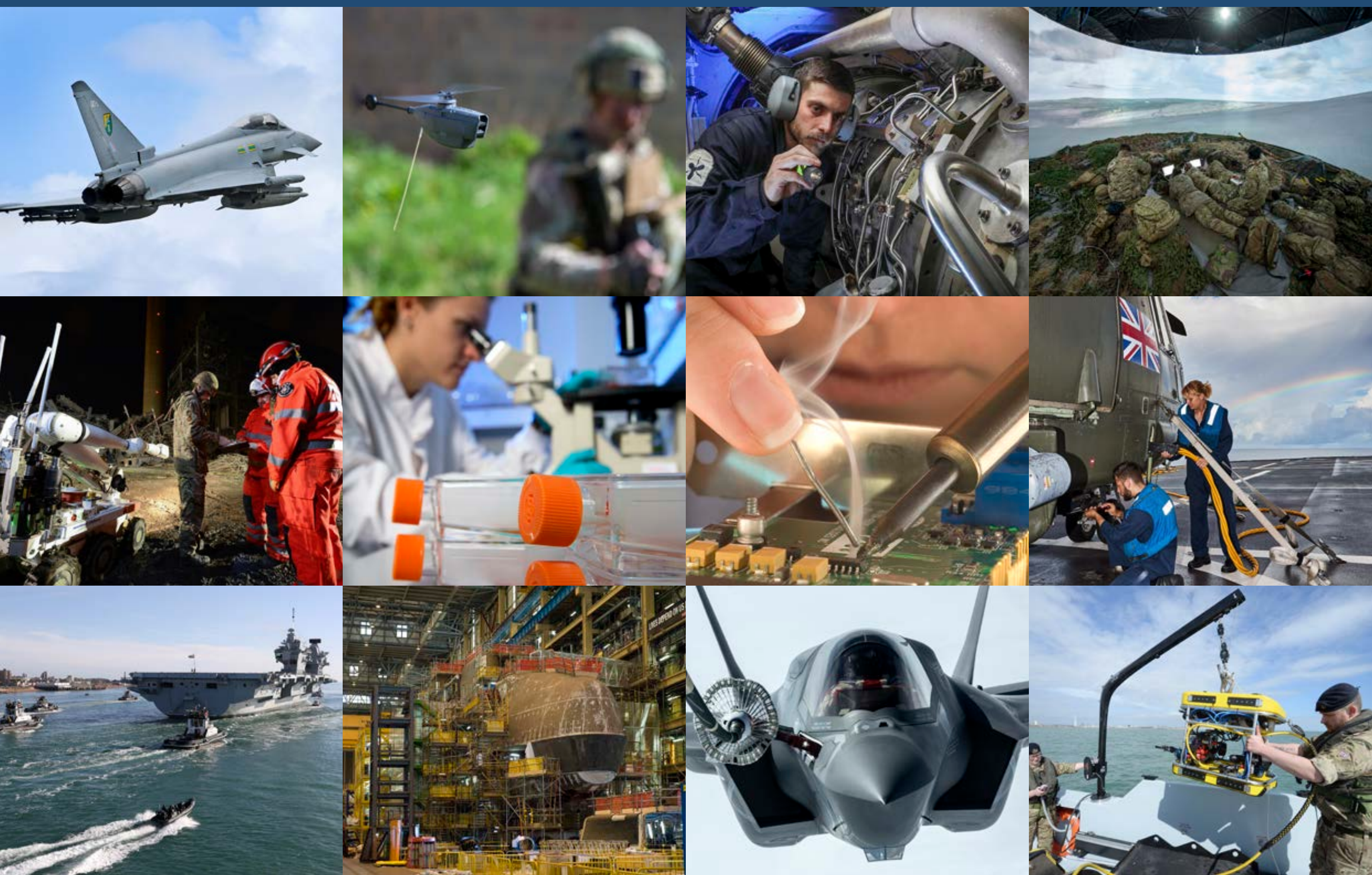
Ministry of Defence

Industry for Defence and a Prosperous Britain:

Refreshing Defence Industrial Policy



Foreword by Secretary of State

British industry, working alongside our Armed Forces and defence civilians plays a crucial role in delivering the United Kingdom's national security objectives: to protect our people, project influence overseas and promote national prosperity.

It provides people, equipment, training, support, infrastructure and technology for our Nation's defence, and for our friends and allies. Defence industry is an important part of our economy, with a strong manufacturing and technology base and a broad footprint across the United Kingdom. In 2016, it had a turnover of around £23 billion, invested in 4,300 apprentices, directly supported 142,000 jobs and contributed £5.9 billion in UK exports.[1]

Two thousand private and public sector organisations have now signed the Armed Forces Covenant and are proudly supporting the Armed Forces community. This includes the growing Reserves, employing Service leavers, helping to rehabilitate our wounded, injured and sick, and improving the employment prospects of Service spouses and partners.

As a customer of the defence industry, the Government has a responsibility to obtain the right capability for our Armed Forces and to ensure value for money for the taxpayer in the goods and services that we buy. We also want to create an environment that encourages a thriving and globally competitive UK defence sector as an important part of our wider industrial base.

In refreshing Defence Industrial Policy, our goal is to reinforce these twin objectives and encourage a mutually reinforcing approach in delivering them, giving further strength to the whole force approach.

We have consulted industry of all sizes. A number of the steps we are now taking as part of our refreshed policy are shaped by that consultation. Notably, this includes our commitment to take fuller and earlier account of economic value, international interests and industrial resilience in procurement, and additional measures to make it easier for companies to do business with the Ministry of Defence. Competition and strategic choice remain at the heart of our approach in defence procurement and we are taking further steps to reinforce this, while recognising that there are several different models for working successfully with industry.

Growing the UK economic value of defence in a highly competitive global market requires us to be more flexible and adopt new ways of working with industry. I welcome the work within the Defence Growth Partnership and the Defence Suppliers Forum to improve overall sector productivity, build in exportability and the needs of international customers into future products and services, deliver new technology to market quickly and efficiently and implement competitiveness plans.

The National Shipbuilding Strategy, published in September 2017, with its focus on export-led growth, competition, productivity and skills is an important pathfinder for improving the way we measure, assess and apply prosperity benefits in other areas of defence procurement. Our recent successes in securing £6 billion of Typhoon exports to Qatar and winning support work for the UK on the F-35 programme are the results of a genuine partnership with industry which helps to secure thousands of jobs across the country.

We are also committed to a whole government approach, building on the Government's Industrial Strategy in working with colleagues across government and industry to strengthen productivity. Increasingly, the boundaries between civil and defence industry are blurring. This brings new opportunities for defence to harness the pool of

1 Source: www.adsgroup.org.uk/reports/uk-defence-outlook-report-2017/

talent and innovation in the wider economy, and for more joint approaches at local and regional level. It also brings broader responsibilities, especially in cyber security and supply chain resilience; the United Kingdom needs to be a secure and reliable partner for defence business.

In promoting our vision of Global Britain, we continue to champion free, fair and responsible defence trade around the world, while strengthening industrial and technology links with allies and partners, consistent with our commitment to be "international by design".

The UK will remain an integral part of the European defence industrial and technological base and we will continue to work with Europe to protect our Nation's security against a backdrop of increasing threats.

In implementing the Defence Industrial Policy, we want to work closely with industry, without detriment to our policy on fair and open competition. A stronger strategic dialogue and common purpose with businesses of all sizes is crucial to deliver the performance, productivity and innovation in Defence that are essential to our future success.

The Rt Hon Gavin Williamson MP
Secretary of State for Defence

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Executive Summary

1. As well as delivering vital capabilities to our Armed Forces, defence industry is an important part of the UK economy. Industry estimates that it provides around 142,000 direct jobs across the UK and supports around 110,000 indirect jobs.[2] The UK is one of the world's largest and most responsible defence exporters contributing to our balance of trade and helping to strengthen our international relationships and build military capabilities in our friends and allies.

2. As a customer for defence industry, the Government has a responsibility to get the right capability for our Armed Forces and to ensure value for money for the taxpayer in the goods and services that we buy. Alongside this, we also want to create an environment that encourages a thriving and globally competitive UK defence sector as an important part of our wider industrial base. This was reflected in the 2015 Strategic Defence and Security Review, which introduced a new National Security objective to promote our prosperity. The commitment to refresh our defence industrial policy was one of the steps to help meet this objective. Since 2015, we have worked with business of all sizes, both directly and through the Defence Growth Partnership and the Defence Suppliers Forum, to understand how we can support growth and competitiveness in the sector, as well as our wider national security objectives. This document sets out the results of this work. It identifies what has been achieved so far, as well as the areas where further work is needed. In defining how government and industry can work together to generate value and strengthen our security, it is part of a continuing process of engagement.

3. There are three strands to our approach:

   - **Improving the way defence delivers wider economic and international value, and national security objectives**. By setting strategic objectives early in the development of a business case, we can substantially improve the way we inform choices in meeting our military requirements. We will therefore establish, initially on a pilot basis in larger business cases, a holistic approach to setting such objectives for:

