# DEFENCE AND SECURITY ACCELERATOR (DASA)

## ANNUAL REPORT 2018

## DRIVING INNOVATION, SAVING LIVES




Defence and Security
Accelerator

DASA HAS BEEN CREATED
BY THE UK GOVERNMENT TO ACCELERATE
INNOVATION IN DEFENCE AND SECURITY, TO KEEP
THE UK SAFE AND PROSPEROUS.

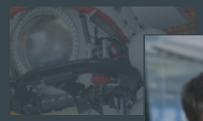
Defence and Security
Accelerator

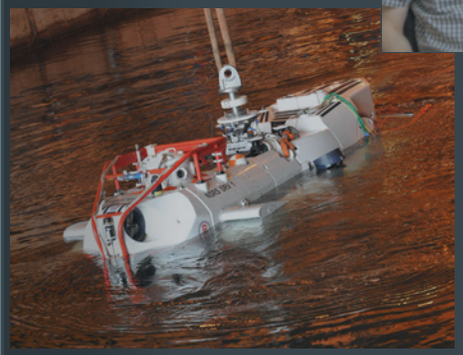
# OUR DEFENCE AND SECURITY CUSTOMERS

Identify the problem

# PRIVATE SECTOR AND ACADEMIA

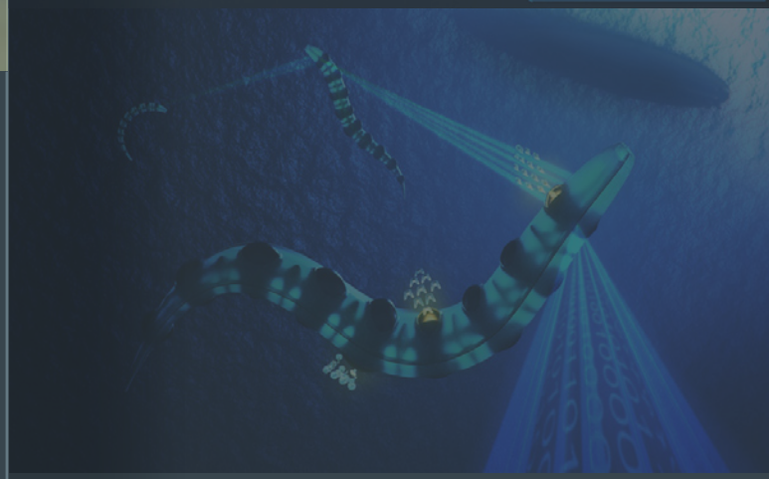
Supply the innovation





# WORKING TOGETHER

We craft the solution



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# WELCOME

**Dr Lucy Mason, Head of DASA**

It is an immense privilege for me to lead DASA. We're an exciting young organisation, created just a year ago to find and fund exploitable innovations for defence and security, to keep the UK safe and prosperous.

We have grown very rapidly in our first year, tripling the size of our team and creating a network of Innovation Partners across the UK. We have launched the Open Call for Innovation which received over 200 proposals, of which 28 received funding totalling over £2m. We trialled our One Page Pitch which attracted a further 200 proposals in just 12 weeks. We accept proposals at all 'Technology Readiness Levels'. We're proud of our ability to place contracts within three weeks and we've introduced a short form contract, all of which helps our suppliers work with us, quickly and efficiently.

We have invested £16.8m in 127 proposals, across 13 themed competitions for our defence and security customers including: **The Ministry of Defence**, **The Home Office** and **The Department for Transport**. We've also worked in partnership with MOD's **Information Systems and Services** (ISS) to hold an Artificial Intelligence Hackathon, and supported a **Pitch@The Palace** event. On top of all of this, we've formed a partnership with **Imperial College London** to launch a London Hub of DASA.

I'm proud of what we've achieved, together, and thank everyone who's helped us, and supported us during our first year. As we move forwards, we'll continue to try new ideas, pilot new ways of doing things, and learn as we go. We'll keep improving and we'll keep working hard. And I, for one, can't wait to see what the future holds.

