a prime minister's choices about how to prioritise finite time in office matter, yes, this does matter. It tells us

something about the circumstances in which the Integrated Review will be implemented, about the varying degrees of engagement, interest and grip exercised by influential actors.

Where our first volume was broadly focused, primarily on the foreign policy implications of the Review, this collection focuses instead specifically on the range of defence and security issues that were raised by the Review and its accompanying publications, principally the Defence Command Paper and Defence and Security Industrial Strategy. Like the first volume, most of the essays in this collection were again written by early-career and established academic staff, as well as distinguished visiting researchers, in the School of Security Studies at King's College London. The volume approaches the defence and security issues raised by the Integrated Review in four sections, first by exploring the implications of the Review for the future roles to be played by the British Armed Forces. Second, in a section entitled 'Debating the Deterrent,' we publish four essays on different aspects of UK nuclear deterrence strategy, the significance of the Review's announcements about nuclear weapons policy, and the potential impact of these developments on the UK's commitment to the global nuclear non-proliferation regime.

Third, we publish a series of essays exploring the contemporary significance of intelligence, cyber and space power in UK defence and security strategy. And finally, given the Review's emphasis on bold ambitions for Britain's future as a 'science and technology superpower' we conclude the collection with a series of essays exploring public and private sector aspects of defence and security industrial strategy and the role of science and technology in driving innovation in this field.

The essays in this volume deal with a broad range of issues that pose both discrete and overlapping challenges to the UK. One common thread throughout the collection is a sense that the Review is distinctive in its ambitious rhetoric, correctly identifies some of the biggest challenges and opportunities of the next few decades, but also at times creates both an unrealistic and a false impression of the gap between the Review and its precursors. Unrealistic, because the magnitude of the challenge does not appear to be matched by sufficient resources to achieve the Review's vaunted objectives. False, because much of the hyperbole surrounding the Review masks the fact that previous governments understood these challenges in much the same way. In implementation, the Review risks becoming not even 'old wine in new bottles,' but recycled in form and content. Furthermore, in its reluctance to prioritize which challenges and opportunities to focus on first and which to resource properly, the review risks suffering the fate of previous attempts at strategic leadership, in being overtaking by the speeding momentum of the inevitable spending review process that always seems to follow such announcements.

Some of the signature themes and ideas of the Review and Defence Command Paper will take time to effect in practice, for example the notion of persistent engagement (meaning something different from the use of that phrase in US cyber strategy) and what this means for the future posture of UK Armed Forces. Other prominent themes, such as the tilt to the Indo-Pacific could be pursued in different ways – AUKUS is one example – but what risk is posed of overstretching the UK's shrinking armed forces, creating a path towards greater expectations of commitments in the Indo-Pacific at a time when Europe – much closer to home – has protracted security concerns on its eastern and southern flanks.

## The Armed Services and the Review

Andrew Curtis, an independent defence and security consultant, associate fellow at RUSI and retired Royal Air Force officer, reflects in his essay that every post-Cold War defence review has tried to change the structure of the UK Armed Forces. Assessing the latest effort to develop the Integrated Force 2030 (IF2030), Curtis argues that doubts remain over the sufficiency of resources and effectiveness of the processes that are required to achieve the new force structure: 'while the Defence Command Paper confirms that the armed forces expect to make a decisive shift in their approach to warfare, it is far from clear that persisting with a decennial cycle is the best approach to delivering an optimal force structure. Nor is it obvious precisely what IF30 will be resourced to undertake.' Curtis argues that, whilst the recent norm of reviewing the force structure every five years 'may seem like a good idea, the reality is that each one ends up abandoned mid-creation. None is ever fully delivered.'

Curtis argues persuasively that, without greater insight into the planning assumptions on which IF2030 is premised, 'it is impossible to tell what the government expects to get for the money it is committing to the defence budget or, more importantly, whether more is being demanded of the armed forces then they are funded to do.'

Dr Simon Anglim, a Teaching Fellow in the Department of War Studies at King's College London, notes in his essay on the Review's implications for the British Army that: 'whatever the reorientation of British strategy towards maritime operations and the Asia-Pacific, credible land warfare capabilities must remain a key part of the UK's defence setup if it is to meet the aspirations laid out in the Integrated Review.' Dr Anglim's essay emphasises the importance of historical context for understanding the evolution of the Army's role in national strategy: 'The early 1990s and the end of the existential threat from the Soviet Union brought a sea change, the Army's main commitment since then being in optional interventions and expeditionary operations outside Europe or on its fringes working alongside the USA and other allies.' He also highlights the importance of political context and the availability of new technologies in re-shaping contemporary applications of force: 'Risk-aversion among the Western political class and distrust of politicians among the voting public following the debacles of Afghanistan, Iraq and Libya combine with shrinking defence budgets to incentivise Western governments to wage war via "remote" means – airpower, Special Forces and proxy local forces, all having limited physical and political footprint – rather than via large numbers of "boots on the ground" in theatre.' Dr Anglim ultimately notes the risks involved in a strategy that postulates a greater and more sustained global role for a shrinking force that carries some consequential gaps in its capabilities.

William Reynolds, a Leverhulme Scholar PhD candidate at the Centre for Grand Strategy in the Department of War Studies at King's, explores the role of defence in the Review's Indo-Pacific tilt. Reynolds argues that: 'Befitting an integrated approach, defence in the Indo-Pacific can be seen rather as the visible manifestation of a host of capabilities and avenues being used in the region.' Although the tilt is a responsive to contemporary geopolitical and geoeconomic developments, Reynolds argues persuasively for historical continuity between it and earlier periods of UK strategy. Emphasising the political significance of potential UK defence commitments in the region, Reynolds observes that: 'One does not need vast quantities of force to make an effective contribution, and the British are well placed to take advantage of this in the Indo-Pacific.'

Dan Stembridge, Managing Director of WholeShip and a former Royal Navy officer, provides a critical commentary on aspects of the evolution of carrier strike and the role of the F-35. He argues that the government must eliminate ambiguity over the proposed role of the F-35 and clarify its commitment to carrier-based operations, noting the tension between this and the competing need to hold F-35s at readiness for land-based operations. Stembridge highlights the difficult history of this programme and the primacy of political ambition in ultimately driving the requirement.

Inga Trauthig, a PhD candidate in the Department of War Studies and Research Fellow in the International Centre for the Study of Radicalisation at King's, assesses the implications of the Review for the UK's defence and security policies in the Middle East and North Africa (MENA). Trauthig describes the recent history of UK defence and security policies in the MENA region as 'a mixed bag'. Alongside the Review's intent to tilt towards the Indo-Pacific, Trauthig perceives a deprioritisation of MENA within wider UK defence and security policy, with the Review aiming to pursue more 'self-reliance' in the region. As Trauthig argues: 'Withdrawing from a region that is embroiled in internationalised civil wars and rivalries, while also being deeply connected to the UK's security and its imperial past, is problematic to say the least.'

In her essay about culture, diversity and the Review, Dr Sophy Antrobus, a Research Associate in the Freeman Air and Space Institute in the School of Security Studies at King's, argues that the social and political rise of the phenomenon of 'culture wars' should not 'be confused with discussions about service or organisational culture, but if the former discourages thoughtful analysis of and reference to the latter, then the armed forces will be the poorer for it.' Antrobus reflects on the differences apparent between the Review and its 2015 precursor, particularly in their respective emphases on issues of culture and diversity:

'Analysis of the narrative in the IR...shows little more than lip service to diversity and, unlike SDSR 2015, avoids reference to women and ethnic minority representation in the armed forces. In this context, diversity, like culture, is only referenced three times, and it is explicitly linked to the implications of diversity for operational effectiveness.' More promisingly, Antrobus concludes that 'beyond the IR, in the day-to-day activities and pronouncements of the services, there is a commitment to diversity and modernising service culture because it matters.'

## Debating the Deterrent

In his essay, Professor Wyn Bowen, head of the School of Security Studies at King's, explores themes of continuity and change in the UK's approach to deterrence. Reflecting on the Review's intentional lack of transparency regarding its decisions on the nuclear deterrent, Bowen observes that: 'because they are clearly designed to make the Deterrent more relevant and credible in an uncertain and more challenging world.' Particularly regarding Russia, and the UK response to the 2018 nerve agent attack in Salisbury, Bowen argues that the UK government has developed a broader range of deterrence policies, including a clearly signalled: 'attribution capability, the ability to mobilise international support and the imposition of multilateral sanctions' and other costs, e.g. through the new National Cyber Force. This is necessary in the contemporary international security context, in which the UK must 'deter adversaries in a complex, multi-actor, multi-domain threat environment.'

Professor Sir Lawrence Freedman, emeritus professor in the Department for War Studies at King's, provides historical context to improve understanding of the Review's decisions about the nuclear deterrent. He notes the continuities of UK nuclear deterrence policy, in which it 'has been the policy of successive governments of both parties that the UK should remain a nuclear power but do so at the lowest level commensurate with a credible deterrent.' Professor Freedman highlights the practical factors shaping some of the Review's most noticeable nuclear announcements, such as the abandonment of the 180-warhead cap on the nuclear weapons stockpile. He also notes the practical constraints imposed by the limited number of missiles owned by the UK and the limited load of the next generation of submarines that will carry the UK deterrent.

Dr Julian Lewis, the Conservative MP for New Forest East and a former chairman of the House of Commons Defence Select Committee (2015-19), explains the UK approach of 'minimum deterrence' which relies on the assumption that: 'possession of a last-resort strategic nuclear system, which can be guaranteed to inflict both unacceptable and unavoidable devastation in response to nuclear aggression, does not require any ability to match the aggressor missile-for-missile or warhead-for-warhead.' Dr Lewis argues that the modest revision envisaged by the Review in the size of the UK nuclear weapons stockpile is as consistent with the UK's long-standing deterrence strategy as it is with its obligations under the international nuclear non-proliferation regime.

Dr Grant Christopher and Alberto Muti, both senior researchers in VERTIC's verification and monitoring programme, challenge this representation of harmony between UK nuclear strategy and fulfilment of its non-proliferation obligations. As they argue: 'That the UK reversed a course of three-decades of reductions now means that all five NWS under the NPT – and indeed, all nine nuclear-armed states – are expanding and upgrading their nuclear arsenals and infrastructure. The impact this will have on the NPT regime is yet to be fully understood.' Christopher and Muti observe that, although the Review itself is a document that aims to convey different messages to different audiences, the message received by non-nuclear weapons states is likely to be that the UK has created a tension between its nuclear strategy and the integrity of the international non-proliferation agenda.

## Intelligence, Cyber and Space Power

Dr Huw Dylan, Senior Lecturer in Intelligence and International Security in the Department of War Studies at King's, argues that even as 'the relative power of the UK's economy and military has declined, the intelligence agencies have striven to retain the capability to remain among the global first rank.' Dylan highlights the strong historical

continuities between the Review's advocacy of an 'integrated' approach to national strategy and the role played by UK intelligence agencies during the Cold War: 'Past as prologue, some might say, but this time with even more computers.' Reflecting on the importance of intelligence partnerships with allies, and the role to be played by the agencies in supporting the objectives of UK foreign policy in an increasingly competitive age, Dylan observes that: 'Using intelligence to strengthen the binds between democracies with shared values, just as was done in the Cold War, seems a worthy goal.'

Paul Rimmer, a visiting professor in the Department of War Studies at King's and a former Deputy Chief of Defence Intelligence (2014-20), applauds the Review's emphasis on the importance of intelligence assessment and the roles of the Joint Intelligence Committee and Defence Intelligence. Rimmer argues that this is a positive development that highlights the professionalisation of intelligence analysis in government: 'analysis is done by professionals who have received training and development in their field, not by gifted amateurs who can do a bit of research and happen to write well.' Rimmer also notes the elevated position of Strategic Command – and Defence Intelligence within it – in the Review and its aligned Defence Command Paper. Whilst Rimmer reflects on the progress that this represents, he also underlines that Strategic Command will now be expected to deliver across a series of high priority work strands.

Dr Joe Devanny, Lecturer in National Security Studies and deputy director of the Centre for Defence Studies in the Department of War Studies at King's, provides a short reflection on the evolving role of the concept and practice of responsible, democratic cyber power within UK national strategy. He underlines the increasingly recognised tension between the twin ambitions to improve cyber security and enhance (and use) cyber power. Devanny observes that: 'in a rather gnomic way – by proposing a "whole-of-cyber" approach to cyber strategy – the Review highlights the need for states to consider all their cyber instruments, whether devoted to security, espionage or offensive operations, as part of a wider, comprehensive national approach.' He cautions that, whilst the government has made bold claims and expressed considerable ambition for its new National Cyber Force, in practice difficult decisions lie ahead, not only to prioritise the new Force's efforts and ensure it makes the optimal contribution to achieving national strategic objectives, but also to maintain the broader balance between the different component parts of national cyber strategy.

Reflecting on the Review's implications for UK space strategy, Julia Balm, a PhD candidate in the Freeman Air and Space Institute (FASI) in the School of Security Studies at King's, argues that: 'Space assets have long lacked visibility in defence discourse, an overlook of both increasing military and government operations as well as the broader uses of space systems for every digital user across the UK.' Balm places the Review in the context of recent developments in UK space strategy, noting the increased emphasis on the importance of space – as well as cyber – in the Review. The Review correctly identifies the need for the UK to pursue collaborations with partners as: 'cooperation and collaboration in the space domain remain critical for bolstering program support, strengthening a domestic position, and ensuring a more sustainable space environment.'

## The Review, Science/Technology and Industry

Dr Valtteri Vuorisalo, a senior visiting research fellow in the Centre for Defence Studies in the Department of War Studies at Kings, appraises the Review as: 'an ambitious and inspiring read, one which rightly raises excellent action points for any given liberal democratic nation whose way of life is increasingly dependent on technology and data.' There is, however, a sense that the Review is longer on grand ambition than it is on translating said ambitions into delivery, particularly regarding the crucial role of data, pointing to the UK's poor record in delivering on the promise of worthy reviews in the past. Vuorisalo emphasises that delivering on these ambitions is challenging for any government: the Review 'is right to point out that as technology evolves faster than the legislation governing it, the fast-paced evolution of technology exposes the limits of existing global governance.'

Dr Hugo Rosemont, a senior visiting research fellow in the Centre for Defence Studies in the Department of War Studies at Kings, welcomes the breadth of the Review's vision for

public-private security engagement, a long-standing area of neglect and confused priorities. But he argues that the Review is: 'light on detail regarding how, from the centre, the Government will work with the private sector to implement its national security objectives. It is not clear how the multiple strands of engagement will interact or be coordinated.' In exploring different options for improving this engagement, Rosemont concludes that: 'For industry contributions to be harnessed to the full, the UK Government needs to apply the same level of care it puts towards coordinating itself to the manner in which it pursues its external engagements.'

In his essay, Peter Watkins, a visiting professor in the Department of War Studies at King's and former Director General Strategy & International at the UK Ministry of Defence, welcomes the potential implicit in the Defence and Security Industrial Strategy's description of the UK defence and security industry as a 'strategic capability'. He also notes the shift away from 'global competition by default' but notes that it is too soon to judge what impact these policy changes will have on decision-making about defence acquisition – and whether the more 'nuanced' approach risks being perceived as protectionism. He argues that a sound conceptual basis now exists to frame defence acquisition, but that challenges persist as the Ministry of Defence tries to establish a truly strategic approach to industry.

The next essay, focusing on security technology and innovation, is written by Dr Chris Kinsey, Reader in Business and International Security with the Department of Defence Studies at King's, and Colonel Ron Ti, a PhD candidate in the Department of War Studies at King's and currently a lecturer in Joint Operations in the Department of Military Studies at the Baltic Defence College, Estonia. Kinsey and Ti identify consequential shortcomings in the Review's approach to defence and security innovation, noting the absence of specific provisions to improve the access of small to medium enterprises to this sector, as well as a lack of 'clarity in equally important issues of research, development, and successful commercialisation, all of which, in turn, are linked to seed funding and working capital access.' Without further specifics, the Review risks being perceived as little more than a series of 'statements of intent' in this field. Kinsey and Ti also note that a 'key point in the Review related particularly to sensitive areas such as security has been a shift in the UK's long-standing policy of "global competition by default" as a result of deeper consideration of the shifting international and national security environment.'

Air Vice-Marshal (Ret) Peter 'Rocky' Rochelle, the chief operating officer at Arqit Ltd, argues that, although the Review rightly recognises the importance of space, cyber and new technologies, there is much work that needs to be done to turn the Review's big ambitions into reality. Rochelle notes positively the several signs of progress in these fields, but highlights that the starting point is challenging. Regarding space, for example, Rochelle argues that 'the UK Space programme has lacked a joined-up approach across government for some time'. Rochelle's essay emphasises the need for urgency, decisive action and risk-taking to exploit the opportunities of science and technology, noting with respect of hypersonic technologies that 'the time for agility and risk taking was at least 5 years ago when there was an advantage that could have been exploited militarily, industrially, and politically, for security and prosperity.' Nothing less than a shift towards a culture of enterprise within government departments is needed across the national security piece, something that Rochelle reflects has repeatedly failed to be achieved.

## Conclusion

Once again, we hope you enjoy reading this collection of essays which attempts to put the defence and security aspects of the Integrated Review in context. In the year of the sixtieth anniversary celebrations of the Department of War Studies, we hope this collection again highlights the breadth and depth of expertise within the War Studies and wider Security Studies family at King's.

We hope to return to the themes of the first and second volume in March 2022, in a third collection of essays that assesses the performance of the UK government since March 2021, against the standard set by the Review. As before, the current and future instalments of this series recognise that the judgements they contain are provisional and liable to be revised in light of subsequent events. They are also not uniform, as several contributors disagree, for

example over the non-proliferation implications of the Review. There is value, however, in presenting these analyses and viewpoints in real time, both as a contribution to public understanding and as an indication for posterity of how the Review and its implementation were perceived at this moment in time.

To come full circle, the collapse of the government in Afghanistan and the announcement of the AUKUS agreement provoke very different questions about the long-term effectiveness and future direction of UK strategy. Both underline the centrality of alliances and partnerships as enablers and shapers of – and also as constraints on – that strategy. As one of our contributors to the first volume of these essays, Michael Clarke has noted, the UK enjoyed tactical success throughout (its Afghan intervention) – but as is painfully evident, there has been a complete failure to achieve strategic objectives. Another integral element is domestic, as the Review itself recognised: a more cohesive and productive country is at once less vulnerable to subversion by state threats and better able to afford necessary investments in defence and security. In this sense, the Review's elephants in the room were the Johnson government's wider domestic policies, including (but not restricted to) its handling of constitutional issues affecting the Union (particularly in Scotland), and its Brexit strategy, both in its impact on relations with European partners and, within the UK, in its implications for Northern Ireland. The possibility of significant national security implications of these decisions should not be discounted. The Review was integrated up to a point, but these linkages with wider policy decisions and political strategy will be instrumental in shaping the context in which the Review is implemented and ultimately in determining its prospects for success.

*Dr Joe Devanny is Lecturer in National Security Studies in the Department of War Studies, part of the School of Security Studies at King's College London. He is deputy director of the Centre for Defence Studies at King's. He is an associate of the Institute for Government, a member of the King's Cyber Security Research Group, and an affiliate of the King's Brazil Institute.*

*Professor John Gearson is Professor of National Security Studies in the Department of War Studies, part of the School of Security Studies at King's College London. He is director of the Centre for Defence Studies at King's and co-director of the Freeman Air and Space Institute. He has served in various senior positions at King's and is a former specialist adviser to the House of Commons Defence Committee.*

# Integrated Force 2030 – The New Force Structure

## Dr Andrew Curtis

All the major defence reviews since the end of the Cold War have attempted to re-set the UK's force structure. The 1998 Strategic Defence Review was the first to focus on expeditionary operations and included a series of 'joint' initiatives to co-ordinate the activities of the three Services more closely. A revised force structure was developed around the concept of Joint Rapid Reaction Forces (JRRF), which was billed as the spearhead of Britain's modernised, rapidly deployable, and better supported front line. Twelve years later the 2010 Strategic Defence and Security Review (SDSR) designed an outline force structure to be delivered 10 years hence. Known as the Future Force 2020 (FF20), it had three broad elements. The Deployed Force consisted of those forces engaged on operations. The High Readiness Force were forces held at minimum notice to deploy, in order to react rapidly to crises. The Lower Readiness Force included forces recuperating from operations as well as those preparing to enter a period of high readiness. The 2015 SDSR saw the need for the armed forces to be able to deploy more quickly and for longer periods, in order to tackle a wider range of more sophisticated potential adversaries. To achieve this, it proposed the development of Joint Force 2025 (JF25), which would build on FF20 and be operational 10 years after the review.

Immediately after the 2017 general election, the Conservative government broke with the quinquennial review cycle to launch a review of national security capabilities. This work resulted in the publication of two separate reports the following year: the National Security Capability Review and the Modernising Defence Programme. While it could be argued that the substantial but largely unpredicted changes to the global security environment at the time warranted a premature re-examination of defence and security policy, the outcomes of both reviews were largely underwhelming. Neither resulted in any changes to the force structure; indeed, possibly the most positive aspect of the reports was that they introduced no cuts to equipment or personnel numbers.

By contrast, the 2021 Integrated Review (IR) did follow convention by outlining a new force structure. Moreover, although not stated explicitly, its name – Integrated Force 2030 (IF30) – suggests it will also be delivered in 10 years' time. Outlined in the IR's accompanying Defence Command Paper, IF30 is described as a future force structure that will be less defined by numbers of people and platforms than by information-centric technologies, automation and a culture of innovation and experimentation. However, while the Defence Command Paper confirms that the armed forces expect to make a decisive shift in their approach to warfare, it is far from clear that persisting with a decennial cycle is the best approach to delivering an optimal force structure. Nor is it obvious precisely what IF30 will be resourced to undertake.

## Decennial Force Structure Cycle

The quinquennial review cycle for defence and security was a commitment in the 2010 National Security Strategy. The MoD's part in that process is detailed in the Defence Operating Model, which is promulgated through a series of 'How Defence Works' documents. Version 4.2, released at the time of the 2015 SDSR, explained the decennial force structure cycle:

> Each SDSR outlines the main parts of an affordable force structure which we will deliver in 10 years time, based on our planning assumptions: This is known as the 'Future Force'. We review this Future Force every five years, with each SDSR.

While this level of detail is not included in the current iteration of How Defence Works, Version 6 does keep the same approach to developing the future force. However, though

a five-year review and update of the intended force structure may seem like a good idea, the reality is that each one ends up abandoned mid-creation. None is ever fully delivered. This leaves the process open to abuse, as it provides the opportunity for capability managers to stall the development of unpopular equipment until it can be argued away at the next review. A second problem is that the five-yearly identification of a future force has always created a programmatic aiming point, rather than a conceptual one. That is to say, it generated a task organisation for a new force structure but provided no direction on how the force elements contained therein should actually fight. As a result, over and above the high-level direction included in the 2010 and 2015 SDSR reports, defence planners had no conceptual vector to assist them in developing FF20 or JF25, to ensure they would be capable of operating against current and future threats. Instead, the single services had the latitude to choose the outcomes that reinforced their own bias and prejudice, instead of developing capabilities that may not always be in the interests of a particular service but are necessary for a joint, or integrated, force. Fortunately, as we shall see, this problem has now been addressed.

## Shaping the IF30

In September 2020, Chief of the Defence Staff General Sir Nick Carter introduced the UK's new approach to the utility of armed force in a new era of persistent competition and rapidly evolving character of warfare. This new approach is articulated in the MoD's Integrated Operating Concept (IOpC). Its central idea is to drive the conditions and tempo of strategic activity, rather than responding to the action of others, from a static, home-based posture of contingent response. Conceptually, it recognises the nature of the current strategic context requires a strategic response that integrates all the instruments of statecraft – ideology, diplomacy, finance and trade policy, and military power. The ability to deter war remains central to the UK's military purpose, and this now recognises the need to compete below the threshold of war to deter war, and to prevent potential adversaries from achieving their objectives in fait accompli strategies.

The decisive shift in the armed forces approach to warfare, called for in the Defence Command Paper, is driven by the IOpC. It forms the basis of the strategic approach (Chapter 3) and underpins the mobilisation of existing force elements to meet today's challenges as well as modernising for the threats of tomorrow (Chapter 7). In short, it provides IF30 with the conceptual vector missing from both FF20 and JF25.

## Employing the IF30

The Defence Operating Model makes it clear that the force structure is based on Defence planning assumptions. The 1998 SDR was the first review to include planning assumptions, which were constructed around a scale of effort baseline for expeditionary operations. This was a level of forces over and above those required for day-to-day military tasks and were divided into small, medium, large, and full scale. The scales of effort were supplemented by readiness, endurance, and concurrency levels. A level of readiness was the notice period within which units must be available to deploy for a given operation. Endurance was the likely duration of operations, including the potential need to sustain a deployment for an indefinite period. Concurrency was the consideration of the number of operations, of a given scale of effort and duration, that the armed forces should be able to conduct at any time. While elements of planning assumptions were kept classified, the SDR did include details of the requirements that drove the size and shape of the JRRF force structure.

The 2010 SDSR made no reference to scales of effort but did publish endurance and concurrency details for FF20. By contrast, the 2015 SDSR report included considerably less detail on planning assumptions. Apart from confirming that the maximum size of a single expeditionary force would be 50,000 (compared with around 30,000 planned for in FF20), it offered little insight into the type, quantity, and duration of operations the armed forces would be sized and shaped to conduct. Instead, it simply identified that when not deployed at the maximum number above, the armed forces would be able to undertake a large number of smaller operations simultaneously.

The IR and associated Defence Command Paper contain no planning assumptions for the employment of IF30 at all. Apart from confirming high-level defence tasks under the headings of: persistent engagement overseas; crisis response; warfighting; defending the UK and our territory; and the nuclear deterrent, they do not include any detail on what the armed forces will be actually expected, and resourced, to do. Even a freedom of information request, submitted after the IR report was published, has failed to unearth any more information. While some planning assumptions should always be classified, previous defence reviews have always provided at least a broad outline of what the future force structure is designed for. Generic details of the size and type of operations, frequency, concurrency, and recuperation give defence analysts a framework against which to assess the development and suitability of the armed forces, as sunset capabilities are withdrawn, and sunrise capabilities are introduced. Without these guidelines in the public domain, it is impossible to tell what the government expects to get for the money it is committing to the defence budget or, more importantly, whether more is being demanded of the armed forces then they are funded to do.

## Conclusion

With the introduction of IF30, the IR has adopted the decennial force structure cycle of its predecessors. However, that process is flawed, as its five-yearly reset means that no force structure is ever fully delivered. On a more positive note, basing IF30 on the IOpC does provide the armed forces will the conceptual vector that their capability planners have been missing.

Significantly, the IR does not include any detail on what the new Integrated Force will be resourced to do, in terms of size and type of operations, frequency, concurrency, and recuperation. Without this information, there is no obvious way to hold the government to account over the suitability and value for money of the future force structure. What's more, it will be extremely difficult for external commentators to generate evidence-based arguments that tomorrow's armed forces are being over utilised or under resourced.

*Dr Andrew Curtis OBE is an independent defence & security researcher specialising in national strategy, the higher management of defence, and military logistics. His research interests stem from his 35-year career in the Royal Air Force, from which he retired in 2019. Andrew is an associate fellow at the Royal United Services Institute and has a PhD in defence studies from King's College London.*

# Global Britain, Global Army? The Review and Land Warfare

## Dr Simon Anglim

> RUSSIA IS A LAND-BASED POWER SO IF IT IS TO BE DETERRED CREDIBLY IT MUST BE DETERRED ON LAND.

> THE EARLY 1990S AND THE END OF THE EXISTENTIAL THREAT FROM THE SOVIET UNION BROUGHT A SEA CHANGE, THE ARMY'S MAIN COMMITMENT SINCE THEN BEING IN OPTIONAL INTERVENTIONS AND EXPEDITIONARY OPERATIONS OUTSIDE EUROPE OR ON ITS FRINGES WORKING ALONGSIDE THE USA AND OTHER ALLIES.

