



HM Government



# Customer Ready

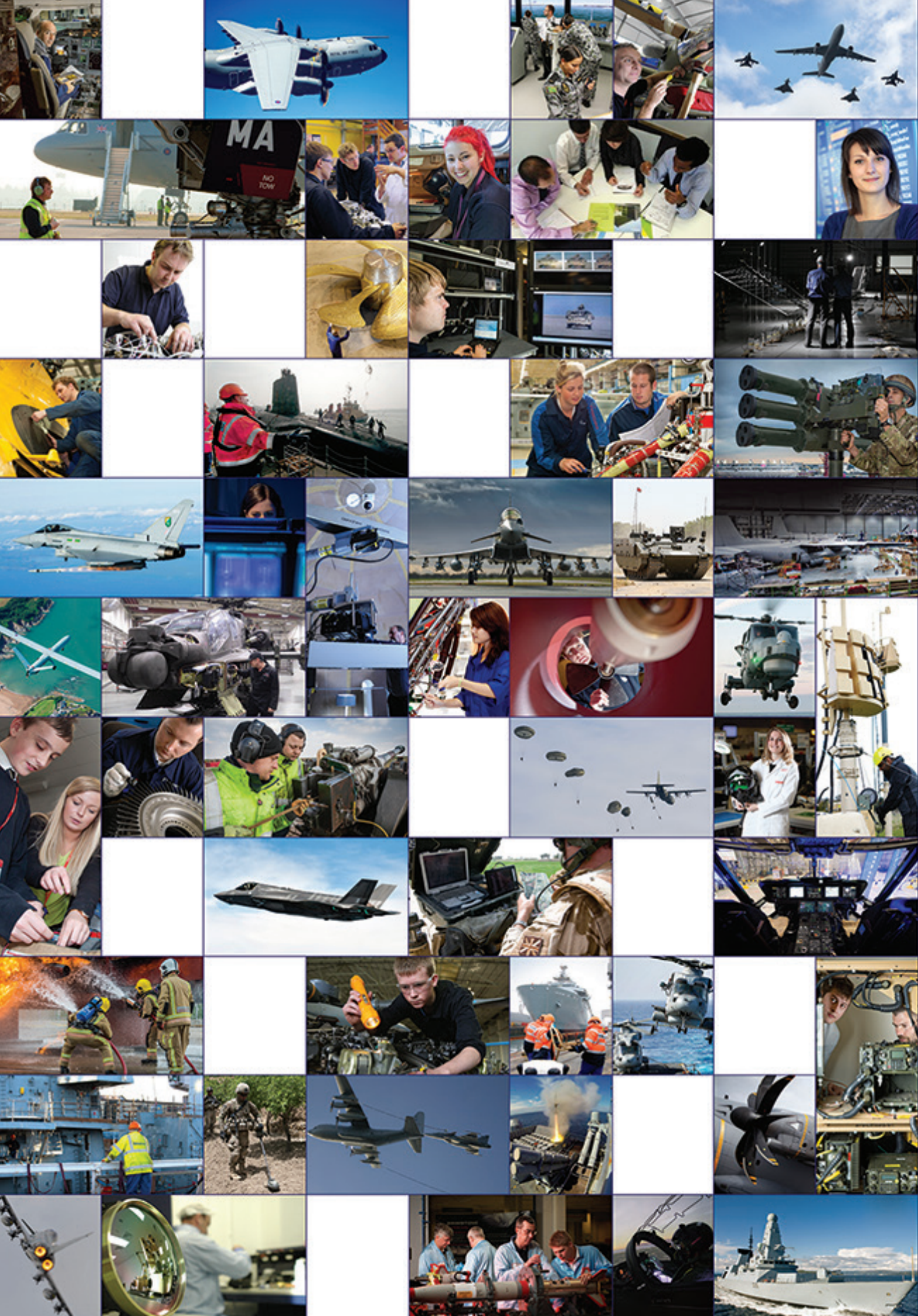
Innovative and tailored solutions  
for customers around the globe



**Defence Growth Partnership**

Government and Industry  
working together







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# Prime Minister's Foreword



Britain's defence industry is a national success story that we rightly take pride in. It plays a vital role in protecting our nation and providing battle-winning capabilities to our armed forces. And it makes a major contribution to our economy, investing in apprentices, creating and sustaining high-skilled jobs across the UK and exporting our cutting-edge equipment and services around the world to increase global security.

As a Government our commitment to strong defence and ensuring our Armed Forces have the equipment they need is clear. We have the second largest defence budget in NATO after the US. In July we committed to maintaining our defence spending at 2% of GDP for the rest of the decade. Building on this strong foundation we intend to work ever more closely with our allies and partners and our defence industry to increase our mutual security and prosperity through equipment cooperation and defence exports.

I am committed to supporting our industry secure responsible defence and security exports. The Defence Growth Partnership is central to achieving this. Working together and building on our own experiences

the Government and the defence industry understands that customers' needs are changing. To be successful we need to understand what our customers want, bring together cutting edge technologies and work with our allies and partners and their industries to deliver their national security priorities. Last year we set out an ambitious plan to ensure the UK defence sector invested in its future. We have established the UK Defence Solutions Centre allowing customers to draw on the whole of UK industry to find solutions to their needs. We have established new partnerships with the UK's world class automotive and digital sectors to provide innovative solutions from the civil sector. We have established a programme to encourage our SMEs to develop solutions to our future defence challenges.

Our industry, supported by the Government, want to work with partners from across the globe to tackle the threats we all face.

A handwritten signature in black ink, which appears to read 'David Cameron'.





# Joint Foreword



Secretary of State for  
Business, Innovation and Skills  
The Rt Hon Sajid Javid MP



Secretary of State for Defence  
The Rt Hon Michael Fallon MP

The DGP heralds a step change in the way industry works together, creating the environment for collaboration and innovation across the sector. We have made significant progress in the two years since the DGP strategic vision, “Securing Prosperity” was launched. The building blocks for the DGP to meet customer needs and drive growth are firmly established. The UK Defence Solutions Centre is open, supporting industry to work together to meet the needs of global customers and we have strengthened UKTI’s Defence and Security Organisation so it can work more closely with customers in the short, medium and long term through industry placing secondees within UKTI DSO to enhance market intelligence and analysis.

The DGP is harnessing the significant technology investments made in the civil sector to deliver defence capability. The jointly funded £10 million Dual Use Technology Exploitation project brings innovation from different sectors, from defence to automotive to digital, to deliver solutions while the DGP Innovation Challenge, launched at the UK Defence Solutions Centre is helping develop the next generation of technology, with companies of all sizes across the value chain benefiting through the first round of this £10 million investment.

The DGP will encourage industry investment in research and development, infrastructure, skills and knowledge to meet customer needs, delivering a sector which

offers competitive and value for money solutions to its customers.

Inspiring the next generation of engineers and improving the skills of existing employees are essential if we are to have a dynamic workforce; and the defence sector, with over 4,400 trainees and apprentices already working, provides a great foundation to build on. The DGP has pioneered the way in developing the first apprenticeship trailblazer to operate at Masters level, focused on systems engineering.

The Government is conducting a Strategic Defence and Security Review which will set out how we will maintain our world-leading Armed Forces in line with our national security and foreign policy objectives. The DGP provides the opportunity for industry to offer competitive and innovative solutions for our Armed Forces, as well as customers around the globe, contributing to both our security and prosperity.

The Government is committed to continued export success and supporting industry to obtain export orders from existing and new customers around the world. We are supporting UK companies to make the investments needed to position themselves for long term success and increasing opportunities for SMEs to access markets at home and abroad. This publication now highlights the opportunity for customers to engage with the UK Defence Sector.





## DGP Leadership

### The Rt Hon Anna Soubry MP, Co-Chair, Minister of State for Small Business, Industry and Enterprise



The collaborative approach that Government and industry are taking through the DGP is delivering a step change in the way the sector is working together to be more competitive and keep the UK at the forefront of the global defence market. This commitment has enabled the DGP to drive ahead with the plan set out last year. The new UK Defence Solutions Centre and strengthened UKTI

DSO provide a unique way for customers and UK industry to work together to develop tailored and innovative solutions. The DGP supports companies of every size to improve their competitiveness in the global market, building the skills for the future and reaching out to non-defence markets to develop new opportunities and dual use technology.