In 2017/2018, we have invested a total of **£19.2m** in **155 proposals**, across DASA themed competitions and the Open Call.

# ABOUT US

DASA exists to help Government access innovative ideas, equipment and services more quickly for UK security and military users in order to help maintain security and military advantage over our adversaries, to protect people and ultimately to save lives. DASA is also helping to build prosperity for the UK in line with the aims of the Government's Industrial Strategy.

DASA is a cross-Government organisation created by the Ministry of Defence (MOD). We work closely with the Home Office, MOD, Department for Transport and security services, amongst others, and our team is co-located with the Defence Science and Technology Laboratory (Dstl).

DASA was announced in September 2016 by the Secretary of State for Defence as part of the Defence Innovation Initiative. We went live in December 2016, evolving from the previous Centre for Defence Enterprise (CDE).

Our mission is for the **UK to have strategic advantage through the most innovative defence and security capabilities in the world.** We will find and fund exploitable innovations which support the defence and security of the UK faster and more effectively, and seek to generate economic value for the UK.

# WHY WE EXIST AND WHAT WE DO

**We will:**

**Reach out to find ideas and opportunities** by engaging widely to build networks with external organisations, private sector, academia, and individuals. We encourage individuals and organisations to work with us who have not previously worked with defence and security, and to work collaboratively to form partnerships.

**Fund and support industry primes, SMEs and academics to develop their ideas** in partnership with front line stakeholders and policy customers into workable demonstrators, products and services, and experiment with novel methodologies and approaches.

**Work with defence and security stakeholders to exploit the best ideas, products and services**, in order to transfer them onto the operational front line and develop broader commercial and export potential.

**Be transparent and accessible in how we work.** We are easy to find, contact and work with. Our processes are simple to use and access, straightforward, and non-bureaucratic.

**Be constantly evolving**; we experiment with new ways of working. We evaluate, learn and share best practice.

> DASA are having a real impact for security innovation. They are key in bringing together the range of innovators we need from academia and industry to help deliver our Future Aviation Security Solutions programme.

Deputy Director, National Security Science and Research,
**Department for Transport**

# WE'VE ACHIEVED A LOT ALREADY

## 1. WE'VE REACHED OUT TO FIND IDEAS AND OPPORTUNITIES

We have started to build a thriving innovation ecosystem by developing partnerships with defence and security innovation groups, joining up with existing networks and innovation hubs, gathering and sharing market intelligence collected by our Innovation Partners (IP), and building our team of regionally-embedded IPs.

**Over the past year we have:**

- Expanded our Innovation Partner team, who are located regionally throughout the UK.
- Extended our networks three-fold and attracted proposals from suppliers who haven't worked with defence and security previously.
- Engaged with over 60 academic institutions, including **Cambridge University** and **Set Squared**. We have had direct discussions with academics and researchers, and are working with university-owned technology-transfer organisations.
- Engaged closely with the **Knowledge Transfer Network** (KTN) for defence and security, as well as **ADS**, **Tech UK**, **Innovate UK**, **Northern Defence Industries** (NDI), **Engineers Employers Federation** (EEF), **Local Enterprise Partnerships** across the UK, and **Business West**. We make good use of social media with a growing LinkedIn and Twitter presence.
- Formed a partnership with **Inogesis**[1] to support their events and introduce our networks, and are open to similar partnerships with other organisations.
- Created an ongoing Market Intelligence Report showcasing interesting ideas, research and businesses to defence and security policy-makers.
- Strengthened links with professional bodies such as the **Institution of Engineering and Technology** (IET).

[1] Inogesis help blue-chip organisations harness disruptive thinking and technologies to drive new revenues or overcome challenges by connecting them with small dynamic companies. Their role is to help by connecting them with external innovation: spin-outs, startups and growth companies. More information can be found at: **https://inogesis.com**.

- All data is correct as at 31 March 2018.