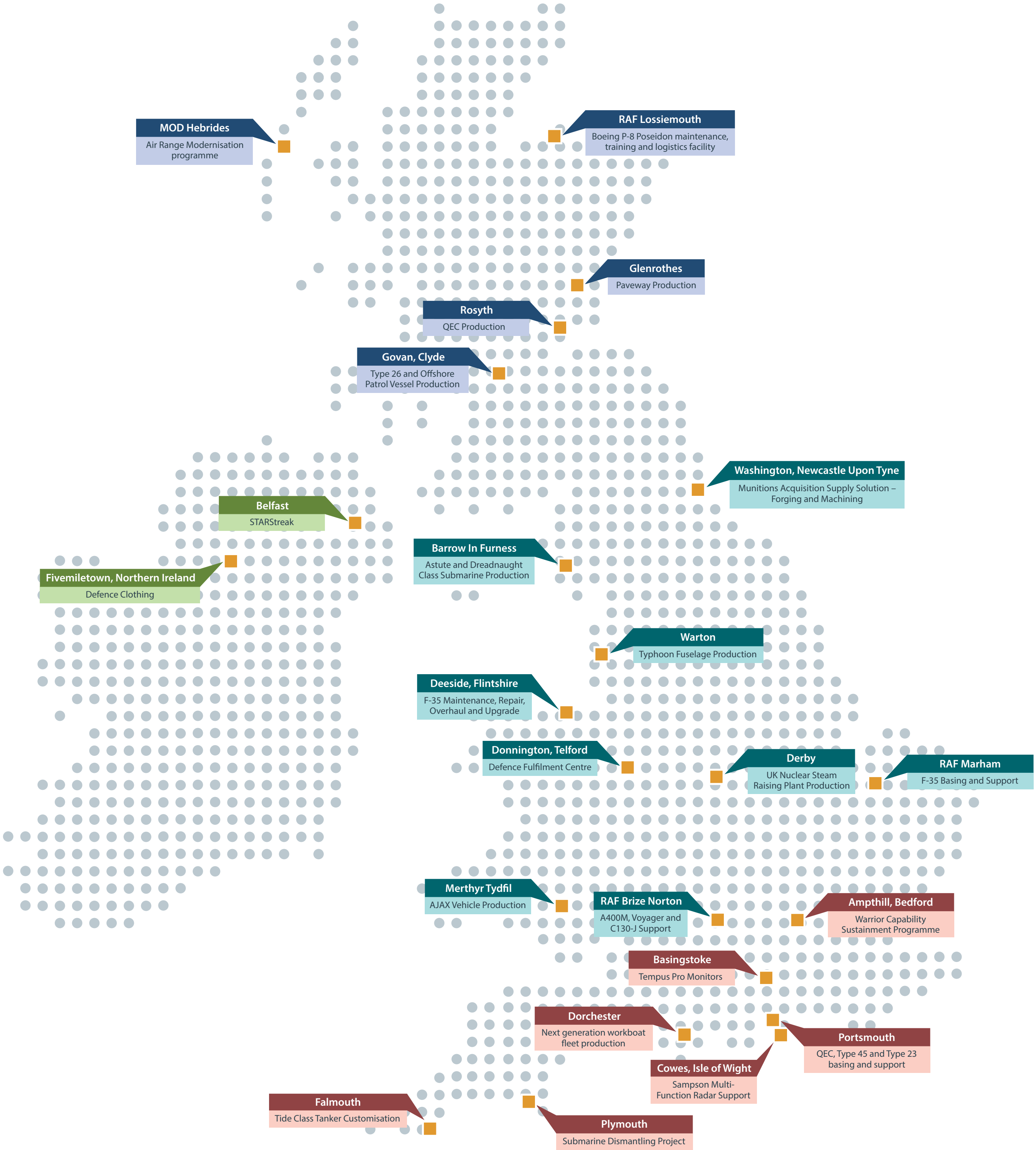
     - building **UK economic value**, particularly focusing on strengthening supply chains and productivity, including at local level, and boosting exports and inward investment on a sustainable basis;
     - implementing the concept of **international by design** by reviewing strategic options for international capability co-operation and coherence; and
     - industrial requirements across all aspects of capability for **operational advantage and freedom of action**, with a more systematic approach for strengthening the way we protect and monitor them in the supply chain.

   - **Helping UK industry in its plans to be internationally competitive, innovative and secure**. Our policy to achieve this has a number of elements:

     - Reinforcing our commitment to **competition and strategic choice** in defence procurement and support as the best means of delivering value for money, innovation, opportunities for small and medium-sized enterprises (SMEs), and industrial competitiveness. We are revising our policy on intellectual property rights and promoting the use of open systems to this end.
     - Encouraging defence **industrial approaches which support modern deterrence, resilience and international influence**, as we look forward to new capabilities we need over the next thirty years.

2 Source: https://www.adsgroup.org.uk/wp-content/uploads/sites/21/2016/07/DefenceOutlook2016-E-Res.pdf

Defence Industry: At work across the UK



- Being more flexible and open to a range of **different models for working with business** to generate value for government and industry. Drawing from our experience in establishing and implementing the *National Shipbuilding Strategy*, to consider how or where elements of that approach might be adopted to encourage a more systematic approach to prosperity and exportability. This will be informed by analysis of wider market opportunities, our need to promote competition and strategic choice, and by industry's own appetite for investment. The joint venture (Sealand Support Services Ltd) between the MOD and industry that won the global competition for F-35 avionics support work demonstrates how innovative ways of working together can sustain jobs and capabilities.
- Working with the **Defence Growth Partnership** to understand opportunities in adjacent civil or export markets, build in exportability and the needs of international customers into future products and services, deliver new technology to market quickly and efficiently and implement competitiveness plans.
- Maintaining strong support for defence **exports**, encouraging defence inward investment and working with industry to deliver our policy on making UK defence capability more exportable.
- Supporting the cross-government approach to **Industrial Strategy**, we are working nationally, with the Devolved Administrations, at a local level and with industry, to maximise coherence in, and impact from, civil and defence investment. This will particularly target **productivity**, key **skills**, **innovation** and investment in **science and technology**.
- Taking further steps to **defend the UK defence enterprise**, working with suppliers to improve cyber security and early identification of potential areas of fragility in the supply chain. Building on the Government's National Security and Infrastructure Investment Review we will also take further action to thwart extraction of sensitive defence intellectual property.

■ **Making it easier to do business with defence, particularly for innovators, small and medium-sized enterprises and non-traditional defence suppliers**. We are:

- Operating a new **Supplier Portal** signposting procurement opportunities, explaining policy and process and providing links to other bodies and funding streams, including the Defence and Security Accelerator. We are also asking our key suppliers to advertise supply chain opportunities through the same portal.
- Revising internal MOD guidance on **engaging potential suppliers**, and encouraging front line commands and defence delivery organisations to work with the Defence and Security Accelerator, UK Defence Solutions Centre and trade bodies to improve their engagement with industry, especially in the pre-competitive phase.
- Investigating **new innovation models** through the Defence Innovation Initiative, including some used by allies where alternative commercial and funding models apply, to increase pace in contracting.
- Asking for **supply chain plans** for competitive contracts with a value of more than £100 million. Supply chain plans and mapping will be an increasingly important tool in both monitoring supply-chain fragility, and in fostering a more open, competitive and resilient supply chain drawing on further consultation with small and medium-sized enterprises and ensuring greater transparency in decisions over where work is carried out.

4. We are building on the National Security Strategy and Strategic Defence Review of 2015, and reviewing and revalidating our approach in achieving our national security objectives through the National Security Capability Review. Our policy approach remains consistent with the National Security through Technology White Paper of 2012. We are committed to the course we set through the Defence Reform Act (2014), in delivering value for money for defence and a fair return to industry by implementing the single source contracting regulations in new and modified non-competitive contracts.

5. The UK is outward-looking and a leading advocate of free trade. This approach is at the heart of our vision for **Global Britain**. We will strengthen industrial collaboration with our key allies and partners, including in the context of NATO, the US National Technology and Industrial Base and the European Technology and Industrial Base, with which UK industry and research will remain intricately linked.

6. In delivering this refreshed approach, we need a close partnership with industry in the UK, without detriment to our commitment to open competition. We will support this through:

- A stronger **strategic dialogue** with industry through the **Defence Suppliers Forum**. We will underpin this by asking industry to help us develop the strong and impartial evidence base we need for our strategic choices, and in considering more efficient resourcing and sustainment of our joint endeavours, including in key skills and training. We will carry out a comprehensive review of the Defence Suppliers Forum to ensure it is suitably configured to do this, as a key instrument in our joint work with industry in shaping, monitoring and implementing policy change.
- Our work with the **Defence Growth Partnership** to understand export and adjacent market opportunities in aligning defence and industrial investment, and how we might develop approaches over the longer term to meet new technological, industrial and budgetary challenges.
- A whole of government approach spearheaded by the **Industrial Strategy**, for a more coherent and locally-focused approach with industry, in tackling key national priorities, foremost among which is boosting national earning power through productivity.

Chapter 1
Introduction and context

1. Working with the Armed Forces and civilians in defence, industry is at the core of the United Kingdom's defence effort in meeting our National Security objectives to **protect our people, project influence overseas** and **promote national prosperity**.

2. Industry provides people, technology, equipment, infrastructure and support for our Armed Forces and for our allies and partners, often beside us on operations and through valued support for the growing Reserves. UK defence industrial capability contributes to our military deterrence and resilience, reinforcing long-term international partnerships and interoperability with allies. It is central to the way we defend defence itself from hostile state and criminal activity.

3. Defence industry helps power the knowledge economy and makes a major contribution to a prosperous, productive and well-balanced UK economy. MOD expenditure with UK industry and commerce was £18.7 billion in 2015/16 and directly supports over 121,000 jobs in every nation and region of the United Kingdom, many of them highly skilled.[3] Industry itself estimates that it employs 142,000 people directly, and a further 111,000 indirectly,[4] including in support of exports, with orders of £5.9 billion[5] in 2016. In 2016, military aircraft and vessels were the fifth and eighth biggest UK manufacturing sectors by sales, worth £6.1 billion and £3.6 billion respectively.[6]

4. The **National Security Strategy and Strategic Defence and Security Review** (NSS & SDSR) of 2015[7] emphasises the key interdependence between our economic and national security, and the importance of a healthy and competitive UK defence and security industry. Under the National Security objective to promote prosperity, we committed to refreshing our defence industrial policy, driving greater innovation into our defence procurement, and ensuring that future investment decisions contribute to a more dynamic and productive economy. The **National Security Capability Review** is focusing on our priorities in delivering those objectives.

Typhoon aircraft with digitally produced light trails. Crown Copyright.

5. We are building on the firm foundations of the Government's 2012 White Paper, **National Security through Technology**,[8] which sets our approach to defence and security procurement. We provide our Armed Forces with the capabilities they need, now and over the longer term, at the best overall value for money we can obtain for the UK taxpayer. We achieve this wherever possible through open competition, maximising the chances for SMEs and non-traditional defence suppliers to be able to bid for defence contracts. Competitive tension in

3 Source: MOD Regional Expenditure with UK Industry and Commerce and Supported Employment, 2015/16, published 16 March 2017, www.gov.uk.

4 Source: https://www.adsgroup.org.uk/wp-content/uploads/sites/21/2016/07/DefenceOutlook2016-E-Res.pdf

5 Source: https://www.gov.uk/government/statistics/uk-defence-and-security-export-figures-2016.

6 Source:https://www.ons.gov.uk/businessindustryandtrade/manufacturingandproductionindustry/bulletins/ukmanufacturerssalesbyproduct prodcom/2016intermediateand2015finalresults

7 National Security Strategy and Strategic Defence Review (SDSR) 2015: A Secure and prosperous United Kingdom (Cm 9161), November 2015.

8 National Security through Technology: Technology, Equipment and Support for UK Defence and Security (Cm 8278), February 2012.

the market is by far the most effective means of ensuring value for money, and in driving performance and innovation. We want UK commerce and industry to thrive in that market including by **collaborating and competing internationally**, underpinning our plan for **Global Britain**.