### So What?

This article examines the implications of the United Kingdom government's 2021 policy paper, Global Britain in a Competitive Age: The Integrated Review of Security, Defence, Development and Foreign Policy, which lays out the Boris Johnson government's external policy aims for the 2020s, the Ministry of Defence Command Paper, Defence in a Competitive Age which accompanied it and the British Army paper Future Soldier: Transforming the British Army which followed shortly afterwards. It focuses on what these implications might be for Britain's land warfare capabilities, in particular the British Army and the Royal Marines, and asks how well-prepared they might be for what the Integrated Review expects of them. This matters for a range of reasons. The Integrated Review and Command Paper identify, and, indeed, at times centre on the most 'acute threat' to the UK and Europe as coming from Russia. Russia is a land-based power so if it is to be deterred credibly it must be deterred on land[1]; beyond this are the eternal fundamentals of land warfare, presented very clearly in Future Soldier: 'It is only on land that ground can be held, populations sufficiently reassured and adversaries physically deterred from aggression. It is most likely to be in the land domain that decisive military outcomes are achieved if deterrence fails.' So, whatever the reorientation of British strategy towards maritime operations and the Asia-Pacific, credible land warfare capabilities must remain a key part of the UK's defence setup if it is to meet the aspirations laid out in the Integrated Review. There are signs, however, that some of these aspirations may be problematic, as will be explained throughout the paper. Before doing this, however, it will be helpful to situate the Integrated Review and Command Paper in the context of the recent history and current state of the UK's land warfare capabilities.

### Changing of the Guard?

The Integrated Review and Command Paper are potentially seminal documents in the history of the British Army, and, indeed, fall at the intersection of several historical processes. First is a change in the fundamental role of the British Army and its core mission set. Before the early 1990s that core mission was to prepare, literally, for Armageddon. The four armoured divisions of the British Army of the Rhine (BAOR) were deployed under North Atlantic Treaty Organisation (NATO) command in northern Germany as a contingency against a Soviet invasion which would precipitate a Third World War. The BAOR trained and organised for Second World War-scale armoured battles also, it was presumed, involving the use of battlefield nuclear weapons by both sides and chemical weapons by the enemy. An important secondary role, which continued for almost a decade afterwards, was containing the prolonged insurgency in Northern Ireland, necessitating training and organisation for urban counterinsurgency and aid to the civil authorities. There were operations 'out of area' during this period, most obviously the Falklands War of 1982, but these were few and far between and often involved small and select parts of the Army not preparing for the projected 'real' war in Germany, such as The Parachute Regiment, or the Royal Marines, part of the Royal Navy. The early 1990s and the end of the existential threat from the Soviet Union brought a sea change, the Army's main commitment since then being in optional interventions and expeditionary operations outside Europe or on its fringes working alongside the USA and other allies. This pattern commenced with the Gulf War of 1991 and continued with recent action against jihadi terrorist groups in the Middle East since 2014, but was dominated by the decade-long campaigns in Afghanistan and Iraq.

---

1.      HM Government, Global Britain in a Competitive Age: The Integrated Review of Security, Defence, Development and Foreign Policy (London: HM Government 2021), pp.18, 20, 26, 70,74; Ministry of Defence CP411, Defence in a Competitive Age (London: HM Government 2021), pp.5, 9

The Army's organisation and ethos has changed to reflect this, the doctrine and training for mass armoured warfare of BAOR giving way, over the past twenty years, to a focus on lighter operations in small wars and counterinsurgencies in remoter areas. This is clear and obvious in the Integrated Review and the Command Paper but particularly in Future Soldier, which promises 'a modern army that is more agile, more integrated and more expeditionary....designed to operate globally on a persistent basis'. It is a matter of historical record that the British Army's performance in this new role has not been a complete success. The early part of this period saw the Army do well in operations working alongside the US and other NATO allies and involving the heavy warfighting capabilities of BAOR applied in other theatres such as Kuwait in 1991 and the Balkans later in the 1990s. However, since Sierra Leone in 2000, deployments have more often involved strong elements of stabilisation and peace enforcement alongside counterinsurgency, things requiring a different skillset. The British Army thought initially it was good enough at this kind of stuff to teach others. As of the mid-2000s, the narrative peddled by senior officers – mainly to American colleagues – spoke of 'The Best Little Army in the World' and the global gold standard for counterinsurgency. Then, courtesy of the Taliban and the Mahdi Army and at terrible cost – 633 servicepeople killed across the two theatres and thousands more wounded, some maimed for life – they found it was neither of these things, largely because, while it still excelled at fighting, particularly in Afghanistan, the Army shouldered a series of shifting objectives and a state-building role for which it was transparently unsuited yet with no objection from those same senior officers.[2] Adding to this still-raw legacy is that the Army tends to be tied to specific theatres (e.g. BAOR, Northern Ireland, Basra, Helmand, etc.), which can make it seem very focused on operations and tactics 'down in the weeds', unlike the more global and 'strategic' aspirations of the other two services, and its immediate reputation can depend on how it performs in those theatres.

Secondly, the Army has got smaller over the past thirty years, savaged by cuts in defence spending as successive UK governments hunted the post-Cold War 'peace dividend'. The Army has fallen from a strength of just under 153,000 at the end of the Cold War in 1989 to a projected one, as of 2021, of 82,000. Reductions in equipment scale match this – in the mid-1980s the British Army deployed over 800 Chieftain main battle tanks (MBTs) while the Command Paper envisages a force of just 148 Challenger 3s. Unsurprisingly, this has led to deployable forces shrinking proportionately. Prior to the Integrated Review and Command Paper, the future of the Army was going to be shaped by the Army 2020 Concept, authored in 2011-2012 by General Sir Nicholas Carter, the Commander Land Army and future Chief of the General Staff (CGS) and Chief of the Defence Staff (CDS). Army 2020 was conceived in the wake of the Cameron government's 2010 Strategic Defence and Security Review (SDSR) –which cut the strength of the regular Army by 12,000 – and overshadowed by Britain's impending withdrawal from Afghanistan. Army 2020 posited a move away from the prevailing optimisation for 'stability' operations, such as those in Afghanistan, towards something more flexible. The plan called for a high-readiness 'Reaction Force' consisting of a division with three armoured infantry brigades, plus the airmobile 16 Air Assault Brigade, all intended for high-intensity operations, alongside an 'Adaptable Force' centred on seven infantry brigades tasked with other duties including those 'short of war'.[3] These proposals evolved with the publication of the 2015 SDSR, the projected 'Reaction Force' division now consisting of two armoured infantry brigades plus two Strike Brigades, the latter a new type of force specialising in deep reconnaissance and screening for heavier formations, a capability centring on two new armoured vehicles, the tracked Ajax and the wheeled Boxer, both slated to enter service in the mid-2020s.

The third context is one of strategic method. There is a growing tendency by Western powers to apply military force 'remotely' or 'discreetly'. Risk-aversion among the Western

---

2.     There have been dozens of volumes published so far on Western and British failures in Afghanistan and Iraq since 2001, but the most strongly recommended are those by Ben Barry, Blood, Metal and Dust: How Victory turned into Defeat in Afghanistan and Iraq (Oxford: Osprey 2020), Theo Farrell, Unwinnable: Britain's War in Afghanistan, 2001-2014 (London: Vintage 2018) and Frank Ledwidge, Losing Small Wars: British Military Failure in Iraq and Afghanistan (London: Yale University Press 2012)
3.     See House of Commons Defence Committee Ninth Report of Session 2013-14, Future Army 2020 Volume 1, pp.18-24

political class and distrust of politicians among the voting public following the debacles of Afghanistan, Iraq and Libya combine with shrinking defence budgets to incentivise Western governments to wage war via 'remote' means – airpower, Special Forces and proxy local forces, all having limited physical and political footprint – rather than via large numbers of 'boots on the ground' in theatre. This is traceable to President Obama's replacement of the Bush administration's strategy in the Global War on Terror of 'regime change' in countries designated by the US as supporting jihadi terrorists with one based on strikes against high-value targets – terrorist leaders and facilitators – by crewed aircraft, Unmanned Combat Aerial Vehicles (UCAVS) and Special Forces alongside generous material support for local actors fighting against terrorist groups and regimes likely to support them. The UK has followed suit closely as demonstrated by its actions in Libya in 2011 and Syria since 2014. The Chief of the General Staff – official head of the British Army – General Sir Mark Carleton-Smith commented in May 2021 that this ‘form of remote warfare has almost become our house style.’

It comes as no surprise, therefore, that the Command Paper anticipates this kind of operation continuing, shaping its arguments about the role and nature of land warfare in the 21st century and its announcement of the expansion of land assets specializing in this role.

## Global but Remote

The global strategy proposed by the Integrated Review is proactive and dynamic. As Prime Minister Boris Johnson lays out in his introduction: 'We will play a more active part in sustaining an international order in which open societies and economies continue to flourish and the benefits of prosperity are shared through free trade and global growth'. The Review states explicitly it 'signals a change of approach' away from defending the post Cold War rules-based international order towards active competition in a world in which the values Mr Johnson outlines are under challenge from authoritarian peer competitors and in which the UK must try to shape the situation rather than just stabilise it.

As to the roles of the British armed forces in this, the Command Paper sees these as the defence of the UK and its dependent territories, deterrence of potential aggressors via membership of NATO, building the capacity of friendly powers to resist aggression or subversion and continuing operations against jihadi terrorism across the globe. To do this, British forces must establish a persistent forward presence 'in the places where we judge we will have best impact against the global challenges we face' a sea change from the previously intermittent and reactive approach. Alongside this, the armed forces will be building friendly powers' military capacity to resist aggression from hostile actors, be they states or terrorists. Where there is an immediate threat, British forces will engage in 'campaigning', an apparently open-ended and flexible set of actions ranging from aggressive deterrence to countering subversive activity to all-out warfighting and taking place across the five 'domains' of land, sea, air, space and cyberspace.

How an Army of just over 80,000 – with an estimated 20,000 deployable combat troops – will manage this while maintaining NATO commitments is unclear, particularly given the Command Paper sees 'campaigning' expanding beyond Europe to Ukraine, the Middle East and the Indo-Pacific. One way in which this might be done is through 'remote warfare.' The Command Paper states clearly there will be a leading role in 'Global Britain' for UK Special Forces (UKSF), the tri-service command incorporating the UK's 'Tier One' assets, the Army's 22 Special Air Service Regiment (22 SAS) the Royal Marines' Special Boat Service (SBS), The Special Reconnaissance Regiment (SRR), the Special Forces Support Group formed from First Battalion, The Parachute Regiment (SFSG) and their support elements. UKSF have been the central element in the UK's increasingly 'remote' approach to military interventions since 2011. It is notable that while the rest of the Army has contracted over the past twenty years, their numbers have expanded and they now constitute a sizable all-arms force. What the Command Paper proposes for them has few surprises. The Command Paper promises: 'they [will] continue to be equipped to undertake rapid, precision strike operations when UK interests are threatened....and a high readiness intervention force with global reach'; there are also more cryptic allusions to increasing their ability to act covertly and 'equipping them with integrated multi domain capacity' possibly the better to deal with terrorists or counter state-based threats short of war. UKSF have a demonstrated ability

to establish a forward presence rapidly and covertly even in hostile territory, as shown throughout the Cold War and more recently in Libya in 2011 and Daesh-occupied parts of Syria. Moreover, their combination of low visibility with high tactical impact reduces political risk, so giving them a leading role makes sense within the context of 'Global Britain'.

Indeed, 'special operations' will, apparently, expand with the re-constituting and re-tasking of some existing units who will receive arresting new titles reflecting their new status. A new Army Special Operations Brigade will: 'conduct special operations to train, advise and accompany partners in high threat environments....[and] project UK global influence and pre-empt and deter threats below the threshold of war as well as state aggression.' The Brigade is anticipated to take on much of the 'influence and support' role performed previously by 22 SAS. It centres on a new infantry regiment, the Ranger Regiment, with £120million invested in it, expected to begin forming in August 2021 and be deployable twelve months later. The Rangers are a formalisation of the British Army's Specialised Infantry Group, a new concept introduced as part of the Army 2020 reforms, each of the four SI 'Battalions' – 1st Battalion Royal Regiment of Scotland, 2nd Battalion Princess of Wales' Royal Regiment, 2nd Battalion The Duke of Lancaster's Regiment and 4th Battalion the Rifles – consisting of 267 officers and NCO instructors drawn from their parent infantry regiment and tasked with training and 'accompanying' partner forces in designated non-NATO countries deemed to be under threat from terrorism or hostile state penetration. The UK government views Specialist Infantry – and, presumably, the Rangers – as another 'remote' asset, albeit more overt than UKSF, providing a way of establishing forward presence 'upstream of developing problems', ensuring local partners are prepared to deal with them as they arise so precluding the need for large-scale 'ground-holding' interventions on the scale of Basra or Helmand. They might also train partner countries as part of UN deployments. Capacity-building of friendly forces is a traditional strength of the British Army so this is a positive step which can also bring political benefits.

Alongside the 'new' Army capabilities, £40million of the Royal Navy's budget will be invested in the Royal Marines' Future Commando Force, which is projected to have a strength of around 4,000, drawn from the Royal Marines' existing strength of just over 7,000 (and if this entails a reduction in size, it also entails a reduction of the one UK force designed explicitly to be expeditionary). While there are little hints at organisation, these forces are projected to form a key part of two Littoral Response Groups, one committed to support NATO in Europe and the Atlantic from 2022 onwards, the other as part of the 'Global Britain' commitment to the Indo-Pacific and based at Duqm in Oman from 2023. The Future Commando Force will be: 'special operations capable [yet not Special Forces]... ready to strike from the sea, pre-empt and deter sub-threshold activity and counter state threats'. This is an apparent revival of the explicitly 'Commando' role the Royal Marines carried out very effectively in the Second World War. Planning for the Future Commando Force reportedly involves burden-sharing with UKSF, enabling the latter to focus on more specialised activities, such as countering Russia or China through a range of activities 'short of war'.

Should operations outside Europe escalate to 'ground holding', the Army can offer a new 'Global Response Force', 'an Air Manoeuvre Brigade Combat Team' – based presumably on the existing 16 Air Assault Brigade, elements of which at the time of writing are engaged in rescuing British and Afghan nationals from Kabul – plus a new Combat Aviation Brigade centred on two regiments of Apache attack helicopters. The Brigade Combat Team (more on this concept below) will presumably continue to centre on Second and Third Battalions of The Parachute Regiment, who alternate in the airborne task force role annually, and its stated role seems tailor-made for the Paras, the Army's most famous regiment: '[to] be used overtly and dramatically to demonstrate capability, readiness and force projection power' although the prospect of missions not dissimilar to that in Kabul now should not be discounted. It is certainly no coincidence that the government plans to spend £1.4billion on fourteen of the latest model H-47(ER) Chinook heavy lift helicopters for the RAF. The Chinook has served steadfastly since the Falklands War and the new ones will surely see extensive use by the 16 Air Assault successor and UKSF. The future of fixed-wing transport sees more of a departure. The C-130 Hercules which the RAF has used since the 1960s are being phased out in favour of a force of 22 A400 Atlas. The RAF will have the capacity, at

> CAPACITY-BUILDING OF FRIENDLY FORCES IS A TRADITIONAL STRENGTH OF THE BRITISH ARMY SO THIS IS A POSITIVE STEP WHICH CAN ALSO BRING POLITICAL BENEFITS.

> THE RAF WILL HAVE THE CAPACITY, AT LEAST IN THEORY, TO DROP TWO PARACHUTE REGIMENT BATTALIONS AT ONCE, EXPANDING THE POTENTIAL CRITICAL MASS OF THE AIR MANOEUVRE BRIGADE.

least in theory, to drop two Parachute Regiment battalions at once, expanding the potential critical mass of the Air Manoeuvre Brigade, but it is unclear if the A400 can match the Hercules' short take-off and landing (STOL) capability on rough strips, which has proven key to a number of UKSF operations since 1990.[4]

It seems, then, that special forces and 'remote' operations are the current 'growth industry' in UK land warfare capabilities, so it is unsurprising that the Command Paper announces expansion of these roles and puts them at the forefront of the British Army's (and Royal Marines') future 'forward presence'. It is telling that units elsewhere in the Army also seem to be shifting towards this sort of role. Five of the twelve regiments of the Royal Armoured Corps, for instance, are now organised as 'Light Cavalry', carrying out long-range reconnaissance and patrolling on heavily-armed light wheeled vehicles not dissimilar to the 'technicals' used by militias all over Africa or, more aptly, the armed jeeps and lorries of the SAS and Long-Range Desert Group in the 1940s. In December 2020 elements of one of these Regiments, the Light Dragoons, deployed to Mali in support of the UN mission there, indicating this kind of unit can also establish 'forward presence' very effectively.

However, there are potential issues arising that are not addressed in official documents. One of these is that capacity-building, influence and support of friendly powers, while, as noted already, a traditional British strength, needs to be placed in the context of the fallout from Iraq and Afghanistan. Questions could be posed as to how the post-Basra, post-Helmand British Army might compete for customers in this field with Russia, Turkey or Iran, all combining analogous capabilities with more successful recent combat records and not quite as politically toxic in certain parts of the world as Mr Johnson et al might hope. A second is the issue of 'special operations', particularly the status of the new brigade. In 2015, the creation of the SFSG was used by the Army – brazenly – as a means of saving at least one Infantry battalion from the chop by sticking the 'special forces' label on it. It has been suggested that the creation of the Special Operations Brigade and the Ranger Regiment represent a similar political tactic which also entails hollowing out infantry numbers to prevent further battalions being cut, particularly from the Foot Guards and the Royal Regiment of Scotland. A third, related issue is putting that 'Special Operations' label on what is still, effectively, line infantry, 'Rangers' apparently not being expected to pass the vigorous selection procedures of UKSF, The Parachute Regiment or Royal Marines or demonstrate the aptitudes needed to do so.[5] However, these issues pale beside those besetting the Army's high-end warfighting capability.

## The Division that Isn't

This capacity remains essential, as reports about the demise of conventional warfare are proving premature. In Ukraine, in the four years after 2014, at least 10,000 Ukrainian soldiers were killed or wounded in combat and over a million people were displaced while entire towns and villages have been flattened by artillery fire from both sides. There has been very little 'hybrid' or 'grey zone' about what has happened in Syria, Iraq or Libya over the past ten years and the autumn of 2020 brought the second Nagorno-Karabakh War, in which at least 5,000 soldiers on both sides were killed in the space of six weeks. In that last conflict, Azerbaijan won a clear and decisive military victory through conventional military force, thanks to sticking to basic operational principles, deftly combining new with old capabilities and a willingness to sustain casualties on a scale which would topple any Western government. In July-August 2021 the Taliban re-conquered Afghanistan in a rapid motorised advance aimed at seizing key towns. It appears, then, that conventional land warfare certainly has a present, which means it quite possibly has a future as well.

To meet this challenge, the Command Paper promises that: 'The Army will deliver a modernised, adaptable and expeditionary fighting force, centred around HQ Allied Rapid Reaction Corps [ARRC] as a corps HQ and 3(UK) Division as a warfighting division, optimised to fight a peer adversary in a NATO context' with a total of £23billion to be spent

---

4.  The author does not share the common view that large-scale parachute operations are a thing of the past and, indeed, believes they may undergo something of a renaissance in the decades to come.
5.  Private correspondence with the author, August 2021

on this capacity. This already has the potential for political friction with allies. Although based in the UK, with its commanding general and chief of staff always from the British Army, ARRC is explicitly a NATO asset, not a British one, 60% of its staff come from other NATO countries and so it would be difficult to impossible to deploy it in a purely British war of choice. And yet, as the Command Paper understands, it allows the British Army to retain its capacity to command at corps level, so the relationship here is complicated to say the least.

Moreover, prior to the Integrated Review and Command Paper's publication, there were concerning rumours about the structure and equipping of these forces, some turning out to be true. Conventional land warfare is about contesting control of territory, fighting for ground as opposed to insurgency's contesting control of populations. To fight for ground cost-effectively, a force must maximise its capabilities at protection, movement and shooting at close range which means it needs tanks or some kind of tank-like capability. Yet, the build-up to the Integrated Review was awash with media rumours that as a reaction to the alleged mass destruction of Armenian armour by Azerbaijani UCAVS in autumn 2020 and the 'conventional warfare is dead' narrative pressed online and in some currently influential literature, the British Army was going to retire its entire MBT force, the money to be spent instead on UCAVs and non-kinetic cyber and information capabilities. These rumours got to the point where Defence Secretary Ben Wallace, who had hinted previously at supporting such a move, was forced to issue a public denial. That these rumours were taken so seriously is a possible indicator of current internal culture within the Army. It is rather noticeable that no other army in NATO appears to be having this debate, nor are potential adversaries. Russia, for instance, fields nearly 3,000 MBTs while holding another 10,000 in storage and these figures do not include its new model, the T-14 Armata. In the event, the British Army will retain a token MBT force of 148 Challenger 3s – Challenger 2s with updated turrets and powerpacks installed by Rheinmetall and due in service by 2030. The Warrior Infantry Fighting Vehicle will be phased out of service with no clear indication of what will replace it, as, according to General Carleton-Smith, it risks obsolescence in a future battlefield dominated by urban fighting. It seems, therefore, that the British Army will at least temporarily abandon its armoured infantry capability and with it the ability to fight a true combined-arms battle, tanks needing to cooperate closely with infantry in order not only to survive, but to carry out their own missions. This also reduces the British Army's capacity to work alongside allies, who still intend to deploy massed armour, the Americans in particular.

Moreover, winning the land battle entails mass – of people, systems and firepower – and the Command Paper's projected conventional warfighting component, 3 Division, seems unlikely to be able to generate adequate amounts of these before the end of the decade, if ever. As noted already, Army 2020 planned for this division to have four brigades, two armoured infantry brigades equipped with Warrior or a Warrior equivalent, a tank regiment with Challengers attached to each, plus two of the new Strike Brigades with Ajax and Boxer, the Division to be operational by late-mid decade. The discontinuation of Warrior calls the validity of the armoured infantry brigades into question but there are potentially even more serious issues with equipping the Strike Brigades. As of the time of writing, a Strike Brigade and a brigade-equivalent Strike Experimentation Group have been formed in the UK and are training for the Strike role. Ajax was supposed to be operationally capable by the end of 2021 (the Army having 598 on order at a cost of £5.5billion). According to the Command Paper, Ajax would 'combine...formidable sensors with enhanced fires systems to provide long-range persistent surveillance for the coordination of deep fires'. During testing and training, however, it emerged that crews were reporting hearing loss, thanks to engine noise being amplified over the radios, and other injuries related to excessive vibration. It emerged subsequently that a combination of vibration and poor workmanship was damaging vehicle components including wheels shearing off. Consequently, trials were suspended as recriminations bounced back and forth between ministers, senior Army officers and the manufacturers throughout the summer of 2021. This is without issues to do with the system's tactical utility. Ajax is as broad as a Challenger MBT and somewhat taller while being far less well armoured, raising questions about its survivability as a close reconnaissance asset in a battle against anything other than lightly-armed enemies, while its size makes it inappropriate for operating alongside lighter friendly forces. There is also the question of whether the Army needs armoured reconnaissance on that scale (nearly 600 vehicles), when a combination of Special Forces, UAVs and Light Cavalry might prove more cost-effective.

The Ajax issue threatens an indefinite delay on the introduction of the Strike Brigades in the form intended, which means, in turn, delays in 3 Division coming online as the Command Paper intends. What the Army actually has now and for the foreseeable future is a divisional HQ plus two heavy brigades and a nominal 'Strike' brigade and it is still unclear what those brigades will actually consist of. Rather more positively, the Command Paper recognises that divisional assets need to be updated, promising that £250million will be spent over the next ten years on acquiring advanced artillery assets, particularly the Guided Multiple Launch Rocket System, £200 million on electronic warfare assets and an unspecified amount on updating battlefield air defence, with one accurate lesson from Nagorno-Karabakh being that the ability to defend against swarms of small UCAVs may become critical over the next decade.

There seems, therefore, to be an underlying presumption, or perhaps a gamble, that 3 Division would not be required for at least the next 6-7 years after 2021. Were a NATO Article V scenario to emerge before then, in order to be a viable fighting division, 3 Division would require a NATO ally to provide it not only with a fourth brigade, but also at least with the artillery and air defence assets it needs to generate the support fires necessary to manoeuvre effectively. This might have political implications affecting Britain's role in NATO, possibly including its command of the ARRC and the post of Deputy Supreme Allied Commander Europe, all of which should surely hinge on burden-sharing on several levels.

However, there is another, far more serious issue arising: failure to consider attrition in battle, of both people and systems. The British Army's conventional operations since 1991 have seen it pitched against opposition that was massively over-matched, mainly by US and NATO airpower and other long-ranged systems. Nevertheless, it still suffered attrition in the form of soldiers killed or wounded and armoured vehicles destroyed. The Russians and Chinese are not the Iraqis: their ground forces may not be so over-matched, notwithstanding that the air environment may not be so benign as Western armies have become used to. In early 2021, a House of Commons enquiry on the acquisition of armoured vehicles for the Army was presented with an assessment by the International Institute for Strategic Studies which concluded that the 3 Division envisaged in the 2015 SDSR would be outmatched by a Russian tank division 2:1 in terms of tanks, 1.5:1 in self-propelled artillery and over 4:1 in terms of anti-tank guided missiles. This calls into question the division's ability to defeat even an equivalent-sized Russian force in battle, at least not without the risk of heavy casualties to itself, possibly enough to endanger its mission or even require its withdrawal given public and political reaction to casualties in previous operations.

In these contexts, Future Soldier's announcement that the deployable army will instead be made up of six Brigade Combat Teams lays the Army open to accusations of making a virtue out of necessity. One of these Brigade Combat Teams will be the Air Manoeuvre BCT covered already, and alongside this will be two heavy BCTs, a Deep Recce Strike BCT (Strike now being reduced from two brigades to one) and two Light BCTs. Each will have 'supporting capabilities routinely assigned' including artillery, UAVs/UCAVs and engineering, the aim being to 'create more self-sufficient tactical units with the capacity to work with partners across government, allies and industry' (and presumably defeat the UK's enemies if called upon). The heavy BCTs will incorporate the Challenger 3 force and 'Boxer mechanised infantry vehicles', Boxer now evidently being seen as the Warrior replacement. Boxer is certainly faster and can carry more troops than Warrior, but its wheeled configuration would limit its tactical manoeuvrability and so possibly its ability to work with the Challengers. The Deep Recce Strike BCT is intended to 'find and fix' enemy targets for deep strikes by artillery, drones or fast air which might, if it works, go some way towards allowing British and allied forces to match superior numbers of Russian tanks and artillery. This will be achieved by a combination of UAVs plus Ajax, and Ajax will also, Future Soldier claims, form the main reconnaissance asset for the Heavy BCTs. Hopefully, Ajax will have its problems sorted out by then and, even without them, it is unlikely the BCTs will be ready before late in the decade. Beyond that is the greater gamble that the force, if committed to battle, will not take heavy casualties and can be rebuilt if it does.

## Conclusion

Rather than 'the best little army in the world', it might be more accurate to describe the British Army as a small army with some world-class capabilities (in line with some of our European allies) and some of those capabilities are going to be very stretched indeed if the Army follows the pattern laid out for it in these proposals. While the British Army is often accused of preparing for the last war, in this case, it seems to be trying to avoid it, it being likely that the 'A'-word will hang over the British Army for a generation just as the 'V'-word did for the American. The emphasis on 'remote' operations suggests a new military culture centred on the application of discrete amounts of 'low footprint' force, a mixture of strikes delivered from distance plus Special Forces, supporting local allies who are doing the attritional 'heavy lifting', the hope being that situations can either be pre-empted, contained or perhaps even resolved without the need for conventional troops to be deployed in potentially bloody 'ground holding' operations. This brought a degree of success for both the US and UK in Libya and Syria and there are indications it was working in Afghanistan before President Biden pulled the plug on the country. The creation of British Army assets aimed explicitly at building friendly capacity dovetails with this and also with the Johnson government's concept of 'strategic competition' with authoritarian powers. However, this places a major strategic burden on a small number of units, UKSF in particular. Special Forces are already taking on some of the burden of the conventional 'green army', being the force of choice for reactive deployments, doing much of the actual fighting and taking of casualties – albeit out of sight and with the Ministry of Defence declining to comment. This in turn suggests two problems in store. First, the problem of overstretch on what is still a small force, leading to burnout and morale problems amongst its members and problems with retention (particularly given ex-SF are much in demand in an expanding private security sector). Second, as the Army shrinks, so does the pool of potential SF candidates.

Moreover, there are scenarios, such as a potential invocation of NATO's Article V, where only the deployment of 'ground holding' forces and a commitment to conventional operations will do. The British Army's capacity to do this might be described as 'transitional' right now, decisions on equipment and organisation gambling on such scenarios not erupting for at least a few years from 2021 and restricting the Army's ability to operate even in a NATO-based context. They posit a force with a number of tactical limitations and which might be destroyed in a single afternoon's fighting against serious opposition. This may have political repercussions a long way beyond any future battlefield.