### Steve Wadey OBE, Industry Co-Chair



Government and Industry working together have continued to build momentum to deliver the DGP Implementation Plan. We now have in place the means by which global customers can access the very best that the UK can offer across the UK value chain to deliver tailored and innovative solutions. The extent of collaboration across Industry to make

this happen, both from partner companies and the wider UK value chain, indicates real commitment to drive a more competitive and responsive enterprise. Our focus now turns to engaging customers around the globe and demonstrating the added value we can bring from the UK Defence Sector.

### Philip Dunne MP, Minister of State for Defence Procurement



I am delighted at the progress being made by the DGP. Our focus remains on providing our Armed Forces with the battle-winning capabilities they need, and supporting our Allies and Partners, in meeting their defence challenges. To achieve this we need a vibrant, strong and competitive defence industry in the UK that by working together can remain

a leading player in the global defence market. I welcome the DGP's customer focus so that other Armed Forces, as well as our own, can benefit from cutting edge technology and access to a highly innovative UK value chain that is well placed to respond to their defence and security needs.



# Industry Commitment

Industry is committed to implementation of the Defence Growth Partnership to ensure the UK's Defence Sector grows in the future by strengthening global competitiveness, maximising UK capabilities and technologies, leveraging the UK's value chain and inspiring the next generation. Working in partnership with Government, the DGP can make a material difference to the Sector's investment decisions and strengthen its position as a globally competitive Defence Sector.

*Colin Paynter*

Colin Paynter  
Managing Director  
Airbus Defence and Space UK

**AIRBUS**  
GROUP

*Allan E Cook*

Allan E Cook CBE  
Chairman  
ATKINS

**ATKINS**

*Peter Rogers*

Peter Rogers CBE  
Chief Executive Officer  
Babcock

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*Paul Everitt*

Paul Everitt  
Chief Executive  
ADS

**ADS**

*Nigel Whitehead*

Nigel Whitehead CBE  
Group MD Programmes & Support  
BAE Systems

**BAE SYSTEMS**  
INSPIRED WORK

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Bob Murphy  
Chief Executive Officer  
Cobham plc

**COBHAM**

*Sir Brian Burridge*

Sir Brian Burridge  
Senior Vice President UK  
Finmeccanica UK Ltd

**FINMECCANICA**

*Steve Rowbotham*

Steve Rowbotham  
Chief Operating Officer  
General Dynamics UK

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Simon Fovargue MBE  
Vice President & General Manager  
HP Defence UK

**hp**

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Richard Daniel  
Chief Executive Officer  
Raytheon UK

**Raytheon**

*Bob Stoddart*

Bob Stoddart  
President Customer Business  
Defence, Rolls Royce

**Rolls-Royce**

*Matt Wiles*

Matt Wiles CB CBE  
Managing Director Defence  
Serco Group

**serco**

*Victor Chavez*

Victor Chavez CBE  
Chief Executive Officer  
Thales UK

**THALES**







# 01

## Executive Summary

### OUR STRATEGY

*Taking a fresh and ambitious approach through a*  
**Joint commitment from Government and Defence Industry to work together**  
*to develop new opportunities by*  
**Building on our nation's strengths in air capabilities and intelligent systems**  
*and deliver growth through*  
**Innovative and tailored solutions for customers around the globe.**

#### Customer Ready

The UK recognises that increasingly, customers around the globe are seeking innovative and tailored solutions with the provision of technology transfer, inward investment and industrial partnership. The UK Defence Sector recognises this and has responded with a dynamic, partnership approach, focused on meeting these needs.

The Defence Growth Partnership (DGP), between Government and Industry, has put in place the building blocks to deliver a systematic approach to more effectively meet the challenges faced by customers today. These include investing in the future to position the UK as the preferred partner for international defence collaboration and innovation.

The DGP is delivering against its plan to strengthen UKTI Defence & Security Organisation (UKTI DSO) and has established a new UK Defence Solutions Centre (UK DSC). This is now open and working with customers and Industry to support the development of new capabilities.

#### Implementing the Defence Growth Partnership

The Defence Sector is vital to national security and the UK economy, with a track record of developing and

delivering world-class capabilities across the full range of defence products and services.

With competition intensifying in export markets, the DGP was formed to secure a competitive, sustainable, and globally successful UK Defence Sector delivered through investment in skills, innovation and ready access to the UK value chain.

To achieve these goals the DGP laid out in 'Delivering Growth' a set of initiatives and a plan to put in place a new way of engaging with customers across the globe. The initial £30 million investment from Government and Industry has built momentum and, with a number of additional projects launched, investment has already grown to over £50 million.

#### UKTI Defence & Security Organisation

The Government's UKTI DSO continues to provide the initial route for international partners and potential customers to engage the UK Defence Sector. It already supports UK Industry with advice and introductions to customers. Through the DGP, UKTI DSO has been strengthened with new resources and capabilities to improve the understanding of customer needs, not just now but in the longer term.

1. DGP (2014), Delivering Growth: Implementing the strategic vision for the UK Defence Sector



This new understanding of customers is helping Government and Industry work together to prioritise export activity and opportunities for collaboration. The likely capability needs across a range of customers are being fed into the UK DSC to guide investment in future products and services.

### UK Defence Solutions Centre

The UK DSC is a new organisation, operating in a pre-competitive collaborative space, designed to identify innovative and world-beating products and services that meet the needs of customers around the globe, including the UK MOD. To do this it will develop game-changing strategic capability road maps that will guide future investment decisions and improve the UK's competitive advantage.

Jointly funded and resourced by the Government and Industry, the UK DSC is independent of any individual company's commercial interests and has key characteristics which make it unique.

The strengthened UKTI DSO and UK DSC will make it easier for international partners and customers to connect with the extensive UK value chain including Industry, Academia and Government. The UK DSC is also managing the DGP Innovation Challenge, helping to develop the next generation of technology to respond to the military challenges we face, with companies of all sizes across the UK value chain benefiting through the first round of this £10 million investment.

### Building Industry's Competitiveness

The nature of defence demands long term investment in capital programmes, whilst responding rapidly to emerging threats and technology advances. To capitalise on the increasing amount of investment in technology and services in the civil domain, the

DGP is focussing activity on creating stronger links with Academia and companies in the civil sector.

Capability and technology roadmaps being developed by the UK DSC with the UK value chain will help identify areas for collaboration and investment.

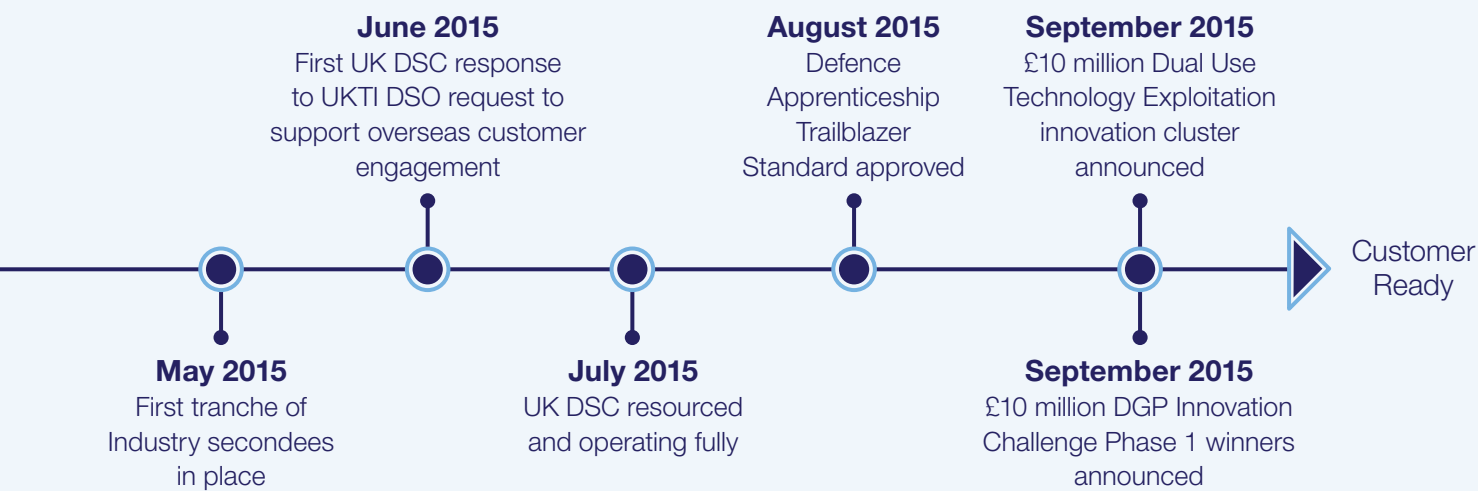
Effectively harnessing the UK value chain will deliver competitive advantage in the global market. The "Flotilla" concept is being developed to provide an opportunity for Small and Medium sized Enterprises (SMEs) to respond to a customer requirement in a co-ordinated way that ultimately provides a more complete solution to the customer and increases market access for the SMEs involved.

