



Ministry
of Defence

Innovation in Defence

Response to the Defence Innovation Advisory Panel Report 2018

Introduction

The 2015 SDSR recognised that Defence needed a new approach to innovation to keep the UK safe. The Secretary of State for Defence launched the Defence Innovation Initiative in 2016 to maintain the UK's military edge into the future with new structures and significant funding.

A key part of this new approach was the formation of the Defence Innovation Advisory Panel which has provided valuable expert insight into how Defence can make the most of innovation to meet our future goals.

The Department thanks the Panel for its insightful and vital contribution to Defence innovation over the last year and welcomes this first report and its recommendations. The Report represents the first holistic review of the progress made and challenges Defence faces in innovation since the Innovation Initiative was launched.

As the Panel's report sets out, we have made good progress in delivering innovation in Defence, but we agree with the Panel that there is much more to do to deliver the step- change in innovation we want. We are determined to make the changes needed to ensure that Defence can harness the power of innovation and maintain our armed forces' advantage over potential adversaries. The Report makes a powerful case for change, and reinforces our determination to improve the way Defence innovates.

This document sets out the Government's response to the Panel's observations and recommendations, across the four themes that the Panel identified (Priorities & Exploitation, Acquisition & Processes, Data & Information Systems, and People & Culture). Above all, this response includes commitments to act and improve, and we will ask the Panel to review our progress and support Defence in the implementation and delivery of change.

Defence Priorities & Exploitation

We accept the Panel's view of the importance of identifying and publicising Defence's innovation priorities. Clearer messaging around innovation priorities will inform spending decisions, as well as providing a strong demand signal to Industry and Academia. We will publish the first Defence Innovation Index, outlining those priorities, in 2019. The priorities in the Defence Innovation Index will also align with those technology opportunities and choices set out in the Defence Technology Framework, ensuring a coherent demand signal for Industry and international partners.

We recognise that successful innovation involves accepting risks and being prepared to stop projects that are not delivering. We are continually improving our processes for identifying innovation projects that should be stopped, and redeploying resources to projects that deliver greater value to Defence. *In the first eighteen months of the Innovation Fund we have stopped around 25% of projects.* We will build on the work of the Innovation Hubs to share best practice and lessons learnt, helping us to 'fail fast' in a way that is appropriate to the Defence environment, with its unique set of risks and responsibility for spending public money.

Revolutionise the Human-Information Relationship for Defence - The First Innovation Fund Challenge was developed to address the Defence Challenge for Innovation: 'Understand and take effective decisions in the information age'. The challenge received over 180 proposals from industry, academia and Small and Medium-Sized Enterprises (SMEs). Thirty-three proposals were selected for funding to prove concepts with the best six of these then taken forward to concept demonstration. The first of these projects to conclude is now undergoing a capability proving phase with the Royal Navy.

We agree that to achieve successful innovation, Defence needs better delivery of innovative ideas and projects into the hands of our Armed Forces. The Defence Secretary recently announced the creation of a programme of technology ‘Spearheads’. These are focused on the most important issues Defence faces. The Spearheads will give us the opportunity to experiment with and test new ways of driving innovation and addressing the challenges associated with moving from initial idea to exploitation and innovation at speed and scale. The first set of Spearhead projects are focused on Anti-Submarine Warfare, Land Command and Control, and Intelligence, Surveillance and Reconnaissance.

Defence Acquisition & Processes

The Panel rightly identifies acquisition as a key enabler for effective innovation. It is vital that we improve our acquisition processes and ensure that they provide the necessary agility to support innovation. We are undertaking a wider review of acquisition and the Panel’s recommendations around Defence Acquisition will be considered as part of this. We are determined to improve both agility and pace in our acquisition processes.

Our Innovation Hubs are leading the way to explore opportunities to improve, and make best use of, acquisition processes and frameworks.

Embedding Commercial expertise – The RAF Rapid Capabilities Office pioneered the embedding of a dedicated Commercial resource into a small team to increase commercial agility for innovation and support rapid and innovative acquisition. The success of this approach led to the Joint Forces Command innovation hub following suit earlier this year and the Army and Royal Navy innovation hubs recruiting to fill similar posts.

Defence Data & Information Systems

We completely agree with the Panel that in the modern world, data collection, sharing and analysis should be considered a top Defence priority. Data and information systems are critical to the ability of Defence to achieve its objectives. Gaining ‘information advantage’ will be fundamental to future operational success.

To achieve ‘information advantage’ we need to create foundational components in process, skills, culture and technology that avoids us being locked into a siloed world with barriers to the effective access, analysis and sharing of information across Defence. Building these common Defence foundations, drawing on open architecture, and the supporting ‘rules of the road’, will give us a structure that transforms flexibility and speed of response, and allows information to flow and be shared where it is needed in real time. We are reshaping our investments in these areas and reshaping our conceptual thinking to deliver the required capability improvements.