*Dr Simon Anglim is a Teaching Fellow in the Department of War Studies at King's College London. The opinions expressed in this essay are the author's and the author's alone. Dr Anglim dedicates this paper to the soldiers and junior and field-grade officers of the British Army and Royal Marines, serving and former. You did the job with honour – be proud.*

**THEY POSIT A FORCE WITH A NUMBER OF TACTICAL LIMITATIONS AND WHICH MIGHT BE DESTROYED IN A SINGLE AFTERNOON'S FIGHTING AGAINST SERIOUS OPPOSITION.**

# The Review, Defence and the Indo-Pacific 'Tilt': Constraining and Engaging in the Region

## William Reynolds

> BEFITTING AN INTEGRATED APPROACH, DEFENCE IN THE INDO-PACIFIC CAN BE SEEN AS THE VISIBLE MANIFESTATION OF A HOST OF CAPABILITIES AND AVENUES BEING USED IN THE REGION.

In 1968, Sir Robert Scott, former Commissioner General of Southeast Asia and Permanent Under Secretary of the Ministry of Defence would write '…Western Europe is now on the periphery of events. It is neither the centre of world power nor, at present, a source of tension that could erupt with world-wide consequences.' Whilst debatable in the 1960s, one would be hard pressed not to agree with the prescription for the 2020s. Economically, strategically and normatively, the Indo-Pacific now serves as the focal point of what the future shape of the world, and the role of its constituents within it, should be.

It is for these reasons that the Integrated Review devotes a subsection to the concept of an Indo-Pacific 'tilt', the only geographical region to receive such unique attention within the document. Indeed, as the paper itself highlights, 'the Indo-Pacific region matters to the UK: it is critical to our economy, our security and our global ambition to support open societies.'

However, whilst the reasoning and geopolitical debates around Britain and the Indo-Pacific have been covered in detail, the question remains as to how defence will factor into the UK's 'Tilt'. Historically, the Indo-Pacific has a surprising lineage within British strategic thought, particularly regarding matters of security, with many lessons to draw upon. Britain may not be the major military global power it once was, but as a middle power with residual capabilities, the Indo-Pacific offers many opportunities for a persistent, active and helpful European state to carve out its own role, convening with allies and colleagues alike within the region. Helping to shape the future world, as the Integrated Review stresses so keenly, in which Britain is a part of.

## The Integrated Approach

Before continuing, it is worth noting where defence sits within the Integrated Review. Whilst recognising that 'at the heart of the Integrated Review is an increased commitment to security and resilience…', defence, unlike previous Strategic Defence and Security Reviews (SDSRs), sits as one tool among many available to the state in the paper. It is noteworthy, for example, that in the 'Shaping an Open International Order of the Future' section of the Integrated Review, defence is rarely if ever mentioned. Instead, diplomatic leadership, overseas development aid and other corollaries of 'soft power' take centre stage. This is not to say defence is unimportant, it sits within its own section alongside the other elements of British 'hard power', but it does point to a vision that is important when considering the UK and the Indo-Pacific.

Befitting an integrated approach, defence in the Indo-Pacific can be seen rather as the visible manifestation of a host of capabilities and avenues being used in the region. In the wake of COVID-19, efforts by Western nations to safeguard certain supply chains against overreliance on China and concerns regarding future digital freedoms, it is clear that economics and other, less glamourous building blocs of international norms will remain the key concern for shaping the future. More and more, norms of the future will be defined by how the digital, economic, legal and climate spaces are shaped today. This fact is implicitly recognised by the Integrated Review.

However, these substantive, yet in many ways imperceptible, approaches require some harder tools of statecraft. It is here where the integrated aspect is fully realised. Whilst British military means in the Indo-Pacific are a visible commitment of British intent, yet modest relative to the other forces at play, and British diplomatic and economic statecraft is more substantive, yet less perceptible, the combined effect is much greater than the sum of its parts. For middle powers, as I explain below, being seen to act is almost, if not just as, important as the substance behind the action itself. Thus, whilst the 'softer' elements of statecraft will likely do the heavier lifting in the Indo-Pacific, as seen through pursuit of

membership of the CPTPP, ASEAN Dialogue Partner status and British actions in the UN; these methods are enhanced by the overtly visible British commitment through military deployments. As an integrated whole, they maximise British influence and effect.

## The Indo-Pacific in British History: Finding a Geographical Definition

In the 21st century, the British would not see the term 'Indo-Pacific' used by a Government until December 2020, followed with the Integrated Review being the first British grand strategic document to conceptualise the region through the 'Indo-Pacific'. The 2015 SDSR used the traditional 'Asia-Pacific', whereas the 2010 SDSR made no reference to a regional conception at all. Nevertheless, despite the term being used, no clear definition, neither geographically nor regarding priorities, has been articulated by the UK. This stands in stark contrast with its European neighbours France, Germany, the Netherlands and even the European Union. This is not inherently an issue; the lack of publicly articulated definition provides a degree of flexibility for British policy. But with the Integrated Review and accompanying Defence Command Paper both omitting specific definitions, it proves difficult to analyse the role of defence in the region from the outside.

However, answers may lie in the past. Perhaps unsurprisingly for an Imperial power that spent much time and resources 'East of Suez', the term 'Indo-Pacific' in fact predates the 21st century in official British lexicon. As explained by Professor Alessio Patalano, the term 'Indo-Pacific' was no stranger to the papers of the Defence and Overseas Policy Committee (DOPC) in the mid-1960s. Coined as a catch all term for British forces deployed East of the Suez Canal – with sub-theatres consisting of the Pacific, Central and Indian Ocean Area – the various papers and meetings discussing a 'Indo-Pacific' strategy point to a geographical outline in British policy makers minds.

In particular, whilst no exact definition is given – though naturally Southeast Asia and the question of Singapore and Malaysia feature prominently – it is telling that the final Indo-Pacific paper in 1966 had sub-headings including the West Indian Ocean, East Africa and parts of the Middle East. Such a wide geographical scope would continue into the late 1960s as Britain attempted to establish a four power defence arrangement – consisting of America, Britain, Australia and New Zealand – to watch over the region, with a British contribution to the 'Indo-Pacific' including the British Indian Ocean Territories and the West Indian Ocean. This would be echoed closely by the Integrated Review, as whilst it did not provide geographical boundaries, it noted 'we have a long-standing naval presence in the Gulf and Indian Ocean through Operation Kipion' as part of the Indo-Pacific. This would place British facilities in Kenya and Oman within the Indo-Pacific area.

Moreover, whilst the term 'Indo-Pacific' for the British originates in the 1960s, the characteristics of the concept which would be readily recognisable to a practitioner today are much older. Indeed, in 1949, on a fact finding tour from Cairo to Tokyo, Foreign Office Permanent Under Secretary Sir William Strang would note that British officials from the various regions often viewed the area as one connected 'periphery' or 'rimland' which 'skirts the Heartland of Europe and Asia which is at present in large measure under Soviet control…' Such a concept reflected the local practitioners' appreciation of the connectivity which had sustained empire and was now needed to 'contain' the Soviet inner landmass.

As Strang argued in his memoirs, 'the importance of our [the West] maintaining control of this periphery, from Oslo round to Tokyo, of denying it to Communism and, if possible, of defending it against military attack was brough home to one the further one travelled.' But nor would this merely be a response to a need for Soviet containment. Indeed, this British practitioner sentiment of connectivity throughout what is now referred to as the Indo-Pacific region can ultimately be traced back to H.J Mackinder, whose division of a connected outer crescent – defined predominantly by its littoral and maritime states – with a continental Eurasian landmass consisting of nations like Russia and China, would sit comfortably with the maritime nature of the Indo-Pacific.

As a result, though the Indo-Pacific is not clearly defined by current British policy makers, history illuminates where defence may focus. The first usage of 'Indo-Pacific' was very much in the context of a military debate, defining the what and where for British forces as

cost savings were sought 'East of Suez'. Stretching from Kenya, Oman and Pakistan through to Korea, Japan and the Pacific Islands, the British – both of the Imperial and Cold War varieties – saw connectivity between the various regions as essential. A break in one area would be to the detriment of the others. Echoes of this can already be seen both in British actions and as presented in the Integrated Review.

## Politics First for 'Middlepowerdom': British Priorities in the Indo-Pacific

For the British, the Indo-Pacific encompasses a number of interests, and ascertaining what will be prioritised will roughly define how the military apparatus would be used in the region. After all, to borrow an overused phrase from a certain Prussian Officer, defence is an extension of policy.

The interests in question however remain hotly debated. Whilst some argue for the economic imperatives of the Indo-Pacific, others prioritise the normative and political interests which face the UK in that region. Above it all, the debate has unfortunately been somewhat 'tainted' by the Brexit debate, making dispassionate appraisals hard to come by.

Again, history provides a guide to what the region really means to the UK. Whilst in the 1940s and 1950s the Indo-Pacific – namely Southeast Asia – was of particular economic importance to the Sterling Area, thanks mainly to Malaya's exports of tin and rubber to America, this would fall by the way-side by the 1960s. By 1964 a DOPC paper drafted by officials would note 'South-East Asia is of relatively little economic importance to Britain.' This would continue into the late 1960s, with the 1966 Indo-Pacific paper arguing that though material interests did exist, they were not by themselves 'large enough to justify the cost' of the deploying forces in that region at that scale.

Rather, by the 1960s it was for predominantly political ends that the British were so heavily involved in the region. Most of the papers on the topic could roughly be boiled down to three reasons as to why the British remained in such numbers: 1) to assist in the stabilisation and maintenance of the political integrity of the 'neutral' Southeast Asian nations from Communist subversion or overt aggression; 2) a moral imperative to support the Australians and New Zealanders as they had done for the British in the World Wars and; 3) perhaps most importantly, to curry favour with the Americans by assisting them in this region in order to gain influence in areas of more importance to the British, like the Middle East and Europe.

Much of this can be translated forward to the present day. Economically, the Indo-Pacific is of more interest to the British if only because of its prospective future as the economic driver of the world. However, one should not push this point too far. As the DOPC officials cautioned their Foreign Office colleagues in 1968, 'We should not distort our commercial and trading policies for political reasons.' Membership of the CPTPP, for example, would produce only modest benefits for the British economy in the short to medium term, and certainly would not make up for breaking from the European Union. However, its main benefit is in the political doors it opens for the UK, and this again is where Britain's priorities lie in the region.

Indeed, it is in the normative and political space that the Integrated Review truly points towards in the Indo-Pacific. As indicated by the Integrated Review, a core policy for Britain is to assist in shaping and safeguarding elements of the international order which are most beneficial to it. A more proactive initiative instead of the traditional status quo, reactive posture. As the centre of international politics, hosting two battling superpowers, several large medium powers and one large rising power, one cannot doubt that the Indo-Pacific 'will be the crucible for many of the most pressing global challenges.'

Though on the other side of the Eurasian landmass, Britain as a residual power, a permanent member of the United Nations Security Council and as a middle power has a vested interest in taking part in shaping the future of the region. Middle powers like Britain gain much of their power through the international system they inhabit. Acting as 'good international citizens' – peacekeeping, maintaining international law and other normatively positive activities – not only garners the UK influence with fellow states, from large to small, which

> THOUGH ON THE OTHER SIDE OF THE EURASIAN LANDMASS, BRITAIN AS A RESIDUAL POWER, A PERMANENT MEMBER OF THE UNITED NATIONS SECURITY COUNCIL AND AS A MIDDLE POWER HAS A VESTED INTEREST IN TAKING PART IN SHAPING THE FUTURE OF THE REGION.

it can then turn to its more narrowly national interests, but it additionally supports the international order as a whole. Due to its services- and trade-led economy, 'Britain is to an exceptional degree dependent on world-wide stability, orderly change and prosperity.' Making sure such stability remains in the Indo-Pacific will in turn benefit the wider system, including Britain's home region. It is here where defence can make its greatest contribution.

## Defence and the Indo Pacific: Carrier Strike Group 21 and Beyond

Gone are the days where a 'reduced' British presence in the region constituted some 14,000 army personnel, seven RAF squadrons, two(!) strike carriers and amphibious capabilities with the necessary ancillaries. The UK, as noted, is now firmly in the middle power category, especially when it comes to projecting forces into the Indo-Pacific area. That being said, the strategic questions have changed for the British, as have the wider commitments. One does not need vast quantities of force to make an effective contribution, and the British are well placed to take advantage of this in the Indo-Pacific.

Indeed, the UK of today benefits from several defence-related factors which did not obtain in earlier periods: (i) It is now a middle power re-joining the Indo-Pacific, and (ii) as a result it can, for the most part, start from scratch when it comes to choosing where to focus its efforts. Unlike the Britain of the 1960s, desperately holding up defence commitments it found difficult to support or shed, the UK has few defence commitments in the region, and of these, most do not require it to actively commit forces to them. As a middle power, far less is expected of it than in its colonial past. As a middle power, Britain has the flexibility to maximise its contribution and find its 'niche' in the Indo-Pacific. Thus, the opening gambit of persistently placing two Offshore Patrol Vessels (OPV) and the future Littoral Response Group (LRG) across the region, harnessed through the small British Defence Staff (BDS) in Singapore, capitalises on the starting flexibility in many ways.

Where defence is heading regarding the Indo-Pacific can likely be traced through the outlines of The Integrated Operating Concept 2025 (IOC), published in late 2020. Of particular note for the future of defence was the differentiation between 'warfighting' and 'operating'. Whereas warfighting remains the 'bread and butter' of the armed forces, or should in theory, operating pointed towards an attempt to address the problem of persistent competition below the threshold of war through a engaged, forward-deployed posture. Rather than a mere collection of peacetime activities, 'operating' provides a campaign like framework, synergising various activities – from capacity-building and state visits to exercises and deterrence of sovereign challenges – with the aim to produce or further specific effects. Within this paradigm, the IOC noted that 'operating includes the complementary functions of protect, engage and constrain [emphasis added].' Whilst Protect refers to the more mainstream role of defence, Constrain and Engage are worth a closer look when it comes to defence and the Indo-Pacific.

## Constrain: Multilateralising to Deter

Described as the most 'proactive and assertive' element of the IOC's model, Constrain in essence serves as an escalatory rung in the 'operating' model, above the traditional peace-time activities of defence and security. Foreshadowing the Integrated Review, it places emphasis on 'shaping' the behaviour of opponents, both overtly and covertly, using deterrence through calibrated shows of force to prevent fait accompli strategies and the opponent from achieving escalation control. Of note for the Indo-Pacific is reference to 'challenging assertions of sovereignty through deployments and freedom of navigation operations…'

In the Indo-Pacific, whilst this could include any nation, it likely had China and North Korea in mind. Indeed the IOC was one of the first British doctrinal documents to consistently refer to China, alongside Russia, as one of Britain's main rivals. The Integrated Review would also argue that China was a 'systemic challenge', though it placed Russia above as 'the most acute direct threat' to the UK.

As a middle power, it is well recognised that Britain cannot hope to challenge China in the defence realm alone. However, merely measuring utility of defence through tonnage, number of VLS cells, personnel numbers and airframes ignores the political connectivity that is attached to deployments, and the nature of the environment in which they operate.

Even a vessel as small as an offshore patrol vessel can provide real political value to the local nations, something which they themselves have noted. The addition of more nations, and their respective forces, to the region further complicates the strategic calculus that the Chinese are attempting to make, especially in particularly 'hot' areas like the South and East China Seas. For the predominantly non-aligned Southeast Asian nations in particular, the anchoring of 'security stakeholders such as the UK to the region helps to maintain the balance of power, take the edge off US–China rivalry and expand the region's strategic options.' In many ways, the UK approach is simply a return to and modification of old ideas, providing a non-aligned Southeast Asia with options and assurances from the background.

Whilst entirely outmatched in firepower by their likely opposite numbers, a River II OPV, for example, brings with it the top-cover of a European, permanent Security Council member, with all the connected alliances and relationships attached. Undoubtedly Chinese vessels will attempt to bully such smaller craft where possible, as they have been known to do in the past with much larger ships. However, if it were to unnecessarily escalate through purpose or accident, they 'do so in the full knowledge that there would be international repercussions.' British forces, be they aircraft, ships or soldiers, though small in number, would bring with them the deterrent effect of the flag they serve under, and all the relationships associated with it, constraining the options of systemic challengers like China. Below such a threshold, the planned OPVs and LRG are sufficiently suited to posturing with naval and coastguard vessels. Whilst not a full-proof safeguard for the lesser capabilities, it is a form of deterrence not so dissimilar to the past.

## Engage: Integrating into the Region

Unlike Constrain, Engage is less assertive, but no less useful, on the escalation scale. Encompassing more traditional military peace-time activities, the IOC mentions specifically the networks between military officials – bilaterally and multilaterally – capacity-building and persistent presence; all with the intention of providing 'alternatives to the offers of our adversaries, by securing influence and denying it to them.' The forward-deployed OPVs, garrison in Brunei, facilities in the region, the BDS and uplifted number of defence attaches all speak to the Indo-Pacific component of 'human networks', 'forward-based forces' and contributing 'to understanding and insight and assuring regional access' that form the core of Engage in the IOC.

Indeed, it is in the Engage prism where British forces can truly exert influence as part of a wider British approach in the region. Perhaps even more than great power competition, non-traditional threats remain a 'top priority' for Indo-Pacific states, especially Southeast Asian countries. Piracy, terrorism, trafficking of humans and narcotics, natural disasters and matters of bio-diversity like depleting fish stocks all remain core issues both internationally, as identified by the Integrated Review under 'transnational challenges', but specifically for the states of the region. The British Army's new 'Ranger Regiment' appears optimised to address such challenges. Moreover, many of these themes come under the prism of 'maritime security', a primary job of the maligned 'under-gunned' OPVs and a force package similar to what is proposed with the LRG and the Future Commando Force.

When viewed through this prism, current British defence plans have much to offer when placed alongside their civilian counterparts. Working alongside local nations – working with and to their requests being paramount – the OPVs' natural distinction as maritime security vessels can prove highly effective in Engaging with other navies and coastguards in protecting the bio-diversity, the economic lifeblood of several littoral communities, of the region. Already established efforts like the British Blue Planet Fund point to many opportunities in synergising civil capacity-building with the OPVs in the region. This is aside from guarding Britain's own extensive maritime reserves surrounding the Pitcairn Islands.

Nor does Engaging in the Indo-Pacific stop with fishery protection. Capacity-building, training, support and networking cover all aspects of the security domain, including Humanitarian Aid and Disaster Relief (HADR). The British are no strangers to providing humanitarian aid in the wake of Indo-Pacific natural disasters, with defence assets – be they

> WORKING ALONGSIDE LOCAL NATIONS – WORKING WITH AND TO THEIR REQUESTS BEING PARAMOUNT – THE OPVS' NATURAL DISTINCTION AS MARITIME SECURITY VESSELS CAN PROVE HIGHLY EFFECTIVE IN ENGAGING WITH OTHER NAVIES AND COASTGUARDS IN PROTECTING THE BIO-DIVERSITY, THE ECONOMIC LIFEBLOOD OF SEVERAL LITTORAL COMMUNITIES, OF THE REGION.

the strategic lift of the RAF, engineers and logisticians of the Army or naval platforms acting as hubs – all providing key technical assistance, manpower and visible support in times of need. British forces in Brunei, the planned LRG amphibious platform out of Duqm and the RAF's aircraft of No.2 Group will all prove flexible instruments of support in this area. Even the planned two River II craft, if they kept the capability of their exported cousins, can carry six ISO containers for rapid delivery of aid.

However, Engage does not simply mean capacity-building and integrating at the maritime security level. Much has already been written on the flagship, both literal and metaphorical, deployment of the HMS Queen Elizabeth on her European and Indo-Pacific tour (CSG21). But it does highlight another part of the Engage element of the IOC and wider 'Middlepowerdom' of the British defence effort in the Indo-Pacific. The first British carrier in Southeast Asia since 2013, and first large carrier deployment in the Indo-Pacific since 1997, consists not just of British vessels and aircraft, but Dutch and Americans too. Even more remarkably, the F-35B component of the carrier air-wing sees the majority consisting of US Marine Corps pilots and airframes.

As a result, though somewhat symptomatic of a still working-up British carrier, the trade off in true sovereign capabilities purchases remarkable 'convening' influence for British defence in the area, and a multitude of opportunities for the future. As one of only four European nations to possess a carrier capability, Britain is positioned – alongside France and even, perhaps, Italy – to serve as a centrepiece 'convenor' of European defence intent into the Indo-Pacific if the option was ever chosen to pursue a more united European front to the region in the future.

Asides from the aspirational, the proof of concept of American F-35Bs off a foreign carrier provides opportunities for customers of the STOVL variety. Whilst entire squadrons of Japanese F-35Bs on a Queen Elizabeth-class carrier is unlikely in the future, the opportunity for single pilots, and thus further military networking and Engagement, seems more plausible. Moreover, as highlighted by Army, Naval and RAF engagements over the last few years in the region, this does not require the British to provide the set-piece instrument of defence power. Integrating forward-deployed escorts into local nations' naval groupings, RAF aircraft supporting exercises and training and British Army personnel working alongside their counterparts all provide opportunities to build upon the Engage aspect of the IOC in the Indo-Pacific.

## To Base or Not to Base: That isn't Really the Question

One cannot refer to the Indo-Pacific and defence's role within it without addressing the subject of 'bases'. Both the Integrated Review and Defence Command Paper refer to a 'Strategic Hub' system to further Britain's persistent forward-presence aspirations, with the Indo-Pacific, Oman, Kenya and Singapore specifically identified in the Review and Brunei and Diego Garcia, alongside BDS teams in Canberra and Singapore, noted in the Command Paper. Professor Patalano has referred to such a system as a 'network of nodes', with the aforementioned strategic hubs serving as larger pillars to the wider nodal system.

The position of these facilities is advantageous, facilitating forward presence which can greatly enhance defence units in the field. In the HADR prism, for example, the British effort during Operation PATWIN – the British response to typhoon Haiyan in 2013 – benefitted immensely from not only the destroyer HMS Daring and aircraft carrier HMS Illustrious being within the Indo-Pacific region, and thus responding quickly, but the presence of British staff in Singapore. Illustrious would put into Singapore to take on aid flown in from the UK, with Surgeon Commander Andrew Dew noting, 'the 36-hour logistic stop in Singapore was key to the success of the operation...' The utility, both in command and control and the forward-placement of stocks, would have found sympathetic nods from the policy makers of the 1960s.

However, Britain should tread carefully, in both language and substance. History casts a long shadow and the colonial past of Britain cannot be shrugged so easily. If the British of the 1960s typified the optics of their presence as 'neo-colonial' in Southeast Asia, the same concern should remain today, but in modified form. As commentators of the region note,

the concept of Britain 'basing' itself in the region will 'ruffle a few feathers' locally. There is a reason that the lexicon is shifting from 'bases' to 'Support Facilities/Units' – such as in Bahrain and Singapore – reflecting both the supportive and cooperative nature of the facility with the host nation and the reality that they are unable to provide the same level of capability as large permanent bases.

Nonetheless, at least in the maritime domain, the deployment of the two River IIs neatly side steps the issue for time being, and points towards a different model for defence in the Indo-Pacific in the early 2020s at least. Drawing on lessons learnt from the regular deployment of a River II and a Royal Fleet Auxiliary vessel in the Caribbean, the planned Indo-Pacific deployment is adopting a more nomadic lifestyle. Along the lines of the aforementioned 'nodal system', the vessels will carrying out Constraining and Engaging activities from port to port with no 'home' to speak of, supported instead with maintenance and other necessary stop-overs from Singapore, Australia and Japan. An aspiration remains to develop a regional logistics hub, from which a greater degree of persistency can be supported, and Duqm in Oman will host the larger LRG by 2023; but the current 'Caribbean model' will go a long way in providing 'understanding and insight' of the region for military engagement. Certainly it provides opportunities to explore additional access agreements with key allies in the region, which would only enhance both the hub and nodal system and convening element prized by Whitehall.

## Conclusion: Opportunities and Concerns

In 1964, a 'Strategy East of Suez' future policy document noted that 'we are not dealing with military problems but with a political one' in the region. The same sentiment can be similarly expressed today. One should always remember that the Integrated Review is not a military strategy. By extrapolation British policy in the Indo-Pacific will not be military-led. However, great opportunities remain for defence to supplement, enhance and visibly embody Britain's integrated approach to the region.

Through the outlined 'operating' posture of the IOC, and the twinned approaches of Constrain and Engage, defence can establish positions where influence, networks and intelligence can all be leveraged to further the Integrated Review's ultimate goal of 'shaping' the future world system – normatively, economically and politically. In many ways, this is not far removed from the goals and, to a lesser extent, the 'ways' of the past.

## Future Concerns

Nonetheless, there are concerns which need to be monitored as the Review is implemented. The first emanates from the nature of the 'Tilt'. Though publicly stressed that the recalibration of defence still maintains Europe as the core focus, there is the possibility that procurement of 'means' will not necessarily reflect these 'ends'. The Indo-Pacific is a naturally maritime domain. The Navy has thus done relatively well out of the Spending Review for defence, to both deliver existing commitments and pursue future aspirations. However, Europe, and especially NATO, have always seen political capital linked to land forces. Whether it is the Cold War British Army of the Rhine (BAOR) or the 21st century NATO Enhanced Forward Presence, NATO politics, as an extension of a shared interpretation of what is required to demonstrate Alliance solidarity, continues to dictate Britain having 'skin in the game'. The reductions to the Army, both in numbers and 'heavy metal' – the traditional measurement of NATO states' capabilities – risk upsetting the balance, at least in reserve capacity that Britain can bring to NATO. It is a debate as old as 1945, if not older, and the risk of a maritime-centric 'Perfidious Albion', though extremely overstated, is a characterisation that post-Brexit Britain will wish to avoid.

For the moment this is a concern that has yet to manifest in practice, but it leads to a second challenge: the sustainability of defence efforts in the Indo-Pacific. Deployments like CSG21 are accompanied by much fanfare, and will serve an effective purpose, but the real impact will be determined by what follows. With resources stretched, despite the recent spending uplift, Britain's ability to sustain its defence aspirations 'East of Suez' is a concern shared by informed commentators, politicians and states in the region. Though many assets planned to be used in the Command Paper and the Review already exist or were planned prior – the

River IIs, elements of the LRG, the Future Commando Force and the existing facilities – the risk always remains that, if the 'acute threat' of Russia increases, or the world situation changes, forces will have to be re-tasked away from the region. 2021 to 2030 is a long time, and as Harold Macmillan supposedly argued, 'Events, dear boy, events.'

Through to 2030, a future British government might revert to the austerity approach in the wake of COVID-19. It is no secret that friction exists between the Chancellor and the Prime Minister on spending, with the latter's spending priorities proving unpopular with both the Chancellor and large elements of the Conservative Party. As the debates of the 1960s and the more modern 2010 SDSR show, defence rarely survives intact if spending cuts are contemplated. If the British defence element of the Indo-Pacific 'tilt' is to survive, it must be persistent throughout the decade in order to generate substance.

*William Reynolds is a Leverhulme Scholar PhD candidate with the Centre for Grand Strategy in the Department of War Studies at King's College London. His PhD research focuses on British Grand Strategy and the role Japan played within it from 1945 to 2020.*

# Carrier Strike, the F-35 and the Integrated Review

## Dan Stembridge

> THE SIMPLE QUESTION THAT NEEDS ANSWERING IS: FOR WHAT SPECIFIC PURPOSE IS THE UK BUYING THE F-35?

When analysed within the context of wider public spending pressure and a global pandemic, the 2021 Integrated Review (IR) appeared relatively positive from a defence and security perspective. As with previous reviews, the financial settlement didn't quite match the political ambition, but the general feeling was that 'it could have been a whole lot worse!'. For proponents of Carrier Strike the positive intent in the IR was clear and aligned strongly with wider government 'Global Britain' policies. The unpleasant spectre of selling or mothballing one or both carriers that stalked previous reviews was banished with a firm commitment to buy 'at least 48 F-35s by 2025', providing much needed definition on timescales and numbers. However, the Government continued to perpetuate an ambiguity that has caused friction, indecision, and misalignment for decades. This has cost the taxpayer hundreds of millions of pounds, caused political embarrassment and delayed capability destined for the front line. The simple question that needs answering is: For what specific purpose is the UK buying the F-35?

To understand why the Government should be crystal clear on this question, let's consider the Dickensian ghosts of Carrier Strike past, present and future.