Supported by Government and Industry investment of more than £10 million, the Dual Use Technology Exploitation (DUTE) innovation cluster has been created to harnesses the innovation of the defence and civil sectors to help deliver game-changing solutions. The DUTE innovation cluster is an example of how to draw upon the wealth of expertise that exists across the whole UK value chain, from prime contractors to SMEs.

The DGP is tackling known skills shortages across engineering, which is critical in supporting the sector with a highly-skilled flexible workforce capable of delivering innovative and highly complex solutions.

Through the Defence Apprenticeship Trailblazer, we are investing in systems engineering skills as the first of these activities. The Advanced Systems Engineering Apprenticeship Standard at Level 7, equivalent to a Master's degree, is the first apprenticeship standard to operate at this level. The first roll out to students will start in early 2016.





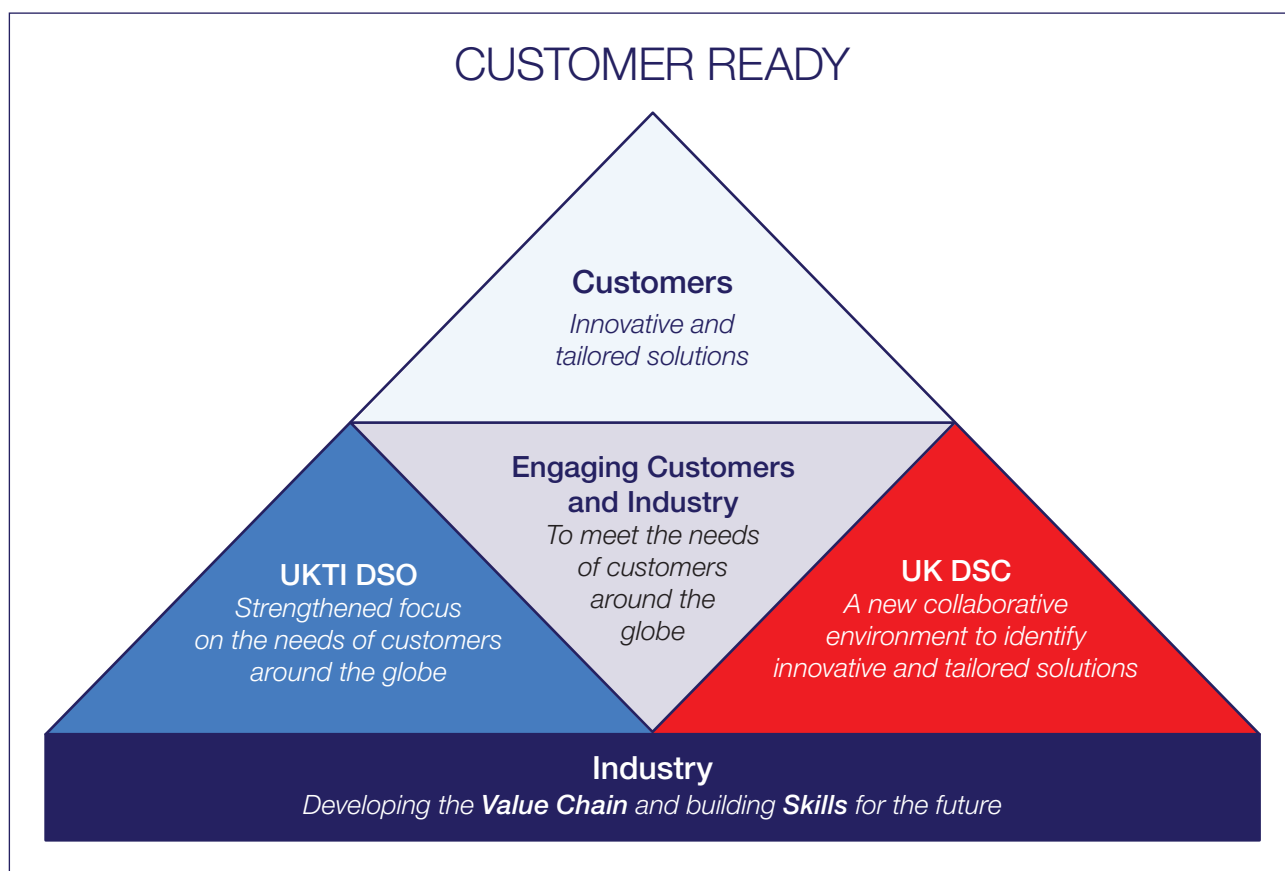
### Engaging Customers and Industry

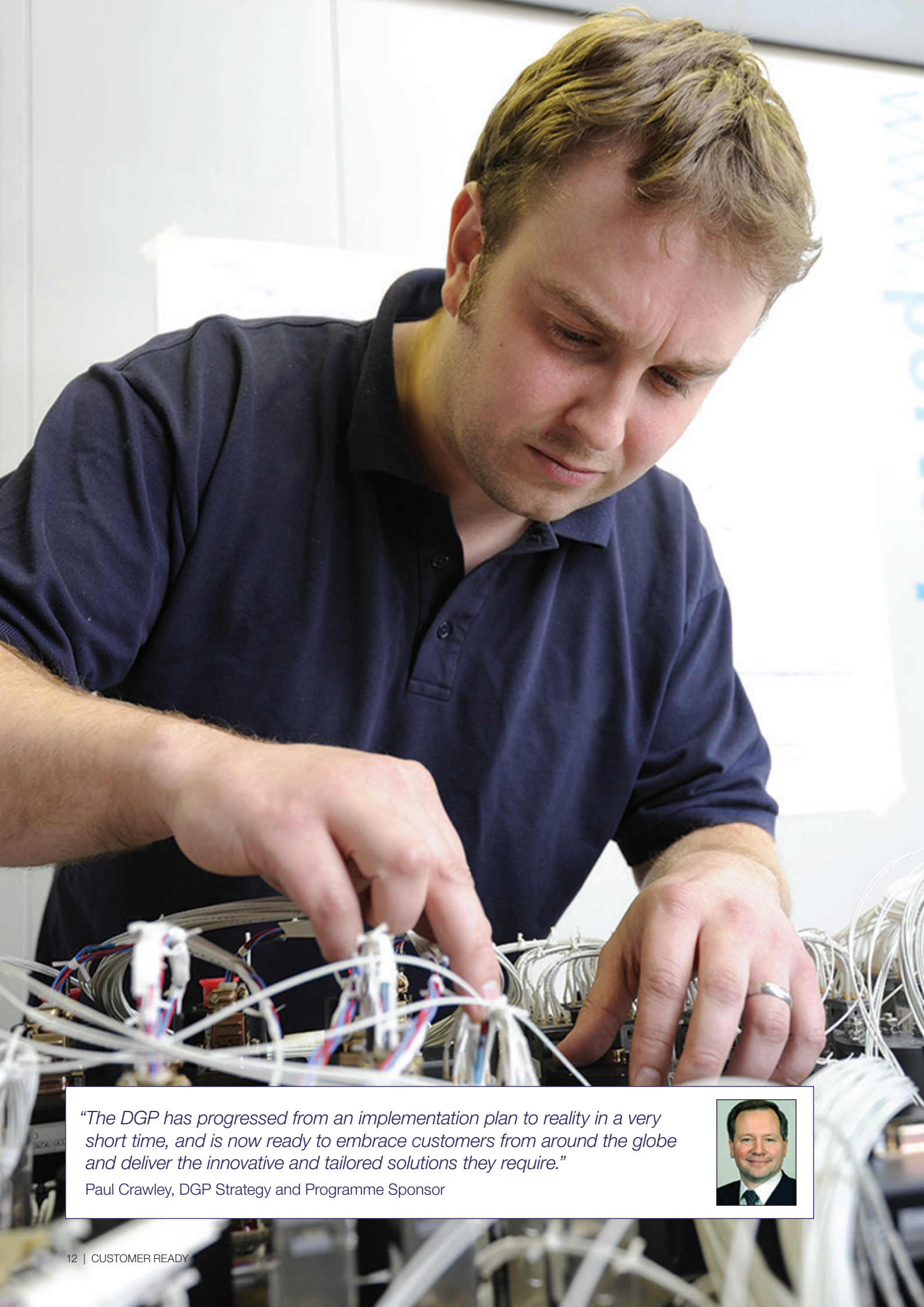
Through the UKTI DSO, customers wishing to access the UK Defence Sector can now also seek assistance from the UK DSC, who will help identify innovative and tailored solutions to meet their needs drawing upon the whole UK value chain.