6. We protect our freedom of action and operational advantage around aspects of capability on national security grounds. This requires a holistic approach across all aspects of defence capability. The SDSR (2015) recognised that in some limited cases we will also make an exception to our policy on competition where there is strategic, military and economic benefit to the UK from long-term collaboration with other nations. In co-operating internationally, we will continue to preserve strategic choice and promote competitive procurement where possible.

7. In some areas, principally where competition is not available or feasible, defence interests are served by long-term partnering arrangements. These are often single-source contracts, applying to more than half of all defence procurement by contract value. In new or modified non-competitive contracts, we expect to use the **Single Source Regulations**, introduced under the Defence Reform Act of 2014. These set firm rules on how costs can be calculated and how much profit can be paid. They also give the government and our suppliers the right to appeal to an independent body, which can make legally binding changes to contract prices.

8. Building progressively on National Security through Technology (2012), the Defence Reform Act (2014) and the SDSR (2015), we have already taken significant steps to strengthen competitiveness, innovation and prospects for longer-term growth in the defence sector. These include:

- Publishing on an annual basis the ten-year defence equipment and equipment support plan, currently £178 billion, and growing each year;
- An aspiration to place 25% of defence business with SMEs by 2020, rising from 18.1% (of direct and indirect MOD expenditure) in 2015/16,[9] supported by new measures to maximise opportunities for SMEs to bid for MOD contracts and to encourage open supply chains;
- Reaping savings, to be ploughed back into defence, estimated at £600 million[10] by the end of 2020, through the new Single Source Regulations;

A corporal from the Royal Electrical and Mechanical Engineers inspecting the tail rotor assembly of an Apache during exercise in Arizona, USA.
Crown Copyright.

9 Source: Crown Commercial Services - Central Government Direct and Indirect Spend with Small and Medium sized Enterprises 2015/16.

10 Source – Single Source Regulations Office.

- Building exportability into the way we set new defence requirements, already demonstrated by our approach in the *National Shipbuilding Strategy* and in the design for the new Type-31e frigate;
- Working with industry on ways to make it easier for personnel to move across organisational boundaries in a number of skills areas and investigating new ways to manage the UK's skilled workforce. Meanwhile, we continue to nurture key skills, including through apprenticeships of which MOD and the Armed Forces are the largest providers in the UK;
- Appointing a new Director Economic Security and Prosperity in MOD to act as a focus for strategic engagement with industry on increasing the contribution of defence to the wider UK economy, putting in place a new joint government/industry defence prosperity framework and leading the strategic export campaigns for which MOD is now responsible; and
- Supporting the Defence Growth Partnership (DGP) between government and industry to reinforce innovation, competitiveness and export-led growth in the UK defence sector, including through MOD's sponsorship of DGP innovation challenges.

9. As we now shape and exploit further opportunities to meet the UK's defence needs in ways which also reinforce prosperity, we are supported by a growing defence budget, the Government's Industrial Strategy and by mutually reinforcing work led by MOD under the National Security objective to promote prosperity:

   - The Defence Innovation Initiative - **Advantage through Innovation**,[11] sets new challenges and opportunities for the way we work with industry to harness the UK's talent for innovation, and which the Defence Industrial Policy should further incentivise;
   - The **National Shipbuilding Strategy**, published in September 2017, which shows our approach in driving prosperity through export-led growth, competition and a focus on national and regional productivity and skills. The *National Shipbuilding Strategy* is an important pathfinder for work on improving the way we measure, assess and apply prosperity benefits in other areas of defence procurement; and
   - The MOD **Science and Technology Strategy**, published in October 2017,[12] shows how science and technology underpin the defence enterprise, directing and applying innovative research and thinking to meet defence and security needs. MOD spends around £1.7 billion on research and development each year,[13] much of it with industry or academia. The core science and technology research portfolio, under the custodianship of the Chief Scientific Adviser, represents 1.2% of the defence budget. The defence science and technology community are committed to working with the Armed Forces, Defence Equipment and Support and across government for the rapid exploitation of science and technology. We will also promote innovative thinking in the way we partner industry, and in drawing out new approaches from advances in science and technology with the health and education sectors.

10. The Government's **Industrial Strategy White Paper**[14] identifies the potential for a partnership between government and industry to create significant opportunities to boost productivity, employment, innovation and skills. A wide range of sectors, including defence, have responded

11 Advantage through Innovation: The Defence Innovation Initiative, September 2016.

12 https://www.gov.uk/government/publications/mod-science-and-technology-strategy-2017

13 Finance & Economics Annual Bulletin Departmental Resources Statistics 2017

14 Industrial Strategy: Building a Britain fit for the Future, 27 November 2017 - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/662508/industrial-strategy-white-paper.pdf

A Reservist soldier demonstrating a virtual reality headset. Crown Copyright.

to this invitation and are working on proposals. These could be explored through a variety of routes, including formal 'sector deals'. The criteria for sector deals are set out in the White Paper and the government has indicated that it will be speaking to all those sectors which have submitted expressions of interest and will be announcing the intention to proceed with some further sector deal discussions in 2018.

11. We are working with industry to ensure we are appropriately prepared to leave the European Union, examining carefully where there are specific or unique impacts on the defence sector. We are committed to **strong co-operation with European partners on defence programmes**. This is generally underpinned by arrangements within a broader European defence industrial and technological base. It is therefore our objective, in maintaining and enhancing that collaboration, that the UK and UK-based companies should remain integral to those underpinning industrial arrangements.

12. The SDSR 2015 commitment that that UK defence will be '**international by design**' supports the Government's plan for Global Britain. The UK will advocate an interconnected, efficient international defence market with fair and reciprocal access; prioritise industrial co-operation with the US, France and Germany; do this in a way which enhances NATO interoperability and growing industrial and technology co-operation with other NATO allies such as Italy, Poland and Turkey; and develop key non-NATO defence industrial partnerships with countries including Australia, India, Japan, Saudi Arabia and Sweden.

13. In implementing this approach, we recognise several strategic challenges and emerging trends:

- The **cost of defence equipment and technology** is rising more rapidly than defence budgets,[15] while its increasing complexity stokes demand for scarce, highly skilled personnel in its development, manufacture and operation. Innovative ways of disrupting these trends while achieving affordable modernisation are an increasing priority, reinforcing the importance of the work we are doing in defence and wider government to encourage innovation and to recognise and seek it more instinctively ourselves.
- More countries are establishing their own national defence industries, increasing international competition and opportunities for collaboration, in turn demanding more sophisticated choices by the UK about our **operational advantage, freedom of action and prosperity interests**. We will need industry's support in understanding how we can make capabilities more readily exportable or transferable in this context, while still assuring our own needs.
- **Industrial investment in defence research and development** has declined markedly since the early 1990s,[16] blunting productivity, competitiveness and innovation in the

15 http://www.scaf.org.uk/library/prespaper/2015_08/Defence%20Acquisition%20Cost%20Growth%20Paper%20(David%20Bangert%20and%20Neil%20Davies).pdf; and http://www.tandfonline.com/doi/abs/10.1080/10242694.2015.1093757

16 https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/bulletins/ukgrossdomesticexpenditureonresearchanddevelopment/2015 defence sector; government and industry have a mutual responsibility to reverse this trend. Where we can, we are acting to nurture competition in the defence market and throughout the capability life-cycle, supporting productivity, while strengthening our dialogue with industry about the challenges and needs of modern defence to ensure effective investment.

- The wider spectrum of challenges, from state-sponsored hybrid attacks to more sophisticated forms of terrorism, is making the definition of defence industry less self-evident or relevant. We need a **wider range of industry partners and types of partnership for defence and security**; equally there are increasing opportunities for defence companies from adjacent, non-defence work. Our work on innovation is designed to reach new pools of talent, and we will remove unnecessary barriers or ways of working which we recognise can too easily dissuade such talent from contributing to defence.
- The threat to the defence sector itself, including from cyber attacks and state-sponsored operations to steal or surreptitiously obtain intellectual property has become much more serious; we are attaching corresponding importance to **supply-chain understanding, vigilance and security**.
- Accessible **statistics associated with the UK defence sector** and its performance are limited, complicating the development and measurement of policy interventions, notably relating to the promotion of prosperity and supply chain security. MOD now collects further data on defence jobs and is considering ways of improving information on the defence sector with other parts of government. Industry will have a key role to play with government in the design of prosperity metrics and collection of associated information, as well as in improving our supply chain awareness in some areas.
- In promoting our vision of **Global Britain**, we will champion the cause of free, fair and responsible defence trade around the world. We recognise that British industry needs to plan with confidence, and that there is a risk that the defence industrial partnerships we seek with our close allies will at times encounter barriers. We will consult the UK defence sector as we negotiate the fair and reciprocal access arrangements which are intrinsic to our long-term defence and security partnerships.

Engineers of 845 Naval Squadron maintaining a Merlin helicopter. Crown Copyright.

14. In working to help defence and industry get in the best possible shape to meet and exploit the challenges and opportunities now before us, we see a need to refresh our Defence Industrial Policy in three ways:

- **Improving the way defence delivers wider economic and international value, and national security objectives.**
- **Helping UK industry in its plans to be internationally competitive, innovative and secure.**
- **Making it easier to do business with defence, particularly for innovators, SMEs and non-traditional defence suppliers.**

Defence Industrial Policy recognises and respects the devolution settlements of Scotland, Wales and Northern Ireland. Procurement of defence equipment rests with the UK Government, as does innovation spending to universities and research institutions currently delivered primarily through Innovate UK which will be replaced by UK Research and Innovation. However, many of the policies that can drive productivity are devolved. These may be significant in supporting industrial development relevant to defence issues, and also government-run retraining programmes which ensure adequate skills provision to support the defence industry. Direct support to business as part of the devolved administrations' responsibilities for economic development is also devolved. We will engage the Devolved Administrations and other stakeholders in the devolved nations where there are shared responsibilities and interests.

Chapter 2

Improving the way defence delivers wider economic and international value, and national security objectives

By setting strategic objectives early in the development of a business case, we can substantially improve the way we inform choices in meeting our military requirements. We will therefore establish, initially on a pilot basis in larger business cases, a holistic approach to setting such objectives for wider economic and international value, while assuring our operational advantage and freedom of action. Developing a stronger evidence base and a framework for assessing qualitative factors will go forward in close consultation with industry. Criteria must always relate directly to delivery of the goods or services required in the contract and be fair and non-discriminatory to all parties.

An evidence-based approach

15. The approach and methodology underpinning our investment decisions remain consistent with the Treasury Green Book and our policy in National Security through Technology. We strive to obtain the best value capabilities we can afford, wherever possible through open competition, and protect the UK's freedom of action and operational advantage in support of our national security.