### The Ghost of Carrier Strike Past

The rationale for building two 65,000 tonne aircraft-carriers the largest ever deployed by the Royal Navy, in the face of austerity and defence-wide cuts was bitterly argued in the Ministry of Defence throughout the 2010 Strategic Defence and Security Review (SDSR 10). When viewed alongside the controversial decision to scrap HMS Ark Royal and fit the new carriers with catapults and arrestor gear (cats & traps), one could be forgiven for thinking that SDSR 10 was dominated by aircraft carriers. However, these actions were second order effects of decisions driven by the needs of 'Combat Air.' Scrapping HMS Ark Royal was a result of a decision to delete the Harrier in favour of land-based Tornado, while the late switch to cats & traps was due to a last-minute decision to favour the longer range of the F-35C over the Short Take-Off & Vertical Landing (STOVL) F35B. This decision was taken quickly with little understanding of the full implications, following a definitive statement from HM Treasury that there would be no opportunity to include land-based F-35A aircraft in the overall UK buy.

The time and cost of the late change in design of the carriers in 2010, only to reverse the decision in 2012, resulted in hundreds of millions of pounds of cost growth. Additionally, the switch in air system negated some 'Level 1 Partner' advantages secured by the £2Bn investment in F-35 System Design & Development. Millions of additional funding was spent integrating UK weapons to the newly selected F-35C and when the UK reverted 2 years later, they had lost their place in the F-35B queue adding even more delay!

SDSR10, and the last minute 'carrier decision', was inherently a 'Combat Air decision'. Had the Government been clear from the outset that all UK F-35s were for the carrier, there would have been no opportunity for those not committed to Carrier Strike, to seek a mixed fleet that included the F-35A; an aircraft not capable of carrier operations. In turn, there would have been no reason for the Treasury to step in at the last minute, no late change of F-35 variant and no change in ship design; decisions that cost the UK taxpayer hundreds of millions of pounds.

### The Ghost of Carrier Strike Present

> THE CURRENT UK CARRIER STRIKE GROUP DEPLOYMENT COULD GIVE THE IMPRESSION THAT THE PROBLEMS OF THE PAST ARE EXACTLY THAT; HOWEVER, AMBIGUITY OVER ATTRIBUTION REMAINS AND THIS CAUSES FRICTION, COSTS MONEY AND DEGRADES COMBAT EFFECTIVENESS.

The current UK Carrier Strike Group deployment could give the impression that the problems of the past are exactly that; however, ambiguity over attribution remains and this causes friction, costs money and degrades combat effectiveness.

UK and United State Marine Corps F-35B are embarked alongside each other in HMS Queen Elizabeth. While the Command and Control (C2) of these units has been agreed and proven through successful combat operations in the eastern Mediterranean, it remains highly contentious.

The embarked C2 for F-35B broadly mirrors NATO doctrine, whereby Operational Control (OPCON) of the aircraft and personnel is delegated to the Carrier Strike Group Commander. The negotiation of this with the US Government took days, whilst the negotiation of C2 for UK F-35 embarked in HMS Queen Elizabeth has taken years of bitter inter-service engagements and is still not fully resolved. The argument being that UK F-35B might be required for land-based operations in addition to Carrier Strike, and so control should not be ceded to the Strike Group Commander without an ability to take it back.

UK F-35B's are not currently held at readiness to deliver any land-based operations and there are no plans to do so. However, Air Command (which controls the F-35 budget) continues to make capability and force generation decisions based on this being a possibility. In the absence of clarity, this is not an unreasonable assumption, but the implications are far reaching; it requires additional deployable support solutions that cost tens of millions of pounds, it effects where weapons are stockpiled, and it influences the prioritisation of capability development. A recent example is the 2020 decision by Air Command to defer an embarked trial with F-35B to prioritise spending elsewhere in Combat Air. This resulted in a cancelled trial that was to be the culmination of 10 years and £50M investment to clear UK F-35B's to return to the ship with heavier payloads in difficult weather conditions. This cancellation reduced the effectiveness of future Carrier Strike operations. Furthermore, it highlighted significant misalignment, as the decision was made without consultation with the RN which had already spent time and money preparing for the trial.

The crux of the problem for the RN, is that it is accountable to Defence for the delivery of the UK's Carrier Strike capability. However, it only controls the capability development, fiscal prioritisation, and force generation of the Carrier. The Strike element is controlled by another service with its own tasks and priorities.

From the RAF's perspective, it is responsible for the delivery of the UK's Combat Air capability, and the F-35B is the UK's only 5th Gen strike-fighter. In the absence of definitive clarity, it continues to develop, prioritise and force generate for deployments from the land.

## Ghost of Carrier Strike Futur

The focus of debate prior to the IR was how many F-35s were needed for Carrier Strike, and by what date? While the statement of 'at least 48 F-35s by 2025' gave just enough clarity in the short-term, the larger question of total buy was deferred to the next review. The calculation regarding F-35B numbers for Carrier Strike is relatively simple and depends on 3 basic factors:

- Mass: How many UK F-35B are required to routinely embark for operational deployments?

- Duration: How long are they routinely deployed for?

- Periodicity: How long between routine operational deployments?

Ask five different people and you'll get a dozen different answers! However, the generally accepted wisdom is that a routine operational deployment of 4-6 months every 12-18 months with 24 F-35B's embarked (surging to 36 if required) is probably about right. Whilst the military utility of these numbers could be questioned, as with most carrier programmes worldwide, it is political ambition that will likely drive the requirement.

Sustainment of this mass, duration and periodicity will require a total buy of 70-80 F-35Bs. However, this number is only sufficient if the whole force is attributed to Carrier Strike. This does not mean they cannot be used from the land, but the capability development,

force generation and readiness must be aligned to Carrier Strike. If UK F-35s are to be held at readiness for land-based operations in addition to Carrier Strike, taking on roles already allocated to RAF Typhoon aircraft; either the number of F-35s required will spiral upwards, or the ambitions for Carrier Strike will never be met.

## Clarity – Commitment - Accountability

So, does the IR represent a good outcome for Carrier Strike? It will depend on whether 'at least 48 F-35s' will be committed to Carrier Strike. If ambiguity remains, deployments will be conducted with even less aircraft than were routinely embarked with the Harrier before 2010. Moreover, air system development and logistics support will not be optimised to Carrier Strike and the C2 will remain a contentious distraction. Only by stating exactly what the F-35 is attributed to, will the Government get an accurate understanding of the total fleet size required and force the MoD to commit to an aligned and cost-effective capability development and force generation path.

When clarity has been delivered, the Government can legitimately ensure commitment from the MoD; only once this has been achieved is it reasonable to hold them to account. In short, politicians should stop asking how many, until they've been clear about exactly what they're for!

*Dan Stembridge is a former Royal Navy fighter-pilot who has commanded the UK's Carrier Air Wing, advised ministers on Combat Air and Carrier Strike and led the Portfolio Management Office for Carrier Enabled Power Projection. He now runs his own strategy development company, chairs the Royal Aeronautical Society Air & Space Power Group and recently provided independent advice to the House of Commons Defence Select Committee on F-35 and carriers.*

# The Middle East and UK Defence and Security Policies: Ambition to Disengage?

## Inga Kristina Trauthig

The UK government's Integrated Review (IR) of Security, Defence, Development and Foreign Policy of March this year, aims to capture the vision for Britain's future role in the world. For some parts of the Middle East and North Africa (MENA) region the linkage between security and development is particularly pertinent, this includes countries in North Africa such as Tunisia or in the Levant such as Syria. This piece assesses how far the IR achieves the integration of these two areas and argues that not only are the ambitions set out in the Integrated Review regarding the MENA region patchy, but also recent government policies linked to the IR are antithetical to these ambitions. Overall, the UK's approach to defence and security in the MENA region in recent history, and especially since 2011 has been a mixed bag. This is evident, for instance, in the UK's active intervention in the Libyan uprisings in 2011 but with little strategic commitment or embedding in a coherent approach to the region thereafter. The Review was one opportunity to outline and build a framework for a change in direction for the next years, but this opportunity has been largely missed.

Assessing the analysis and priorities addressed in the Review, two main points emerge with a focus on implications for the MENA region.

## The Primacy of Trade

Firstly, the UK's relationship with the Middle East is often envisioned to revolve around trade. When analysing implications of the Review for the MENA region, trade stands out as increasingly central to the policy development. While the Review mentions that trade is positioned 'at the heart of Global Britain' it goes on to emphasise that the UK 'will look to deepen these links to become one of the region's primary trade and investment partners.'

This underlying rationale of economic opportunity-seeking, however, is not unique to the MENA region. The Review's much-discussed Indo-Pacific tilt is crucially linked to the hope of situating the UK competitively with regard to a region generating almost 35% of the world's GDP.

A second aspect, however, is the geopolitical consideration as the UK government predicts that the Indo-Pacific region will increasingly become 'the geopolitical centre of the world.' Consequently, leaders of, inter alia, Middle Eastern countries are wondering how they factor into this geopolitical priority allocation. The pronounced Indo-Pacific tilt and its related redirection of resources with the aim to successfully carry out this strategic reorientation are of particular relevance to Arab Gulf States.

## Introducing 'Self-Reliance'

Furthermore, regarding security policy and support of the sovereignty of MENA states, the term expressed in the Integrated Review, 'self-reliance,' implicates the UK's withdrawing from former responsibilities in this area. Given the region's unabating conflicts, including both intra-state and inter-state rivalries, the goal of a MENA region that is invested in security self-reliance seems desirable from a UK perspective but not feasible in the short to mid-term. The Review does not spend time explaining what concepts of self-reliance mean for the Middle East but instead provides a very brief summary, "We will (..) have thriving relationships in the Middle East ... in support of a more resilient region that is increasingly self-reliant in providing for its own security." This policy goal of 'self-reliance' in the region subtly insinuates a position of detaching the UK from the efforts of working for a more peaceful, stable Middle East.

David Roberts and Sara Al Mahri assessed already that the Review captures a comparative shift away from the Middle East. Furthermore, the focus on the Gulf Cooperation Council (GCC) states is also dialled down – while previously, in the 2015 National Security Strategy for instance, more emphasis had been placed on the UK's pre-existing interaction and role in the Gulf, other policy promises, such as a 'Gulf Strategy' were never actually formulated.

In addition, the Review's demands of self-reliance for the Middle East sit uncomfortably with current realities in the region. Withdrawing from a region that is embroiled in internationalised civil wars and rivalries, while also being deeply connected to the UK's security and its imperial past, is problematic to say the least. The takeover by the Taliban of Afghanistan, a country with strong linkages to developments in the MENA region, underscores the dangers when a lack of strategic policy defines foreign policy in volatile countries.

## The Importance of the GCC for the UK Military

On the flipside, the Review does not address the close military ties between the UK and GCC states. For instance, the UK has an extraordinarily close relationship to Qatar exhibited by the Royal Air Force's various engagements with the country. Not as intimate but also important relationships are cultivated with Oman, Bahrain and the UAE.

In summary, the Review seems to indicate a policy of pick and choose that puts UK policy makers in a position where they can pursue a general detachment from the region while simultaneously benefitting from the military cooperation and also trade relations, which for example, currently put the GCC as the fourth largest export destination after the US, China, and the EU states, amounting to around £45 billion annually.

## The Middle East in 2021 is Not Calming Down

Amongst MENA researchers, a gloomy saying has prevailed, that independent of how much the West might want to disengage from the Middle East, the region will make sure to draw it back again. Given the recent escalations in Israel-Palestine in May 2021 this seems a grim reality. Other examples would be the recurring Libya quagmire, of a country riddled with militia coercion, or Tunisia, one of the few promising democracies following the Arab Uprisings in 2011, that witnessed a likely coup d'etat in late July 2021.

In a globalised world, it should be superfluous to outline that all these countries matter to the UK not only from a humanitarian point of view but also from a tangible security perspective. For instance, the two violent attacks in Reading in 2020 as well as the Manchester arena bombing of 2017 had linkages to Libya. Or in 2015, 38 people lost their lives when a gunman opened fire on tourists staying in the popular resort of Port El Kantaoui in Tunisia. UK government reactions to the threat to Tunisian democracy in 2021, however, were basically non-existent and in one of Britain's closest allies, the USA, some advocated aid cuts in response to the political turmoil in the country – a distressing bellwether for aching Tunisia.

Regarding terrorism, this is stressed in the Review as a central security challenge for Britain but commitments to investments in counterterrorism are overwhelmingly directed towards the domestic sphere. The recent terrorist incidents cited, 'Manchester, London and Reading,' have external linkages, with two of them connected to Libya. Generally speaking, terrorism doesn't exist in a vacuum, but instead is tied up in regional conflicts – with the UK pursuing a policy of self-reliance it potentially fuels further instabilities. Terrorism is a multidimensional policy challenge and the challenges of eradicating safe havens and tackling poor governance require long-term commitments, such as in Libya. This commitment has been patchy in the past and it seems it is likely to be neglected again in future UK foreign policies.

## Aid Budget Cuts Will Weaken the Pursuit of UK Interests in MENA

Regarding the MENA region, the (allegedly temporary) cut in the aid budget (ODA) and reduction in the Army's strength, combined with the merger of the Department for International Development (DFID) and the Foreign and Commonwealth Office (FCO)

into the Foreign, Commonwealth and Development Office (FCDO), will leave Britain with less influence in the region. Especially regarding the UK's soft power – while the UK development budget is still big by international standards (even at 0.5%), the recent struggles in Tunisia show the fragility of the MENA region and other countries such as the UAE are willing to invest far more resources in pursuing their policy goals, which are largely at odds with a democratic, inclusive vision.

In addition, the way the Review maintains regional divisions in its policymaking despite the prevalence of policy challenges that exceed national borders seems counter-intuitive and unfit for policy making in the 21st century. Covid-19 and challenges such as climate change and international terrorism demand global solutions. World leaders would be best placed to formulate and pursue their policy priorities against the backdrop of these challenges instead of allocating priorities for different parts of the interconnected world. Furthermore, the proclaimed Indo-Pacific tilt cannot be separated from other policy goals and questions remain if parts of the Gulf are included in the Indo-Pacific tilt due to its importance for other activities, such as being a base for the British Navy.

*Inga Kristina Trauthig is a PhD candidate at the War Studies Department and Research Fellow at the International Centre for the Study of Radicalisation (ICSR) at King's College London. Her research focusses on non-state actors in the Middle East and North Africa, particularly Libya. She holds an MLitt in Middle East, Caucasus and Central Asian Security Studies from the University of St Andrews.*

# Culture, Diversity, and the Integrated Review

## Dr Sophy Antrobus

> **THIS REVIEW FEELS MUCH MORE 'OWNED' BY THE CURRENT INCUMBENT OF NUMBER 10, REFLECTING A PIVOT AWAY FROM NATO AND EUROPE (IN THE IR MOST NOTABLY) TOWARDS POTENTIAL MARKETS AND ALLIES FURTHER AFIELD, NOT LEAST WITH THE INDO-PACIFIC TILT.**

Even before its publication, it was a fairly certain bet that the term 'diversity' would feature in the Integrated Review, not least because the 2015 Strategic Defence and Security Review (SDSR) committed to establishing a security and diversity network (p. 74). However, the level to which the IR would embrace the concept of culture and cultural change within the context of a defence review invited much longer odds, not least because of the very different political and strategic context in 2021. The narratives around British national identity and its history have generated increasing hostility between the conservative right and the liberal left: 'culture wars' as they are referred to in the media.

As Dorian Lynskey has suggested 'Brexit, which really did slice the country in half, gave the Tories a taste for electorally useful cultural conflict' as recent political manoeuvres over attacks on statues have demonstrated. On the left, there are tensions between those who police language and culture with little appetite for debate and those, such as Mary Beard who present a more nuanced view. As David Olusoga has eloquently observed, historians have been slow to see the bigger picture: 'that politicians looking for a fight do not care about historical accuracy or complexity.' Of course the concept of 'cultural warfare' is not to be confused with discussions about service or organisational culture, but if the former discourages thoughtful analysis of and reference to the latter, then the armed forces will be the poorer for it.

Also, not surprising was the post-Brexit emphasis on a Global Britain. In this sense, the IR was a break with most past defence reviews which, while always political, veered and hauled around the distribution of resource between different capabilities and the three services rather than reflecting a profound strategic change in Britain's place in the world (though the 2002 'New Chapter' to the 1998 Strategic Defence Review perhaps attempted to do this in reaction to the events of 9/11). This review feels much more 'owned' by the current incumbent of Number 10, reflecting a pivot away from NATO and Europe (in the IR most notably) towards potential markets and allies further afield, not least with the Indo-Pacific tilt.

> **MILITARY INNOVATION IS NOT A NEW CONCEPT, AND NEITHER IS REFERENCE TO THE IMPORTANCE OF CULTURE AND CULTURAL CHANGE IN DRIVING INNOVATION.**

Given the Conservatives' disdain for culture as shorthand for national identity, it is unsurprising that references to culture in the IR, and the Defence Command Paper (DCP), Defence in a Competitive Age, are used only in the context of the need for future innovation in the armed forces and defence or when discussing the challenging behaviour of the UK's competitors. The IR lists one of its Reform Priorities, in terms of implementing the review, as 'Culture, diversity and inclusion: achieving a culture that supports integration, adaption and innovation is critical' stating the need to 'foster a culture that encourages more and different kinds of challenge, further developing capabilities such as red-teaming to mitigate cognitive biases that affect decision-making' (p. 98). Earlier it cites the examples of Russia and China as 'systemic competitors' 'who challenge the values of open and democratic societies and increasingly do so through culture' (p. 49) presenting culture as a form of conflict between nations.

The DCP states that 'Capability in the future will be less defined by numbers of people and platforms than by information-centric technologies, automation and a culture of innovation and experimentation' (p. 38). Military innovation is not a new concept, and neither is reference to the importance of culture and cultural change in driving innovation. Stuart Griffin proposed that: 'Strategic culture literature became increasingly important to the field of military innovation because it looked both up and out from the organisation (ie how does the military's culture influence strategic behaviour of, predominantly, the state?) and down and in to the organisation (i.e. how does its strategic culture shape its own choices, how does this reinforce attitude and behaviour and how can one induce meaningful change?)' (p. 202). Stephen Rosen argued that: 'Peacetime military innovation may be explainable in terms of how military communities evaluate the future character of war, and how they effect change in the senior officer corps' (p. 52).

As highlighted above, culture is used in the IR as a shorthand for how to effect innovation at pace, perhaps inadvertently raising a question related to David Edgerton's point that, 'Calling for innovation is, paradoxically, a common way of avoiding change when change is not wanted (p. 210)' How much the current fashion for using innovation as a shorthand for military adaption to a changing strategic environment with new domains and emerging technologies, such as Artificial Intelligence, will act as a real catalyst for change is questionable. Some areas, such as the RAF's Rapid Capabilities Office, demonstrate the commitment of considerable resource, in human and financial terms, to break with traditional approaches to procurement of, for example, air power capabilities. However, Edgerton makes a compelling argument for further interrogation of the will behind the words in the IR and DCP.

So far, so predictable. Analysis of the narrative in the IR and the DCP shows little more than lip service to diversity and, unlike SDSR 2015, avoids reference to women and ethnic minority representation in the armed forces. In this context, diversity, like culture, is only referenced three times, and it is explicitly linked to the implications of diversity for operational effectiveness. Whether these omissions signal a political desire to draw clear water between the current government and references that could elicit criticism of 'political correctness' (i.e. a deliberate omission) or an oversight on the part of the documents' authors to make more explicit reference to diversity, particularly regarding women and ethnic minorities, is a question for the MOD. The former is a plausible explanation, but the latter is equally concerning in that it might indicate a complacency that the statistics on diversity are generally 'heading in the right direction' when there is significantly more to be done.

The Armed Forces has a history of making leaps forward in diversity terms, for example accepting women as pilots, but at times of crises in recruitment (Sheritt, pp. 203-4): i.e. when diversity was necessary for effectiveness and not because it was the right or just course of action. Page 36 of the DCP states: 'We recognise that diversity and inclusion is essential to our operational effectiveness and it ensures that we can safeguard the security, stability and prosperity of our nation.' The paper is less wholehearted in its discussion of its legal obligation to the Public Sector Equality Duty which it (grudgingly in this author's view) commits to continuing 'to comply' with it. This is diversity for expediency rather than as a values-driven commitment.

SDSR 2015 outlined specific targets for women and BAME communities, with reference to proper representation for its own sake and as a reflection of modern British society rather than for combat effectiveness: 'We are committed to achieving an inclusive working environment, and to building Armed Forces that are diverse and fully representative of UK society. This will be the work of many years but, as a step towards this goal, by 2020 the Armed Forces will be recruiting at least 10% Black, Asian and Minority Ethnic personnel and at least 15% women' (p. 33). No doubt the reality of the MOD falling well short of these targets precluded countenance of any similar commitments in the 2021 DCP. Instead of 10% BAME by 2020, the actual figure between 2015 and 2020 increased from 7% to 8.8%. For women, instead of 15%, the figure advanced from 10.1% to just 10.9%.

Two final observations. The first is that despite the clear link in both the IR and the DCP between culture, diversity and innovation, the organisation singled out as embodying 'the culture of innovation, experimentation and pull-through of technology that delivers a cutting-edge' (DCP, p. 45) is the Special Forces, hardly a bastion of equality and diversity especially in terms of female representation. This links back to Edgerton's argument that the invocation of innovation might really be a subliminal representation of avoiding change when change is not wanted, certainly here in diversity terms.

Secondly, the desire to move military personnel between military service and the private sector ('making it easier for people to move around different parts of the defence sector and between the MOD and industry' Defence Security and Industrial Strategy, p. 50) came just ahead of the Greensill affair demonstrating the difficulty of maintaining a culture of probity when intermingling public servants with the private sector. No doubt, careful legislation and policy could overcome these concerns, but the coincidence of the two provides food for thought. And there are broader challenges to providing careers which allow servicewomen and men to move between the armed forces and industry, such as the ability of business to poach the most talented with higher salaries than the military can offer.

All in all, the disappointingly sparse engagement with culture and diversity in the IR and the DCP reflects an interest in those terms only when they offer a holy grail, at least in stated aspirations, of improved operational effectiveness and innovation, and not because culture and diversity matter in and of themselves for a modern fighting force in a western twenty-first century nation.

To end on a positive note though, the words and deeds of senior service personnel, not least Chief of the Air Staff, Air Chief Marshal Sir Mike Wigston, demonstrate that beyond the IR, in the day-to-day activities and pronouncements of the services, there is a commitment to diversity and modernising service culture because it matters. Mike Wigston was the author of a report into inappropriate behaviour in the armed forces and has set the RAF ambitious targets for diversity in recruitment (20% BAME and 40% women inflow by 2030). It matters not just for future capability and it's a commitment many senior chiefs see as profoundly important in its own right.

*Dr Sophy Antrobus is a Research Associate with the Freeman Air and Space Institute (FASI) in the School of Security Studies at King's College London. Dr Antrobus researches contemporary air power in the context of the institutional, cultural and organisational barriers to innovation in modern air forces, in particular the Royal Air Force. Dr Antrobus joined FASI from Portsmouth Business School at the University of Portsmouth where she was a Teaching Fellow in Strategic Studies. She completed her PhD at the University of Exeter in 2019. Her thesis researched the early politics of air power and networks in Whitehall in the inter-war years.*

# SECTION TWO
## DEBATING THE DETERRENT

# A New Deterrence Playbook? Continuity and Change in the UK's Approach to Deterrence

## Professor Wyn Bowen

> THE INTEGRATED REVIEW DREW ATTENTION TO UNNAMED NUCLEAR STATES 'SIGNIFICANTLY INCREASING AND DIVERSIFYING THEIR NUCLEAR ARSENALS' AND 'INVESTING IN NOVEL NUCLEAR TECHNOLOGIES AND DEVELOPING NEW 'WARFIGHTING' NUCLEAR SYSTEMS WHICH THEY ARE INTEGRATING INTO THEIR MILITARY STRATEGIES

The Integrated Review (IR) and the accompanying Defence Command Paper had much to say about deterrence. While there was notable change in this respect from the two previous strategic and defence reviews (2010; 2015), there was some continuity across all three, and particularly between 2015 and 2021.

This paper focuses on two core issues. First, it addresses elements of continuity and change in the UK's approach to nuclear deterrence. It then considers the IR's characterisation of how the UK's approach to deterrence more broadly is already changing, and needs to evolve going forward, in order to adequately reflect the increasingly challenging and dynamic international security environment. Similar to the nuclear area, there are elements of continuity and change in the UK's broader approach.

## Nuclear Deterrence

The most unsurprising element was the continuity of the UK's commitment to retaining a minimum, assured and credible nuclear deterrent. Like multiple prior reviews, the 2010, 2015 and 2021 iterations all made the case for The Deterrent as: 'the ultimate means to deter the most extreme threats' (2010); the 'ultimate insurance policy as a nation' (2015); and 'the ultimate guarantee to our security, and that of our allies' (2021).

But the IR also initiated important changes. Specifically, the UK increased its overall nuclear warhead stockpile ceiling from 225 to 260. In 2010 of course the UK had stated that it would reduce the overall number from not more than 225 to not more than 180 by the mid-2020s. The stated rationale for raising this ceiling was a 'recognition of the evolving security environment, including the developing range of technological and doctrinal threats…' The IR drew attention to unnamed nuclear states 'significantly increasing and diversifying their nuclear arsenals' and 'investing in novel nuclear technologies and developing new 'warfighting' nuclear systems which they are integrating into their military strategies'. While not specifically named this was a clear reference to Russian and Chinese programmes to modernise, expand and diversify their respective nuclear arsenals. Three decades after the end of the Cold War, then, the IR's announcement on warhead numbers reflects a growth in the UK's perceived utility of nuclear weapons, something that will certainly feature in debates about disarmament and non-proliferation in the context of the NPT.

Another area of continuity involved nuclear ambiguity which has long been seen by the UK and other nuclear weapon states as central to effective deterrence. The IR, like its predecessors, maintains ambiguity around the circumstances in which the UK would resort to nuclear use (the 'when, how and what'). But there was also change here. The IR announced that the UK would add to this ambiguity by no longer providing figures on the operational warhead stockpile, including deployed warhead and missile numbers.

It is understandable why the IR was not particularly transparent on the detailed specifics underlying these nuclear changes because they are clearly designed to make the Deterrent more relevant and credible in an uncertain and more challenging world. But the relative lack of transparency opens up ample space for speculation and it poses important questions. Some of these may be:

- What types of scenario planning underpinned the changes?

- Does the UK now actively contemplate potentially having to deter two or more nuclear actors simultaneously?

- Given the 2021 assessment about the growing severity and complexity of nuclear

threats, should we expect to see a return at some point to similar concepts and language as that contained in the 1998 SDR about a 'sub-strategic' role for the UK's submarine-launched ballistic missiles?

 - What is current UK thinking on the Moscow Criterion?

 - Was the decision on the new warhead ceiling influenced by dialogue with the US, and France, vis-à-vis the strategic landscape and a joined-up perspective on the collective requirements of western nuclear deterrence?

 - Was there a fiscal dimension to the ceiling decision – i.e. relying more on nuclear instead of greater investment in new and more expensive advanced conventional assets?

## An Evolving Broader Approach to Deterrence

In terms of the UK's broader approach to deterrence the IR constituted an evolution from both 2010 and 2015, but again with important aspects of continuity.

The 2010 review had placed a 'renewed emphasis on using our conventional forces to deter potential adversaries and reassure our partners'. Notably, it heralded the return of a carrier strike capability as part of an overall force structure 'to deter or contain threats from relatively well-equipped regional powers, as well as dealing with insurgencies and non-state actors in failing states.' At this stage, however, Russia was not deemed to pose the direct threat to UK and western interests that it is seen to pose today, and the assertive direction of Beijing under President Xi in pursuit of Chinese economic and military dominance had not been initiated. But the investment in a new carrier strike capability in 2010, and its future implications for power projection and conventional military deterrence, were important building blocks for the IR's approach to deterrence in 2021.