Bringing together Government and Industry in this way, and working collaboratively with our customers to produce innovative end-to-end solutions, marks a step change in how defence business is conducted.

Cooperation is the key to success: cooperation with customers, cooperation with the UK value chain, and continued cooperation with Government and Industry.

The DGP has created the framework to deliver this new way of doing business and invites customers and the UK value chain to engage.





*"The DGP has progressed from an implementation plan to reality in a very short time, and is now ready to embrace customers from around the globe and deliver the innovative and tailored solutions they require."*

Paul Crawley, DGP Strategy and Programme Sponsor





# 02

## Implementing the Defence Growth Partnership

### IMPLEMENTING THE DGP STRATEGIC VISION

- Improving the competitiveness of the UK Defence Sector in the global market, with investment in innovation and skills
- New UK Defence Solutions Centre (UK DSC) opened and UKTI Defence & Security Organisation (UKTI DSO) strengthened with additional capabilities
- Customer needs being identified and met, with Industry developing new capabilities

### Government and Industry Working Together

The UK Defence Sector develops world class capabilities across the full range of defence products and services, and benefits from the excellent reputation of its domestic customer, the UK Armed Forces, which is widely acknowledged as demanding high standards of performance, value and reliability.

In a highly dynamic and competitive environment, Government and Industry formed the DGP to deliver a new way of engaging with the customer and to drive investment in research and development to secure a truly competitive, sustainable, and globally successful UK Defence Sector.

A strategic vision for the DGP was set out in ‘Securing Prosperity’<sup>2</sup> with three core objectives, to:

- Grow the UK’s global market share, through increased exports.
- Foster greater collaboration and innovation across the Defence Sector, bringing products and services to the market that meet customers needs.
- Improve competitiveness through the whole UK value chain.

The Defence Sector is vital to both national security and the UK economy. It generates annual revenues of over £22 billion, including exports worth £8.5 billion in 2014<sup>3</sup> whilst supporting 254,000 jobs in the UK including 4,400 Defence Industry trainees and apprentices<sup>4</sup>.

### The DGP Implementation Plan

The DGP has successfully delivered the initial phases of the DGP Implementation Plan ‘Delivering Growth’<sup>5</sup> launched in 2014.

The building blocks of the plan are in place, with Government and Industry resources aligned to deliver this new way of working.

The customer facing elements of a strengthened UKTI DSO and new UK DSC are now operational and this document provides a view of how customers and Industry can engage.

But the DGP mission does not stop there. It will continue to work to drive innovation, to improve productivity, to develop skills, and to support UK Industry in delivering to customers around the globe.

2. DGP (2013), Securing Prosperity: A Strategic Vision for the UK Defence Sector

3. UKTI DSO (2015), UK Defence and Security Statistics for 2014  
4. ADS (2015), UK Defence Outlook 2015  
5. DGP (2014), Delivering Growth: Implementing the strategic vision for the UK Defence Sector

# About the Defence Growth Partnership (DGP)

## Turnover

Generating revenues of over £22 billion, the defence industry makes a significant economic contribution to the UK, with companies spanning the length and breadth of the country.



£22BN  
PER YEAR

## Exports

The UK's success as the second largest defence exporter in the world helps deliver the equipment and services our armed forces and security services need to safeguard UK national security.



£8.5BN  
PER YEAR

## Employees

The UK defence industry's direct and indirect employment stood at 254,000, including 4,400 apprentices and trainees. The DGP will help build the skills for a thriving defence industry.



254k

defence  
growth  
partnership

dgp

# Customer

## Value Chain

Harnessing the value chain to deliver growth



Dual Use Technologies Exploitation cluster

Value chain acceleration

SME engagement and enterprise

UK Trade  
& Investment

Defence & Security  
Organisation

Strengthened focus on the  
needs of customers around the  
globe



Market intelligence and analysis

Prioritising capabilities

Strategic partnering

See page 33 for references





## A different way of working

### Engagement

There are over 200 British Embassies, High Commissions and Consulate Generals around the world running 77 Defence Sections, with UKTI operating in over 100 markets

### Collaboration

Extensive network of Catapult centres, bringing together businesses, scientists and engineers. It is 4th globally for business and university collaboration and is the EU's No 1 Foreign Direct Investment destination.

### Innovation

The UK has made a £5.9 billion commitment to science innovation and has four of the top universities in the world. Vibrant SME community with 5,400 SMEs directly supplying UK MoD.



# Customer Ready



A new collaborative environment to identify innovative and tailored solutions

## Skills

Nurturing key skills and addressing gaps

Systems Engineering Masters  
Apprenticeship Programme

Up-skilling employees

Open innovation

Customer engagement

World class tailored solutions



*"The DGP has set an impressive agenda to improve the ability of UK Industry to export in the Defence Sector, embracing changes to make the UK a more attractive defence supplier. Ultra Electronics are delighted to be a participant."*

Mark Anderson, Ultra, UKTI DSO Industry Liason Board





# 03

## UKTI Defence & Security Organisation



*"Increased Government and Industry co-operation through the DGP is enabling the UK to recalibrate itself as the preferred partner for defence collaboration and investment. We are very pleased to be working with the UK DSC to develop tailored solutions to meet customers' strategic long term needs. The ability the UK DSC gives us to provide a gateway to the whole spectrum of UK cutting-edge capabilities is exciting and extremely welcome."*

Stephen Phipson CBE, Head of UKTI DSO

### Leading the Way

With a new long-term strategic perspective, the full support of Government, and the appointment of defence experts from Industry, UKTI Defence & Security Organisation (UKTI DSO) is building upon its already well-established role as the leader of Government defence export efforts.

We will continue to work with and support customers, partners, and Industry to meet their current requirements. But we want to go further – to build longer term, deeper relationships with customers and partners.

We want to understand the challenges they face and support them in defining the requirements needed to address them and helping to source the best equipment and services to provide tailored solutions.

### Connecting Customers with a UK Solution

The UK has over 200 Embassies, High Commissions and Consulate Generals around the world, with UKTI operating in over 100 markets. UKTI DSO has connections into all of this infrastructure, providing easy access for customers.

The UKTI DSO helps customers around the world to connect with the UK Defence Industry to meet their needs and support UK Industry to achieve export success. UKTI DSO achieves this by:

- Building and maintaining relationships with overseas Governments to promote British defence products and services.
- Organising UK presence at trade shows and outward Missions allowing Industry to market their products and services with Government support.
- Providing UK Defence companies with specialist civilian and military support to sell their products and services.

The military personnel embedded within UKTI DSO have expertise covering the full range of military capabilities and wide-ranging experience often gained in operational environments.