- DASA Innovation Partners can be contacted through **accelerator@dstl.gov.uk** or **01980 950000 Option 3**.

# WE'VE ACHIEVED A LOT ALREADY



## 2. WE'VE FUNDED AND SUPPORTED THE PRIVATE SECTOR AND ACADEMIA

In year one, we've funded 155 proposals, to the sum of £19.2m. Our Open Call for Innovation provides a route for anyone with a good idea to submit it, at any time. Proposals are assessed by technical experts from across defence and security, against a set of predefined criteria which may lead to a decision to fund. We have run 13 Themed Competitions, and experimented with new ways of working.

**Over the past year we have:**

- Launched the Open Call for Innovation, which has received 200 proposals, and funded 28 projects since April 2017, totalling £2.36m. In January 2018 we launched a new 'twin track' approach. The first track is open to potential innovations at an early stage of development whilst the second track is seeking rapid impact innovations which must have an impact within three years.
- Run the first Defence Innovation Challenge, 'Revolutionise the human information relationship for Defence'; funding 33 proposals worth £3.05m in phases 1 and proposals worth £862K in phase 2 (total £3.96m). Other competitions:
  - Finding Hidden Explosives in Electrical Items
  - Regenerative Medicine at the Front Line
  - Synthetic Biology
  - Many Drones Make Light Work,
  - Seeing Through the Clouds
  - Autonomous Last Mile Resupply
  - Autonomous Hazardous Scene Assessment
- Simplified procurement with our fast-track process and short-form contract. Our average time from decision to contract is around 3 weeks.
- Held a symposium and roundtable event with the Royal Society on 'Spot the Threat in the Crowd', in response to the terrorist attacks in Manchester and London. The outputs from this event helped focus the subsequent 'Improving Crowd Resilience' competition with our partners at the Home Office.
- Launched the second Defence Innovation Challenge 'Defence People' which aims to engage a range of SMEs and MOD stakeholders and gain insight into the marketplace.
- Trialled our One Page Pitch which received 200 ideas in 12 weeks. We then supplied feedback to all and signposted the best ideas to either the Open Call or the appropriate themed competition.
- Expanded our assessor pool to over 750 assessors, drawn from a number of government departments, the front-line commands and wider security sector as well as drawing on our vast expertise in-house.
- Supported an Oxford University Mathematical, Physical and Life Sciences (MPLS) Post-Doctoral Sandpit along with other agencies (e.g. Met Office) by providing a defence challenge for students.
- Worked in partnership with MOD Information Systems and Services (ISS) to run an artificial intelligence hackathon which attracted 30 suppliers to work on several defence challenges including managing veterans data, situational awareness tools for the Navy and automated mapping of inaccessible locations. Participants were invited to develop their ideas into proposals to receive Defence Innovation Fund support via DASA.
- Worked with Defence Innovation Unit, and HRH the Duke of York to reach out to innovators through the Duke's Pitch@ Palace programme targeting specifically the defence landscape.[1]
- Launched a catalogue of services to enable DASA to work with customers to identify the most appropriate service to meet their needs.

[1] https://www.gov.uk/government/news/defence-and-security-technology-entrepreneurs-invited-to-apply-for-pitchpalace

# WE'VE ACHIEVED A LOT ALREADY

## 3. WE'VE WORKED WITH DEFENCE AND SECURITY STAKEHOLDERS TO EXPLOIT INNOVATIONS

We want to make sure we have impact in what we do. We try to develop multiple exploitation pathways for the most promising ideas, including dual-use technologies. To do this we have tried to understand the needs of defence and security customers so we know what their 'problems' are and can knowledgeably discuss them, as appropriate, with our private sector and academic networks.

We have worked with defence and security stakeholders to hand over innovative ideas to them at the right moment, and to engage them throughout the process right from the very early stages. We have sought to develop our understanding of 'what works' through research and case studies, to identify blockers and barriers to exploitation, and to develop metrics for success.