16. In maximising value for the UK as a whole, we take potential wider economic impacts, strategic international interests, and national security objectives into account. Value in these areas is often characterised by qualitative assessments which require balanced judgement using the best available evidence.

17. Early decisions on strategic objectives allow us to ensure that acquisition strategy and commercial engagement support the full range of our desired outcomes. They also enable us to gather evidence to inform and assess the criteria underpinning best value for money in achieving the policy goals. This might involve shaping the information we request in a pre-qualification questionnaire, and developing specific criteria on which bidders will be required to provide evidence, consistent with HM Treasury's "Delivering Public Value from Spending Proposals". Where appropriate and in accordance with the Defence and Security Public Contract Regulations we can make these requirements a contractual obligation. Criteria must, nevertheless, always relate directly to delivery of the goods or services required in the contract and be fair and non-discriminatory to all parties.

18. During the concept phase of some higher-value business cases, and initially on a pilot basis, we will undertake analysis of potential ways of delivering wider economic, international and national security value. This will draw on further prosperity and international industrial analysis by MOD and wider government, and on pre-competitive market engagement and dialogue with industry, including through the Defence Suppliers Forum and DGP. The 'value management' approach and preparatory design and procurement work for the Type-31e frigate provide a pathfinder for exploring some elements of this approach.

Building and assessing economic value

19. Defence contributes to economic growth and security in many ways, most significantly in contributing to the security in which economic activity takes place. In assembling prosperity criteria for defence business cases, we expect to focus on those factors which are:

- relevant to defence procurement needs and objectives;
- proportionate and measurable; and
- aligned with the priorities in the Government's Industrial Strategy.

A radar operator in the operations room on-board Type 23 frigate HMS Monmouth. Crown Copyright.

20. Our objective is to determine how defence procurement might contribute to strengthening productivity, including at local level, and to boosting exports on a sustainable basis. Examples of where and how this might be delivered include:

Productivity and industrial capability

- **Skills development and high-value employment:** A contribution to the development of skills in high demand (e.g. through apprenticeships), and / or high-value employment and productivity benefits, including in a local context. Work by Ipsos Mori (see box) has highlighted how relative prosperity benefits in terms of employment and income might be assessed at a local or regional level.[17]
- **Value chain competiveness:** Initiatives which reinforce the capability and competitiveness of the value chain, including SMEs and non-traditional defence suppliers, with potential productivity gains for the economy. Such initiatives might draw on existing best practice for value chain development, including that developed under the Aerospace and Defence Growth Partnerships, programmes led by some key UK and international suppliers and work by bodies such as the High Value Manufacturing Catapults. This might also include initiatives such as 'industrial digitisation' and investments in capital equipment and process improvements which create a modern and innovate manufacturing and service sector in defence.
- **Local clusters:** Activity strengthening or developing local expertise (including cross-sector clusters), forging or reinforcing ties with universities, catapult centres and local companies. Work across and between sectors can result in greater innovation, to the benefit of defence and the wider economy.

Future export, support and capability development

- **Export (and / or dual-use) potential:** Current and future market opportunities for a product or service, which result in lower cost in defence capability development.
- **Future capability development:** The extent to which procurement activity should result in increased private venture research and development activity in the UK (including through government and industry co-investment), generating UK intellectual

17 https://www.gov.uk/government/publications/value-of-military-shipbuilding-to-the-uk.

property. Connections with future R&D plans associated with the programme and the offer of innovative proposals to meet defence challenges.

- **Inward investment** – encourage increased foreign direct investment into the UK economy in support of future capability development, improved interoperability with the UK Armed Forces and future export opportunities.
- **Future support opportunities:** Where there are significant follow-on development maintenance or support opportunities for the UK value-chain.

21. There are costs to the UK economy in pursuing these objectives as well as potential benefits. We have to make careful assessments as to which options deliver net benefits to the UK economy as a whole, as well as to defence.

22. MOD has developed a new commercial policy statement as part of its broader guidance and direction within the Department on adopting a balanced scorecard approach in assessing prosperity factors.

23. MOD has also resumed collection of statistical data on its regional expenditure with UK industry and commerce, and supported employment.[18] MOD will be seeking to build on this with additional data from suppliers to underpin supply chain plans and wider analysis in MOD to deliver prosperity. However, we recognise that the overall evidence base for assessing sustainable economic impact is still fragmentary and insufficient. We need a concerted approach by government and industry in deciding what evidence we need and how we get it, starting with an audit of the existing evidence base and key gaps.

24. The development of appropriate metrics, targets, data sources and robust qualitative analysis around the generation of sustainable UK-wide or local earning power is challenging. We can draw on Ipsos Mori's work on criteria and metrics for assessing prosperity in the UK shipbuilding sector, including at the local level, to help assess prosperity more broadly in the UK defence sector. However, we will consult industry on the most effective means of assessing a wider range of criteria, and on how an associated assessment and judgement process might work. We recognise that in managing public money, MOD and the Treasury need to be assured that value for money assessments are robust.

Building strategic international and industrial value

25. The strategic capability of UK industry and universities, including in science, technology and support, reinforced by MOD expenditure with UK industry, makes the UK an important industrial partner and help sustain our freedom of action, international influence and collective prosperity. To make the most of these assets, we are implementing the concept of **international by design**, bringing a coherent, strategic approach to our international capability and industrial choices. We will take early and holistic account of international security, industrial and prosperity objectives, alongside military capability requirements, in agreeing the optimum international focus and framework for co-operation.

26. The UK benefits from working with allies and international partners to develop military capability for our Armed Forces. These benefits include improved interoperability between our Armed Forces, access to industrial and technological expertise and reductions in the cost of capability development and service support. We will take account of international potential throughout the equipment life-cycle, including the support element of acquisition,

18 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/599796/Commentary_relating_to_Finance__Economic_Annual_Statistical_Bulletin_-_MOD_Regional_Expenditure_with_UK_Industry_and_Commerce_and_Supported_Employment_201516.pdf

Prosperity Impacts

The Department for Business, Energy and Industrial Strategy and MOD commissioned Ipsos Mori[19] (in association with George Barrett and Professor Keith Hartley) in 2017 to review the prosperity impacts of naval shipbuilding. The aim, based on a better understanding of the UK economic impacts, was to the develop metrics for measuring these impacts. The study points to a range of prosperity impacts which might be associated with defence industry more generically:

- **Innovation:** Defence industries produce a range of prosperity impacts through raising the productive capacity of the economy. Research has shown that permanent increases in defence research and development spending is closely linked to rising trends in the rate of productivity growth. Many technologies originating in military applications have found civilian uses.
- **Human capital investment:** Earnings in the defence sector exceed those in comparable civil industries, driven to a large degree by advanced skill requirements in occupations that can be subject to skill shortages. Defence contractors make extensive use of high quality apprenticeship programmes. Furthermore, increasing demand for defence equipment is likely to produce further prosperity benefits where human capital investment is needed to meet labour demand. Further work is required to understand if workers entering the defence industry could find equally productive employment elsewhere.
- **Local economic impacts:** Expansions in defence manufacturing can produce significant local economic impacts, including effects driven by the spending of original equipment manufacturers with local suppliers. Evidence from the shipbuilding industry suggests that a permanent expansion of 100 jobs at a shipyard leads to the creation of an additional 32 jobs in the manufacturing sector within a 60km area. These effects are partially offset by the crowding out of local service sector jobs. However, the overall impact on local employment is positive. Additionally, as defence and manufacturing industries are both more productive and offer higher wages than service industries, overall effects on local output (Gross Value Added) and incomes associated with expansions are potentially significant.
- **Long-term impact on labour markets:** There is variable evidence that defence industry closures cause long-term local economic decline, underemployment and worklessness. The strength and nature of these effects are often dependent on the ability of areas to adapt to changing economic conditions. Evidence from plant closures in other traditional manufacturing industries have generally shown that localities display resilience in the medium term with unemployment returning relatively rapidly to pre-closure levels. However, a focus solely on like-for-like unemployment figures does not account for the difference in local output created by replacing highly paid and secure manufacturing jobs with jobs in service industries which typically offer lower wages and job insecurity.

19 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/641541/uk-shipbuilding-prosperity-impacts-report.pdf

now often done on a national basis, but where new contracting models offer opportunities for more international cooperation. We are likely to initiate programmes with relatively few partners in the development stage, inviting others as the programme matures, using OCCAR[20] to deliver some of our complex international programmes.

27. Many of our future defence programmes will involve extensive co-operation with the US, France and Germany, and close industrial and technology links with other NATO allies, including Italy, Poland and Turkey. We will also strengthen defence industrial partnerships with non-NATO partners, including Australia, India, Japan, Saudi Arabia and Sweden. We encourage UK industry to develop a complementary approach, including through the supply chain.

The flag of NATO. Crown Copyright.

28. **NATO** helps us set the broad framework, including in defence planning, capability prioritisation and standard-setting and in applying a transatlantic approach. The UK has strong partnerships with the **US National Technological and Industrial Base** (NTIB) and remains integral to European defence capability, as a key industrial partner in **European cooperative development programmes**. We will strengthen ties with the NTIB and the intergovernmental Letter of Intent Group in bolstering our engagement with the US and European partners.

29. In setting out the **deep and special partnership the UK wants to maintain with the European Union** in foreign policy, defence and development,[21] the UK has committed to explore how the UK and European defence and security industries can continue to work together to deliver the capabilities that we need to counter the shared threats we face, and promote our mutual prosperity. This could include future UK collaboration in European Defence Agency projects and initiatives. We could also consider options and models for participation in the Commission's European Defence Fund including both the European Defence Research Programme and the European Defence Industrial Development Programme. Our future partnership would mean European capabilities could be developed in support of our joint security and shared values, with the UK's research and development expertise and facilities, such as the UK Defence Science and Technology Laboratory, used to support shared objectives.

30. The UK is a leading advocate of **free trade**. There are many examples of valued overseas-based suppliers making strategic investments in the UK, which we welcome and encourage. UK industry also operates effectively in the international market as a major exporter and as a trusted, capable, collaborative partner. We will work hard to break down barriers to that, wherever they emerge.

20 The Organisation Conjointe de Coopération en matière d'ARmement aims to provide more effective and efficient arrangements for managing certain collaborative armament programmes. Its members are Belgium, France, Germany, Italy, Spain and the UK.

21 Foreign policy, defence and development: a future partnership paper, 12 September 2017, para 75 - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/643924/Foreign_policy__defence_and_development_paper.pdf

31. We have recently enhanced the role of the **International Capability Steering Board**. This reviews capability co-operation and coherence in our international industrial approach, informed by military capability needs, international security policy interests, and potential industrial and prosperity benefits. This Board will help us take earlier decisions on the way we shape, and consider opportunities for, international industrial co-operation.