As well as providing help and advice to UKTI colleagues and Industry, they are able to engage readily and easily with foreign counterparts and provide direct military-to-military advice in support of UK products and services.



### Strengthened UKTI DSO

Government and Industry are working closer together to focus the UK's efforts on ensuring customers' needs are met, now and in the future.

Guided by the newly formed UKTI DSO Industry Liaison Board, additional Industry resource is helping to deliver enhanced UKTI DSO capability in three key areas.

#### Enhanced Market Intelligence and Analysis

- Analysis to aid decision making on medium to long term, strategic international defence export opportunities, leveraging in-country and DGP company market intelligence and analysis and Government to Government relationships.

#### Identifying Strategic Markets

- The DGP wants to build long term partnerships with customers, and is currently identifying those where there is mutual benefit in establishing a medium to long term strategic UK partnership.

#### DGP Strategic Country Teams

- The Strategic Country Teams will engage with customers in the most appropriate way, in order to understand their needs and help shape a solution by bringing in specialist knowledge from across Government and Industry.

UKTI DSO will continue to assist customers to connect with UK Industry to meet their immediate requirements. But with these new elements in place, the strengthened UKTI DSO will also work closely with the UK DSC to identify solutions for customers and partners in the medium and long term.

This will be achieved by making the necessary connections via the UK DSC so that customers can develop their requirements and explore the potential for developing solutions with the UK value chain.

In this way customers can access the best UK Industry can offer in the form of innovative solutions, tailored to meet their specific short, medium, and long term needs.

The UK has four of the top universities in the world, and is the number one destination for foreign direct investment in Europe. The UK value chain is underpinned by a vibrant community of SME's, with 5,400 SMEs directly supplying UK MoD<sup>6</sup>, and is 4th globally for business and university collaboration<sup>7</sup>.

All of this, with the UK DSC, gives our customers access to the best UK industry can offer in the form of innovative, cutting edge solutions.

*"The DGP has changed the Government and Industry landscape, providing a better approach to identifying and finding solutions to customers' requirements and enhancing the competitiveness of the UK Defence Industry."*

Janice Munday CBE, Director, Advanced Manufacturing and Services, BIS



6. MoD (2015); Finance & Economics Annual Bulletin Trade, Industry & Contracts Statistics 2015, p10.

7. HMT; Fixing the foundations: Creating a more prosperous nation, Cm9098, p37.

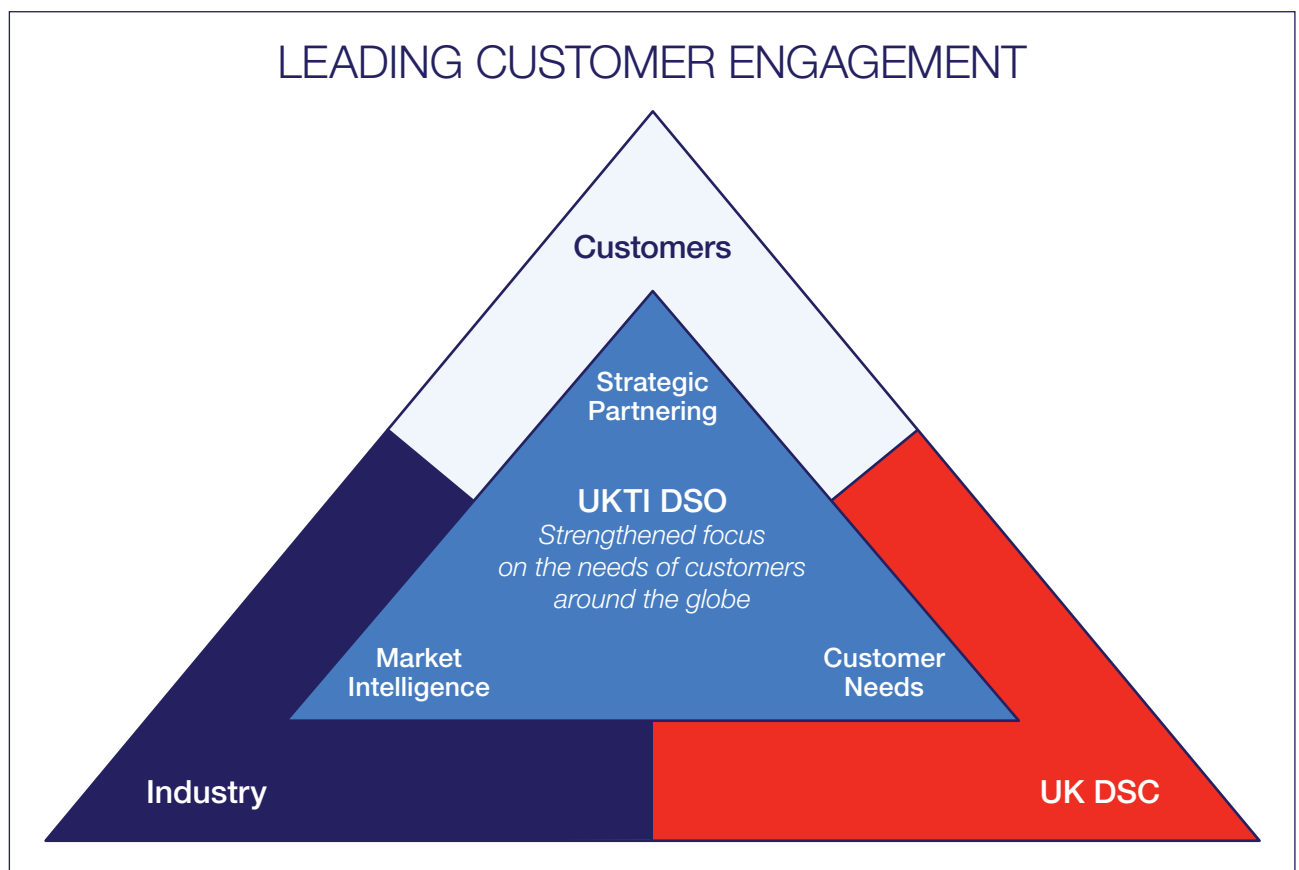




### Working with Customers and Industry

The market intelligence built up by UKTI DSO is a vital input to the UK DSC. This market intelligence will inform the capability planning of the UK DSC and help guide future investment.