The 2015 review did mark a significant departure for the UK in terms of the need to think more broadly in terms of how to approach to deterrence. The immediate backdrop was Russia's 2014 intervention in Crimea and eastern Ukraine, and rapidly growing concerns that in future adversaries would increasingly challenge UK interests below the traditional threshold of armed conflict, be this in Europe, the South China Sea or cyberspace. In this respect, the 2015 review announced the UK would take a full-spectrum approach to deterrence comprising military, cyber, economic, legal and covert means 'to deter adversaries and to deny them opportunities to attack us'. While there is not much in the open source on how this has since developed, the UK's response to the Russian nerve agent attack in Salisbury in 2018 is illustrative. The response was multi-pronged and coordinated across government and appeared designed, at least in part, to have a future deterrent effect by demonstrating, for example: attribution capability, the ability to mobilise international support and the imposition of multilateral sanctions. Indeed, the IR subsequently placed an emphasis in 2021 on 'reinforcing our deterrence by taking a more active approach to attribution of state threats and coordinating the use of sanctions to hold state and non-state actors to account for unacceptable behaviour'. The IR further stated that the UK 'will also make much more integrated, creative and routine use of the UK's full spectrum of levers – our diplomatic, military, intelligence, economic, legal and strategic communications tools, and the new NCF – to impose costs on our adversaries, deny their ability to harm UK interests, and make the UK a more difficult operating environment.'

The IR went further than 2015 in making the case that deterrence required a conceptual and practical overhaul as the strategic environment had further deteriorated. It painted a picture of an increasingly challenging security environment with threats posed by state and non-state actors, including sub-threshold threats, across a range of domains and with the potential for significant confrontation and conflict between the UK and its allies and an array of challengers. It stated that the UK must update its 'deterrence posture to respond to the growth in state competition below the threshold of war under international law'.

Reflecting this the IR doubled down on the importance of societal resilience for deterrence by denial. Specifically, it talked about making it 'more difficult and costly for malign actors -

both state and non-state – to achieve the effects they desire'. This was seen to be essential for 'reducing our vulnerabilities and improving our resilience to persistent threats'. Cyber space is perhaps the clearest example here with the emphasis placed on detecting cyber threats, reducing cyber vulnerabilities and enhancing cyber resilience.

The IR emphasised the importance of presenting adversaries with 'multiple dilemmas to enhance our deterrence posture', and 'more dynamically' managing and modulating the UK's 'deterrent posture' in 'an era of persistent competition'. Here the talk was of the UK needing 'a new model for deterrence that takes account of the need to compete': 'competing below the threshold of war in order to deter war'. In this respect, the IR referenced the MOD's Integrated Operating Concept (IOC) in 2020 which 'introduces a fifth 'c' – that of competition - to the traditional deterrence model of comprehension, credibility, capability and communication'. But suggesting that competition should be elevated as a fifth 'c' alongside these core elements is problematic. Competition is essentially a characteristic of the current strategic landscape associated principally with China and Russia. In deterrence terms competing is a means to an end and sits within the capability element of the deterrence equation. This is not to say that competing below the threshold of war is irrelevant to deterrence today, far from it. The existing four elements are relevant to all situations where a deterrence approach is being considered, but competition is not. Indeed, there will undoubtedly be many occasions in the next few years when some challengers are not competing with the UK, but the UK will nevertheless want to deter them from doing certain things.

The IR talks about a military force structure 'that principally deters through 'persistent engagement' below the threshold of war, while remaining prepared for warfighting when necessary'. This comes with the requirement of 'deploying more of our forces overseas more often and for longer periods of time' and importantly 'with NATO and alongside our wider network of allies and partners'. The subsequent deployment of the multi-national, HMS Queen Elizabeth-led carrier strike group to the Indo-Pacific region is demonstrative of 'persistent engagement' and illustrates the importance of the IR's 'tilt' in this geographical direction. The deployment demonstrates the centrality of operating with allies and partners to project power and to deter, something the IR acknowledges: the UK's 'network of military alliances and partnerships is at the heart of our ability to deter and defend against state adversaries'. It will also be important for the UK's deterrence approach to work seamlessly with that of others, for example, the new U.S. concept of 'integrated deterrence' announced earlier in 2021 by U.S. Secretary of Defense Lloyd Austin.

The IR does not really offer deep insights in to how the 'new model for deterrence' is being or will be operationalised across the whole of government. With the emphasis on integrated and creative approaches to deterrence drawing on all levers of influence from across government, one must assume that deterrence planners across HMG are actively exploring the specifics. In this respect Dstl is playing an important role through its development of a new and more systematic process for building deterrence into policy and strategy approaches within government for influencing the behaviour of challengers.

It is to be expected that an important part of the overall approach will involve thinking about why and how deterrence is likely to fail and applying this to the actors and scenarios the UK is most worried about. This requires in-depth understanding of challengers be these state or non-state actors including their red-lines, their capabilities and whether they are risk adverse or acceptant and so on. It should also be noted that the most serious potential adversaries are arguably more advanced in their thinking, and even in some areas of related capability development, be this Russia's 'strategic deterrence', Iran's 'comprehensive' deterrence or China's multi-instrument deterrence; each of which include aspects of compellence (coercing to change behaviour) and not just traditional deterrence with its focus on preserving the status quo. The IR's points on strategic competition and persistent engagement are particularly relevant here of course.

Given that the world is increasingly characterised by interdependence – be it trade, dealing with climate change or cyber connectivity – a key challenge for the UK is the question of how deterrence should fit within the broader relationship with challengers like Russia and China? How will deterrence work alongside elements of cooperation on common challenges

like the climate and inducements to encourage acceptable behaviours in other areas? Is the UK actively thinking about how to assure potential challengers that it will not deliver on deterrent threats if particular actions or behaviours are avoided? Deterrence cannot be approached in a vacuum. It will always be part of a delicate balance among different concepts and tools for managing the most challenging of international relationships.

## Concluding Thoughts

The nature of deterrence will always remain a constant and it is the character of deterrence that changes over time, notably because of technological developments such as, for example, in the cyber and space domains. The IR explicitly recognises this: 'We will seek to deter states from aggressive acts: through the prospect of punishment– by detecting, attributing and responding accordingly; and by denying them the opportunity to act, through reducing our vulnerabilities and improving our resilience.'

The IR, the Defence Command Paper and the IOC all demonstrate that within government and the armed forces significant thought has gone into how to deter adversaries in a complex, multi-actor, multi-domain threat environment. In this respect the IR laid out a more nuanced explanation for how the UK will seek to deter challengers than the last review in 2015. But this is understandable as the world has evolved significantly during the intervening period notably with the growing assertiveness of China and Russia. The effectiveness of the UK's evolving approach to deterrence will only become clear over time.

*Professor Wyn Bowen is Head of the School of Security Studies at King's College London. Professor Bowen was a member of the External Advisory Panel to the UK Secretary of State for Defence for the 2015 Strategic Defence and Security Review and recently co-authored a paper in Security Studies on the challenges faced by the US in seeking to deter chemical weapons use in Syria.*

# The UK Nuclear Warhead Stockpile – The Historical Question of Missiles

## Professor Sir Lawrence Freedman

> IT HAS BEEN THE POLICY OF SUCCESSIVE GOVERNMENTS OF BOTH PARTIES THAT THE UK SHOULD REMAIN A NUCLEAR POWER BUT DO SO AT THE LOWEST LEVEL COMMENSURATE WITH A CREDIBLE DETERRENT.

The March 2021 Integrated Review announced a change from the prior policy of reducing the UK's overall nuclear warhead stockpile ceiling. Instead of 'not more than 180 by the mid-2020s' the new ceiling would be 'no more than 260 warheads'. Instead of cutting back it would now be necessary to build up. The change was explained by reference to a 'developing range of technological and doctrinal threats'. This was one of the most controversial aspects of the review. It implied a jump of some 45 percent in warhead numbers, a potentially significant leap, This was picked on by those who were already opposed to the nuclear force and also by those who worried that this sent the wrong signals, especially just before the next review conference of the 1970 Non-Proliferation Treaty (NPT).

More fundamentally it raised the question of what it means to have a 'minimum' independent deterrent. It has been the policy of successive governments of both parties that the UK should remain a nuclear power but do so at the lowest level commensurate with a credible deterrent. In the end, of course, credibility depends on the perceptions of the country being deterred and the circumstances in which deterrence is required. The deterrent is credible so long as the adversary (normally assumed to be Russia) accepts that there is a risk that it will be punished severely for any aggression.

## Historical Context

Since the UK shifted to submarine-launched ballistic missiles (SLBMs) as the core of its nuclear strike force in the 1960s the minimum requirement considered essential for credibility is that one ballistic-missile-carrying submarine (SSBN) is on patrol at all times. Considerations of the reasonable length of patrols and the need for occasional long refits has led to the view that this requires four boats. The original intention was to have five boats but this was cut back to four by the Labour government in 1964. With each new generation of submarine (the Vanguard class in the 1980s and the Dreadnought class now) the question of whether three boats would be sufficient has been raised but as that would not leave much of a margin if one of the boats suffered major problems the level is now set at four.

> THERE WAS LITTLE POINT IN CONFIGURING THE NEW DREADNAUGHT CLASS SUBMARINES, SCHEDULED TO ENTER SERVICE IN THE 2030S, FOR 16 MISSILES. THE DESIGN HAS NOW BEEN SET AT EIGHT OPERATIONAL MISSILE TUBES.

Despite retaining the requirement for four SSBNs there has been a substantial reduction in the number of SLBMs carried. The Vanguard class SSBNs, which came into service in 1993, could carry up to 16 Trident D-5 submarine launched ballistic missiles, each of which could carry up to 8 warheads. That made for a maximum of 128 warheads. The initial intention was to purchase 65 American Trident II D5 missiles from the US, to be operated as a shared pool at the US Naval Submarine base at King's Bay. The Labour Government's 1998 Review announced that the order from the US would be cut back to 58 missiles. In 2006 after eight test firings the number was down to 50. It was decided not to purchase any more.

As the boats came into service in November 1993, Secretary of Defence Malcolm Rifkind announced that each boat would deploy no more than 96 warheads (ie 8 warheads per missile). The 1998 Strategic Defence Review halved this number - to 48 warheads. Then in 2010 the Coalition government cut it back further to 40. On this basis there was little point in configuring the new Dreadnaught Class submarines, scheduled to enter service in the 2030s, for 16 missiles. The design has now been set at eight operational missile tubes.

During the 1970s there were over 400 nuclear warheads in the stockpile. The numbers went down slightly in the 1980s with the introduction of the Chevaline system for Polaris, designed to beat the Soviet anti-ballistic missile system around Moscow, including using dummy warheads. Then with the end of the Cold War the number of 'operationally available warheads' went down to 300. The 1998 Review put this down to 200. This

represented more than a 50% reduction in the number of weapons since the 1970s; the decline in explosive yield was even more substantial, to some 25% of that available in the 1970s. The objective was to reduce 'the scale and readiness of our nuclear forces to ensure they are the minimum necessary to achieve our deterrent objectives.' The 1998 Review stated that:

> Although Trident is now our only nuclear weapon and covers both strategic and sub-strategic requirements, the potential explosive power deployed on a Trident submarine is one third less than a Polaris submarine armed with Chevaline.

This approach was taken even further in 2006 when the government decided to authorize work on the next generation of SSBNs. Now the number of available warheads in the stockpile was to be reduced 'to fewer than 160'. There would also be a 'corresponding 20% reduction in the size of our overall warhead stockpile'. Note the distinction between the total stockpile and the warheads available for operations. The operational total refers to warheads that are either onboard the available SSBNs or could be loaded quickly. The total stockpile included 'a small margin to sustain the operationally available warheads'. It later transpired that the total overall stockpile was set at 'no more than 225'. The Secretary of Defence at the time, Des Browne, reported that this would require dismantling some 40 warheads.

The 2010 review reduced the requirement for operationally available warheads from fewer than 160 to no more than 120 (sufficient for three SSBNs). The number for the overall nuclear weapon stockpile was reduced accordingly to 'no more than 180'. The review reported that these changes would 'start to take effect over the next few years. This will enable us to reduce our overall nuclear warhead stockpile ceiling from not more than 225 to not more than 180 by the mid 2020s.' The next year Dr Liam Fox as Defence Secretary said that dismantling the 45 warheads had begun and would take around 15 years, implying taking out three warheads a year. A Guardian report in 2013 reported that warheads to be disassembled were stored at the RN Armaments Depot at Coulport on the Clyde or else were 'work in progress' at the Atomic Weapons Establishment at Burghfield. Some were modified so they could no longer be used while others no longer required for service were being stored without being disabled or modified. The 2015 review confirmed the process: 'We will retain no more than 120 operationally available warheads and, by the mid-2020s, we will reduce the overall nuclear weapon stockpile to no more than 180 warheads, meeting the commitments set out in the 2010 SDSR.'

## The Integrated Review and the Nuclear Deterrent

Thereafter progress does not appear to have been substantial. This helps explain the new position. The 2015 commitment would either have to be achieved during the period covered by the Integrated Review or else reappraised. The simplest explanation for the target of 180 being abandoned is therefore that it has proved to be difficult or expensive to implement and this was the point at which this had to be acknowledged. Because it was never achieved we can also note that the proposed increase in stockpile numbers is some 15 percent rather than 44 percent. This still does not explain, however, the need for the increase.

The simplest explanation is that with the new SSBNs due to enter service in the 2030s, and a new warhead under development, this is the appropriate moment to consider future requirement. The review justified the increase in the stockpile by reference to 'the evolving security environment, including the developing range of technological and doctrinal threats'.

The government appears to require more operational warheads. As significant as the planned stockpile increase it is abandoning the commitment to no more than 40 warheads in an individual submarine, but without giving any new figure. According to the Integrated Review:

> Given the changing security and technological environment, we will .... no longer give public figures for our operational stockpile, deployed warhead or deployed missile numbers. This ambiguity complicates the calculations of potential aggressors, reduces the risk of deliberate nuclear use by those seeking a first-strike advantage, and contributes to strategic stability.

There are in practice limits on how many new warheads can be operationally deployed on a single SSBN. With the Dreadnaught Class boats being restricted to eight missiles tubes, then the potential for additional warheads on each boat is limited, although the American D-5 missiles can carry more than five warheads each. It may also be that the new SSBNs will be run more efficiently than the Vanguard Class and so two SSBNs can be on patrol more often.

Although this was not specifically mentioned in the review, in subsequent interviews Secretary of Defence Ben Wallace stressed the importance of improvements in Russian ballistic missile defences. He added:

> 'In the past few years we have seen Russia invest strongly in ballistic missile defence…They have planned and deployed new capabilities and that means if we are going to remain credible, it has to do the job'.

When the UK responded to new Soviet missile defences in the late 1960s/early 1970s with the Chevaline programme the government had already decided not to go for the Poseidon SLBM which had multiple-independently-targeted warheads (MIRVs). As the D-5 is MIRVed extra warheads can beat the defences and there is no need to rely so much on decoys as used by Chevaline.

The second operational factor concerns the use of Trident in a sub-strategic mode. This is a somewhat misleading phrase as any nuclear use would be profoundly strategic. It is normally taken to mean against targets connected to an ongoing land battle. The Labour Government's 1998 review argued that a sub-strategic capability was essential to the credibility of deterrence as 'an option for a limited strike that would not automatically lead to a full-scale nuclear exchange.' As WE 177 free-fall nuclear bombs intended for 'sub-strategic' use had been scrapped, Trident would now need to take on this role. A low kiloton warhead is available for that purpose.

The review noted that:

> Some states are now significantly increasing and diversifying their nuclear arsenals. They are investing in novel nuclear technologies and developing new 'warfighting' nuclear systems which they are integrating into their military strategies and doctrines and into their political rhetoric to seek to coerce others.

The importance Russia gives to its short-range nuclear systems is a matter of debate. For the UK to use a Trident missile in response poses awkward operational issues, especially with regard to assuring that an SSBN will still have missiles available for 'strategic' use. All operational scenarios can (thankfully) seem unlikely and fantastical but to those responsible they provide the basis for sizing the force, and endow the deterrent with some credibility.

## Diplomatic and Political Implications

Against all these considerations there is the argument that the increase in numbers undermines the UK's strong backing for the Non-Proliferation Treaty. The Defence Secretary insisted that nothing has changed. He told the Commons that the Attorney General had ruled 'we do not believe that the changes to the number of warheads in any way breach the nuclear non-proliferation treaty'. There is a long-standing debate about the importance of Article VI of the NPT which looks to the declared nuclear powers 'to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control.' The UK move will not help but there are bigger current issues to concern delegates to the next NPT Review conference, notably the end of the INF Treaty and the last-minute reprieve of New Start.

The last question is whether there are major political advantages to sticking to a minimum deterrent posture. The rationale for pushing the numbers as low as possible was made by Tony Blair in 2006:

We already have the smallest stockpile of nuclear warheads among the recognised nuclear weapons States, and are the only one to have reduced to a single deterrent system. In this White Paper we are announcing a further 20 per cent cut in our operationally available warheads. This leaves the deterrent fully functioning, with fewer than 160 warheads, but it means Britain continues to set an example for others to follow in our commitment to work towards a peaceful, fairer and safer world without nuclear weapons. Our decision to maintain the deterrent is fully compatible with all our international legal obligations.

The UK's nuclear force would account for 'less than 1% of the global inventory of nuclear weapons'. Its stockpile would be 'the smallest of those owned by the five nuclear weapon States recognised under the Nuclear Non-Proliferation Treaty (NPT)'.

If this was an example none followed. France, unlike the UK, still maintains air-based systems and deploys more warheads on its SSBNs. Nor has the UK got much credit for its stance. For those opposed to nuclear weapons the only acceptable number for an arsenal is zero. Certainly the latest move has been condemned. David Cullen, the director of the Nuclear Information Service, described the move as 'highly provocative', adding 'If they are tearing up decades of progress in reducing numbers, it will be a slap in the face to the 190 other members of the treaty, and will be regarded as a shocking breach of faith.'

Yet in 2006 when Blair made his case for a minimum deterrent, Cullen's predecessor at the Nuclear Information Service, Di McDonald, observed that the reductions to date 'have not been disarmament measures, they have been measures to remove old weapons that have become obsolete and they have been measures of efficiency'. It is instructive to look at other comments gathered by the Select Committee on Defence at the time: Paul Ingram, of BASIC: warhead reductions 'almost irrelevant because we will still have 48 warheads out on patrol at any time'. Greenpeace: 'the potential arsenal carried by a Vanguard submarine on patrol remains unchanged despite any wider stockpile changes proposed in the White Paper'. Bruce Kent, of CND: reductions in warhead numbers, though 'certainly... welcome,' more likely reflect 'good housekeeping'. Dr Rebecca Johnson of the Acronym Institute for Disarmament Diplomacy: the new ceiling of 160 warheads 'may...be little more than a political bid to make a virtue out of necessity'. The Committee stated that: 'We welcome this arms reduction measure, but it is unclear whether this has significance as a non-proliferation measure. Since the White Paper proposes no changes to the number of warheads deployed on UK submarines, it is unclear that this reduction has any operational significance.'

As the government was given little credit for the past policy it might therefore have decided that there was little to lose in changing the policy. There are important arguments to be had, both strategic and ethical, about the value of UK nuclear capabilities. So long as it is the government's view that they are vital to the UK's (and NATO's) security then the logic of operational preparedness is hard to ignore. The numbers being discussed here, especially for weapons in storage, do not make an enormous difference either way. Until the late 1990s the size of the UK stockpile was a matter for speculation (and was normally exaggerated). The most relevant number is that of deployed missiles. They are now effectively capped by the limited number of missiles owned by the UK and the limited load of the next generation of SSBNs.

> AS THE GOVERNMENT WAS GIVEN LITTLE CREDIT FOR THE PAST POLICY IT MIGHT THEREFORE HAVE DECIDED THAT THERE WAS LITTLE TO LOSE IN CHANGING THE POLICY.

*Professor Sir Lawrence Freedman is Emeritus Professor of War Studies, King's College London. He was Professor of War Studies from 1982 to 2014 and Vice-Principal from 2003 to 2013. He was a member of the Iraq Inquiry, the official UK inquiry into Britain and the 2003 Iraq War, which reported in 2016.*

# Maximum Stockpiles and Minimum Deterrence

## Dr Julian Lewis MP

Ever since NATO's September 2014 Wales Summit, which re-stated its 2 per cent guideline on Defence spending as a proportion of Gross Domestic Product, it has been necessary tediously to repeat that that figure is "a floor, not a ceiling". In other words, it is "a minimum, not a target". Now we face a similar task regarding the increase, recently announced, in the cap on the size of our nuclear stockpile. That cap should be described as "a ceiling, not a floor". In other words, it is "a maximum, not a target".

The Integrated Review of Security, Defence, Development and Foreign Policy, relates how: "In 2010 the Government stated an intent to reduce our overall nuclear warhead stockpile ceiling from not more than 225 to not more than 180 by the mid-2020s. However, in recognition of the evolving security environment, including the developing range of technological and doctrinal threats, this is no longer possible, and the UK will move to an overall nuclear weapon stockpile of no more than 260 warheads."

Predictably, this is being denounced as a more than 40 per cent increase in the stockpile – on the basis that increasing a total of 180 to 260 would be an uplift of 44.4 per cent. Yet, the cancellation of a reduction which has not yet been completed (if, indeed, it ever began) means that, at most, the total might rise from the previously declared maximum of 225 to a new maximum of 260. Were those the actual present and future totals, the increase would be only about 15.5 per cent – a perfectly reasonable increment to ensure that advances in anti-ballistic missile (ABM) technology, over the 40+ years of our next generation of Trident warheads, cannot undermine our policy of minimum strategic deterrence.

Minimum deterrence relies on the fact that possession of a last-resort strategic nuclear system, which can be guaranteed to inflict both unacceptable and unavoidable devastation in response to nuclear aggression, does not require any ability to match the aggressor missile-for-missile or warhead-for-warhead. Nuclear superpowers have huge overkill capabilities which offer zero extra protection against countries with much smaller WMD arsenals – as long the latter can retaliate with an unstoppable and unbearable counterstrike against any nuclear aggressor seeking to wipe them out. Overkill capabilities may have symbolic political value, but – in the dread event of a nuclear exchange – all they can do is to "make the rubble bounce".

There may exist more up-to-date estimates, but SIPRI's inventory totals for world nuclear stockpiles, published at the beginning of 2020, are sufficiently instructive. China, France and the UK, with estimated warhead totals of 320, 290 and 215 respectively, fall into the camp of minimum strategic deterrence. By contrast, the estimated totals of 5,800 for the United States and 6,375 for Russia, go way beyond anything needed to pursue such a policy. This still applies to the considerably lower totals (thought to be 1,750 for the US and 1,570 for Russia) of nuclear warheads actually deployed.

The notion that, at some stage in the future, the UK might end up with 35 more warheads than its previously declared theoretical maximum, does not change the fact that we are currently, and shall probably remain, fifth out of five in terms of the size of the nuclear stockpiles held by the permanent member-states of the UN Security Council. So, why has the Government chosen to take the controversial steps of cancelling the reduction in the "ceiling" of our warhead total from 225 to 180, and raising it to a new ceiling of 260, instead?

Here are the four possible explanations which occur to me, in the absence – at the time of writing – of any briefing on this issue, classified or otherwise, from my Parliamentary colleagues on the Defence Ministerial team:

(1) Most probably – as already stated – it is as an insurance policy to prevent a potential aggressor from calculating that advances in ABM systems had reduced our retaliatory capability to a point where our response to an attack became bearable or even avoidable.

(2) Quite probably, it is to give more 'headroom' for the time – in the late 2030s or early 2040s – when we are due to exchange our current stockpile for next-generation nuclear warheads, whilst at the same time preventing disruption of our Continuous at-Sea Deterrent patrols.

(3) Possibly, it is to send a signal internationally that the UK is determined to keep nuclear weapons as long as other countries have them, and remains committed to doing whatever is required to maintain their invulnerability.

(4) Conceivably, it is also tailored for a domestic audience worried about cuts in the size of the Army, in order to offer reassurance or at least divert some attention from those reductions.

What seems most unlikely is an intention to invest in additional warheads of the existing design. We are certainly cancelling their reduction from a theoretical maximum of 225 to one of only 180, for any or all of the four reasons listed – particularly the first one. Raising that maximum from 225 to 260, to provide extra 'headroom' for the eventual transition from current warheads to their replacements, is a sensible explanation – though not a conclusive one, given that the changeover is not due to happen for well over a decade.

Whenever questions arise about the continuation or renewal of the UK's strategic minimum nuclear deterrent, vociferous opponents make themselves heard. They remain, nevertheless, in a minority both outside and within Parliament. Over many years, numerous opinion polls yielded strikingly consistent results: about one-quarter of the population favour British unilateral nuclear disarmament, whilst just over two-thirds wish us to keep the deterrent as long as other countries possess nuclear weapons. These opinions proved decisive, not only in the landslide Labour defeats of 1983 and 1987, but also in Labour's subsequent determination not to propose nuclear unilateralism in any future General Election.

Despite the imposition of a dedicated supporter of the Campaign for Nuclear Disarmament, Jeremy Corbyn, as their Leader in 2015, Labour MPs ensured that party policy remained multilateralist. Previously, on 14 March 2007, Parliament had voted by 409 to 161 in favour of proceeding with the "initial gate" for renewal of the Trident submarine fleet. Even that huge majority of 248 was eclipsed, on 18 July 2016, when it rose to 355 after MPs voted for the decisive "main gate" stage to proceed, by 472 to 117.

Then, as now, Article VI of the Non-Proliferation Treaty was prayed in aid by opponents of the British deterrent as if it committed all the signatories to nuclear disarmament separately from other forms of disarmament. It does no such thing. The preamble to the treaty states that nuclear disarmament should occur "pursuant to" (that is, in conformity with) "a treaty on general and complete disarmament". Article VI similarly commits the signatories "to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, *and on a treaty on general and complete disarmament under strict and effective international control*" (my italics).

The size of Britain's minimum deterrent warhead stockpile has never been related to the size of any adversaries' arsenals. The sole determinant is that we must still be able to threaten unacceptable and unavoidable retaliation throughout the lifetime of the Trident system, catering for the potential development of countermeasures during this long period. If that does require an actual increase in our warhead stockpile of up to 35 extra warheads, it in no way contravenes the provisions of Article VI of the NPT. We are not, and never have been, involved in a nuclear arms race with any other nuclear state. Neither, for that matter, is France nor (so far) is China. Minimum deterrence does not require thousands of warheads to fulfil its function.

There is nothing in Article VI which requires a nuclear-free world to be achieved before general and complete conventional disarmament can also be guaranteed. There is a very good reason for this: abandoning all nuclear weapons in an un-reformed world would be a recipe for disaster. In a conventional war taking place in a nuclear-free world, the former nuclear powers would immediately race to reacquire the bomb. The first to succeed would

> **THE SIZE OF BRITAIN'S MINIMUM DETERRENT WARHEAD STOCKPILE HAS NEVER BEEN RELATED TO THE SIZE OF ANY ADVERSARIES' ARSENALS.**

then use its monopoly, as occurred in 1945. If the treaty's vision of general and complete conventional disarmament ever becomes reality, then nuclear weapons can also safely be declared redundant. Until that day dawns, the United Kingdom is perfectly capable of changing the size of its warhead stockpile without breaching the NPT, in order to maintain indefinitely the credibility of its strategic minimum deterrence policy.

*Dr Julian Lewis is the Conservative MP for New Forest East. Dr Lewis was chairman of the House of Commons Defence Committee, 2015–19, and is the current chairman of the Intelligence and Security Committee of Parliament. He writes here in a personal capacity.*

# The Review and Nonproliferation

**Dr Grant Christopher**
**Alberto Muti**

> **THE UK HAS CREATED A TENSION BETWEEN ITS NONPROLIFERATION INTERESTS AND ITS SECURITY OBJECTIVES.**

The Integrated Review retains the UK's twin nuclear policies of maintaining a minimum credible nuclear deterrent and supporting the global nuclear nonproliferation regime. Yet, for the first time since the end of the Cold War, the UK reversed a trajectory of continuous nuclear reductions. By choosing to maintain the deterrent in such a manner the UK has created a tension between its nonproliferation interests and its security objectives.

One of the most debated announcements resulting from the Integrated Review was the increase of the UK's nuclear weapon stockpile ceiling – not the actual number of warheads – from 225 to 260 nuclear warheads. The 16% increase marks the abandonment of an earlier commitment to reduce to below 180 warheads.

The announcement occurred in the context of China, France, Russia and the United States all pursuing significant modernisation and/or expansions of their nuclear programmes. The nuclear-armed states that are not signatories to the NPT, India, Pakistan, Israel and North Korea also are upgrading infrastructure and in some cases expanding their nuclear arsenals. The UK's increase is relatively smaller than expansions in the other nuclear armed states, and even after this change, the UK will remain the P5 member with the smallest number of nuclear warheads and the only P5 member with a single delivery system; the Trident II D5 missile aboard a Vanguard-class submarine.