Assuring operational advantage and freedom of action

32. National Security through Technology recognised that procurement in the defence and security areas is fundamentally different from other forms of procurement because of the need to protect our operational advantage (the ability to find and maintain an edge over our potential adversaries) and freedom of action (the assurance that we can use or continue to use our capabilities effectively when required).

33. Protecting our freedom of action and operational advantage seldom involves binary choices, and is still subject to overall value-for-money considerations. We will make a balanced judgement on the basis of risk, opportunity and affordability, while reinforcing the evidence base available to MOD, particularly relating to the supply chain.

34. Our approach in identifying and taking action to protect our freedom of action and operational advantage is set out in *National Security through Technology*. This describes four general cases in which this is most likely to apply, with examples, including aspects of cryptographic production, deployment and support, and weapons and propulsion systems for the UK's nuclear deterrent. *National Security through Technology* also sets out four aspects of capability we might seek to protect by obtaining specific security of supply undertakings: skills and knowledge; facilities and infrastructure; critical technologies; and appropriate legal freedoms to use, maintain, upgrade and operate key systems and sub-systems.

A Royal Air Force Chinook helicopter firing defensive aids over Afghanistan. Crown Copyright.

35. The MOD is strengthening the process for understanding and managing those aspects of capability which are critical in delivering our operational advantage or freedom of action. This includes a well-defined understanding of the specific aspects of capability we need to protect and a clearer mechanism across defence for nurturing, sustaining and monitoring these, particularly at lower levels in the supply chain. This will need to be matched by stronger supply chain awareness and vigilance by our suppliers, both in assuring sensitive components and services, and in the in promoting our broader agenda for "defending defence".

Assessment process

36. The action we are now taking is designed to strengthen the evidence base for understanding how defence procurement might bolster UK productivity, defence exports and strategic international industrial influence, while providing sufficient freedom of action and operational advantage.

37. The impact is likely to be greatest where this evidence can shape decisions early in the development of business cases. As part of our work in piloting a new approach for assessing economic, international and supply-chain freedom of action requirements in the concept phase, before Initial Gate approval, we will develop an early statement of our strategic objectives in each of these areas. This will be separate from work on our military requirements, but will help inform our strategic choices in our approach to meeting those requirements.

38. We are consulting industry on the development of an associated framework of metrics, and will need industry's support in providing supporting data and evidence, including through more extensive use of supply chain plans.

Chapter 3

Fostering an internationally competitive, innovative and secure UK defence industry

This chapter describes how we continue to drive competition and strategic choice in defence procurement, maximise value in single source procurement, and in which instances we might seek a broader, cross-government sectoral approach with industry. It explains how MOD, in close concert with wider government and industry and drawing on key themes in the Government's Industrial Strategy, will help industry grow and compete successfully and deliver our wider national security objectives. This 'whole of government' approach with industry is focused on five key themes: support for exports and inward investment; skills and training; competitiveness and productivity; innovation; and security in the supply chain.

Competition, innovation and strategic choice – the heart of our approach

39. We strive to provide our Armed Forces with the capabilities they need at the best value for money, obtaining this through open competition in the global market wherever possible. Competitive tension is the greatest driver for innovation, productivity and earning power in any economy. It is our policy to develop and foster competition, and to preserve strategic choice in the market, including over the longer term.

40. There are, nevertheless, particular challenges and constraints in doing this, causing various levels of market failure in defence procurement. In 2016/17, 58% of new MOD contracts by value were placed on a non-competitive basis.[22] This has grown from 36% in 2010/11,[23] in part because of the relative growth in maritime spending, where the scope for competition has been more limited.[24] Over 40% of the MOD's direct procurement by value is with ten multinational companies. This figure has remained broadly constant over the same period; relatively few suppliers are capable of major systems integration, or complex service support.

41. At lower tiers of the supply chain, a significant number of small and medium-sized enterprises do compete strongly in providing capabilities for the UK Armed Forces. During our public consultation, a number of these suppliers called on MOD to broaden the accessible market for defence procurement.

42. Intelligent use of competition and new sources of supply, particularly from adjacent sectors of the economy can help us bolster value, productivity and innovation. This remains a central element of our industrial policy, and there are several themes to our approach in strengthening the competitive framework for defence procurement:

- Making it easier for small and medium-sized companies to compete for defence business, described in Chapter 4;
- Revising our approach to intellectual property rights to encourage competition, particularly in modification work under support contracts for MOD programmes funded by the taxpayer.
- Promoting more use of open standards and systems, to open more defence work to competition;
- Adopting a presumption in favour of offsite construction by 2019 across suitable capital programmes, where it represents best value for money;
- Identifying key defence challenges through the Defence Innovation Initiative for which we will invite and nurture new and competitive solutions; and

22 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/642041/Finance_and_economics_annual_statistical_bulletin_trade_industry_and_contracts_2017.pdf

23 UK Defence Statistics 2011, table 1.15.

24 Ibid.

- Exploring different ways of working with industry, particularly in sectors like shipbuilding, which allow us to boost competition in the supply chain.

43. In some areas, competition is still not possible or feasible. In new or modified non-competitive contracts, we expect to use the Single Source Regulations, introduced under the Defence Reform Act of 2014. The information available to MOD as part of these contracts will increasingly help us find ways of opening the supply chain to greater competition. This will be accompanied by the promotion of greater risk-taking and innovation by prime contractors in single source procurement, which might also involve fostering more competition in, and work for, the supply chain.

Intellectual property

44. Intellectual property is the lifeblood of any industry, pushing the boundaries of technology and productivity, and strengthening our prosperity and security. We have reviewed our intellectual property policy, and concluded that industry should continue to own the intellectual property generated in MOD programmes, even when it is fully funded by the taxpayer. We judge this is the best way to encourage its exploitation.

45. We have nevertheless identified defects in the way we secure rights in intellectual property generated under taxpayer-funded contracts, which constrain our ability to put modification work under support contracts to competitive tender. We are consulting industry on new contract conditions for intellectual property rights which would allow us to open more support contracts to competition. We expect this to bring lower contract costs and more work for SMEs and non-traditional suppliers.

46. MOD will also introduce provisions allowing greater competition using technical data in interfaces for modular acquisition, and streamline contract conditions covering intellectual property rights in technical data and software. These will be more comprehensible for both industry and MOD acquisition staff. We will also propose a simpler, more robust mechanism to address intellectual property rights within the supply chain.

47. We will introduce, for the first time, standard intellectual property conditions for use in contracts where the work is co-funded by MOD and industry, which we anticipate will become more commonplace across defence, including innovation contracts. These will allow a sensible, workable balance between the commercial interests of the supplier and the capability needs of MOD.

48. Supporting these proposed changes, we will promote better intellectual property awareness and management throughout MOD. All new development projects will have an intellectual property strategy as part of the approvals process, which we will share with industry wherever possible. Intellectual property strategies will take account of the strategic objectives we develop in early-stage business cases, to inform our approach to capability choices.

Promoting the use of open systems

49. Open systems allow products designed to standard interfaces to integrate with equipment and systems that adhere to the same standards. Open system standards are freely available and, with the architectures to which they are applied, enable and encourage innovation and competition. MOD will continue to promote the use of open systems, in driving competition and innovation throughout the life of a product, building on successes such as the Land Open Systems Architecture, now being exploited by the Army.

Innovation

50. Competition and innovation are mutually reinforcing. SMEs and non-traditional suppliers, alongside universities, are the bedrock of British innovation. We are committed to make it easier for them to do business with defence and explain the steps we are taking in more detail in chapter 4.

Land Open Systems Architecture

In the past, it has been difficult to link and control the large number of different systems needed in the battle-space and share information intelligently between each of them. The Army are institutionalising the Land Open Systems Architecture as a way of increasing the ability to adapt and update their platforms in a quicker and simpler way whilst improving interoperability. They are using open standards developed under the leadership of the MOD alongside a wide range of companies from large systems integrators to SMEs. The standards are not associated with any particular supplier and allow sub-systems to be designed and integrated without the need for complex intellectual property exchange.

Soldier adjusting a satellite dish. Crown Copyright.

Open systems architecture also makes spiral development of capability easier, helping remove large peaks in spending and smoothing financial forecasts. By investing in open systems architecture, MOD will be able to plan more incremental procurement, benefitting from access to cutting edge technologies, maximising opportunities for a wider range of companies including SMEs.

51. We are also taking further action to promote innovation in defence. In 2016, we launched the Defence Innovation Initiative and a Fund worth around £800 million over ten years. This is supported by a Defence and Security Accelerator, a cross-government organisation which finds, funds and exploits innovation to support UK defence and security. It runs competitions, sandpits, hackathons and pitch panels. Meanwhile, an Innovation and Research InSight Unit helps build broader understanding of the wider context, critically considers the implications for strategy, priorities and investments, and informs decisive action on the findings.

52. We are now appointing a Defence and Security Innovation Champion to build partnerships and align activity across Defence, wider government, allies and industry. We will provide a clear view of our priorities through an online innovation gateway and simplify the process for engaging the MOD on innovation initiatives.

53. The Defence and Security Innovation Champion will also evaluate the need for a new defence innovation enterprise. The new enterprise would learn from similar examples already being developed by allies, including any alternative commercial mechanisms, and model new ways of jointly funding innovation between government and private finance. We describe in more detail later in this chapter, how we intend increasing private sector investment in defence innovation and encouraging closer partnership between the civil and defence sector, through more dual use activity, and productive use of Innovate UK's Catapult network.

A Black Hornet 2 nano helicopter unmanned aerial vehicle. Crown Copyright.

Supporting wider national security objectives

54. British industry's role in enabling our work with allies and partners to access the best value defence capability from around the world underpins the achievement of our national security objectives. UK defence industry contributes to modern deterrence, resilience and international influence. It needs to be:

- **Resilient** – including against financial, cyber and espionage threats;
- **Technically credible** – maintaining British industry at the very cutting edge of defence technology;
- **Sustainable** – with a wide customer base and revenue, including in adjacent economic sectors as appropriate;
- **Internationally engaged** – benefitting from the best of international technology, finance and markets, supporting the needs of partners and alongside their industry, in ways which reinforce Global Britain and our international influence;
- **Innovative** – with the ability to respond rapidly in overcoming Twenty-First century threats, while making best use of innovation from all parts of the economy; and
- Able to **respond** in crises and **recuperate** in conflict, keeping pace with changing demand in times of crisis.

