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The ninth in our series of expert comment and analysis, by General Sir Richard Barrons, Commander Joint Forces Command (2013-2016), now Co-Chairman of Universal Defence & Security Solutions, and GSF Advisory Board member. As always, the views expressed are those of the author and not of Global Strategy Forum unless otherwise stated.

The Case For Digital Age Transformation In The UK's Integrated Review Of Foreign Policy, Defence, Security & International Development

The proposed Integrated Review of the UK's foreign policy, defence, security and international development has been pushed into late 2020/early 2021 by the exigencies of dealing with COVID-19. The pandemic will in any case very significantly affect the parameters of the Review, as the virus is brought under control at the price of the deepest recession for 300 years and a different strategic context emerges around globalisation and relations between states, especially between China and the rest of the world.

It was already the case that foreign policy, defence, security and international development needed to adjust for the harsher reality of the end of the post-Cold War era. The relative decline of US power, the relative rise of China, nuclear weapon proliferation, the effects of busting the limits of the planet's tolerance of mankind, the AI industrial revolution, and the systemic implications of factors like global population growth and strategically-relevant levels of inequality were already – and still are – on the agenda.

In defence and security four things were also already clear: first, the present defence programme is unaffordable by at least £13 billion over 10 years; second, the Armed Forces are currently neither big enough nor ready enough to meet all the risks that are emerging; third, there is some excellent equipment but military technology has moved ahead in new ways (led by US, Russia and China) into capabilities for attack and defence that all European states now struggle with; and fourth, the rapid evolution of 'hybrid' confrontation that integrates traditional means such as politics and diplomacy with digital advantage in the form of offensive cyber and social media manipulation is not being met competitively. Were the IR to focus only on either trimming down the current programme still more or filling in the gaps by buying more of the same, it would be a failure of government.

There has already been some articulation of how the UK could improve its performance by seizing on the advantages of Digital Age technology. This has tended to be piecemeal and tempted into 'silver bullet' territory. Acquisition reform in defence, for example, is long overdue and vital, but it's not a good answer if the result is just to buy the wrong capability more efficiently. Establishing data advantage is vital to all outcomes too, and data science in government has a very long way to go



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to acquire mass open source data, blend it with classified information, manage it with well-chosen algorithms and use this capability in close support of ministers and officials, not instead of them. Winning information advantage is more than data, though: there is no shortage of political and official tweets to digest, but not yet the comprehensive information capability that spans AI-enabled data collection and fusion and the mobilisation of all forms of influence including cyber and social media in coordinated 24/7 activity.

The generic problem is that most digital technologies today are advancing led by the private sector, whilst the public sector really needs to harness this working out what application looks like and how to pay for it is a struggle. So it would be worth restating the basic case for the application of combinations of digital age technologies to underpin the IR as a fully transformative process. The first and vital point to make is that the potential gains are in both **effectiveness and efficiency**, eventually on a scale to match the gains brought by the profound disruption seen in industry and other walks of life.

On **effectiveness**, harnessing relevant data will lead to a far better understanding of the policy and operational challenges that have to be faced and support better quality, faster, and more accurate decisions. By accessing the largest possible span of data that is available either free or by purchase, adding this to the proprietary data governments already hold, surveying and analysing the combined pool with algorithms tuned to support specific purposes, and then visualising the results in an intuitive way, there will be less uncertainty about what is going on and more clues about where to focus the attention of experts, policymakers and ministers. It is important here to lose 'human' conceptions of scale and complexity: the power of cloud computing and AI is such that vastly more data can be employed than even the sharpest civil servant can survey or jumble.

As an example (and I declare a long-standing interest in arguing for this), it is now possible - and under investigation by HMG - to build a replication of an entire country such as UK or an entire alliance such as NATO that accommodates and connects: physical terrain down to perhaps 1m detail, the real weather, complex built environments such as cities in 3D, all forms of Critical National Infrastructure such as power, water, telecoms, banking, fuel distribution, supermarket networks, road, rail, air traffic etc; the 'human geography' down to individual households or even individual phones to show location and movement; prevailing sentiment drawn from trawling social media; the real time location of resources such as police, ambulance, and the military; and almost whatever else is useful: satellite coverage, maritime movements etc. This replication through integrated layers of data could be distributed across Whitehall Departments and down to regional and local level: leaders would see the same, complex picture at the same time, adapting and using it for their own purposes. This includes 'decision support': designing possible courses of action and then testing them through simulation at 'machine speed', and then coordinating operations when they take place. This sort of effectiveness gain would work as well for national domestic policymaking, resilience (including against pandemics) and security as it will for the design and execution of very large scale military activity.

Data-based **efficiency** wins are potentially more significant. This does, however, depend on the appetite over time for achieving disruptive transformation over halting at comfortable accessorisation: the major gains only come with the will to harness technology through really new organisation and method. This is so much more than adding some flashier kit to an existing institution. In terms of how all government departments and military headquarters work, if the collection, fusion and presentation of information about what is going on can be done by machines faster and better and then by humans, then it is possible to work better



and strip out layers of people whose purpose this has been hitherto. A very much smaller number of people can supply the information needed by the leaders of an organisation that propose or take decisions in policy, strategy and operations. This potential to hire fewer people to support decision-making and to direct activities offers a path to savings not just in recruiting, salary and operating costs, but also pensions. Pensions are a major driver of public sector costs. 'Robots don't have pensions' ought to be a thought echoed across Whitehall.