The Secretary of State for Defence has clarified that the ceiling increase was a response to the 'evolving security environment' and that it was meant to maintain a credible deterrent vis à vis advances in Russian ballistic missile defence capabilities - although there are many other viable interpretations.

> **EVEN AFTER THIS CHANGE, THE UK WILL REMAIN THE P5 MEMBER WITH THE SMALLEST NUMBER OF NUCLEAR WARHEADS AND THE ONLY P5 MEMBER WITH A SINGLE DELIVERY SYSTEM; THE TRIDENT II D5 MISSILE ABOARD A VANGUARD–CLASS SUBMARINE.**

The UK Government maintains that this marginal increase is not in conflict with the UK's disarmament obligations under the Nuclear Nonproliferation Treaty (NPT) - and with its nonproliferation stance. Despite these assurances, however, third countries – and especially Non-Nuclear Weapons States (NNWS) will draw their own conclusions on the move, and their reactions could reduce the UK's standing to work with third countries on shared non-proliferation goals.

The Integrated Review is itself an element of signalling that the UK directs at both allies and rivals. It brought together many strands of the UK's foreign and defence policy, and questions of deterrence and military strategy, and of how to best communicate the UK's deterrent stance to possible nuclear-armed adversaries, were considered in great depth. However, it is likely that in many NNWS governments, and especially in smaller countries that are not directly involved or touched by the UK's grand strategy, this will be primarily seen as a matter of nonproliferation and disarmament policies, rather than one of nuclear deterrence and defence.

Under Article VI of the NPT, the UK as one of the five Nuclear Weapons States (NWS), is required 'to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament.' Whether sufficient progress has been made so far, and whether the NWS' current approaches to nuclear disarmament amount to work in 'good faith', however, has been a matter of controversy. Of course, NNWS opinions are divided: most NATO states have remained silent or supportive of the current situation, while other groups, such as the Non-Aligned Movement and the New Agenda Coalition, have been vocal in their criticism.

This debate has an impact on global nonproliferation policies, too, as some non-nuclear weapons states have maintained that disarmament and nonproliferation are interlinked, and progress on one end should be matched by progress on the other. In this context, some states and groups have argued that the constant pursuit of higher nonproliferation standards in the

face of what is seen as a failure to make progress on Article VI negotiation is an unsustainable and unfair burden that the NWS – which count some of the richest and more powerful countries in the world – are inflicting on the rest of the international community.

NNWS that are critical of the current status quo have increasingly worked to make their voice heard in a range of international fora, including the United Nations General Assembly's First Committee and the NPT Review cycle, and in recent years they have negotiated and brought into force the Treaty on the Prohibition of Nuclear Weapons (TPNW), which the UK (as well as the other NWS) does not support. The TPNW provides another avenue outside the usual NPT review conference process to register dissatisfaction and advance nuclear disarmament. The NWS have argued that the treaty undermines their security and the global nonproliferation regime, in particular the NPT.

At the 2015 NPT Review Conference, the NPT States Parties failed to agree on a consensus document, fuelling perceptions of a gridlocked debate and, potentially, a treaty regime in crisis. The 2020 Review Conference, now set to convene on 4-28 January 2022 after delays caused by the COVID-19 pandemic, will open to a climate of high expectations and increased polarisation. That the UK reversed a course of three-decades of reductions now means that all five NWS under the NPT – and indeed, all nine nuclear-armed states - are expanding and upgrading their nuclear arsenals and infrastructure. The impact this will have on the NPT regime is yet to be fully understood.

Before the Review Conference, it should be noted, nuclear disarmament and nonproliferation diplomats will meet in two other key fora, the IAEA General Conference and the UN General Assembly's Fist Committee, whose next sessions are both set to take place during the last quarter of 2021. These events will provide an occasion for other states to publicly comment on the UK's move and may set the stage for the NPT negotiations.

Beyond high-level diplomatic meetings, however, there is a wealth of non-proliferation work with direct and practical dimensions that may be impacted by the UK's decision. One of the key goals of UK non-proliferation policy has been to strengthen international nonproliferation regimes and organisations by encouraging adoption and effective implementation of nonproliferation instruments. These principles are set out in the UK Counter Proliferation Strategies for 2012-2015 and 2016-2020, and have been included in the Integrated Review. The UK has invested in work of this kind through its Counter-Proliferation and Arms Control Centre and has reported on its achievements in this area to the NPT. The UK's work in these areas includes direct support and contributions to relevant international organisations; crucially, it also includes outreach and work with third countries, with the aim of encouraging universal adoption of nonproliferation instruments and guidelines and strengthening their enforcement and implementation. Key targets for this type of engagement and assistance are non-nuclear weapons states, and especially developing countries with less-advanced internal regulatory systems. This type of work has a tangible, direct impact in supporting and strengthening global nuclear nonproliferation, and it depends on the UK's ability to work with these countries on shared nonproliferation goals. In the increasingly polarised debate surrounding nuclear nonproliferation and disarmament diplomacy, the decision to raise the nuclear weapons stockpile could reduce this ability.

Few believe the UK increase will cause the NPT to collapse, but the announcement occurs at a difficult time for nonproliferation. Eroding relationships between the nuclear possessor states accompanies a general reversal of the trend of nuclear arms reductions. Recent events have shown that even foundational arms control agreements that took years to negotiate can be unravelled in a few months. In this context, the UK's decision has consequences beyond defence and deterrence and complicates efforts to preserve and strengthen more than 50 years of international nuclear nonproliferation.

*Dr Grant Christopher is a senior researcher in VERTIC's Verification and Monitoring Programme. He is a former particle physicist with current research interests in the North Korean nuclear programme and the risks associated with emerging technologies.*

*Alberto Muti is a senior researcher for VERTIC's Verification and Monitoring Programme. He leads the programme's work on IAEA Safeguards, Non-proliferation in Iran, and biological investigations.*

# Intelligence and the Review: Intelligence Power in Future Peace and War

## Dr Huw Dylan

> **EVEN AS THE RELATIVE POWER OF THE UK'S ECONOMY AND MILITARY HAS DECLINED, THE INTELLIGENCE AGENCIES HAVE STRIVEN TO RETAIN THE CAPABILITY TO REMAIN AMONG THE GLOBAL FIRST RANK.**

A state can develop and wield power in a variety of ways, militarily, economically, culturally. Less immediately apparent for many is the idea of intelligence power, the notion that your state's intelligence capabilities are as much a component of your national power as your cultural capital or your economy. But for the United Kingdom retaining and maintaining effective, advanced, and globally networked intelligence agencies, that often operate at the cutting edge of technology, has been a core component of national power for decades. So central was the idea to the late Michael Herman, former Secretary to the Joint Intelligence Committee, Britain's senior intelligence assessment group, that it became the title of his ground-breaking study of the topic, Intelligence Power in Peace and War. Even as the relative power of the UK's economy and military has declined, the intelligence agencies have striven to retain the capability to remain among the global first rank. And despite scandals, public failures and controversies, they have continued to maintain the confidence of successive governments who must navigate and manage a turbulent international and domestic security environment. The Integrated Review suggests that this will remain the case for the foreseeable future.

There is always a danger of over-playing the significance of secret intelligence. The secrecy, the mystery, is attractive, and it is all too tempting to pad-out the relatively limited amount of information in the public domain with hearsay or fantasy. The agencies, of course, have not been unwilling to lean into this when it suits them. An aura of omnipotence can play well; few covert sources want to take the risk of working for a second-rate intelligence service. The former 'C', Chief of SIS, Colin McColl once quipped that James Bond was the best 'recruiting sergeant in the world'. But there is no need to tread the boundary between fact and fiction to understand why intelligence has been prioritised and prized by governments of all stripes, and why the integrated review underlines in several areas the need not only to retain but also to develop British intelligence power. A short survey through recent history offers ample perspective on the significance of intelligence. The Soviet strategic threat, the Soviet subversive threat, the Provisional Irish Republican Army, the Abu Nidal organisation, al Qaeda, Daesh: all posed a threat, presented a risk, and required careful management. The work of intelligence, in close coordination with international partners, was and remains crucial to that task, by providing warning, through crafting informed assessments, and, where necessary, by influencing others through secret means and covert action.

> **STUDENTS OF BRITISH INTELLIGENCE IN THE COLD WAR WOULD FIND THESE OBJECTIVES FAMILIAR, ALTHOUGH NOT PREVIOUSLY EXPRESSED AS EXPLICITLY OR AS PUBLICLY. PAST AS PROLOGUE, SOME MIGHT SAY, BUT THIS TIME WITH EVEN MORE COMPUTERS.**

This work remains equally important now and for the future. The threat from terrorists continues to evolve, but remains high; the rise of the extreme right is an extremely concerning issue, adding to the threat from Daesh and its ilk. As the Review notes, 28 planned attacks have been prevented since 2017. But, despite the prominence of the counter-terrorism mission, intelligence is about more. The integrated review, including the Prime Minister's Foreword, leaves little doubt that Herman's idea, that of intelligence as a core component of national power, has become common currency (if there was ever any doubt, of course). Indeed, intelligence is the first point mentioned in the 'UK Strength' section. It features prominently in the section on being 'A Responsible Cyber Power', with reference not only to defence, but also to offensive capabilities. Clearly, the Services are seen as part and parcel of the 'integrated approach' to tackling global challenge, alongside the armed forces, and the diplomatic service, with a mission to protect British citizens and interests, but also to influence friends and rivals, to project power, particularly in the digital realm. Students of British intelligence in the Cold War would find these objectives familiar, although not previously expressed as explicitly or as publicly. Past as prologue, some might say, but this time with even more computers.

In the context of one of the review's core points, the ebbing of the rules-based world order, the upholding of which was the cornerstone of British strategy for the past generation, the

emphasis on the potential for intelligence agencies to play a role is telling. As the UK is forced to adapt to and survive in what the Review describes as 'a more competitive and fluid international environment', the capacity to move quickly, when necessary, and respond flexibly becomes more significant. Several events over the past decade have illustrated the potential for malign actors to achieve their objective through disruption, subterfuge, and through acting in the grey zone. Russia, along with several other powers, have learned how to integrate their intelligence capabilities with other levers of national power in pursuit of their objectives, notably in annexing the Crimean Peninsula in 2014. Britain must also operate in this space if it is to defend its interests. Sometimes it will need to respond; at other times it will need to deter. And to do so intelligence agencies will play a crucial role: in providing warning of emerging threats, both strategic and tactical, online and physically; in attributing responsibility for hostile actions, be they cyber-attacks or some future iteration of 'the little green men'; in providing an overview of the motivations for particular actions; and for the task of formulating an appropriate response, whether a pre-emptive action, political or economic sanctions, a military strike, or a digital operation, perhaps led by the National Cyber Force. To do so effectively, intelligence must be integrated with the broader machinery of government, be well resourced, and must be able to operate closely with allies, old and new.

The importance of maintaining and developing alliances and partnerships cannot be overstated. Intelligence is a global business. This was true in the past when the priority was discerning the capabilities and intentions of the Soviet Union. US technology was often based on British territory. It remains true in counter-terrorism, which is often a transnational endeavour. British intelligence works with sister services in a host of countries, many of which might not be considered natural allies or partners. No one service has a monopoly on solutions – and international cooperation is crucial. Indeed, this is the basis of the extremely successful and productive Five Eyes arrangement, which has been one of the cornerstones of British intelligence capabilities since the Second World War. Its longevity is a testament to its utility. The Review's emphasis on maintaining and bolstering such historic arrangements, with Five Eyes as well as traditional NATO partners, is right. Britain gains both intelligence and influence through being a significant contributor to this larger intelligence pool. They have weathered several storms in the past, partly owing to the legacy of the relationship, partly owing to a common understanding of the threats. But there are challenges ahead. As has been illustrated by spats over the use of Huawei technology in national digital infrastructure, or in May 2021 when New Zealand did not join its other Five Eyes partners in condemning China over its treatment of the Uyghur population. Adapting intelligence structures for an evolving geo-political context, particularly the 'tilt' to Asia and the rise of China will require care and creativity. Closer cooperation with Japan, for instance, must be considered carefully. Ensuring that intelligence does not become a casualty of broader political disagreements should be a priority; autocratic states work hard to insert and exploit any wedges between traditional allies. Intelligence links must be developed pragmatically, of course, sometimes you must cooperate with states or entities with whom you profoundly disagree in pursuit of a common goal. But pragmatism can also be strategic. Using intelligence to strengthen the binds between democracies with shared values, just as was done in the Cold War, seems a worthy goal.

Intelligence power must be carefully nurtured and used judiciously. The focus on technology throughout the Integrated Review is striking, and unsurprising. As anyone who has perused the material leaked by Edward Snowden, or considered the Stuxnet operation, or any number of other cyber-attacks and hacks can attest, the power of modern digital intelligence agencies, like GHCQ, to gather data and implement operations is extremely significant. Using these capabilities, whether retaliating or striking pre-emptively against a target's computer networks may prove tempting, and in certain situations it will be proportionate and appropriate. But, if the past is any guide, launching covert actions or disrupting a target's digital systems with computer network exploitation or attacks should be done with a high degree of consideration, in accordance with strict legal and ethical frameworks, and not as a substitute for a considered policy, however tempting. From the legacy of the 1953 coup in Iran, to the consequences of the GRU's attempted murder of Sergei Skripal in Salisbury in 2018, the history of covert operations is littered with examples of blowback and unintended consequences – even measuring the success or failure of covert

> **DESPITE THE FOCUS ON THE OPPORTUNITIES OF TECHNOLOGY, OFFENSIVE AND DEFENSIVE, IT WOULD BE WISE NOT TO FORGET THAT THE INTELLIGENCE COMMUNITY'S STRENGTH IS BASED IN A DIVERSE CADRE OF PEOPLE.**

action is a contested issue (see here and here). Operating in the digital space presents added complications. Computer code is lost to the wild once deployed in an operation, and can be retrofitted and repurposed. And perhaps the best way to guard against this risk is to be found in the low- rather than hi-tech. Despite the focus on the opportunities of technology, offensive and defensive, it would be wise not to forget that the intelligence community's strength is based in a diverse cadre of people. As well as investing in the next generation of cyber-warriors and AI specialists, the government would do well to invest in the next generation of analysts, area studies specialists, and linguists. The government should resource the Professional Head of Intelligence Analysis, established to address the shortcomings identified by the Butler Review in the wake of the Iraq War, and the new Intelligence Academy. British intelligence analysts should be trained well, empowered to be intellectually rigorous and independent, to challenge, and to push-back where necessary, with the goal of supplementing British intelligence power with wisdom, as well as data.

*Dr Huw Dylan is Senior Lecturer in Intelligence and International Security in the Department of War Studies at King's College London. He is a historian of British and American intelligence and security, specialising in the work of British intelligence, and their allies, during the Cold War.*

# Recognition for Intelligence Assessment – And Strategic Command

## Paul Rimmer

> **THE PAPERS COVER NEW GROUND IN ENSURING THAT THE IMPORTANCE OF INTELLIGENCE ASSESSMENT AS A DISCIPLINE GETS EXPLICIT RECOGNITION.**

> **ANALYSIS IS DONE BY PROFESSIONALS WHO HAVE RECEIVED TRAINING AND DEVELOPMENT IN THEIR FIELD, NOT BY GIFTED AMATEURS WHO CAN DO A BIT OF RESEARCH AND HAPPEN TO WRITE WELL.**

### Who Writes Intelligence Assessments?

It can often be a frustrating experience, working in intelligence assessment, to see your work go unacknowledged – although that tends to go with the line of work – or worse, attributed to the (ironically) more well-known Agencies of the UK intelligence world, MI5, MI6 and GCHQ. It is therefore refreshing, and long overdue, to see the UK's key intelligence assessment organisations, the Joint Intelligence Committee and Defence Intelligence, getting some public acknowledgement in both the Integrated Review and 'Defence in a Competitive Age' documents. Of course, the work of those assessment bodies is reflected in the 'threat' sections of each paper (as in preceding reviews), albeit not directly attributed to them. The casual reader may not actually understand who wrote those sections, or perhaps – with only a hazy understanding of the UK intelligence community – assume that they were written by MI6 or policy-focused Civil Servants in the FCDO or MOD. Indeed, even within government, intelligence assessment can tend to seem like a game in which anyone can feel free to take part, and in which anyone's 'view' carries equal weight. In fact, those sections of the respective papers represent carefully thought through 'all-source' assessments, rather than the views of a particular Agency or policy team, with Defence Intelligence taking the lead in the case of the MOD paper.

That is all fine, and it is important that strategy papers such as these are put together on the basis of a clear understanding of the threat environment. But beyond the provision of such essential context, the papers cover new ground in ensuring that the importance of intelligence assessment as a discipline gets explicit recognition. The Integrated Review carries a box titled 'World-class security and intelligence agencies'. Predictably, it focuses on MI5, MI6 and GCHQ, but tellingly it adds: "Our approach to intelligence is predicated on rigorous, independent assessment for effective national security policy-making, with the intelligence analysis profession overseen across government by the Joint Intelligence Committee." Whilst the 2004 Butler Review of Intelligence on Weapons of Mass Destruction highlighted the business of (and need for) effective intelligence assessment, this is, I think, the first time that the intelligence analysis profession has been mentioned in a strategic review as such. Importantly, it emphasises the importance of ensuring that evidence-based policy-making is supported by robust analysis – i.e. all-source assessment, not just single-source material gleaned by one of the Agencies. It also underlines the point that this analysis is done by professionals who have received training and development in their field, not by gifted amateurs who can do a bit of research and happen to write well.

This is reiterated in the Defence paper, where Defence Intelligence has its own paragraph in a chapter titled 'Transforming our ways of working'. The importance of developing 'understanding' and the passage of information quickly and securely across all domains (land, sea, air, space and cyber), in what MOD calls 'multi-domain integration', is a key theme of the Defence proposal, and it is clear that Defence Intelligence is regarded as playing a critical part. But the paper also recognises that to succeed in the modern environment, it needs to develop: "Open source intelligence, automation and AI provide potentially game-changing ways to understand and counter these new challenges." It goes on to say that this is essential to understand threats, protect our own vulnerabilities and to exploit the vulnerabilities of adversaries. Critically, this is essential if Defence Intelligence is to "become more agile in exploiting its knowledge for impact and effect." This plays to the technology theme present in both the Integrated Review and Defence paper – that the UK (and its allies) needs to invest in technology to regain the lead over adversaries that it had at the end of the Cold War, but which has been eroded as Russia and China have forged ahead in some areas while the West has been engaged in conflicts with relatively low-tech adversaries.

# The Arrival of Strategic Command

The attention given to Defence Intelligence is also against the context of its being a part of Strategic Command, which itself is given prominence in the review papers. Formerly part of MOD's Head Office, Defence Intelligence became a part of the newly created Joint Forces Command (JFC – renamed Strategic Command in December 2019) in December 2011. This was created following a recommendation of the 2011 Levene Review into the structure and management of Defence. JFC/Strategic Command was established to "provide the foundation and supporting framework for successful operations by ensuring joint capabilities like medical services, training, intelligence, information systems and cyber operations, are developed and managed...[and] also provide the command and control for overseas defence operations."

For Defence Intelligence, this move to JFC/Strategic Command was a significant step forward. As part of MOD's Head Office, it comprised a disproportionate chunk of that area's budget compared with the other finance and policy staff principally located in MOD's Main Building in Whitehall. It had therefore been easy prey whenever the Head Office budget had to find savings. In Strategic Command, Defence Intelligence is recognised as an essential 'enabler' alongside other strategic assets, such as medical services and Special Forces, rather than as an over-large part of the Defence Head Office bureaucracy.

The Defence paper can also be seen as marking the 'coming of age' of Strategic Command, often regarded since its creation as something of an interloper by the single Services – the Royal Navy, Army and Royal Air Force – and a drain on 'their' staff and resources. In the Defence paper in particular, Strategic Command is notable by its prominence. Not only is its role in the cyber and technology fields given top billing, it even precedes the single Services in the chapter order. That may seem a small point, but against the history and clout of the single Services it is no mean feat! It also underlines the broader focus of both papers on integration, data sharing and technology and places Strategic Command at the centre of the impetus to develop both. Success will be measured by the delivery of some challenging and high-tech projects, including the 'secure Digital Backbone' linking different, secure, networks, the development and successful working of the combined MOD/intelligence Agency National Cyber Force and the delivery of a satellite programme. There may also be competition for resources and ownership of elements of these programmes with the single Services, keen to assert their own roles in what will be seen as the leading technological edge in Defence. A lot of key work strands therefore fall to Strategic Command and all eyes will be on its capacity to deliver.

*Paul Rimmer CBE is a Visiting Professor in the Department of War Studies of King's College London. He was Deputy Chief of Defence Intelligence in MOD (2014-2020) and had a long career at the heart of national security in Defence, and elsewhere in Government. He is a Senior Adviser at the International Institute for Strategic Studies and is Director of his own company, Excellence in Analysis, aiming to help organisations deliver understanding to underpin decision-making.*

"

**IN STRATEGIC COMMAND, DEFENCE INTELLIGENCE IS RECOGNISED AS AN ESSENTIAL 'ENABLER' ALONGSIDE OTHER STRATEGIC ASSETS, SUCH AS MEDICAL SERVICES AND SPECIAL FORCES, RATHER THAN AS AN OVER-LARGE PART OF THE DEFENCE HEAD OFFICE BUREAUCRACY.**

"

# The Review and Responsible, Democratic Cyber Power

## Dr Joe Devanny

> IF CYBER POWER IS THE PURSUIT OF NATIONAL INTERESTS IN A GLOBAL DOMAIN, THEN NOT EVERY STATE WILL BE A POTENTIAL 'PARTNER' IN SHAPING CYBERSPACE TO ALIGN WITH BRITISH VALUES, NOR WILL EVERY STATE AGREE (OR EVEN PASSIVELY ACCEPT) THE UK'S USE OF CYBER CAPABILITIES TO ACHIEVE REAL WORLD EFFECTS.

> THERE ARE SOME IMPORTANT NUANCES AND GREY AREAS WHERE THE BEHAVIOUR OF A RESPONSIBLE, DEMOCRATIC STATE IN CYBERSPACE IS LESS EASY TO DISTINGUISH FROM THE BEHAVIOUR OF LESS RESPONSIBLE, LESS DEMOCRATIC CYBER POWERS, SUCH AS RUSSIA, CHINA, IRAN AND NORTH KOREA.

The Integrated Review combined a conventional analysis of the United Kingdom's position in the world with ambitious rhetoric about the need to take some policy areas more seriously than before (the Indo-Pacific, regulatory diplomacy) and to invest more significantly in science and technology. One of the Review's most striking emphases was on the role of responsible, democratic cyber power in British strategy. This was the most recent statement of a framing concept that the United Kingdom has been invoking for several years: cyber power.

But what does 'cyber power' actually mean, particularly when it is exercised in a self-consciously 'responsible, democratic' fashion? And is there a specifically British view of cyber power? The Integrated Review's answer focuses classically enough on the pursuit of national interests, defining cyber power broadly as: 'the ability to protect and promote national interests in and through cyberspace: to realise the benefits that cyberspace offers to our citizens and economy, to work with partners towards a cyberspace that reflects our values, and to use cyber capabilities to influence events in the real world.' This is a very broad definition that implicitly points to the competitive and contested nature of cyber power in international practice. If cyber power is the pursuit of national interests in a global domain, then not every state will be a potential 'partner' in shaping cyberspace to align with British values, nor will every state agree (or even passively accept) the UK's use of cyber capabilities to achieve real world effects.

## Defining Responsible, Democratic Cyber Power

Given this competitive, contested context, it's perhaps easiest, although imprecise, to define the responsible, democratic exercise of cyber power by reference to its opposites. There is a lengthy and persistently growing list of activities in cyberspace that the United Kingdom has criticised when they have been carried out by other states, most notably by the Russian Federation, but also other states such as China and North Korea. Indeed, coordinated public attribution – notwithstanding the challenges of doing this effectively – is seen as an important diplomatic response to irresponsible state behaviour in cyberspace. Such behaviour includes the use of cyber operations to disrupt or destroy critical infrastructure, and directing or harbouring the cybercriminals responsible for the current global wave of ransomware attacks on public and private sector targets. It has been suggested that these states might even try to use ransomware attacks, not to accumulate bitcoin, but to achieve geopolitical objectives through coercion.

It would be tempting, therefore, to conclude that a responsible, democratic cyber power would simply practice the polar opposite of those activities so criticised by the United Kingdom and its allies. This is a relatively reliable guide. After all, no self-described responsible, democratic cyber power should harbour cybercriminals, engage in state-sanctioned cybercrime, or conduct degrading or destructive cyber operations against critical civilian infrastructure to coerce or punish an adversary government. But what about cyber espionage enabled by supply chain attacks (some lasting for decades) or 'last resort' offensive capabilities against infrastructure, in case 'deterrence fails'? There are some important nuances and grey areas where the behaviour of a responsible, democratic state in cyberspace is less easy to distinguish from the behaviour of less responsible, less democratic cyber powers, such as Russia, China, Iran and North Korea. For example, recent US debates about the right level of costs to impose on Russia following the SolarWinds breach, appeared to proceed somewhat absent-mindedly, forgetting the Snowden leaks and failing to recognise that cyber espionage is far from being a one-sided affair. These grey areas – of cyber espionage and offensive cyber operations – complicate the relationship between two important dimensions of UK cyber strategy: cyber security and cyber power.

The Integrated Review does not make the mistake of ignoring the utility of cyber espionage or offensive cyber operations as elements of wider national strategy. On the contrary, in a rather gnomic way – by proposing a 'whole-of-cyber' approach to cyber strategy – the Review highlights the need for states to consider all their cyber instruments, whether devoted to security, espionage or offensive operations, as part of a wider, comprehensive national approach. As the Review rightly notes, such an approach must be about more than ensuring that the UK government works as a coherent whole (although this is an important and non-trivial challenge in itself), and must embrace the contributions that allies, the private sector, academia and civil society can make to the collective effort to improve cyber security. Thinking about the whole system, rather than focusing on a single part, is the only sensible approach. But as the former head of the National Cyber Security Centre, Ciaran Martin, has persuasively argued (here and here), there is nothing inevitable about achieving virtuous synergy between the pursuit of cyber security and the use of cyber power. There is, in fact, a tension inherent in the process of rank-ordering and balancing between the priorities of cyber security and the uses of cyber power (particularly through offensive operations) to achieve wider national objectives.

## Underpinning Cyber Power: People, Structures and Processes

Given the delicate balance between these different facets of the United Kingdom's cyber strategy – and the overlap between wider national security strategy and cyber-related decision making – it is imperative that the UK has the right people, structures and processes in place to produce informed decisions and effective implementation. This is particularly the case as the bureaucratic eco-system of cyber strategy has proliferated over the last decade, so there are more institutional interests competing to shape the overall direction of strategy. Whilst the UK is not a cyber power of the same magnitude as the United States, there are already several institutional actors in the UK cyber sphere. This includes the newest actor, the National Cyber Force, whose avowal by Prime Minister Boris Johnson formed one of the appetite-whetting preludes to the Integrated Review.

The ambition to grow the National Cyber Force over the next decade, from a few hundred to 3000 personnel, represents a significant investment in the offensive side of cyber strategy. This investment raises questions about the on-going balance and coherence of that wider strategy, particularly as the new Force gains momentum, as well as ethical questions about the various uses to which the UK's offensive cyber capabilities might be put. Will the National Cyber Force primarily conduct skirmishing, 'counter-cyber' missions? How will it balance competing priorities to support integrated military operations, counter criminals and terrorists in cyberspace? Each is an important national priority, but even an offensive cyber force of 3000 personnel would not be able to accomplish each mission equally well. The publicity so far about the Force is like a restaurant menu with a very wide range of possible choices, but the Force's success or failure will ultimately depend on the quality of the process that refines those choices into a more limited set menu, a focused set of missions.

Until recently, a public debate about the role of offensive cyber capabilities in UK strategy did not exist. In the last eighteen month this debate has been elevated, particularly by a small group of former UK cyber officials – such as the aforementioned Ciaran Martin and Marcus Willett. This is a positive development, as is the government's increasing willingness to communicate about the role of offensive cyber operations in achieving national strategic objectives. These are important factors in building public confidence in the UK's offensive cyber policies, as well as in improving the effectiveness of offensive cyber signalling to adversaries.

Much of the wider, global debate about offensive cyber operations has been dominated by US voices. This is understandable given the weight of US cyber power. The US-focused debate has produced some striking assessments of the nature of the cyber domain. And this has translated into some significant developments in contemporary US cyber strategy. As influential and important as this US debate is, other states need to carefully consider its relevance and potential application in their respective national strategies.