Sub-sector approaches

55. Industry will need to adapt further in delivering capabilities we and our allies need over the next thirty years; these will cut across platforms and environmental domains, and across civil and defence applications. Examples might include sensors, novel weapons and autonomy. Some of these may be driven by our need for freedom of action and operational advantage, or coincide with wider strategic economic or international objectives and opportunities.

56. Through the MOD core research portfolio and in collaboration with industry and academia, MOD is already committed to exploring development of cutting-edge novel technology in areas such as machine learning, synthetic biology, autonomy, cyber and quantum.

57. In a very few cases, a deeper analysis may be needed to establish whether our national security objectives would be served by specific sector approaches which help deliver long-term value for money, operational advantage or freedom of action.

58. This approach has underpinned our work in developing the *National Shipbuilding Strategy*. It will only be appropriate or achievable in a very few, high priority areas. Unlike sector strategies of the past, any new sector approach will need to be informed by thorough analysis of prosperity opportunities in adjacent civil or export markets, our priorities in the Industrial Strategy, our determination to promote choice and competition in the market including for SMEs, and by industry's own appetite for investment.

59. The UK is a leader in certain combat air technologies and the sector accounts for 85% of the UK's defence export orders (2007-2016).[25] These factors were recognised in the decisions made in SDSR 2015 to invest in a Future Combat Air Systems Technology Initiative. It is a sector in and through which we maintain operational advantage, freedom of action and strategic international partnerships.

Driving productivity, exports and supply-chain security: a whole of government approach with industry

60. The Government's Industrial Strategy sets out how we will boost earning power across the UK. Defence plays a crucial role alongside other parts of government and with industry, in developing an approach that helps deliver a growing, innovative and competitive defence sector. Drawing on industry-led work by the DGP on competitiveness plans, our work in government and with industry will focus on promoting:
    - Exports and inward investment;
    - Skills and training;
    - Competitiveness and productivity;
    - Innovation; and
    - Security in the supply chain.

61. This work is led in defence by the Director Economic Security and Prosperity, a newly created post following SDSR 2015, designed specifically to forge a common approach with wider government and industry in promoting growth and prosperity in the UK defence sector.

A radar being lifted from the mast of a ship for maintenance. Crown Copyright.

Exports and inward investment

62. Exports bring economic benefits to the UK and can bring net benefit to the MOD: competitive companies winning export work enable overheads to be spread and economies of scale achieved, reducing the cost of equipment and services to MOD. Exports are also at the heart of developing and maintaining our key strategic international alliances.

25 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/631343/UK_defence_and_security_export_statistics_2016_Final_Version.pdf

63. The SDSR (2015) confirmed that defence export support is a core task for the Armed Forces and MOD. Defence resources can now be more readily deployed in support of defence exports. MOD's ability to support a particular campaign will continue to take account of available resources, value for money and propriety, and the impact on operational outputs. We also prioritise competing defence export opportunities to ensure our support is appropriately targeted.

64. The Department for International Trade's Defence and Security Organisation (DIT DSO) leads the whole government approach to defence and security exports. MOD works closely with DIT DSO and other government departments to identify, pursue and win export opportunities. The UK's global defence and diplomatic network, spanning 168 countries and territories plays a crucial role in opening opportunities for UK business, both in the civil and defence sectors. We have strengthened the global defence network since the SDSR with new British Defence Staffs in Africa, the Gulf and Asia-Pacific.

65. SDSR 2015 made MOD the lead for strategic export campaigns for Eurofighter Typhoon, F-35 support and complex weapons, and we have established Joint Campaign Teams with government colleagues and industry to maximise our chances of success. DIT DSO is also strengthening strategic export market analysis, and developing with the DGP a 'Team UK' approach to specific export campaigns, maximising the chance of success for the UK as a whole.

66. In SDSR 2015 we committed to playing our part in improving the **exportability** of the capabilities that MOD procures. By taking earlier account of the potential needs of international partners and prospective customers, and modifying UK capability requirements and procurement strategies to take account of these, we can greatly improve the chances of export success.

67. We have put in place processes and practical guidance internally to embed our exportability policy. This includes encouraging the MOD to engage industry far earlier so that capabilities required by UK Armed Forces can be designed to appeal to an international market. However, for this approach to realise its full potential, we also need expertise and resources from industry.

68. The MOD and wider government are committed to increasing **inward defence investment**. We are already home to many multinational defence companies, and encourage these companies to grow their investment in the UK and new suppliers to base themselves here.

69. As part of the Defence and Security Industrial Engagement Policy (DSIEP) we are working with key international suppliers including SAAB, Boeing and Rheinmetall to maximise opportunities to work with the UK supply chain and increase research and development investment. Since the policy was launched, there has been £3.2 billion of inward investment. Boeing, one of the first signatories to the DSIEP, has invested over £20 million in a new manufacturing facility in Sheffield, the company's first manufacturing capability in Europe.

70. DSIEP continues to evolve to ensure it continues to deliver benefit for the UK and its signatories. This includes holding a more strategic dialogue with key DSIEP signatories to grow their investment in UK. We are working with overseas partners to bring more opportunities to UK suppliers and increase investment in UK research and development.

Different ways in which Defence works with industry

Defence Electronics and Components Agency

The MOD's Defence Electronics and Components Agency (DECA) assures UK on-shore access to through-life specialist avionic maintenance, repair, overhaul, upgrade and obsolescence management capability in support of avionic, electronic and general engineering equipment across Defence.

DECA successfully led the MOD element of the UK solution that won the global competition for European F-35 avionics component maintenance, repair, overhaul and upgrade services in an innovative collaboration with F-35 UK/US industry Original Equipment Manufacturers (BAE Systems and Northrop Grumman Corporation.

The MOD/Industry F-35 Avionics Repair Hub at DECA Sealand in Wales, now embodied in a joint venture (Sealand Support Services Ltd), fuses world-leading capabilities in the avionics sector and has a status akin to a US Depot with the added attractiveness of enhanced trading and commercial flexibility.

As a Government service supplier, DECA is trusted to deal with international and commercially-sensitive work, while also operating effectively with industry in an open competitive environment. As such, DECA and MOD will collaborate with further strategic partners and in potential government-to-government arrangements to develop innovative solutions to bolster skills, increase industrial resilience and sustain UK jobs and capabilities.

As a Level 1 partner on the global F-35 programme, UK industry manufactures 15% by value of the entire programme of approximately 3000 aircraft. This is significantly more than if the UK was to build 100% of the 138 aircraft we are buying.

MBDA and the Complex Weapons Portfolio Management Agreement

MOD and MBDA signed a Portfolio Management Agreement in 2010, under which MBDA is MOD's sole supplier for a significant proportion of its complex weapons acquisition. The Agreement is based on three principles:

- A joint approach, delivering the right capability to the Armed Forces flexibly and responsively and underpinning defence requirements for freedom of action and operational advantage.
- Value for money - by 2020, this approach is expected to deliver over £1 billion of savings to defence (Source: National Audit Office report "The Equipment Plan 2016 to 2026 Part Two" - 23HC 914 Session 2016-17 27 January 2017, para 2.17).
- A long-term approach, giving MBDA the confidence to invest in a new manufacturing facility in north-west England, creating 500 highly skilled jobs in the company and an equivalent number in the wider supply chain.

This partnering approach also extends to defence exports and reinforces our close strategic defence and industrial partnership with France and Italy.

It incentivises MOD and MBDA to deliver the best capability within a fixed budget.

SAAB – investing in the UK supply chain

SAAB's fourth generation fighter aircraft, Gripen, brings significant benefits through supply chain opportunities. An independent study commissioned by the company has assessed that the sale of 285 Gripen aircraft has led to over £500 million in Gross Value Added contributions to the UK and 13,000 person years of employment. It is predicted over the next 10 years that the Gripen programme will support 4,000-5,700 UK jobs.

SAAB is working with BAE Systems and the Royal and French Navies to develop the SAAB SeaEye mine neutralisation system in support of the joint UK/France Mine Counter Measures programme. SAAB SeaEye was a UK-based SME before being bought by SAAB. It has 200 employees, £35 million in sales and has expanded by 35% in two years. Being a part of SAAB has enabled the company use of a unique testing facility in Sweden, access to wider R&D and support from SAAB in its acquisition of another UK SME. The SAAB badge has also helped in marketing systems to defence customers; a market in which it had almost no presence before being bought by SAAB.

QioptiQ – competitive contracting

Welsh company Qioptiq, based in St Asaph in Denbighshire, have won a contract worth £82 million to provide battle-winning handheld equipment, including night-vision goggles and day and night weapon sights to our Armed Forces around the world.

Work under the new Surveillance Target and Acquisition Support contract will create eight new positions at the company, which employs around 560 at its St Asaph and Bodelwyddan sites. By merging 20 individual support contracts into one deal and running a competitive tender process, the MOD will save £47 million for the tax payer over the next six years.

Reinforcing critical skills and training

71. Like the wider economy, defence faces a critical shortage of people who are skilled in specialist science, technology, engineering and mathematics (STEM) fields. This shortage extends to skilled technicians below graduate level, and to more basic **STEM skills**. Growing competition for such skills and their short supply across the economy will increase the costs to defence and could impact on the delivery of key projects.

72. STEM skills are essential to some of our most critical capabilities and underpin high-quality and high-wage employment. The wider defence enterprise already makes a significant contribution to closing the UK's skill gaps. MOD is the UK's largest employer of apprentices and expects to enrol 50,000 apprentices by 2021. We are committed to developing higher apprenticeship qualifications, and to working with industry and with colleagues in government towards three broader objectives:

    - Widening our talent pool through inspiring young people to pursue STEM subjects and careers;
    - Building our capacity and capabilities through professionalising our workforce; and
    - Working more closely and efficiently with industrial partners in using and retaining expertise within the defence enterprise.

73. We can manage these shortages better and bear down on additional costs through a more collaborative approach with industry. This is at the heart of the 'Enterprise Approach'. We have used the submarine enterprise as a pilot to explore how we can work with industry to tackle specific skills shortages, particularly nuclear skills. This has informed the development of a model and series of possible interventions. We intend to develop the model in the submarine enterprise and to explore how it might be applied in other areas. We are also working with the Defence Suppliers Forum and DGP on making it easier for personnel to move across organisational boundaries.

Children taking part in an RAF Youth and STEM Programme event in Scotland. Crown Copyright.

74. In the long-term, we need to widen our talent pool, by inspiring more people to choose a STEM profession, and by appealing to a broader talent pool. This is a whole of government endeavour, in which defence, and partners in defence industry, have an integral role.