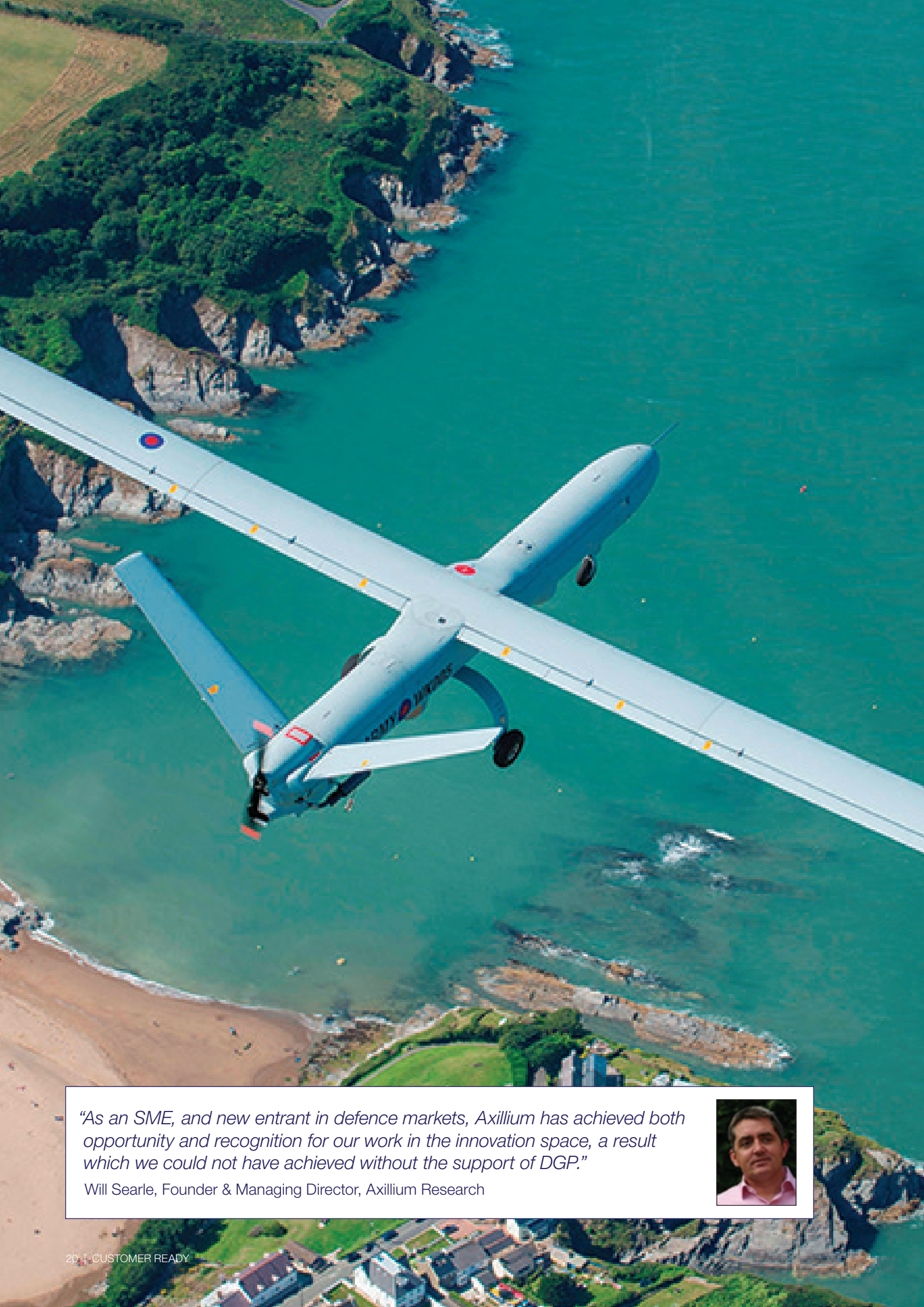
UKTI DSO can support customers in engagements with the UK DSC and Industry to help define and develop the capabilities and services that will meet a customer's specific requirement.



*"Babcock is pleased to continue supporting the efforts of the DGP to strengthen the collaboration between Government and Industry. It is essential that the UK continues to develop innovative services and training solutions that meet the evolving needs of overseas customers."*

Peter Rogers CBE, DGP International Business Sponsor





*"As an SME, and new entrant in defence markets, Axillium has achieved both opportunity and recognition for our work in the innovation space, a result which we could not have achieved without the support of DGP."*

Will Searle, Founder & Managing Director, Axillium Research





# 04

## UK Defence Solutions Centre



*"The opening of the UK DSC marks the start of a very exciting development for the UK's Defence Industry. We're creating a world-class team who bring with them considerable experience, ingenuity and insight. Together, we will make the UK DSC the place to understand and explore the needs of defence customers, both in the UK and abroad."*

Steve Brittan CEO, UK DSC

### Understanding Customer Needs

The UK recognises that increasingly, customers around the globe are seeking innovative and tailored solutions with the provision of technology transfer, inward investment and industrial partnerships.

The UK DSC represents a step change in the way the UK value chain responds to meet customers' needs whether in the form of capabilities, technologies, services, or creative business models.

A strong link with customers is essential, so the UK DSC is working closely with UKTI DSO to understand what customers require in the short, medium and long term.

The UK DSC can then build relationships directly with customers including the novel offer of a dedicated Customer Advisory Group (CAG) which will foster a close partnership with those countries who desire it.

### Independent and Connected

The UK DSC is jointly-funded and resourced by Government and Industry, and is independent of any individual company's commercial interests.

The UK DSC is uniquely able to reach the breadth of the UK value chain, all the way from the largest defence prime contractors through to the thousands of highly innovative SMEs to increase the connection between customers and UK Industry.

By promoting collaboration between these companies, the best of UK capability can be harnessed to deliver solutions that meet customers' needs.

The UK DSC does not own any intellectual property, which remains with Industry; it works in the pre-competitive phase, allowing closer collaboration with both customers and Industry.

### Concepts and Solutions

The UK DSC is able to support customers and UK value chain in responding to current and future challenges. The highly-skilled UK DSC team, working with UKTI DSO, are able to discuss in detail the issues faced by customers in the 0-15 year time frame, which along with an understanding of what the UK value chain has to offer, enables them to provide concept level integrated solutions.



### Capability Development

The UK DSC is building a systematic and strategic change in how the UK value chain invests to meet customer needs and offers customers a role in shaping it.

Looking out across a 15-year horizon, the UK DSC is providing a centralised coordinating, collaborative and strategic planning function for Industry, to give a coherent view of future requirements. It uses this to help shape future products and services, leveraging the UK's world-class defence capability, technology and skills.

### Roadmaps and Interventions

Too often good research does not move into development and through to exploitation in the market. Capability and technology roadmaps are being developed to help focus activity where there is a clear customer need and the UK has strengths to build upon.

Roadmaps are a core part of the UK DSC work, which the UK value chain can draw on. They will identify where business cases should be developed to stimulate investment to better position UK Industry to meet the demands of present and future customers.

## RESPONDING TO THE CUSTOMER – INTEGRATED BORDER MANAGEMENT

A senior representative of an overseas Armed Force approached UKTI DSO with a current problem regarding border control to understand the capabilities or technologies the UK has to address this challenge and how they can work with the UK to develop, deliver, implement and support such a capability in service. The UK DSC worked with Industry, UKTI DSO and other key Government departments to provide a comprehensive, broad based technical input to the UK Government response to the overseas customer.

The UK DSC was able to connect with a wide range of companies which resulted in 81 companies, 66 of them being SMEs, offering capabilities or technologies relevant to the Integrated Border Management problem.

The independent expertise within the UK DSC was able to present a concept level solution of the UK capabilities to solve this requirement. Due to the agility of the UK DSC it was able to connect with Industry and respond within 3 weeks.

*“The success of the DGP depends on finding the right construct for companies to work together with Government support, to deliver export-led growth; I am pleased at the way that the new UK Defence Solutions Centre is doing just that.”*

Susanna Mason, Director General Commercial, MOD







Initial studies have led to a priority set of capabilities being identified which are the subject of the first UK DSC roadmaps. These priorities are:

- Air, Land and Maritime Intelligent Systems
- Unmanned Air Systems (UAS)
- Operational Training Integrating Synthetics (OTIS)
- Technology supporting Complex ISR

These initial roadmaps are already stimulating investment and collaboration in Industry. For example, the Centre for Maritime Intelligent Systems (CMIS) has opened at

Portsmouth, with an investment of over £4 million by Government and Industry. It involves companies of all sizes working together to develop innovative solutions for both the defence and civil markets. The Centre is not just identifying where investment is needed, but what barriers need to be addressed to support growth in the emerging market of maritime autonomous systems.

## STIMULATING INNOVATION IN THE INDUSTRY BASE – DGP INNOVATION CHALLENGE

The UK DSC is managing a £10 million DGP Innovation Challenge, funded by the MOD. The first 2 themed competitions are on the subjects of training and persistent surveillance and further challenges are planned to include autonomy and data analytics.

The development of the next generation pervasive and persistent surveillance capabilities will need to draw on a wide range of technologies to build such a capability, all at varying levels of maturity and complexities of integration.

The DGP Innovation Challenge is aimed at all industries, not just defence, to offer up any capabilities that could usefully contribute. Over a hundred responses have been received, many of which are from highly innovative SMEs.

It is the intention that several Phase 1 contracts will be placed from the DGP Innovation Challenge to develop capabilities, which will if deemed successful lead on to larger value Phase 2 contracts funded from the same source.

*“The DGP has already made significant progress in strengthening our position by focusing on some key strategic areas, supporting the valuable UK supply chain and exploring new possibilities by employing novel technologies.”*

Nigel Whitehead CBE, DGP Air Capabilities Sponsor





### Stimulating Innovation

The UK DSC is creating an open innovation ecosystem that seeks new methods and sources for funding innovation, exploiting funding constructs used within the commercial sector, and developing new business models. This will not only promote open innovation, but also facilitate the utilisation of commercial innovations within defence.