This is why the recent turn towards a more active UK-focused debate is so welcome. Like much else in UK strategy, the debate about offensive cyber operations cannot and should

not take place without reference to the United States and the implications of its decisions for UK strategy. This is true more broadly: effective cyber strategy requires a good understanding of what allies and adversaries are doing themselves, and the imagination to adapt UK decisions accordingly. But similarly, it would be quite wrong to assume that the UK faces precisely the same decisions, or possesses the same means, as the United States. Good cyber strategy must proceed from accurate national self-perception and well-calibrated decisions.

## Conclusion

The National Cyber Security Strategy, expected later this year, will be an opportunity to answer many of these questions about the balance between cyber security and cyber power. There are some big choices ahead if the government is to achieve its ambition to be a responsible, democratic cyber power. Part of the answer might be reforming some of the structures and processes that support cyber decision-making, clarifying and streamlining 'ownership' of cyber at both ministerial and official levels. The government chose not to revise these structures and processes during the Integrated Review or the subsequent internal review undertaken by the new National Security Adviser. This seems like a missed opportunity. But much of the solution is in longer term work, to improve: the domestic pipeline of cyber talent and innovation; recruitment and retention of cyber expertise in government; cyber security and resilience across the public and private sectors; and coordination with allies to address transnational cyber threats.

Most importantly, the United Kingdom must not lose its focus on the priority of improving cyber security and resilience, both domestically and globally. To ensure that the UK's cyber espionage and offensive capabilities are an asset rather than a liability in this respect, the UK needs to make prudent choices about when and how to apply its cyber power. The Integrated Review suggests a potential shift in UK thinking about cyber strategy, elevating the role of cyber power vis-à-vis cyber security. The impact of such a shift will not be clear for some time, but it will be scrutinised more closely in public debates than in the past, which is arguably a fitting corollary to – and perhaps even an integral component of – responsible, democratic cyber power.

*Dr Joe Devanny is Lecturer in National Security Studies in the Department of War Studies at King's College London. He is deputy director of the Centre for Defence Studies, a member of the King's Cyber Security Research Group and an affiliate of the King's Brazil Institute. His research focuses on the role of cyber power in national strategy, particularly offensive cyber operations.*

# A 'Meaningful Space' in the Integrated Review

## Julia Balm

> **SPACE ASSETS HAVE LONG LACKED VISIBILITY IN DEFENCE DISCOURSE, AN OVERLOOK OF BOTH INCREASING MILITARY AND GOVERNMENT OPERATIONS AS WELL AS THE BROADER USES OF SPACE SYSTEMS FOR EVERY DIGITAL USER ACROSS THE UK.**

In 2020, the UK found itself shaken by a global pandemic, confronted by Brexit realities, subsequent restructuring, increased national debt, and a revitalized discourse on how to build a stronger national posture in spite of this all. Space, a domain which had been overlooked in previous defence reviews, has now been formally recognized in the 2021 Integrated Review (IR) as a tool for growth and development in a UK defending interests, sovereignty, and infrastructure. Space assets have long lacked visibility in defence discourse, an overlook of both increasing military and government operations as well as the broader uses of space systems for every digital user across the UK. This increasing reliance on space assets has developed into a critical infrastructure in need of adequate defence and a strategy that befits the mercurial environment of UK space power today.

The inclusion of space in the 2021 Integrated Review of Security, Defence, Development and Foreign Policy indicates a significant and growing commitment to include space as a critical operational domain alongside land, air, maritime and cyber. Building off this integration of the space domain with other traditional domains, there was also mention of integration between activities within the UK space sector from civil to commercial to military and government operations.

As the UK is pouring more focus and energy into a cohesive space sector, demonstrably more motivated and prioritized than ever before, Whitehall's recent assessment shifted space power focus from a minor role of merely sitting at the table to a role that's found a pivotal voice at the table. Evaluating previous defence reviews, space has only ever played a minor role in these discourses. Mentions of space as critical infrastructure are recent and most notable for instance in the 2014 National Space Security Policy with recognition that 'space-based capabilities support the provision of vital services for our economy and national security', and in the 2019 Queen's Speech committing to making the UK a global science superpower with a commanding lead in space. The Integrated Review however is the first large scale review to directly mention the integral nature of space operations in relation to other domains as one of parallel importance.

> **THE INTEGRATED REVIEW HOWEVER IS THE FIRST LARGE SCALE REVIEW TO DIRECTLY MENTION THE INTEGRAL NATURE OF SPACE OPERATIONS IN RELATION TO OTHER DOMAINS AS ONE OF PARALLEL IMPORTANCE.**

The notion of responsibility surfaced as a highlight of the IR as the UK intends to take a leading role in this direction. Norms, rules, principles of responsible behaviours in space therefore guiding the UK to not only tread new developments on the right foot but to also work towards shaping a global approach that encourages sustainable and responsible uses of space. This builds off the 2020 UN General Assembly resolution on 'Reducing space threats through norms, rules and principles of responsible behaviours' in which the UK 'demonstrated global leadership on reducing space threats' by 'working with like minded nations'. While working with like minded nations in developing a responsibility framework is encouraging for an international debate, ensuring an understanding of diverse motivations in space and establishing shared language on what exactly defines responsibility to diverse actors is just as critical to this debate, especially for a UK moving forward as a global leader in space responsibility. As the IR declared UK intention to 'create shared rules in frontiers such as cyberspace and space', fruitful discussions on the limits of today's broad treaties will hopefully lead to more stabilization as well as increased transparency on otherwise opaque space activities that may lead to denial or degradation of high dependency assets.

A critical point for a space power expanding development and sector growth is a point of declaring clear intention and direction. In the 2021 Integrated Review, this intention to become a 'meaningful actor in space' became clear. Being a 'meaningful' space actor implies that actions in the direction of sector growth will be taken only if they mean something critical to the UK. Because, while it's exciting to plate significant ambitions in the IR, there is only so much a space power can palate when seeking sustainable growth that can stand strong amidst fluctuating politico-economic conditions. Sober assessments of UK capabilities make realistic the ever-increasing space ambitions in order to leverage a strategic edge through science and technology.

While sovereignty in areas such as launch infrastructure was a highlight in the Review, the importance of alliances and continued participation in key structures, such as NATO, NASA and ESA, was also significant. Operational risk and informational sharing will allow for more resiliency and increased pace of growth as allies can burden-share space operations. As the IR notes, cooperation and collaboration in the space domain remain critical for bolstering program support, strengthening a domestic position, and ensuring a more sustainable space environment.

To mark this recent and most significant integration of space into a defence review as a 'better late than never' posture would be to disjoint the necessity to properly assess priorities, ambitions, and resilience geared growth. In this respect, 'meaningful' approaches to space at a formative stage is an encouraging sign that the UK is thinking significantly enough about its growing role in space as a unique role not to mimic other space powers such as the US, Russia, UAE or China.

Language of a 'meaningful UK in space' therefore breeds expectations that adequate assessments will be made about which particular strengths are most imperative for the UK to prioritize. While competition exists in space, especially between the UK and other actors with much higher space sector spending, the UK must continue to tread cautiously as it ensures space power growth doesn't encounter any white elephants on its course. Intentionality is at the essence of making post-COVID UK recovery, growth, and goals realistic.

Also worth noting is the consistent 2030 deadline cited for space ambitions. On 8 April 2014, the Space Growth Action Plan 2014-2030 pointed to raising the UK share of the 'expected 400 billions global space-enabled market to 10% by 2030' whilst a House of Commons debate pack on 'The Future of the UK Space Industry' – published in early February 2021 – affirmed this 10% capture of the global market by 2030. The IR reaffirmed a 2030 deadline for ambitions: 'By 2030, the Government's ambition is for the UK to have the ability to monitor, protect and defend our interests in and through space, using a mixture of sovereign capabilities and burden-sharing partnerships with our allies.' A 10 year timeline is valuable in that assessments of success can be measured efficiently and trial and error have room to run course. On the other side of the coin, this may also jolt ambitious growth if risk averse timelines stunt creative visions and progressive future planning. While 10 years is a valid start to measure development, it's also necessary to think of longer term space power goals to give missions meaning beyond mere technological determinism, to be proactive and cutting edge, and to shape a strategy that will stand the test of time. As more information on space strategy begins to surface in the near future, particularly with the National Space Council developing the UK's first national space strategy in 2021, long term ambitions are worth noting as remarkable pieces to the long-term picture of UK space power growth.

The UK Ministry of Defence followed the IR with the publication of the Defence Command Paper (DCP), Defence in a Competitive Age, in March 2021. In the publication of the DCP, what was vague for space in the Integrated Review became clearer, especially in the Strategic Command application. Alongside declarations of a National Space Operations Center, and a constellation of intelligence, surveillance and reconnaissance satellites, there was also reference to a space cadre supported by the Space Academy. These developments demonstrate that pouring more focus and energy into a cohesive space sector requires understanding what exactly is situated in space, the purpose and motivations behind activities that may be saturated with ambiguity, and those resulting implications. These puzzle pieces are necessary in order to adequately defend against potentially malign actor intentions or space weapons which could undermine space security and UK space power. Protecting critical national infrastructure in space requires cohesion, the sharing of information, and a unified cognizance to establish a clear picture.

With the growth of the space sector and space power globally, the UK is sharpening itself to the value of opportunities in space and to the necessity to defend growing space infrastructure. The 2021 Integrated Review is responding to the necessity for assured access to space by integrating space as a domain worthy of sitting alongside other traditional domains. 'Meaningful' approaches to UK space power and defence foster encouraging

expectations that prioritized ambitions and cohesive growth will continue to materialize both within the UK and alongside its allies.

*Julia C. Balm is a PhD student in the Freeman Air and Space Institute (FASI) in the School of Security Studies, King's College London. Her research examines the UK's space posture and assesses the UK's approach towards space policy making in the new space age. Julia holds an MA in Non-Proliferation and International Security from King's College London as well as an Honours BA in History from the University of Toronto.*

# SECTION FOUR
## THE REVIEW, SCIENCE/ TECHNOLOGY AND INDUSTRY

# UK Integrated Review: Perspective on Technology

## Dr Valtteri Vuorisalo

This paper discusses the Integrated Review from a technology perspective, and, more specifically, from the viewpoint of national security information technology dynamics.

From this viewpoint, this paper begins by highlighting the select impacts of technology in national security matters in general, before going into the Integrated Review and highlighting key aspects from it from a technology perspective.

This paper will close in raising a few critical questions which emerge from the otherwise inspiring Integrated Review and by highlighting one key consideration for the successful implementation of the Integrated Review's goals.

### Introduction: Increasing Impact of Technology

The constant acceleration of digitalization in our societies is an undisputable fact. Governments, corporations, and citizens are all focusing their attention on how they can stretch and modify their boundaries of the possible and enhance security with the help of technology. At the same time, the ever-increasing importance of technology in empowering our way of life introduces new challenges, vulnerabilities, and dependencies. This is especially true for the state's national security apparatus the success of which depends on the secure and constant flow of data: having the right data, at the right time, in the right place.

Enabling this outcome is not solely a technological issue, however. As technological capabilities evolve and are introduced into the national security ecosystem, it should be noted that old technologies do not necessarily go away. Rather, it is the role of the new to adapt to the old. This complex journey must be managed and led with skill. Moreover, this adaptation process puts a whole new dimension of complexity into the technology evolution path where a clear view of what operational capabilities and processes, which are supported by technology and information, are most critical. Unfortunately, this clear view is often lacking. Further, technology without data is useless. Too often however, even if technologies could enable smooth data flows, radically different datasets, poor quality of data, scalability issues, and organizational processes and norms clog the pipes of smooth data flows, making fluidity and agility only a dream.

### Introduction: Increasing Impact of Technology

From the perspective of technology, and its rapid evolution, the Integrated Review is an inspiring, although at times repetitive, read of an ambitious vision for 2030. It gives special emphasis to science and technology (S&T) and outlines and ambition to give science and technology a central and pivotal role in the national security toolbox. Indeed, UK aims to be a science and technology superpower by 2030. Science and technology will be the tool of choice in gaining economic, political and security advantages in the coming decade. In addition, science and technology is seen to be a mechanism with which international norms can be moulded. Moreover, the UK seeks to dynamically and proactively shape the post-COVID order with science and technology.

Given the importance of technology in society as a key enabler of our contemporary way of life, it is easy to agree with the Integrated Review's emphasis on science and technology. To any follower of technology and the role of technology in national security, undoubtably it would be odd if it did not. Still, the Integrated Review should be applauded for highlighting this critical enabler and independent capability for larger audiences. Further, the Integrated Review correctly identifies science and technology as a source of new threats which need to be responded to. Interestingly, it identifies the role of the private sector as a key collaboration partner in achieving science and technology superpower status – but it also

<blockquote>
FROM THE PERSPECTIVE OF TECHNOLOGY, AND ITS RAPID EVOLUTION, THE INTEGRATED REVIEW IS AN INSPIRING, ALTHOUGH AT TIMES REPETITIVE, READ OF AN AMBITIOUS VISION FOR 2030.
</blockquote>

identifies the private sector and large corporations as potentially adversarial players in an arena of intensifying systemic competition.

While the Integrated Review does a good job in articulating the importance of science and technology, it does not, in this author's view, sufficiently address the role of data. Granted, the Integrated Review aims to establish "Britain as data hub". Yet very few concrete thoughts on what this actually means, or how to make this happen are given. Yes, there is discussion on how interoperability – that is, the mechanism with which the fluid flow of data is enabled – needs to be achieved, but even then, the focus is on architectures, standards and development methods. Undoubtably these are important, but they are (only some) tools with which interoperability is achieved. What is missing is a vision on how to determine on what data is important, how to validate it and gain access to it, how to integrate various datasets, who is in charge of this data hub – and is it really a hub if all of these, to only mention a few key items, are missing? If data is to be seen as a strategic resource, one could expect a vision on how to utilize it.

Further, while the Integrated Review is right to articulate new ways of working in order to achieve its visionary goals, it discusses these new collaboration practices from a position which leads the reader to assume that the process of building these new outcomes takes place in a vacuum. In other words, it does not give a visionary view on what we should do with all of the legacy solutions and legacy data that currently enable our way of life and cannot simply be plugged off, working cultures which favour siloed practices, and sometimes norms which prohibit or hinder joint activities. Unfortunately, this is typical with large governmental transformation journey programs.

## Technology & the Global Context

The Integrated Review rightly identifies the contemporary global security architecture as increasingly fragmented and as a stage for increased competition over core interests. No longer can states imagine they can proceed like they have before. To quote the Integrated Review, the "defence of the status quo is no longer sufficient".

Within this fragmented landscape, the Integrated Review calls out China as the most impactful systemic competitor in the 2020s. China's potent economy, size of its population, technological investments and assertiveness within the global security architecture makes it a formidable competitor. While all of this is true and easy to agree with, the Integrated Review leaves out one key advantage which China enjoys: the amount of data it is able to collect and utilize without the limitations of western democratic ethics, norms and values. For example, one of the most important new technologies which the Integrated Review calls out, Artificial Intelligence, is dependent on data which can be seen as a strategic resource. It can be argued that the one with most data is in best position to develop and utilize Artificial Intelligence and enhance innovation for example.

The post COVID-19 world will most likely continue to evolve into an even more fragmented landscape, making it even harder to cooperate. It has been argued that the world will enter a phase of 'deglobalization' as global logistical chains are disrupted by the pandemic and where nationalism is on the rise, and the promotion of one's own state's interests go before that of the others.

Within this fragmented landscape many other actors, in addition to China, also see new opportunities. Russia is called out by the Integrated Review as 'the most acute threat to the UK'. The constantly evolving technological landscape, the constantly evolving world order, and the emergence of new domains like cyber and space, actors like Russia have plenty of opportunity to find new ways of projecting influence and power, both soft and hard. It should be noted that although Russian technological capabilities are sometimes criticized, Russia has been very successful in producing innovative operational manoeuvres. One should always remember that technology alone is never an answer, but you need to combine technical capabilities with operational art in order to be successful.

> IF DATA IS TO BE SEEN AS A STRATEGIC RESOURCE, ONE COULD EXPECT A VISION ON HOW TO UTILIZE IT.

> THE INTEGRATED REVIEW LEAVES OUT ONE KEY ADVANTAGE WHICH CHINA ENJOYS: THE AMOUNT OF DATA IT IS ABLE TO COLLECT AND UTILIZE WITHOUT THE LIMITATIONS OF WESTERN DEMOCRATIC ETHICS, NORMS AND VALUES.

## Technology & the Changing Role of the Private Sector

The Integrated Review calls out that this rapid evolution of new possibilities also opens doors for new non-state actors. Serious and organized crime is constantly evolving into a notable challenger, but so are businesses, and especially global technology companies which are likely to grow their geopolitical influence. Having masses of consumer data at their disposal helps in this, but another mechanism of influence which these companies have is the fact that they are in prime position to shape the new standards of communication and collaboration, not only from a technological perspective but from a procedural and operational perspective. For example, these companies impact how we interact with the world, what gestures we use, which solutions we use, how we use them, etc. – effectively becoming new sources and interpreters of the 'real' for us. Moreover, the Integrated Review is right to point out that as technology evolves faster than the legislation governing it, the fast-paced evolution of technology exposes the limits of existing global governance.

## Technology & New Ways of Working

It is clear that to reach the goals of the Integrated Review, new ways of working need to be established. It is no longer sufficient to defend the status quo; it is no longer sufficient to work the way we have done in the past.

Accordingly, the Integrated Review acknowledges the fact that in order to be able to shape the new post-COVID international order, mechanisms with which working with a network of "like-minded countries and flexible groupings" need to be established. Further, a "sharper and more dynamic focus" is called for in order to be able to adapt to a more competitive and fluid global environment.

Central to this new way of working is the "own-collaborate-access" framework for Science and Technology power. In short, the UK will own some capabilities, collaborate with others to develop some capabilities, and gain access to some capabilities through deals and relationships. "Business science" approaches will be utilized to ensure the UK has access to the technologies it needs. New partnerships, co-creation and resource-pooling across the public and private sectors and friendly nations are mechanisms with which access to technologies will be ensured and through this, the sustainment of strategic advantage through science and technology.

In a world which is increasingly dependent on data flows, the integrations of these flows between public and private sectors and friendly nations is a central requirement for the sustainment of strategic advantage through science and technology. This is no easy task, but rather a task which demands time, skills, and monetary resources. Multiple initiatives to produce similar integrated outcomes exist, for example NATO's Federated Mission Networking initiative, the learnings from which can be used to jump start these new initiatives which the Integrated Review calls for.

It should be noted that adversaries are already acting in a more integrated way. Notably by using civilian technologies for military purposes, stretching the boundaries of war and peace. Moreover, these adversaries, like authoritarian regimes, enjoy one distinct advantage: time. Since irregular groupings and authoritarian regimes are not bound by similar data protection laws as set up in typical democracies for example, they have no normative restrictions to mix operational data and civilian technologies (for example cloud technologies). Another noticeable disadvantage for a democratic actor like the UK is its slow and lengthy procurement cycle. Current procurement mechanisms are simply not up to able to cope with the pace with which technology evolves. What follows is that democratic governments too often buy old technologies: by the time they get the technology they started to buy, new, better ones have already entered the market.

## In Closing

As mentioned above, the Integrated Review is an ambitious and inspiring read, one which rightly raises excellent action points for any given liberal democratic nation whose way of life is increasingly dependent on technology and data.

One cannot help but think if it is even too ambitious. It is easy to support the call to action from a theoretical standpoint, but what is missing is how will this government transformation be different from other large government transformation initiatives in the past? Especially as, like the Integrated Review correctly identifies, the role of science and technology already has a huge role for state power projection and this role will increase in the near future.

This emphasis on technology also begs the question that does the UK have the right skills in place with which it can execute this highly technological vision? Further, how will collaboration be established between the public and civilian sectors for example, so that it protects the intellectual property of businesses participating in the collaboration programs? Yet, in the end, the complexity of this ambitious vision is not related to technological talent or legal issues, but <u>one which calls for people working together</u>, people who have not necessarily worked together in the past.

We are all familiar with Peter Drucker's famous saying: <u>'cultures eat strategies for breakfast'.</u> How then to successfully manage multiple working cultures across the public sector, private sector and academia working on highly technological outcomes? The Integrated Review does not provide clear answers to this question, the answer to which many readers of the Integrated Review arguably eagerly await.

*Dr Valtteri Vuorisalo is a visiting senior research fellow in the Centre for Defence Studies, in the Department of War Studies at King's College London. Dr Vuorisalo is also Professor of Practice of National Security at Tampere University.*

# Private Sector Engagement After the Integrated Review

## Hugo Rosemont

Fusion is dead. Long live integration! Introduced by the former National Security Adviser, Sir (now Lord) Mark Sedwill, the Fusion Doctrine introduced in the National Security Capability Review (NSCR) of 2018 split opinion amongst UK security policymakers. Some said it was nothing new - deeper joint working across the national security machinery was long considered essential, and fusion was just the latest buzzword for the 'comprehensive', 'whole of government', or 'whole society' approaches previously advocated. While it is a political reality that a Government's position has to distinguish itself from the last, and while some elements of the Fusion Doctrine have been retained, the UK Government's Integrated Review of Security, Defence, Development and Foreign Policy (IR) published in March 2021 largely discarded the term.

In its defence, the Fusion Doctrine marked a departure from previous statements in an important respect. The centre of Government now recognised fully that industry is a core and integral component of the UK's national security approach, and no longer simply a provider of technical solutions. Its contributions were more than a 'bolt on' and the private sector would be a mainstream actor. The NSCR stated explicitly that '[m]any capabilities that can contribute to national security lie outside traditional national security departments and so we need stronger partnerships across government and with the private and third sectors.'

Many were sceptical. Some called it the confusion doctrine. However, enthusiasm for the embrace of industry within national security policymaking grew to the extent that the Home Office's annual major industry exhibition included a brand new 'Fusion Forum' in 2020. This interactive theatre-style feature delivered three days' worth of high-level discussion on industry's contributions to national security.

The Fusion Doctrine's time has passed and integration is now the focus. So, how did the IR fare in its recognition of industrial and wider private sector contributions to UK national security?

The document is peppered with helpful acknowledgments, across multiple domains and sub-sectors of national security and resilience, that Government and industry must work together to ensure the safety and security of the UK. Further, it states the now well-documented ambition - reflected in one of the four overarching objectives of the entire document - for the UK to secure its position as a 'Science and Tech Superpower'. It fully acknowledges industry's role in achieving this.

The IR rightly casts widely the landscape of public-private security engagement. In addition to the many interfaces on technological innovation - both from the regulatory and supply-side perspectives - the importance of industry engagement is acknowledged in other areas including, to name but a few: advancing vaccine development, tackling climate change, advancing UK cyber power credentials, developing new space capabilities, and developing dialogue with industry around international standards-setting fora. Numerous hooks are offered for meaningful partnership working.

However, the IR is light on detail regarding how, from the centre, the Government will work with the private sector to implement its national security objectives. It is not clear how the multiple strands of engagement will interact or be coordinated. The sense left is that such work is best left to individual departmental strategies, or sectoral policy statements. The IR's accompanying defence and security documents - such as the Defence and Security Industrial Strategy (DSIS) or the upcoming, updated National Cyber Security Strategy (NCSS) - are seen as the best places for such activity.

The deepening of industry engagement at individual departmental level is essential. Well before the IR, parts of Government had advanced the need for industry to be 'integrated' into UK security strategy. However, we now need a debate, given the multiplicity of public-private interfaces within the IR, on whether stronger central coordination is required.

What does 'good' look like in this respect, and how might it be achieved? For industry contributions to be harnessed to the full, the UK Government needs to apply the same level of care it puts towards coordinating itself to the manner in which it pursues its external engagements. I'd offer three ideas that would put industry engagement after the IR on a more sustainable footing:

i. First, the Cabinet Office should advance a whole of government approach to industry engagement on UK national security and resilience issues. This should accommodate strategy and thinking from across Whitehall through the multiple lenses through which Government views industry's role in national security: as a regulator, as a purchaser, as a shaper of innovation. A more carefully crafted approach from the centre will drive greater coherence, and help to build trust and goodwill across the system.

ii. Second, the Government should form an overarching private sector engagement strategy for national security and resilience. By mapping the interfaces centrally, this strategy will drive a more coherent approach to private sector engagement in the round. It would introduce a level of organisation that enabled senior figures to move beyond tired statements along the lines that 'industry needs to do more' or 'government cannot achieve this alone'. A new strategy, formed with genuine private sector consultation, would identify, prioritise and communicate key areas of practical future cooperation.

iii. Finally, a senior official should be appointed in the National Security Secretariat to oversee this work. This post would have responsibility for overseeing industry engagement on all matters relating to the technology and national security interface. Calls have been made recently for a UK Deputy National Security Adviser on Cyber Security. This is sensible but we should reflect arrangements in the U.S., where Anne Neuberger serves as the Deputy National Security Advisor for Cyber and Emerging Technology. Without this wider scope, the UK risks adopting an ad hoc approach towards industry engagement.

The IR is a substantial achievement. It maps out numerous public-private interfaces in key areas of national security and resilience, and serves as a useful foundation on which to develop future cooperation. The question now, as ever, is: how to achieve this? The breadth of private sector engagement on security issues means that coordination now needs to be driven from the centre.

*Dr Hugo Rosemont is Visiting Senior Research Fellow at the Centre for Defence Studies in the Department of War Studies at King's College London.*

# Last But Not Least: The Defence and Security Industrial Strategy

## Peter Watkins

> **THE DSIS DOES MORE THAN JUST PRUNE OR RE-PLANT THE HARDY PERENNIALS OF BRITISH DEFENCE PROCUREMENT POLICY.**

Given its title, one might have expected the Integrated Review to have appeared as a single document – or at least as a single set of documents on the same day. In reality, the main policy document Global Britain in a Competitive Age appeared on 16th March 2021 and a separate document on the implications for Defence policy, posture and capabilities, Defence in a competitive age, a week later on 22nd March. Defence's new Integrated Operating Concept emerged at the end of September 2020 and the Ministry of Defence (MOD)'s Science & Technology Strategy in mid-October – and the Prime Minister's statement on the Defence budget on 19th November 2020. The last element to appear was the Defence and Security Industrial Strategy on 23rd March – last but by no means least. It is potentially one of the more significant elements of the package, especially for the UK's air and space sectors.

According to the classical British definition, strategy involves a combination of 'ends', 'ways' and 'means'. Looking at the Integrated Review from a Defence perspective, the 16th March white paper set the "ends" (i.e. the policy goals), the Integrated Operating Concept (IOC) the "ways", and the Defence budget statement the 'means'. The 'ways' includes – or should include – not only how military force is employed, but also how capabilities are defined and developed to pursue wider defence and security objectives. There is some material on capabilities in the IOC – but the key document in this respect is the Defence and Security Industrial Strategy (DSIS).

The DSIS supersedes the National Security Through Technology (NSTT) white paper published in February 2012. It contains a range of pronouncements, including some which chime with the earlier document. For example, it commits to reforming the Defence and Security Public Contracts Regulations – the NSTT noted that these had recently been incorporated into UK law. It also commits to reforming the Single Source Contracts Regulations – the NSTT noted the conclusions of the then recent Currie review of single source procurement. And it commits to publishing a fresh MOD Action Plan for Small and Medium sized Enterprises (SMEs) – the NSTT had set out a range of measures to enhance opportunities for SMEs. But in two ground-breaking respects the DSIS does more than just prune or re-plant the hardy perennials of British defence procurement policy.

First, it denotes the defence and security industry as a 'strategic capability'. Admittedly, it uses this phrase in a sub-heading and does not fully unpack what it means in the main text. But the contrast with previous documents and the NSTT in particular is stark. The latter says positive things about the defence and security industry – for example, 'we need thriving, innovative and highly efficient suppliers' and 'the defence and security sectors of UK industry are an important part of the nation's advanced manufacturing base' – but the words 'strategic' and 'capability', either together or separately, do not pass its lips when discussing industry. This reflected a longstanding fear in the MOD that such language would encourage companies to seek special treatment and support from government.

> **THE UK'S DEFENCE CAPABILITY COMPRISES NOT ONLY ITS ARMED FORCES AND THEIR EQUIPMENT BUT THE MEANS OF SUPPORTING AND SUPPLYING THEM – AND OF UPGRADING, TESTING AND REPLACING THEIR EQUIPMENT.**

The change of terminology is welcome – if long overdue. The UK's defence capability comprises not only its armed forces and their equipment but the means of supporting and supplying them – and of upgrading, testing and replacing their equipment. Much of that capability has resided in industry – whether in state or private ownership – for decades or even longer. But still more – including critical research, test and evaluation installations, facilities and human capital – was privatised from the 1980s onwards.