75. We are working through the Defence Suppliers Forum and DGP in identifying key gaps in skills, and to encourage **skills investment** proposals where these are identified. This will include working with the devolved administrations in Scotland, Wales and Northern Ireland and with the Department for Education in England on new training capabilities, including by drawing on areas of MOD expertise with potential benefit to the wider economy.

Competitiveness, value and productivity

76. Driving productivity in the UK economy is a central objective in the Government's Industrial Strategy, and underpins value for money in defence. MOD is:

    - Working closely with the DGP's Value Chain and Competitiveness group, prime contractors, overseas investors, and with bodies such as the High Value Manufacturing Catapult on championing innovation and productivity **in the supply chain**. We are ready to consider innovation in defence efficiency and productivity in the context of the Defence Innovation Challenges.

- Using **new contracting mechanisms** to reward suppliers for high performance and for taking more risk in developing innovative ways of delivering capability. We are working closely with the Single Source Contract Regulations Office in structuring an approach which incentivises our suppliers to meet stretching timescale and performance targets, while lowering the overall cost of cutting-edge equipment. We have already started with the Type-26 Global Combat Ship. For the first time in a new warship, we have put in place a contract that incentivises the supplier to drive down costs, with rewards for hitting milestones.
- Driving down **supply chain costs** more broadly in MOD procurement, including by bearing down on overheads in the rates we pay and in such areas as insurance requirements.
- Considering how we **consolidate groupings of requirements** among a number of customers, and where elements of a longer-term **defence enterprise approach**, exemplified by the Team Complex Weapons Portfolio Management Approach with MBDA, might be adopted in other areas.

Encouraging greater use of the Catapult networks

77. The wider economy is often the driving force behind innovation and competiveness, and is capable of bringing about dynamic changes with big impact in defence. The UK has established a Catapult network through Innovate UK to support industry by reducing the cost of innovation and accelerating business development, while developing skills and knowledge that can be used to boost UK global competitiveness. The High Value Manufacturing Catapults are already producing good results in helping industry improve productivity.

Defence suppliers are already using the Catapult network

- The Manufacturing Technology Centre has worked with **GE Aviation** and its supply chain, increasing productivity, on-time delivery and competitiveness at GE Aviation's Bishop's Cleeve facility. They did this by applying technology in electronics manufacturing, robotics and autonomous systems, manufacturing simulation and advanced tooling and fixtures. This allowed GE Aviation to optimise machine efficiency, introduce automation and reduce risk through modelling and demonstration.
- The Advanced Manufacturing Research Centre worked with **BAE Systems** and **KUKA Systems UK** in developing robotic countersinking technology. This uses multiple robots to handle composite components and then countersink high tolerance, pre-drilled fastener holes. The development of the technology de-risked the process, enabling the design of a production system. It has now been installed at BAE Systems in the UK.

78. The DGP is leading work to boost defence value chain competitiveness, encouraging better use of the Catapult network and wider manufacturing and engineering support initiatives by UK defence suppliers.

79. Drawing on pathfinder work through the *National Shipbuilding Strategy*, we will work with suppliers, Local Enterprise Partnerships, the devolved administrations and other parts of government to understand the interplay between defence and **local economic clusters**, and the potential for building on these. The Catapult network and universities will be an important element in this approach.

Increasing investment in defence innovation

80. We want to strengthen links between the Catapult network and defence innovation networks through a more systematic approach to engagement. The Defence and Security Accelerator and the Front Line Command innovation centres will be the main interface for this, advocating the opportunity that an integrated approach can bring to innovation competitions and onwards to delivery. We will also step up our engagement with the Catapult network through the Defence Suppliers Forum.

81. Defence has been slow to adapt its approach and business processes to make the most of opportunities or a new innovation landscape. R&D expenditure by UK businesses in the civil sector has increased by an annual average of 2.7% in constant prices since 1991. However, R&D spending by UK businesses in the defence sector over the same period has declined by an annual average of 1.8%.[26]

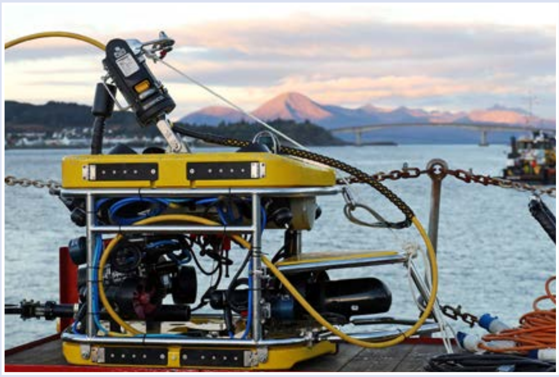
82. We recognise that we can do better in offering new commercial, intellectual property and funding models to support industrial investment in innovation. We want to encourage more private venture capital into the defence sector, including from non-traditional defence suppliers. Co-investment (where both industry and Government jointly invest) is commonplace in the civil aerospace and automotive sectors, and we want to see more of this in defence.

83. Building on the learning from earlier defence and DGP Innovation Challenges we have already taken our first steps through launching the **Co-Investment Defence Innovation Framework Initiative** (CODIFI) with the UK Defence Solutions Centre. CODIFI will provide a framework for aligning industry and government investment where MOD requirements overlap with export

Unmanned Warrior – showcasing autonomous innovation

Unmanned Warrior 2016 was initiated and hosted by the Royal Navy and supported by the MOD science and technology community. It was the world's first large-scale, multi-environment, multi-participant demonstration of unmanned systems. Autonomous vehicles operated in a testing maritime environment in simulated military scenarios. The exercise took place off the west coast of the UK, and provided a valuable early opportunity for industry to showcase cutting-edge innovation in autonomous vehicle technology.

It was the largest UK deployment of oceanographic robotic systems. And in a world first for collaborative autonomy, the Mine Counter Measures team demonstrated tasking of ten unmanned systems, involving three NATO allies (UK, US, and Canada), providing a combination of different air, surface and sub-surface autonomous vehicles operating together.



A Vm5800 Ocean Module pictured during Unmanned Warrior 2016. Crown Copyright.

26 Business enterprise research and development, UK: 2015 (Office of National Statistics) growth opportunities. The framework should reduce the risks to each party and to improve exploitation of resulting capabilities.

84. From 2018 we will provide an opportunity to pilot solutions through CODIFI which help narrow or bridge the gap to exploitation. We will also enable the availability of CODIFI as an opportunity for the defence equipment programme, and by working with DGP and industry partners in other sectors facilitate a growing pipeline of co-investment projects. This combination of interventions aids exploitation, increases investment and supports the development of capability for exports.

85. CODIFI requires a change of mind-set and new ways of working by MOD and industry which we will also foster through the Defence Innovation Initiative.

Encouraging partnership and dual use

86. The Defence and Security Accelerator will aid more collaborative working by industry, including with the UK Defence Solution Centre, the Catapult network, businesses, allies and partners.

87. We further support initiatives which pull defence technology into the civil sector and which are successful at pulling civil technology into defence. The Dual Use Technology Exploitation initiative, which is also part of the DGP, aims to boost UK economic growth by enabling companies to draw upon dual-use technologies emerging from the civil and defence sectors. It runs £10 million of jointly funded projects and is increasingly searching for opportunities to pull civil technology into defence.

Defence science and technology at work with industry

The MOD *Science and Technology Strategy*, published in October 2017, highlights our collaborative approach with industry which underpins key defence capabilities, including the new Queen Elizabeth Class, Type-45 and land platforms.

Investment in **combat air technologies** has combined with the strengths of UK industry to make the UK a level one partner in the **F-35** programme. Through a close science and technology partnership with the US and with industry in the programme, the UK can exploit the operational capabilities of the aircraft with sufficient assurance of our freedom of action, while reinforcing UK industrial capability, skills and wider economic earning power.

Drawing on extensive MOD science and technology research and experience in preparation for the London 2012 Olympic and Paralympic Games, and in partnership with the Defence Science and Technology Laboratory and Defence Equipment and Support, **Thales UK** has developed a world-leading **biological surveillance collection system**. This provides the UK Armed Forces with an advanced capability to detect and identify biological threats soon enough to enable effective treatment.

The Defence Science and Technology programme spends about £150 million annually on joint projects with the US, France, NATO, Sweden, Japan, Australia and other partners. Investment in **international science projects** provides opportunities for exports and for alignment with industry's own investment programmes.

The MOD co-operative research programme works closely with industry on joint international projects. Co-operation on disruptive technologies, such as those based on quantum physics, also brings opportunities for UK universities and SMEs and makes the UK an attractive location and partner for further inward investment.

An RAF technician servicing a Red Arrows Hawk.
Crown Copyright.

88. Ploughshare Innovation Ltd, a wholly owned subsidiary of the Defence Science and Technology Laboratory, has a track record of spinning out defence technology for use in commercial applications, generating millions in exports and hundreds of jobs.

Defending defence – a secure supply chain

89. The fruits of our efforts to boost investment in innovation, development of intellectual property in the UK and more competitive products and services for the export market are at risk, if we do not properly defend the UK's advantages.

90. Foreign intelligence services are more active than ever in covertly gathering information on the UK defence industry.[27] This might range from technical details of weapons systems to the theft of intellectual property, threatening both national security and jobs in the UK. All capabilities and companies involved in the supply chain are at risk.

91. The MOD made direct payments to over 16,500 suppliers in 2016.[28] Many of these are international companies and their supply chains stretch around the world. It is essential to our national security and prosperity that we have confidence in the final capability and that it is not comprised by theft, counterfeit or sub-standard parts.

92. We recognise the important contribution inward investment has made to UK prosperity, not least through the highly skilled jobs which it supports. We continue to welcome investment from around the globe, but we must be assured that any transfer of ownership is for legitimate commercial purposes and does not undermine current or future defence capabilities or compromise our future military advantage. Building on the Government's National Security and Infrastructure Investment Review,[29] we will work in partnership with our suppliers and allies to take further steps to increase the robustness and resilience of our supply chains. We will strengthen our protections against a range of emerging threats to ensure that we and other customers of UK companies can continue to have confidence in our supply chains. We will look to improve our ability to protect against the extraction of sensitive defence and dual use technology and capabilities while improving our ability to make an early identification of potential areas of fragility in the supply chain.

Cyber partnership

93. Hostile actors also target the UK defence enterprise through the cyber domain. The theft of information or disruption and damage of cyber infrastructure could compromise critical capabilities and is a direct threat to our national and economic security. We expect all suppliers to understand the scale and nature of the threat and implement robust standards to enhance their cyber security.