**Over the past year we have:**

- Commissioned a review of previous case studies to understand the enablers and barriers to exploitation and to identify lessons that can be incorporated into our processes.
- Reviewed the existing DASA competition model for both Open and Themed Competitions to identify the exploitation opportunities much earlier in the competition process.
- Initiated an enterprise approach to exploitation to enable decision makers from the end user community and procurement agencies to identify and manage risks to exploitation earlier.
- Changed the scope of future competitions to explore the economic value of the innovation and the scale of change required to implement the project as well as developing the innovation itself.
- Initiated a joint funding model whereby industry can match fund MOD to increase the chances of future exploitation by industry.

# WE'VE ACHIEVED A LOT ALREADY



## 4. WE'VE MADE OURSELVES HIGHLY VISIBLE, TRANSPARENT, AND ACCESSIBLE

We have made it as easy as possible for people to find us, contact us, and work with us. Our processes are simple to access and use, clear, and non-bureaucratic. We use plain English in our communications. We have raised our profile and visibility with appearances and presentations at a number of exhibitions or other events including DSEI, the Security Expo, Security and Policing, various MOD symposia, Innovate UK, Foundation Debate and the Maritime Enterprise Innovation Scotland Conference.

**Over the past year we have:**

- Set up the DASA Secretariat function to directly respond to Parliamentary Correspondence including Freedom of Information Requests, Ministerial Correspondence and Parliamentary Questions.
- Worked on our communication strategy to develop and promote our identity with both customers and suppliers throughout our stakeholder network. In support of the strategy, we have improved our multichannel communication with new social media, new literature including brochures, infographics and case studies, webinars and training videos.
- Used social media channels and online news to help us celebrate our One Year Anniversary with our stakeholders.Conducted customer surveys and brought in external subject matter expertise to help us understand our target audiences.
- Held 25 events in support of the various competitions highlighted in the earlier sections of this report and attended 5 major exhibitions to promote the services that we offer.
- Procured a third party provider for our cloud based, secure online Enterprise Collaboration Service which will replace our existing submissions service.
- Published transparency data of all the contracts placed.

# WE'VE ACHIEVED A LOT ALREADY

## 5. WE'VE EVOLVED

We'll keep experimenting with new ways of working, evaluate, learn from them, and share best practice. We have tried to develop new processes and ways of working, to embed a new culture across the team through a period of rapid growth, and to improve our resilience and problem-solving.

It is important to acknowledge failures and to learn the lessons from these and we have explicitly sought to do this.

**Over the past year we have:**

- Expanded the DASA team from 12 people to 36 people.
- Held a number of working group meetings with defence and security stakeholders, and representatives of private sector and academia, to understand more about what they need from DASA and to consult them on proposed changes.
- Undertaken a One Year On survey in December 2017 to understand how we are doing and to learn lessons.

# CASE STUDIES

## COMBAT TOURNIQUET

The technique has been developed by researchers at the **University of Strathclyde**, Glasgow and funded by Dstl through DASA.

Created in response to the experiences of Iraq and Afghanistan, where improvised explosive devices caused traumatic injury, this three-stage approach is a brand-new technique that brings together kit that can be used in the field, with highly specialised solutions once the patient is evacuated to a hospital**. The Combat Tourniquet** is applied to the limb, which applies pressure at different points, reducing pressure and damage to specific areas.

A cooling 'sock' is then wrapped around the tissue, to preserve it from further damage until the casualty can be evacuated to a care facility. Once at a hospital, the limb is placed inside a protective 'box', which can sustain the area while doctors attempt repairs. The box has specially decontaminated air to reduce infection, and continually supplies the affected area with blood.

Following successful trials, the system is set to be available commercially, and could one day form part of the medical kit in every frontline unit.