The second key change in the DSIS is the replacement of the policy of 'global competition by default' by a 'more flexible and nuanced approach... which allows defence and security departments to establish where global competition at prime level may be ineffective.' Again, it was the NSTT white paper which had codified the former policy as 'wherever possible,

we will seek to fulfil the UK's defence and security requirements through open competition in the domestic and global market.' That had been the MOD's policy since the 1980s, but the NSTT white paper was 'concerned by the proportion of non-competitive contracts that have been let by the MOD.' So it was felt that the principle needed restating – even if the intention was more pragmatic.

Again, this second key change is welcome – if long overdue. MOD officials felt that they had to apply the principle of establishing 'value for money' through competition somewhat rigidly in the 1990s to break the hold of the old 'cosy' (as it was caricatured) relationship between the department and the UK defence industry. But by the early 2000s it was clear that industrial best practice was moving decisively away from competing requirements openly (and frequently) in favour of building long-term partnerships with suppliers selected against more qualitative criteria. However, 'competition as our default position' was deeply entrenched and it was feared that any official relaxation of the policy could accentuate the pressures on the – typically overheated during that period – equipment plan. And so it persisted – until now.

Significantly, the DSIS was preceded by the establishment by the MOD and industry of the Joint Economics Data Hub (JEDHub) 'to collect and aggregate data from across the defence sector.' This was a response to the 2018 Dunne review which noted the paucity of reliable data on the contribution of defence to UK prosperity. That paucity was not an accident. Over the years, the MOD had gradually reduced the data that it collected from the sector as such data was deemed unnecessary to support the previous policy positions.

It remains to be seen how much difference the DSIS's policy changes make to actual decision-making across defence acquisition. It is one thing to say that the MOD wants to have a 'more strategic relationship with industry and build a more sustainable industrial base' but another to displace old habits. The desire for 'case-by-case' decision-making is culturally ingrained – as is blaming suppliers when things go wrong. There is also a fear in some quarters that the 'more nuanced approach' will be a cover for protectionism.

And it's worth recalling that the previous policy positions persisted – although increasingly discordant with the reality both of the changing industrial landscape and of the practice followed in a number of individual major procurements – largely because of the chronic pressure on resources. The Government says that, through the Integrated Review, 'we will, for the first time in decades, match genuine money to credible ambitions.' The defence budget uplift was an agreeable surprise for most external commentators – and, in principle, a balanced programme is the basis for better decision-making across the piece. But how long will it last? The twin perils of cost growth and requirement creep remain. In the meantime, the UK's air and space sectors should benefit from a longer-term approach which takes more account of the wider economic and social contributions – not least skills development – from defence expenditure. In short, DSIS provides the conceptual framework for a more rational and pragmatic approach to defence acquisition – and thereby should help enhance significantly the resilience of our overall defence capability which is crucial for credible deterrence in an increasingly turbulent world.

*Peter Watkins is a visiting professor in the Department of War Studies at King's College London. He was formerly the Director General Strategy & International (2017-18) and Director General Security Policy (2014-17) in the UK Ministry of Defence (MOD).*

"

**IT REMAINS TO BE SEEN HOW MUCH DIFFERENCE THE DSIS'S POLICY CHANGES MAKE TO ACTUAL DECSION-MAKING ACROSS DEFENCE ACQUISITION.**

"

# Plenty of Froth but Little Substance? The Review, Security Innovation and the Market

## Dr Christopher Kinsey
## Ron Ti

> THE REVIEW ALSO LACKS CLARITY IN EQUALLY IMPORTANT ISSUES OF RESEARCH, DEVELOPMENT, AND SUCCESSFUL COMMERCIALISATION, ALL OF WHICH, IN TURN, ARE LINKED TO SEED FUNDING AND WORKING CAPITAL ACCESS.

The long-awaited UK Integrated Review (UK IR) and its two 'daughter' documents, the Defence Command Paper (DCP), and the Defence Security and Industrial Strategy (DSIS), were released in quick succession in March 2021. The bulk of the discussion related to security, the Market, and innovation is contained in the DSIS, and here when we reference 'The Review' we refer mainly to this document. In this article, we argue that the UK Integrated Review (as represented collectively by these three related documents) is big on rhetoric but light on substance, especially given our key focus of how the government intends to achieve an integrated approach to securing Britain via innovative facilitation of the security market. Despite the UK Integrated Review documents presenting a range of initiatives which purport to promote innovation and enhance Government's relationship to the Market, it contains critical gaps which we will discuss in this article. Yet whilst the Review acknowledges the preponderance (95%) of Small to Medium Enterprises (SMEs) in the security market (which encompass a diverse range of activities including cyber, policing, counterterrorism, border security, guarding, and offender services, to list a few) it lacks specific initiatives that reduce entry barriers for SMEs in this business sector. The Review also lacks clarity in equally important issues of research, development, and successful commercialisation, all of which, in turn, are linked to seed funding and working capital access.

General threads running throughout the narrative of the DSIS include those of partnership, collaboration, making procurement more 'agile', and a promised review of acquisition and procurement policies with the aim of reducing red tape (which is presumably where 'agility' comes into it). That procurement needs to become more 'user-friendly', less adversarial, and more reflective of a partnership is a principal goal of the Integrated Review documents and is emphasised through its intent to streamline overall processes. As one example, placing commercial activities under unified management structures such as an MOD 'Director General Commercial', or the oddly titled 'Shipbuilding Tsar' (in the form of the UK Defence Secretary) for domestic shipbuilding will be helpful if efficiencies result from a truly unified acquisition and procurement managerial structure, however we note that no similar attention has been given to the SME-dominated security market.

> THAT PROCUREMENT NEEDS TO BECOME MORE 'USER-FRIENDLY', LESS ADVERSARIAL, AND MORE REFLECTIVE OF A PARTNERSHIP IS A PRINCIPAL GOAL OF THE INTEGRATED REVIEW DOCUMENTS AND IS EMPHASISED THROUGH ITS INTENT TO STREAMLINE OVERALL PROCESSES.

The DSIS also flags reviews of both the 2011 Defence and Security Public Contracting Regulations (DSPCR 2011) and the Single Source Contract Regulations (SSCR). If these reviews should also result in the streamlining of approvals and facilitation of the MOD's procurement processes, this might prove eventually to be a worthwhile activity. Whether such reviews will indeed produce the 'agility', 'innovation', and 'partnership' which the DSIS hopes will characterise future Defence-Market relationships, however, remains to be seen. As is often the case, the 'devil' is in the detail, particularly in a relationship where competing information asymmetries underpin virtually every aspect of the transaction. In short, these initiatives indicate that the UK Government looks to a more collegiate relationship with the security sector, and whilst there is much expression of 'virtuous circles', specifics are lacking.

A key point in the Review related particularly to sensitive areas such as security has been a shift in the UK's long-standing policy of 'global competition by default' as a result of deeper consideration of the shifting international and national security environment. This was noted by Defence commentators soon after the release of all documents and stems from controversies over foreign governmental interference in foreign private businesses. This position taken by the Review recognises important sensitivities over potential foreign influence particularly in the security market, more so than in other market sectors.

## Conclusion

In summary, the trio of documents promises much, but is short on detail. Several important gaps occur throughout the documents. A significant omission is any mention of the critical upstream, 'feeder' role of the UK science and technology tertiary education sector in researching and developing security innovation. Another critical gap lies in the lack of specific measures linking the entrepreneur and innovation with seed capital to enable eventual commercialisation. 'Global talent' visas are mentioned, but whilst it is all very well to facilitate the entry of certain gifted individuals, the documents offer no specific facilitation to enable such talented entrepreneurs to bridge the 'access divide' represented by the capital required for research, development, and successful commercialisation (whether related to security or other areas of the market). Although the DSIS then proposes improved access to funding mediated through DASA (the UK's innovation accelerator-hub type program), these schemes have been historically burdened by restrictive bureaucracy and conditions, with the funds available (by grant or loan) often insufficient when compared to the true cost of commercialisation and lengthy lead times. In the UK where Venture Capital and 'Business Angels' are not a prominent part of the prevailing business culture, these arrangements become even more limited in their effect. A further gap in the Review lies in the lack of specific detail on how critical issues of both technology transfer and sharing of intellectual property transfer will be tackled, especially given that these are critical factors for SMEs operating in the security market. Lastly, the DSIS appears to offer no initiatives to promote the involvement of SMEs in the overall area of land capabilities. Despite much of the text being devoted to SMEs, it seems to be 'business as usual' in the land domain, with non-SME Prime Contractors prominent in the areas of acquisition, through-life capability management, and longer-term contracts (with the latter point probably reflecting the current situation of the MOD's logistic contracting arrangements).

Whilst it is clear that the UK IR and its two closely associated 'daughter' documents, the DCP and the DSIS, aims to reduce friction, uncertainty, and a certain adversarial tone in public/private sector business relationships, these do little to deconstruct the information asymmetry and competing agendas that lie at the very heart of many interactions between Defence and the Market. In the UK security market where the overwhelming majority of firms operating are SMEs, power, information, and financial asymmetries existing between these SMEs and the government are even more disparate. In conclusion, the road mapped out by these documents is indeed paved with many good intentions, and whilst these show superficial promise, unless followed up by specific details and mechanisms, the UK Integrated Review and its two associated documents stand to deliver little more to the UK security technology and innovation sector than statements of intent. To close with the coffee analogy: we have the froth, which despite carrying a hint of taste, has no body. What is now required to complete the Integrated Review is substance.

*Dr Christopher Kinsey is a Reader in Business and International Security with the Defence Studies Department at King's College London. His research examines the role of the market in war. Dr Kinsey has published widely on the subject and presented papers to the UN, NATO and the EU.*

*Colonel Ron Ti is currently a lecturer in Joint Operations in the Department of Military Studies at the Baltic Defence College, Estonia. He recently transferred to the Australian Army Reserve and completed an MA in Military History and Strategic Studies at the National University of Ireland, Maynooth in 2021. He is enrolled in the PhD program with War Studies Department at King's College London where he is researching military medical logistic resilience and assessment methodologies for conflict and humanitarian assistance operations.*

# Less Rhetoric, More Action – Delivering on the Ambitions for Science and Technology in the IR

## Peter Rochelle

"We will continue to defend the integrity of our nation against state threats, whether in the form of illicit finance or coercive economic measures, disinformation, cyber-attacks, electoral interference"

- Boris Johnson Integrated Review 16 March 21

The core ambitions held within Global Britain in a Competitive Age – The Integrated Review (IR) are admirable; however, the paper raises as many questions as it strives to answer. Although the paper is overall comprehensive enough, in most cases, it proffers the solutions to known problems, such as the need for greater speed, agility and the increasing requirement for a whole of government approach to most problem solving, to, "enhance Britain's prosperity and security," and, in reality, the proof will always be in the materiality of the inputs and the execution of these key deliverables. Other commentators have focussed on the fiscal challenge and the choices that have had to be made between some of the legacy and force mass capabilities and the future challenges and risks that these decisions may present in commentating on the review, however, this opinion piece will focus on the emphasis and recognition of the increasing importance that Space, Cyber and new technologies will play now and into the future.

The IR stipulates that, "We will exceed our manifesto and NATO spending commitments, with defence spending now standing at 2.2% of GDP, and drive forward a modernisation programme that embraces the newer domains of cyber and space, equipping our armed forces with cutting-edge technology."[1] So why then is there also a renewed focus on Space, Cyber and new technologies to get ourselves ahead of potential adversaries and outside competition? Probably because this recognition is coming somewhat late. The threat basis in both Space and Cyber is now not a point of debate; the leading 5-Eyes senior military representatives have already openly stated that the Space domain is contested, not 'increasingly' contested, and anyone observing the fallout from the two well publicised Cyber-attacks on both FireEye and SolarWinds in the US last year will understand that there is now much to do to recover lost ground. [2]

The IR notes that 'New challenges to security, society and individual rights. Technology will create new vulnerabilities to hostile activity and attack in domains such as cyberspace and space'[3] The question is whether, or not, the IR's proposals are enough to recover lost ground and forge ahead with advantage. The language within the IR is significant: 'we will have a dynamic space programme and will be one of the world's leading democratic cyber powers.'[4] But more telling, is the statement, "we will make the UK a meaningful actor in space."[5] One can be confident in suggesting that this is carefully chosen language to fit more comfortably with the actual inputs. Realistically, the UK Space programme has lacked a joined-up approach across government for some time and so it is encouraging that future

> THE LEADING 5-EYES SENIOR MILITARY REPRESENTATIVES HAVE ALREADY OPENLY STATED THAT THE SPACE DOMAIN IS CONTESTED, NOT 'INCREASINGLY' CONTESTED

> THE UK SPACE PROGRAMME HAS LACKED A JOINED-UP APPROACH ACROSS GOVERNMENT FOR SOME TIME

1. UK Government Cabinet Office, "Global Britain in a Competitive Age: the Integrated Review of Security, Defence, Development and Foreign Policy," GOV.UK, March 16, 2021, https://www.gov.uk/government/publications/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy.
2. Insider, "The US is readying sanctions against Russia over the SolarWinds cyber attack." https://www.businessinsider.com/solarwinds-hack-explained-government-agencies-cyber-security-2020-12?r=US&IR=T
3. Ibid.
4. Ibid.
5. Ibid.

plans will be created in a more joined-up way, but unfortunately the real underlying aspiration for Space Policy in government has not been met because of resource constraints. This has possibly been made worse by a continuing lack of consensus at the most senior levels within MOD, when faced with other force structure constraints, as a consequence of the requirement for new investment in space. Nonetheless, since a coherent strategy and plan is long overdue, the IR's focus on this sector should be welcomed and perhaps, with this opportunity, the UK will not squander any advantage it has where unique innovation still resides in the country.

The IR also recognises that Cyberspace will be an "increasingly contested domain, used by state and non-state actors. Proliferation of cyber capability to countries and organised crime groups, along with the growing everyday reliance on digital infrastructure, will increase the risks of direct and collateral damage to the UK."[6] It is encouraging that in an area where the UK is arguable already at the cutting edge it will have the potential to maintain this competitive edge, although the pace of change in the cyber domain is ludicrously fast and arguably in many sectors any advantage has already been lost, despite the significant annual investments of the past. The recent ransomware attack on the US Colonial Pipeline that stopped fuel distribution across the entire eastern seaboard of the US, followed by a similar ransomware assault on the NHS in Northern Ireland, are further evidence of just how advanced these attacks are today, and a stark warning and indication of the shear potential of what should be imagined might occur during acts by a hostile nation in and out of full-scale war. Admiral John Stavrdis' recent publication, 'War 2034' is an excellent commentary on the knock-on consequences of Western nation's not getting ahead of this all-pervasive Cyber threat.[7] This threat is not going to go away without decisive action to get ahead and find solutions that are capable of scaling, easy to implement and are much stronger than the current protection measures that are in place and currently envisaged for the future. All of which, has sparked a swift response from US President Joe Biden in his recently announced Executive Order and the new National Defence Authorization Act (NDAA) policy that mandates that the US has to now get ahead of Cyber and future Quantum threats.

Adding complexity to traditional and future threat, are the consequences of getting future protection wrong, which is all pervasive, in all domains, and never more so than in Space, which requires Space assets to be in orbit for many years, making the traditional methods of keeping such assets protected from cyber threats that much more difficult. The challenge is so acute that the U.S. Space Force has begun transferring over a thousand cyber professionals into its ranks as of Feb 2021 and plans to start recruiting talent from across the military branches this year, as articulated by Gen John Raymond, the Chief of Space Operations to reporters Feb 3: 'There is a spectrum of threats that are out there -- everything from reversible jamming of satellites...and there's cyber threats...which is why it's so important for us to have those cyber professionals on the Space Force team, organic to our team. They will be part of our crew force; they will understand the cyber terrain of space and help us protect this critical domain from that threat'.[8]

"In the digital age, [and more significantly the quantum age] sustaining this competitive edge in cyber will be a fundamental component of strategic advantage through S&T."[9]

In terms of technologies its possible to pick any one of the new and emerging areas to make this point. This author has been arguing for some time that the UK needs a hypersonic weapons strategy to exploit some technology at the leading edge and to compete against the adversaries' capabilities and, finally, there is recognition in the IR that this is now an important area to develop. This lag in decision-making is unfortunately typical of the consensus building approach that resides in Whitehall and the real challenge in executing

6.      Ibid.

7.      Elliot Ackerman and Admiral James Stavridis, 2034: A Novel of the Next War. New York: Penguin Press, 2021.

8.      Lauren C. Williams, "Space Force begins onboarding cyber specialists" Defense Systems, February 10, 2021, https://defensesystems.com/articles/2021/02/10/space-force-cyber-raymond.aspx.

9.      GOV.UK, "Global Britain in a Competitive Age: the Integrated Review of Security, Defence, Development and Foreign Policy.", p.35

the positives within the IR; the vast amount of new money going into Research and Development to exploit new and emerging capabilities. In terms of capitalising on new hypersonic technologies the competitive edge has already withered, the time for agility and risk taking was at least 5 years ago when there was an advantage that could have been exploited militarily, industrially, and politically, for security and prosperity.

Graphene, mentioned almost nervously in the IR, is an excellent example of the poor gestation and exploitation of new technology developed in research labs in the UK. By the time the National Graphene Institute was set up to realize the potential of this amazing invention, some 11 years after Geim and Novosolov had produced the atom layer sheet of graphene in the lab, there were already 1,000 or more patents in the US and over 4,000 patents in China for the productization of graphene. The discovery of graphene in this way was brilliant, but the UK's ability to see its immediate potential and to exploit it was not. The IR recognises this failure, speaking of agility and pace, at the speed of relevance, and an increased appetite for risk. It announces the setting up of a new Advanced Research and Invention Agency (ARIA) to fund high-risk, high-reward scientific research, but does not set out how in practice it this work. In seeking to exploit innovation, the traditional Whitehall approach of consensus building above all else, will have to be challenged if the country is not to continually lose great UK inventions to other countries. To succeed there needs to be a facilitating approach to true risk taking, where success is rewarded, and where people are prepared to invest in such risky ventures. The government argues that it recognises this: 'A common problem in the UK innovation landscape is that although support is available for early-stage R&D, it often falls away before ideas are fully commercialised and brought to market. As a result, innovation and intellectual property sometimes move out of the UK before companies are able to mature into commercial successes.'[10] Furthermore, the IR clearly articulates that a new approach will not work unless there is a whole of government approach and there in lies a paradox; thinking things through politically, industrially, and militarily is great, but it also smacks of traditional Whitehall consensus building, and of committees! What is actually required is a true shift in the culture that pervades Whitehall - this is not an easy task. Do the individuals that survive to make it to the top of these traditional organisations have the disruptive DNA that is so vital to making and exploiting these new opportunities?

In a similar way, the potential of quantum technologies is as good an example as any to consider these challenges. The IR's Quantum case study argues that the UK has the opportunity to lead the world with Quantum technologies and that the IR strategy will grow the 'UK's science and technology power in pursuit of strategic advantage', achieved through a, 'whole-of-UK effort.'[11] This will take considerable insight, strategic coherence and effort, and a fair degree of risk taking. In 2019, PSI Quantum, a UK start-up created by four UK university physicists, was tempted away to Silicon Valley by a £215m venture capital funding opportunity and it has recently revealed that it expects to be capable of delivering a commercial quantum computer by 2025.[12] This is the competition and opportunity that currently exists elsewhere and is yet to be coherently created in the UK.

A number of other nations have always been much clearer about their strategic objectives. France is, as ever, a case in point. The French government announced a €1.8 billion strategy to boost research in quantum technologies, and especially quantum computers, over five years, a move that increases public investment in the field from €60 million to €200 million per year, putting France in third place behind China and US for quantum funding. The goal is to build a business environment around the country's expertise and to keep the experts its universities nurture in the country. With these efforts, France has a chance to become 'the first state to acquire a complete prototype of [a] quantum computer',[13] according to President Emmanuel Macron when introducing the plan on 22 January 2021. Where France

10.  Ibid.
11.  Ibid.
12.  Clive Cookson, "PsiQuantum expects commercial quantum computer by 2025," Financial Times, March 13, 2021, https://www.ft.com/content/a5af3039-abbf-4b25-92e2-c40e5957c8cd.
13.  Eanna Kelly, "France and Germany line up for quantum leap," Sciencebusiness, February 11, 2021, https://sciencebusiness.net/news/france-and-germany-line-quantum-leap.

has articulated a 'regain' strategy for Quantum technology, the Chinese have already declared Quantum 'supremacy.' Chinese scientists have established the world's first integrated quantum communication network, combining over 700 optical fibres on the ground with two ground-to-satellite links to achieve Quantum Key Distribution (QKD) over a total distance of 4,600 kilometers for users across the country,[14] and their ambition extends well beyond this, prompting the new Japanese national strategic imperative to build their own QKD network. The US, however, continue to demonstrate the most effective conversion of research into possible commercial applications.[15]

The IR notes the 'Competition is therefore intensifying, shaped, in particular, by multinational firms with the backing of states, some of which take a 'whole-of-economy' approach to ensure dominance in critical areas.'[16] The race, and therefore the need for clarity on the strategy and the technologies that the UK will pursue, has begun and never been more acute. The challenge will be the mechanisation of how this is to be achieved? A good example of where the UK got this approach right is the Tempest Combat Aircraft programme – a sector in which commentators had declared that there would never be a new UK Combat aircraft built in the UK. A strategic approach, a good degree of vision (and a little optimism) quickly generated a regain strategy, with industrial, political and military alignment and a very fast manifestation of the strategy coming to life with mutual multinational government and industrial agreements - a clear illustration that the UK can get this right; there will be more to follow soon on Tempest no doubt that will reinforce this argument.

"While references to 'the race for quantum computing' do abound, it is important to recognize that this is not just a race, but rather more of a marathon."[17]

In a recent paper on Quantum Technology and National Security[18] by Deloitte, the authors argue that new Quantum information technologies will have significant impacts on national security, 'touching everything from extremely secure communications to faster code breaking, to better detection of aircraft and submarines.' The paper's authors argue that it will be difficult to precisely predict the outcome of these new technologies, but they are clear in their guidance to government leaders in national security, 'who face significant stakes for getting things wrong, doing nothing is not an option.'[19] However, the 'Quantum Revolution' of things is not just about the race to build Quantum computers, although this has received the lion's share of investment and commentary. The three main components are typically characterised as Quantum Computing, Quantum Communication and Quantum Metrology; we should show an interest in all of these in equal measure because advancement in all three areas will revolutionise the world.

While many government leaders may wish to prepare their organizations for the coming quantum revolution, the obscure and counterintuitive nature of quantum science can be a major barrier. As a result, many government leaders are unfamiliar with quantum science or technology. So how can government leaders prepare for a somewhat unknown quantum future? The short answer is that pragmatic leaders can put in place the infrastructure to allow their organizations to capitalize on whatever developments quantum may bring, but this will have to be done at breakneck speed, with forethought and razor-sharp clarity, or

14. University of Science and Technology of China, "The world's first integrated quantum communication network," PysOrg, January 6, 2021, https://phys.org/news/2021-01-world-quantum-network.html.
15. John Prisco, "China: The Quantum Competition We Can't Ignore", Forbes, January 21, 2021, https://www.forbes.com/sites/forbestechcouncil/2021/01/21/china-the-quantum-competition-we-cant-ignore/?sh=27e9ca065d19.
16. GOV.UK, "Global Britain in a Competitive Age: the Integrated Review of Security, Defence, Development and Foreign Policy.".
17. Deloitte, "The realist's guide to quantum technology and national security," April 28, 2021, https://www2.deloitte.com/uk/en/insights/industry/public-sector/the-impact-of-quantum-technology-on-national-security.html.
18. Ibid.
19. Ibid.

this revolution will be dominated by others and the UK will just become a commodity user of other nation's capabilities. This revolution and the pace of change was recently crystallised by Sundar Pichai, the CEO of Google, who said that a combination of artificial intelligence and quantum will 'help us tackle some of the biggest problems we see'[20], but also said it was important encryption evolved to match this, stating that, 'In a five-to-ten-year time frame, quantum computing will break encryption as we know it today.'[21]

According to Dr Jonathan Dowling of Louisiana State University, current efforts to develop quantum computers are seeing the number of quantum bits on a quantum computer's processor chips double every six months.[22] "That is four times faster than Moore's Law for classical chips, but the nature of quantum computers—[through] superposition and entanglement—means that their processing speed grows exponentially with the number of qubits. So, the processing power of quantum computers obeys double exponential growth," Dowling noted.[23] If this growth pattern continues, qubit processors could be capable of cracking one of the most widely used types of encryption, Rivest–Shamir–Adleman (RSA) encryption, and solving complex problems and simulations within the next decade.

In a recent report, Accenture stated that as a consequence of these performance increases in Quantum Computer development, there will be a 'point at which a practical quantum computer will be able to break the security of our current encryption methods, and if by then our basic security infrastructure has not already shifted to a quantum-secure form, it will be too late. The time to look at options for a quantum-safe architecture is at a minimum 10 years ahead of the expected need date.'[24] Accenture go further, arguing that 'Quantum Key Distribution provides a quantum-safe mechanism for key delivery that is independent of advances in cryptoanalysis and computing capabilities, whether classical or quantum and is thus not dependent on algorithmic security.'

In the Integrated Review, the government has initiated an additional investment of £1.4 billion more per year in core-funding for its world-leading research base, citing that this will, 'enable institutions across the UK to push the frontiers of knowledge in areas ranging from quantum technologies for cryptography to new imaging technologies for cancer treatment.'[25] The level of investment is commendable, however, this funding has to cover the broadest range of future capabilities and technologies, without focus, it will be spread too thin, across to many areas and little change will result. In comparison, the US National Defense Authorization Act (NDAA)[26], passed by both chambers of Congress in December, contained a provision that promises to increase government spending on quantum computing, AI and 5G technology by $10 billion annually over the next five years. A vast amount of money focussed on just two key initiatives.

So, what it is that we can do in the UK? It wants to be a meaningful Space nation but lacks the resource to truly make a difference and meet the unwritten ambition that really resides within Whitehall. In the 2010 Defence Review a strong argument was made for a Cyber Army – 12 years on it still does not exist and it is still way off in the future. In this IR the UK has highlighted the importance of Quantum technologies, but the world is already ahead of it here too and if the current chaos being caused by Cyber attacks across the world is not

20.     Hannah Boland, "Quantum Computing could end encryption within five years warns Google boss," The Telegraph, https://www.telegraph.co.uk/technology/2020/01/22/googles-sundar-pichai-quantum-computing-could-end-encryption/.
21.     Ibid.
22.     Deloitte, "The realist's guide to quantum technology and national security."
23.     Ibid.
24.     Accenture, "Cryptography in a Postquantum World Preparing intelligent enterprises now for a secure future" https://www.accenture.com/_acnmedia/pdf-87/accenture-809668-quantum-cryptography-whitepaper-v05.pdf
25.     GOV.UK, "Global Britain in a Competitive Age: the Integrated Review of Security, Defence, Development and Foreign Policy.".
26.     Emily Birnbaum, "Congress just voted to spend $10 billion on AI, quantum computing," Protocol, December 11, 2020, https://www.protocol.com/Politics/congress-ai-quantum-computing#toggle-gdpr.

> ## JUST IMAGINE THE COMPOUNDING EFFECT TO THE OPPONENT WHO TRULY HAS QUANTUM SUPREMACY, IN ALL OF ITS DISCIPLINES

enough, just imagine the compounding effect to the opponent who truly has Quantum Supremacy, in all of its disciplines (which China has argued they already have!).

Can the UK do anything to shift this paradigm? The answer of course is yes, but it will need stronger leadership and ambition, along with government support, to set the conditions to enable the historically brilliant UK innovations to be pulled through to the end user avoiding the 'valley of death'. To achieve this will require courageous people prepared to disrupt, investors prepared to take a leap of faith in UK technology, and a completely different perspective when it comes to risk taking within government, or else everything brilliantly British will again end up being developed by others, offshore!

*Air Vice-Marshal (Ret) Peter "Rocky" Rochelle is Chief Operating Officer at Arqit Ltd, part of the AQI Group. Rocky spent 34 years in the RAF, including wide operational experience and an extensive background in Acquisition and Government Strategic Programme Delivery, completing his service as Chief of Staff Capability, Acquisition and Force Development in April 2020, where he was instrumental in delivery of Project Tempest and the Combat Air Strategy.*