27 Centre for the Protection of National Infrastructure.

28 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/642041/Finance_and_economics_annual_statistical_bulletin_trade_industry_and_contracts_2017.pdf. This figure only includes companies who we make direct payments, so if sub-contractor suppliers are included this number will be significantly larger and the relationship more diffuse.

29 www.gov.uk/government/consultations/national-security-and-infrastructure-investment-review, 17 October 2017.

94. In enabling and supporting an efficient and resilient supply chain, trusted by our allies and partners, we need to be aware of the safety culture we should adopt to improve resilience without increasing cost. We will maintain a climate that encourages our suppliers to be open and frank in reporting potential cyber breaches, while using all our leverage with industry to raise the level of cyber protection across the supply chain.

95. The Defence Cyber Protection Partnership is a joint government and industry body, building awareness in the supply chain about the threat, and working to strengthen our defences against information breaches. Working with the Defence Cyber Protection Partnership, we have recently introduced a new defence contractual requirement (DEFCON 658) for new contracts. This involves an evaluation of suppliers' systems and plans for cyber security as part of the contract award decision, with an obligation to have appropriate systems and safeguards flowing down the supply chain. Contractors and sub-contractors are also required to report cyber security incidents as soon as they know or believe these have occurred.

Computer generated image of a keyboard highlighting the importance of cyber security to defence. Crown Copyright.

Chapter 4

Making it easier to do business with Defence

Drawing on the defence industrial policy consultation in 2017, we are taking further steps to make it easier to do business with defence, particularly for innovators, SMEs and non-traditional defence suppliers. These steps are grouped under four objectives. In improving transparency and visibility of opportunities, we have launched a new Twitter account and online Supplier Portal to advertise opportunities, and we are re-focusing the supply-chain advocate initiative. We will step up early engagement with industry, particularly in the pre-competitive phase, and we are revising internal MOD guidance on this. We will improve pace in contracting, by streamlining existing processes and examining alternative contracting models as part of the Defence Innovation Initiative. And we will encourage and reinforce good practice by our key suppliers through the government Supplier Code of Conduct, in calling for supply chain plans for competitive contracts over £100 million, and by evaluating our suppliers' ability to pay sub-contractors promptly.

96. The UK is home to large defence companies – a healthy mixture of home-grown and overseas-based investors – as well as strong mid-tier companies, well-regarded universities and a thriving small business community. In 2016/17, at least 5,980 SMEs held direct contracts with the MOD[30] and British universities have a fine record in leading academic research. The UK is a great place to do business, innovation and research, for which the UK MOD is a strong partner.

97. There is still more we need to do to make it easier for industry and academia to do business with MOD. Regular dialogue and the constructive responses during the public consultation[31] have allowed us to gauge how industry think we are doing, and where we can improve.

98. Chapter 2 describes the steps we are taking to encourage competition in defence procurement, maximising the opportunities for SMEs in particular. Our public consultation made clear that SMEs and companies which do not regularly do business with defence pay particular attention to the size of the opportunity, likelihood of success and the time and cost involved in bidding for defence contracts. We know that transparency and visibility of opportunities, timely engagement and pace in the contracting and broader acquisition process are the key areas in which they would like to see improvements.

Transparency and visibility of opportunities

99. We are improving our central MOD helpdesk for enquiries from new and prospective suppliers. A new **Twitter account (@defenceproc)** is highlighting contracting opportunities and supplier events as early as possible. We will be linking our outreach activity more closely to the pipeline of defence opportunities to help highlight opportunities to suppliers earlier in the procurement cycle.

100. In response to feedback from industry that our digital portals could be more user-friendly, we have enhanced Defence Contracts Online and relaunched it as the MOD's new **Supplier Portal** [www.contracts.mod.uk]. This signposts procurement opportunities, highlights policy and process, and provides links to relevant supporting bodies, research establishments and funding streams. We have linked it to the

30 Chttps://www.gov.uk/government/uploads/system/uploads/attachment_data/file/642041/Finance_and_economics_annual_statistical_bulletin_trade_industry_and_contracts_2017.pdf

31 http://cui2-uk.diif.r.mil.uk/r/192/iprefr/09_Consultation_Responses/2017329%20-%20Online%20Consultation%20response_draft_NC%20inc%20DA+CD%20comments.docx

Defence and Security Accelerator, making it easier for suppliers to access a wide range of defence opportunities, noting that in many of these we are also keen to encourage innovative suggestions and approaches. We have also asked our key suppliers to use this portal to advertise their supply-chain opportunities.

101. Feedback from industry on our **supply-chain advocate initiative** suggested it needed to be better connected to all of MOD procurement activity. As a result we are refocusing the initiative as a link between the commercial, capability and delivery functions within the front line commands and defence's delivery organisations. It will share good practice and encourage more effective early market engagement.

Early engagement

102. Responses to our public consultation revealed that smaller companies, and those which are not traditional defence suppliers, often see opportunities only when they are advertised on the Supplier Portal. This is normally too late to fully understand a more complicated MOD requirement and prepare an effective bid. Defence suppliers and trade organisations urged MOD to strengthen its early market engagement, and to provide more certainty about the timing of invitations to bid for contracts, and for a clearer route for business in seeking further information and support.

103. We have worked with front line commands and the MOD's delivery bodies to revise **guidance on engaging potential suppliers**, and to encourage them to work with organisations like the Defence and Security Accelerator and the UK Defence Solutions Centre to improve engagement, particularly in the pre-competitive phase. Trade bodies also play an important role in making their members aware of defence opportunities, and can be essential convenors of effective, early engagement with industry. We hope to work more closely with them in this, including by making more use of digital platforms.

Defence Equipment and Support staff at Abbey Wood, near Bristol. Crown Copyright.

104. The Defence Suppliers Forum is our primary means for jointly working with industry on common interests and issues. It takes place in different formats for large, mid-tier and small suppliers. We have now created a Defence Suppliers Forum commercial sub-group, drawing representation from each of these groups, which seeks to tackle some of the broader commercial issues facing companies in doing business with defence.

A Royal Air Force Technician solders a circuit board. Crown Copyright.

Pace in contracting

105. SMEs and non-traditional defence suppliers have told us that they would like to see more pace in MOD contracting. We are carrying out further work, including to gather more data on specific examples, to understand where improvements might be made, recognising that broader factors, including funding, approvals, controls and acquisition planning can also bear significantly on the speed of the contracting process. However, we are already:

- Investigating simplified routes to market and new standard forms of contract;
- Using and refining framework contracts, including through the Crown Commercial Service, the Framework Agreement for Technical Services and the Commercial Delivery Partner deal in Defence Equipment and Support; and
- Improving programme and project planning through the Defence Equipment and Support transformation programme, and equivalent transformation work in other delivery authorities.

106. As part of the *National Shipbuilding Strategy*, we are taking steps in the governance of projects, to increase pace and grip in ship acquisition and we are considering whether there are lessons we can learn in our wider approach in defence procurement.

107. Under the Defence Innovation Initiative, we are also investigating new innovation models, including some used by allies where alternative commercial and funding models apply, to increase pace in contracting.

Good supply chain practice in industry

108. We have adopted the Government **Supplier Code of Conduct** which explains the behaviours that we expect from our prime contractors. We are revitalising our key supplier management process, which will form the basis of a stronger pan-defence supplier dialogue between the MOD and its main suppliers. This dialogue will include a much stronger focus on the performance of our suppliers across their portfolio, behaviours and expectations that the MOD and its key suppliers should exhibit in defence, including the promotion of cyber security standards and how contractual conditions should flow through the supply-chain.

109. Innovative and competitive UK companies must have a fair opportunity to bid for supply-chain work in our major defence contracts. We also want to understand potential weaknesses in the defence supply chain and encourage its effective development. So we are asking for **supply chain plans** for our most significant, high value competitive contracts valued at over £100m. This will foster a more open, competitive and resilient supply chain with innovation and skills at its heart. We will build our planning on best practise from other sectors while working with our industrial base, including through the Defence Suppliers Forum Commercial Sub-Group, to ensure we develop a comprehensive process that works for all.

110. The defence industrial policy consultation suggested that smaller suppliers are concerned by insufficiently **prompt payment** by prime contractors for sub-contracted work. In concert with Cabinet Office-led work across government to improve this, we will explore ways of evaluating our suppliers' performance in paying their sub-contractors promptly as part of our assessment of technical and professional ability in fulfilling major contracts.

Chapter 5
Implementation

111. Our approach to policy implementation relies on close partnership with industry and wider government, notably through the Defence Suppliers Forum, DGP and in our joint approach to delivering the Industrial Strategy. It also depends on new ways of working together, some of which are being pioneered through the Defence Innovation Initiative.

112. We will strengthen **strategic dialogue** with industry through the **Defence Suppliers Forum**. We will underpin this by asking industry to help us develop the strong and impartial evidence base we need for our strategic choices, and in considering more efficient resourcing and sustainment of our joint endeavours, including in key skills and training. We will carry out a comprehensive review of the Defence Suppliers Forum to ensure it is suitably configured to do this, as a key instrument in our joint work with industry in shaping, monitoring and implementing policy change.

113. The Defence Suppliers Forum will also oversee work to make it easier to do business with defence, on identifying and establishing best practice in supply chain management and resilience, and on assuring critical skills needed by Defence. The Defence SME and Mid-Tier Forums will be fully represented in this work.

114. We continue to work closely with the **Defence Growth Partnership** to understand export and adjacent market opportunities, in order to build in exportability and the needs of international customers into future products and services,

Aircraft Carrier Alliance employee pictured overlooking HMS Queen Elizabeth. Copyright Aircraft Carrier Alliance.

and help deliver new technology to market quickly and efficiently. Industry-led work on competitiveness plans is also a vital part of this approach. MOD's unique role as a customer for, and part regulator of, the defence industry means that MOD will continue to stand aside from some aspects of the DGP's work, structures and decision-making.

115. The whole-of-government approach spearheaded by the **Industrial Strategy**, provides a great opportunity for a more coherent and locally-focused approach with industry to tackle national priorities, key among which is boosting national earning power through productivity. Defence has much to contribute, but there is also much to be gained through increasing the flow of ideas and good practice between defence and the wider economy.

116. MOD will itself oversee establishment of a more systematic approach to considering prosperity, international and industrial security interests earlier in the development of high value business cases. This will draw on additional work, initiated by the **Director Economic Security and Prosperity**, to understand strategic economic opportunities and the evidence and metrics we need in pursuing them. This work will draw on industrial expertise and experience, including through prosperity working groups, and will be informed by work already initiated under the *National Shipbuilding Strategy*. The **International Capability Steering Board** will oversee work on earlier identification of strategic international industrial interests and opportunities, informed by our national security objectives.

Notes