Programme Nelson – The Royal Navy established this programme in 2017 to rapidly enhance our understanding of Artificial Intelligence (AI) and Machine Learning in naval warfare. Programme Nelson has taken industry best-practice to form a hybrid team of military, civilian and industry experts delivering AI applications to the Front-Line user and Operational Headquarters. It has established its own digital platform that takes advantage of the Royal Navy’s drive towards open architecture. Over the next 12 months progress will be accelerated, including construction of the Royal Navy’s first Digital Hub in Portsmouth Dockyard while delivering projects ranging from improved sensor detection to logistics and engineering.

We are also focusing attention on how Defence secures the right technical skills and capabilities which the Panel rightly identifies as a key action. Locating and securing future talent is not a challenge unique to data and information systems, but will mean taking a new approach to attraction and retention. In addition to the creation of Centres of Excellence to help challenge limited resource and provide opportunities to attract and retain talent, Defence will also explore approaches that include talent joining for limited periods (including through two-way secondments with Industry) as a way of individuals achieving longer-term career aspirations. Our approach in this field will form part of the wider Defence People Strategy which will ensure our workforce is ready to meet the challenges of the coming decades.

Defence People & Culture

We recognised the importance of culture to effective innovation in Defence when we launched the Defence Innovation Initiative. Over the past two years, we have established a network of Innovation Hubs across Defence and top-level budget (TLB) business areas are working closely with the Defence and Security Accelerator (DASA) to tap into wider industry expertise, including from non-traditional Defence suppliers. We have incentivised grass roots innovation in TLBs by funding 65 internal innovation projects, through the Innovation Fund, over the last eighteen months. These include an Artificial Intelligence hackathon, digital and additive manufacturing maker-spaces, digitisation of the Acquisition System Operating Model and predictive maintenance on the Type 45 warship.

We agree with the Panel's recommendation that we must celebrate and reward excellence in innovation. In recognising innovation, as part of our broader approach to incentivisation, we have a number of existing reward mechanisms and are considering how to develop these further. For example, the annual Acquisition Awards presented by the Minister for Defence Procurement already has an innovation category and from 2019 we will hold an annual Innovation Awards event. This will enable us to showcase, share, recognise and reward the very best practice in Defence innovation.

GEMS – The GEMS staff ideas management scheme has been identifying and implementing ideas from across the Department for over 20 years. From the launch of the online system in 2012, the scheme has achieved approximate savings of £14M and efficiencies of £37M, engaging around 11% of the Department. An enhanced scheme is soon to be launched, which will be underpinned by a modern social ideas management platform, a concept which has already been successfully trialled by the RAF. We expect this to increase engagement with the scheme and lead to even higher quality ideas, whilst more clearly identifying and recognising the contributions of individuals.

Finally, we are reinforcing our commitment to innovation within the MOD by creating a dedicated Director of Defence Innovation who will work within our capabilities area. This role will ensure there is coherence between innovation entities and Defence strategic priorities, Science & Technology, and the business and military capability parts of Defence. The appointee will have a formal role in the overall innovation governance structure, ensuring access to the Vice-Chief of the Defence Staff, the Permanent Secretary and the Secretary of State. We expect to fill this role by early 2019.

Appendix: Responses to the Advisory Panel's recommendations

Set out below are steps which Defence is taking to address the Advisory Panel's individual recommendations.

Recommendation	Defence response
1. Drive innovation through user need	<p>From 2019 the MOD will publish a Defence Innovation Index.</p> <p>The 'Spearheads' programme will be used as a test-bed for improving exploitation of innovative products and services.</p>
2. Engender an environment of failing fast and learning to achieve greater acceptance and mitigation of risk	<p>The Innovation Hub network engenders this environment in a controlled manner, as we continue to develop new processes to balance our needs and departmental responsibilities. Lessons are shared with the wider Defence innovation community.</p>
3. Define, drive and demonstrate innovative procurement best practice	<p>Activity is in hand to change our acquisition and commercial processes to better support the rapid and incremental adoption of new and emerging technologies. These recommendations will be considered as part of this work.</p>
4. Fundamentally refine and simplify contract and approvals processes	
5. Review existing structures in light of new ways of working	
6. Put data collection, sharing, analysis and use at the top of the Department's must do list	<p>Data collection, sharing and analysis is fundamental to give our forces a strategic advantage. Investments are already being reshaped to deliver improvements in capability in these areas.</p>
7. Create a standalone Cyber Force	<p>Activity is in hand to address the intent of this recommendation.</p>
8. Embed computer science and digital engineering as core technical competencies for the department	<p>We are defining the future technical knowledge skills and experience that Defence will require, and our approach to securing these will form part of the Defence People Strategy.</p>
9. Appoint a Chief Innovation Officer to provide board level representation	<p>A Director of Defence Innovation is being recruited and will form part of the formal innovation governance structure.</p>
10. Engender a culture of innovation, recognising and rewarding excellence	<p>We will continue to build on the successes of the Innovation Hubs and TLBs working with DASA to continue driving an innovation culture.</p> <p>From 2019 we will hold an Innovation Awards event, to recognise, share and showcase innovation excellence across Defence.</p> <p>Early in 2019 we will re-launch our ideas management scheme, underpinned by a modern social ideas management platform.</p>

Delivered by the Defence Innovation Unit