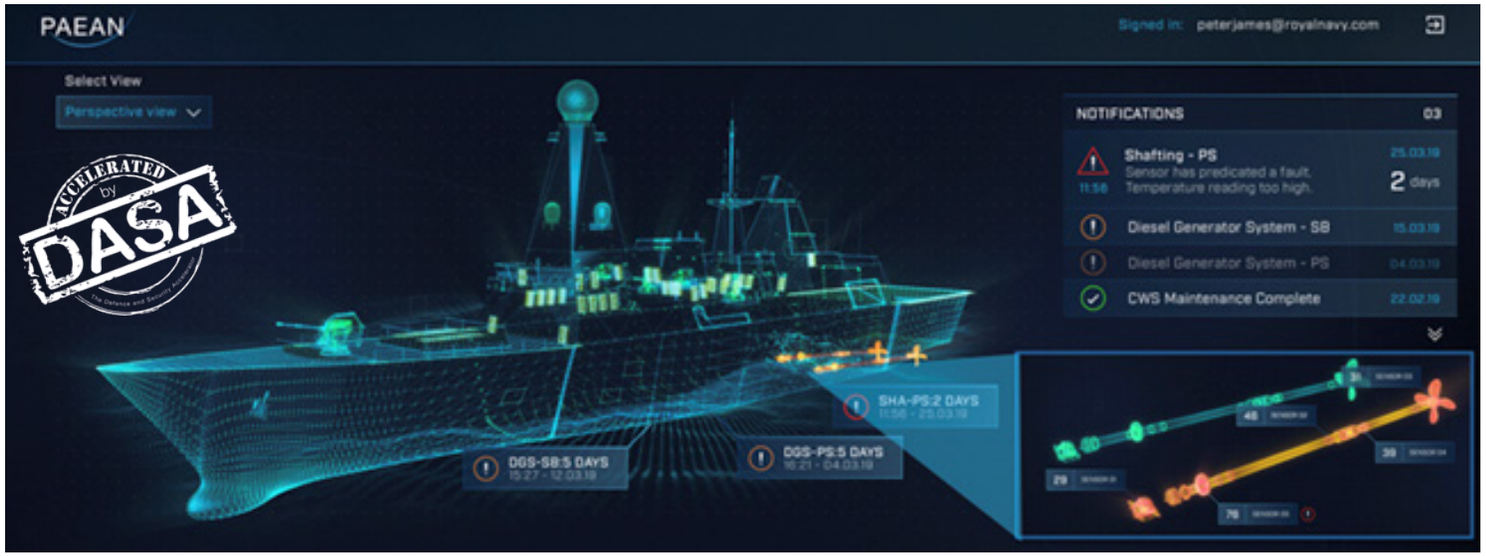
We've funded over a hundred projects, across a range of defence and security themes, here are three recent case studies that show some of the breadth of work.

# CASE STUDIES

## SYSTEM HEALTH FORECASTING

A company called **decisionLab** is accelerating an Artificial Intelligence (AI) enabled capability for forecasting a system's health. This has the potential to provide better availability of platforms across defence and save money by reducing maintenance and improving scheduling. The exploitation routes are threefold:

1. **Customer** – The Royal Navy will be using the decisionLab tool for a 2 year trial post the DASA competition to provide evidence to support the case for transition to predictive maintenance and iterative replacement of current scheduled maintenance policies.
2. **Industry** – Rolls Royce have match funded phase 2 of the DASA competition as they see the huge benefits of this project. Rolls Royce are currently considering a follow on contract to use the decisionLab tool on their A380 fleet.
3. **Wider Defence use** – DE&S are currently exploring the use of decisionLab technology across all equipment programmes with the requirement for condition based maintenance. It is hoped that this will drive a requirement for this type of technology across Defence.



# CASE STUDIES

## ACOUSTIC YARN

Funded by Dstl through DASA's Open Call for Innovation, **Nottingham Trent University** developed **Acoustic Yarn** in response to the specific risks to hearing problems that could be suffered by the military.

This work created a textile noise sensor or dosemeter for military use. Overexposure to noise is known to cause permanent hearing damage; as a result, employers are required to implement suitable health monitoring measures when workers will be exposed to loud noises.