Innovation in priority areas identified through market analysis and the roadmaps is being stimulated by the launch of the first DGP Innovation Challenge around the subjects of 'Persistent Surveillance from the Air' and

'Operational Training Integrating Synthetics'. More innovation challenges will follow as the roadmaps highlight additional areas worthy of exploitation, or indeed potential gaps in the UK's overall R&D programme with respect to export.

The UK DSC is also examining other potential areas of innovation both within the UK Defence Industry and in adjacent market areas such as automotive, medical and gaming to build a coherent plan of future defence products and solutions that can guide Industry investment going forward.

## DEVELOPING CAPABILITY: OPERATIONAL TRAINING INTEGRATING SYNTHETICS (OTIS)

Effective Operational Training, from individual skills through to the bringing together of agile coalition forces, along with the necessary command structures, is ever more important.

The increased integration of synthetics opens up possibilities that have not yet been fully realised.

The most effective forces of the future will be those that have the opportunity to train in environments that are more operationally realistic than peacetime exercises. Exercises that are fully contested and

contain the complexity of real world conflict but that are adaptable and affordable.

The DGP OTIS working group have undertaken a unique collaborative exercise in bringing together a UK wide view of synthetics training to operational effect. This showed that, based upon its military, training and education heritage and methods, coupled with a leading position in virtual reality, modelling, synthetics and secure networking, the UK can offer world leading solutions adaptable to specific national needs.

*"Thales is a proud supporter of the DGP and the levels of cooperation between Government and Industry it has enabled, providing an effective approach to overcoming our customers' key challenges, both at home and abroad."*

Victor Chavez CBE, DGP Intelligent Systems Sponsor

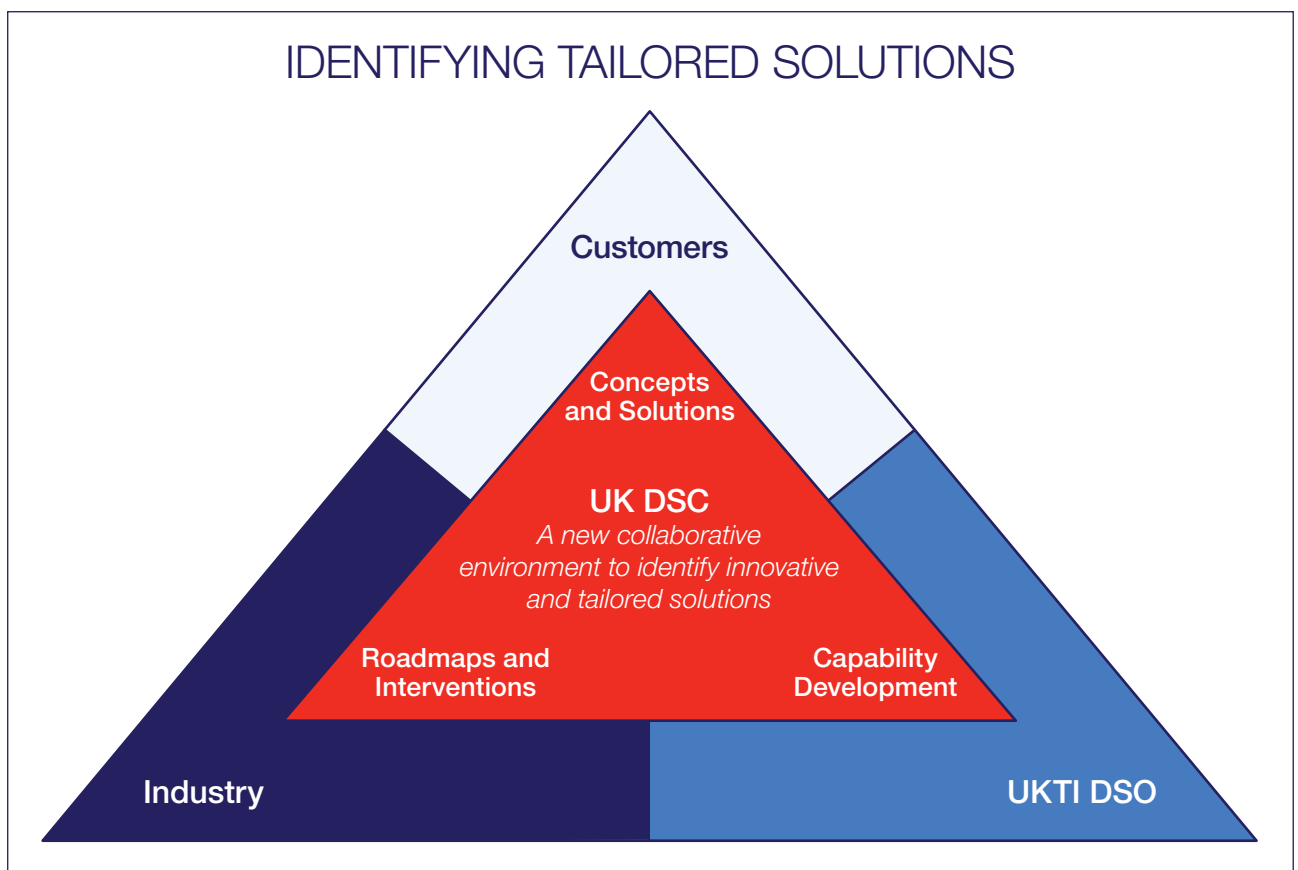




### Working with Customers and Industry

UKTI DSO can support customers to engage with the UK DSC to explore concept level solutions and opportunities for developing capabilities with UK industry.

The UK DSC is open for organisations of all sizes in the UK value chain to get involved, providing a safe space to work together and innovate to develop the capabilities required.



*"Finmeccanica is an active partner and advocate of the DGP. Collaboration amongst Government and Industry is fundamental for the future of the UK's world-class Defence Sector. The key to sustaining the Sector is to continue to create leading-edge technologies, for both our Armed Forces and export customers."*

Sir Brian Burridge, DGP Technology Sponsor







*"Working alongside other engineers from the Sector, collaborating with Industry, Academia and Government, will allow me the opportunity to learn from others and gain increased understanding of the Defence Sector, ultimately helping me deliver improved capabilities in the future."*

Andrew Sheath, SEMAP Apprentice (designate)





# 05

## Building Industry's Competitiveness

### INVESTING IN THE UK'S DEFENCE INDUSTRY TO ENHANCE COMPETITIVENESS

- Agile and responsive UK value chain, meeting the needs of customers
- Productive Defence Sector, focusing investment in innovation, products and services for future success
- Invest in the skills we need, creating a new Defence Apprenticeship Trailblazer and inspiring the next generation of engineers

#### Increasing Productivity

Generating revenues of over £22 billion, the Defence Industry makes a significant economic contribution to the UK, with companies spanning the length and breadth of the country. These companies support 254,000 jobs in the UK including 4,400 Defence Industry trainees and apprentices<sup>8</sup>.

Economically the DGP is focused on export led growth, underpinned by investment in infrastructure (such as the UK DSC), skills and knowledge; and promoting innovation at all levels of the UK value chain.

Militarily the DGP is focused on developing products and services that support the Armed Forces of customers around the globe, to deliver the same or greater effect with fewer resources.

The UK is one of the world's leading exporters of services, second only to the US in 2013<sup>9</sup>. The UK value chain is continuously evolving its approach to defence services, which results in an innovative and outcome focused system that delivers efficiencies, cost savings and higher availability of defence capabilities.

There is an opportunity to share these concepts and approaches to improve military productivity with other customers.

#### Innovative and Agile

The nature of the Defence Sector means Industry and Government need to be able to plan for the long term, with major capital programmes that can take years to design and develop; whilst also responding rapidly to emerging threats and technology advances.

As well as bringing in technology from the civil sector, there are opportunities to learn lessons on reducing the development time of new products and services.

The roadmaps developed by the UK DSC working with the UK value chain will provide a focus for identifying future investment needs and aligning resources to deliver better results, faster and cheaper.