This scope for manpower reductions in step with effectiveness and efficiency gains is especially important for the Armed Forces, and indeed for any institution that has to work with a mix of people and equipment. Data, AI and the sort of connectivity bestowed by 4G, 5G et seq. offers the potential to reduce the size of military headquarters at the strategic, operational and tactical level by layering them (the target should be 50%), and it will also reduce the *number* of HQs required (by say 50%) as greater centralisation in secure facilities becomes possible. It will also reduce the numbers deployed into harm's way. Quite apart from new *organisation*, new *methods* become possible as technology supports better ways of understanding and assimilating a military problem, producing and articulating plans, and coordinating operations. Military command and control today is an evolution of General Staff practices first developed in the mid 19th century, and as ripe for disruption by the Digital Age as accountancy, law, architecture and insurance. The same principle can be applied in the work of the Foreign Office, Intelligence Agencies and DFID: how many people can be stripped out of work that machines just do better, and placed in more creative, supervisory or contact-facing roles – or released?

In addition, the evolution from military capability built around people manning complex equipment that we can trace back for at least 150 years will now inflect towards a planned mix of manned, unmanned and autonomous capability. This will deliver new

operational competitiveness and great efficiency. We are already seeing the Services deploy unmanned ships, submarines, aircraft and vehicles and we know that this trend will accelerate fast as robotics and autonomy advance in the 'Internet of Things'. Advanced missiles, radars and communications no longer require highly complex manned platforms to be deployed and operate – they can increasingly be built as unmanned autonomous networks. A modern destroyer can cost £1bn to build, a networked 'team' of a larger number of small vessels with no people on board but carrying the same sensors and missile launchers much less.

As it becomes commonplace to deploy weapons and sensors into operational settings that do not require people to accompany them, so we can acquire greater military effectiveness, resilience and scale. Restoring the air and missile defence of the UK through a network of unmanned missiles and radars 'in a box', all of which need some maintenance and oversight, but none of which require a large number of people to be ready 24/7, would be a far cheaper and effective solution than the complex systems operated during the Cold War.

This sort of change will also mean that the metric for judging the efficacy of a Navy, Army or Air Force is no longer the number of expensive regulars that they can afford to employ nor the number of highly complex 'capital platforms' that they can afford to build. Defence acquisition costs will fall when no longer focussed on a very small number of very expensive iconic items but instead on a planned mix of manned/unmanned/autonomous capability. Equipment support costs will fall as unmanned and autonomous platforms do not need to train in the same way as all-manned solutions. Nor do these platforms need houses, hospitals, food, leave, pay and certainly not pensions.

It will also mean that the balance between regulars, reserve, civil servants and contractors can shift in the evolution of a Digital Age 'Whole Force Approach'.



Uniformed personnel would not be needed to maintain equipment out of harm's way that civil servants or industry can do better and more cheaply. Full-time regular forces would still be needed to maintain high readiness, to deploy on enduring missions, to master complex tasks that justify permanent effort, and to provide a framework for mobilisation and training. Public-facing stabilisation roles, capacity-building and partnering with our allies abroad will always be a human-intensive undertaking for regulars and reserves. But where the capability is only used occasionally or can be mastered in the time that a volunteer reserve can make available, then many greater options will exist in holding that capability predominantly in the Reserve forces. Of course, this also means that the political will must exist to compulsorily mobilise reserves when the need arises, or the savings will be illusory. In addition, Digital Age simulation will improve training, experimentation and readiness and reduce the costs when as much as is sensible can be transferred into the vast, complex replications of the operating environment described above.

We should assume that the forthcoming Integrated Review will be driven by the imperative to restore capability for a far more challenging world and to do so at a price that reflects a crushing recession. But we should assert that it is also a once in a generation opportunity to transform how the UK understands its place in the world and acts effectively in it. In the military domain we are on the cusp of the most profound and concurrent transformation of intelligence, surveillance, reconnaissance, command and control, and combat capability for over 150 years. Seizing this opportunity requires thinking about technology that is more than the application of a particular widget to embellish the current ways of working with some digital magic. Genuine strategic thought is now required to examine how to affect systemic, disruptive transformation over time across defence and security that changes how we understand the world, decide what to do, make and issue plans, and conduct a range of activities

in intelligence, foreign policy, defence, security and international development.

The prize is globally pacesetting capability as a sustainable affordable price, even if some additional investment is required to get moving. This potential will never be seized unless we are able to muster the political vision and will, the military capacity, the industrial cooperation, and the academic support to create a coherent and high tempo programme of change – a process not an event. The UK could set a global example in how to restore influence and power, bringing along our key allies and alliances, and open a fresh opportunity for industry. This is a much bigger deal than another attempt at balancing an increasingly obsolescent set of government capabilities to a much smaller supply of cash, we now need Government to rise to this.

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