A noise dosemeter is the most reliable way to determine a worker's noise exposure, but commercially available solutions are not suitable for military use. An innovative helmet cover made of 'acoustic yarn' means that the sensor does not interfere with kit or with the operational effectiveness of the troops.

# CORPORATE GOVERNANCE

**Over the past year we have:**

- Established effective oversight through a new DASA Governance Board, with representatives from across defence and security including the MOD, Home Office, Dstl, security and intelligence services, and DfT.
- Completed the Accelerator development programme and moved to business-as-usual.
- Developed corporate performance reporting mechanisms with a monthly 'dashboard'.
- Signed a Memorandum of Understanding (MoU) with Dstl to clarify our relationship with them and secured a Letter of Delegation for the Head of DASA.

**Over the next year we will:**

- Develop effective assurance mechanisms including independent views.
- Continue to consult our stakeholders and ask for feedback.
- Establish an evaluation framework and metrics for everything we do.
- Improve our data analytics and performance metrics.
- Develop service agreements with supported organisations.

## OUR GOVERNANCE BOARD

- **Head DASA**
- **Deputy Chief Scientific Adviser for National Security**
- **Deputy Director representing Home Office**
- **Deputy Director representing Department for Transport**
- **Deputy Director representing GCHQ**
- **Head Military Capability Strategy, MOD**
- **Head Defence Science and Technology Portfolio**
- **Deputy Director Defence Innovation**
- **Technical Director, Defence Science and Technology Laboratory**

# STAFFING

Attracting and retaining talent is vital to the success of DASA. We want to make sure our team are thriving at work and in their lives, that we support their personal and career development, and engage with them constructively in decisions which affect them.

**Over the past year we have:**

- Recruited a new Head of DASA and supporting Senior Management Team.
- Built the team from 12 to 36 people.
- Seconded a DASA staff member to UK Defence Solutions Centre in order to establish close links.
- Established and lived a set of team values: integrity, openness, and honesty.

# FINANCIAL STATEMENT: 2017/18 OPERATING COSTS

| Item | | Amount (£K) | Notes |
|---|---|---|---|
| **1. Online Portal** | Third party supplier | **174** | Includes on-line submission service and cloud hosting |
| **2. Outreach** | Attending exhibitions and events | **145** | Includes stands at DSEI and Innovate UK |
| **3. Specialist Support** | External Specialist Support | **20** | Support to set-up new competition methodologies |
| **4. Staff costs** | a DASA staff<br>b Change programme<br>c Support from imagery<br>d Training<br>e T&S | **3,035**<br>**382**<br>**40**<br>**20**<br>**100** | Transition from Centre for Defence Enterprise<br><br><br><br>Travel and subsistence |
| **Operating Costs** | **Total** | **3,916** | |