The UK is ranked 4th in the world for business and university collaboration<sup>10</sup>. The UK Defence Sector has strong links with universities, which it continues to build on, drawing on world class research and development in a broad range of subjects from quantum technology to robotics and autonomous systems.

Effectively harnessing the resources of the UK value chain – Academia, Industry, and Government – delivers competitive advantage in the global market.

8. ADS (2015), UK Defence Outlook 2015.

9. HMT; Fixing the foundations: Creating a more prosperous nation, Cm9098, p65.

10. HMT; Fixing the foundations: Creating a more prosperous nation, Cm9098, p27-39.



# Value Chain

## Collaboration and Exploitation

The UK value chain is underpinned by a vibrant community of small and medium sized enterprises, with 5,400 SMEs directly supplying UK MoD<sup>11</sup>. Effectively harnessing the UK value chain will deliver competitive advantage in the global market.

The “Flotilla” concept is being developed to provide an opportunity for UK SMEs to respond to a customer requirement in a co-ordinated way that ultimately provides

a more complete solution to the customer and increases market access for the SMEs involved.

Recognising the global trend that sees far greater investment in the civil domain than in defence, the UK defence value chain needs to continue improving how it leverages this investment and exploit it in the Defence Sector.

## DUAL USE TECHNOLOGY EXPLOITATION (DUTE) INNOVATION CLUSTER

The Value Chain Competitiveness Team recognised the opportunity to work with adjacent sectors to develop how they leverage and develop technology; finding Dual Use applications in the medium to long term and have developed an innovation cluster to support this agenda.

Combining national and local networks with access to public and private funding, the Cluster’s ambition is to stimulate export growth for defence products by leveraging Dual Use Technology Exploitation (DUTE), both from and into adjacent markets.

With traditional defence markets contracting, cross-sector fertilisation of thinking and development will generate disruptive technologies for our customers whilst broadening market access for the UK value chain in adjacent markets.

With a strong focus on connecting UK manufacturers with high-growth SMEs and technology start-ups, the Cluster will also provide partners with a supportive innovation management environment, business mentoring and technology showcasing opportunities.

*“The DGP is a great enabler for the UK, bringing together companies from SME to Mid-Tier to Large International Corporation. Through the DGP we can better harness the full spectrum of the UK’s capabilities, facilities and assets which make up the Defence Value Chain.”*

Steve Fitz-Gerald, DGP Value Chain Sponsor



11. MoD (2015); Finance & Economics Annual Bulletin Trade, Industry & Contracts Statistics 2015, p10.





## Skills

### Highly Skilled

The UK Defence Sector relies on a highly skilled, educated and flexible workforce. Like many other sectors, the Defence Sector has a growing need for technical and professional skilled workers. The DGP is taking action to ensure the Defence Sector is an attractive place to work, inspiring the next generation and up-skilling the existing workforce.

Work has begun in addressing the skills requirement

through the Defence Apprenticeship Trailblazer. Apprenticeships put Industry in the lead for developing the skills in the future and the DGP has created an Advanced Systems Engineering Apprenticeship standard, the first of its kind at Master's Level.

That training can also be provided to help customers around the world develop the skills they require to develop their own industrial capabilities.

### SYSTEMS ENGINEERING MASTERS APPRENTICESHIP PROGRAMME (SEMAP)

Apprenticeships continue to play an ever increasing role in developing the skills needed across multiple sectors in the UK. Currently there are more than 4,400 apprentices and trainees directly employed by the UK Defence Sector<sup>12</sup>.

The Advanced Systems Engineering Apprenticeship Standard at Level 7, equivalent to a Master's level, will create rounded professional Systems Engineers.

Through the DGP, employers – supported by trade

bodies and academia – have led the development of this new Apprenticeship standard, which will provide the critical skills to deliver competitive advantage by recognising the ever-increasing complexity of defence systems.

The Assessment Plan has been approved with the first tranche of Defence Apprenticeship Trailblazer participants signed up to start the programme in January 2016 with a commitment from employers to provide up to 90 people in the first year.

*"The achievement of the Level 7 Systems Engineering Master's Apprenticeship Programme (SEMAP) is fantastic news and an important step towards sustaining and growing the defence skills base. We are looking forward to the first apprentices starting the programme in January 2016."*

Allan Cook CBE, DGP Skills Sponsor







*"The DGP is playing an increasingly important role. It is promoting innovation and has established important new mechanisms to help sustain a globally competitive UK Defence Industry, demonstrating the effectiveness of a strong partnership between Government and Industry."*

Paul Everitt, DGP Engagement Sponsor



# 06

## Engaging Customers and Industry

### MEETING THE NEEDS OF CUSTOMERS AROUND THE GLOBE

- A new way of working, making it easier for customers to connect with the UK value chain
- Working together to develop innovative and tailored solutions
- Engagement invited from customers and the UK value chain

#### Working Together

Cooperation is the key to success: cooperation with customers, cooperation with the UK value chain, and continued cooperation with Government and Industry.

The DGP has created the framework to deliver this new way of doing business and invites customers and the UK value chain to engage.

#### CUSTOMER ENGAGEMENT

UKTI DSO continues to be the initial point of contact for customers to connect with the UK value chain, including the UK DSC.

The UK DSC can help support prospective customers and engage with the UK value chain to respond to their needs. Customer Advisory Groups (CAGs) can be established if desired by the customer to better understand and develop their requirement without prejudicing any future procurement process.

**UKTI Defence & Security Organisation (UKTI DSO)**  
uktidso.enquiry@ukti.gsi.gov.uk

**UK Defence Solutions Centre (UK DSC)**  
contact@ukdsc.org

#### INDUSTRY ENGAGEMENT

The DGP is working with the whole UK value chain to maximise the opportunities for UK companies, large and small, to collaborate, access existing support mechanisms and to fulfil their export potential.

UK companies of all sizes, including Small and Medium sized Enterprises (SMEs), and Academia are invited to become involved with the DGP.

**DGP Value Chain Team**  
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engagement@defencegrowthpartnership.co.uk



1,900 international defence students per year receive training and support from Babcock

Marshall typically spends more than £1 billion with suppliers per annum

HP employs 300 reserves & veterans in the UK

The Airbus A400M Atlas flies further, faster and higher than its predecessors, and can carry double the payload over the same distance.

MBDA's Sea Ceptor missile does 0 – 60 mph in less than a tenth of a second

Serco controls 9.5 million aircraft movements per annum worldwide

Each individual Rolls-Royce EJ200's High Pressure Turbine blade produces power similar to that of a Formula 1 car

The world's first fully-integrated digital Armoured Fighting Vehicle electronics are developed by General Dynamics UK

Over 20,000 pilots trained have been trained using the BAE Systems Hawk training jet

Thales UK has delivered over 50,000 hours of simulated operational training over a 30 year training service for the RAF Tornado force

Countries with the toughest, most demanding environments choose Agusta Westland built helicopters for Search and Rescue

QinetiQ has the longest missile test track in Europe at 1500 metres

On its first flight the Lockheed Martin X-35B prototype was piloted by a British test pilot

Cobham aerial refuelling equipment could fill a car's fuel tank in less than 3 seconds

The Typhoon programme supports 40,000 jobs in the UK

Raytheon's Sentinel has amassed a total of almost 3 solid years of flight time since its entry to service in 2009

10% of all UK manufacturing is in defence

**The DGP supports The 5% Club – Investing in a generation**

# Acknowledgements

The DGP would like to thank all Government departments, companies, organisations and individuals for their contributions.

## **Infographic references:**

ADS (2015), UK Defence Outlook 2015

UKTI DSO (2015), UK Defence and Security Statistics for 2014

HMT; Fixing the foundations: Creating a more prosperous nation, Cm9098, p27-39.

UK Trade and Investment (2015); Inward Investment Report 2014/15, p1.

UK Gov; Autumn Statement 2014

<https://www.gov.uk/government/news/autumn-statement-2014-16-things-you-should-know> accessed 04/09/2015

MoD (2015); Finance & Economics Annual Bulletin Trade, Industry & Contracts Statistics 2015, p10

To find out more about the  
Defence Growth Partnership go to:  
[www.defencegrowthpartnership.co.uk](http://www.defencegrowthpartnership.co.uk)