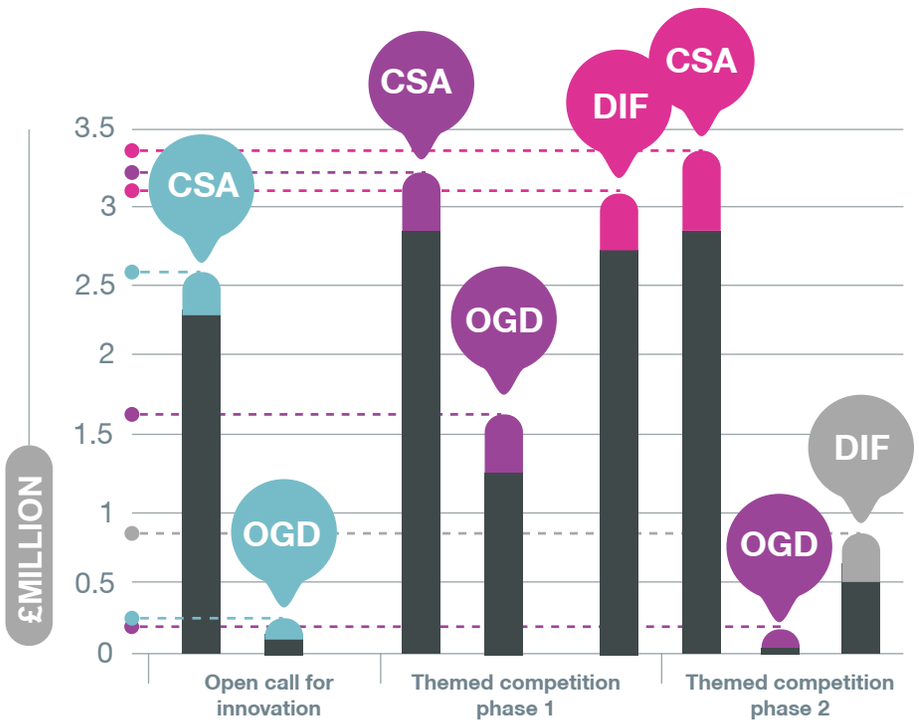



**Figure 1** – DASA Project Funding

Figure 1 shows in-year spend on successful proposals during FY17/18 which totals £14.8m*.

It is split by competition type and the types of budget holder:

**MOD CSA** – Chief Scientific Advisor

**OGD** – Other Government Department

**DIF** – Defence Innovation Fund

* (£19.2m has been allocated to projects in FY17/18)

# WE'VE GOT BIG IDEAS FOR NEXT YEAR

### 1. Online innovation portal (the ECS)

We're launching a cloud-based service to manage all our opportunities and calls for innovation, and the process of managing, tracking and collaborating on them. This will help suppliers not only in the delivery of their projects, but also in the collaboration with each other, ourselves and our customers in defence and security.

### 2. Be more accessible

During 2017-2018, we've worked hard to improve our visibility in public. In 2018-2019, we'll be accelerating this greatly by attending industry leading events, creating our own regional events and holding surgeries, ideas factories and workshops. Whatever it takes, we're committed to reaching the best UK businesses and academia.

As a key part of this, we'll be opening a publicly accessible London Hub in partnership with **Imperial College London**.

### 3. Reach out even further

Innovation can come from any source, and we will work closely with the best organisations across the world, including those from Australia, Canada and the United States to share best practice, and create the best solutions.

### 4. Build on our partnerships

We'll be working closer than ever with the best UK organisations who can help us achieve our goals. That includes **Innovate UK, UK Research and Innovation** and **The Royal Society**.

What's more, we'll find and broker new partnerships with organisations such as the **Institution of Engineering and Technology (IET), Marine South East trade body** and bodies across the public and private sector to create the best possible ecosystem for innovation.

We also want to work closer with our colleagues both current, and potential, including **Defence Science and Technology** (DST) and **Defence Innovation Unit** (DIU) and the security community to build our collective understanding and create a 'problem book' to raise awareness of the kinds of problems we are interested in solving.

### 5. Uncover new, and talented, partners and suppliers

We're going to work harder than ever to discover and communicate with organisations and businesses who currently don't work with defence and security, to understand their reservations, and if possible, answer them, so we can remove all barriers to finding the best solutions.

We are seeking to pilot a DASA Incubator Programme for start-ups with ideas relevant to our mission, to be given grants, access to collaboration spaces, and other support such as mentoring.

### 6. Grow our team even more

We'll be building the DASA team to 51 people by April 2019.

We'll also be working hard to improve the diversity of talent within defence and security, bringing in experts with different experiences and skills to improve our offering. Specifically we'll be working with the **Joint Security and Resilience Centre (JSaRC)** to explore opportunities to engage secondees who can work jointly with both of us to coordinate exploitation, and we're launching a schemes for graduates, doctoral students and postgraduates to improve the pool of talent we can call upon.

### 7. Never stop learning

On top of all the above, we'll also be working hard to record our exploitation successes, and from this build a repeatable process to help our suppliers and customers get the best possible solutions, as easily as possible.

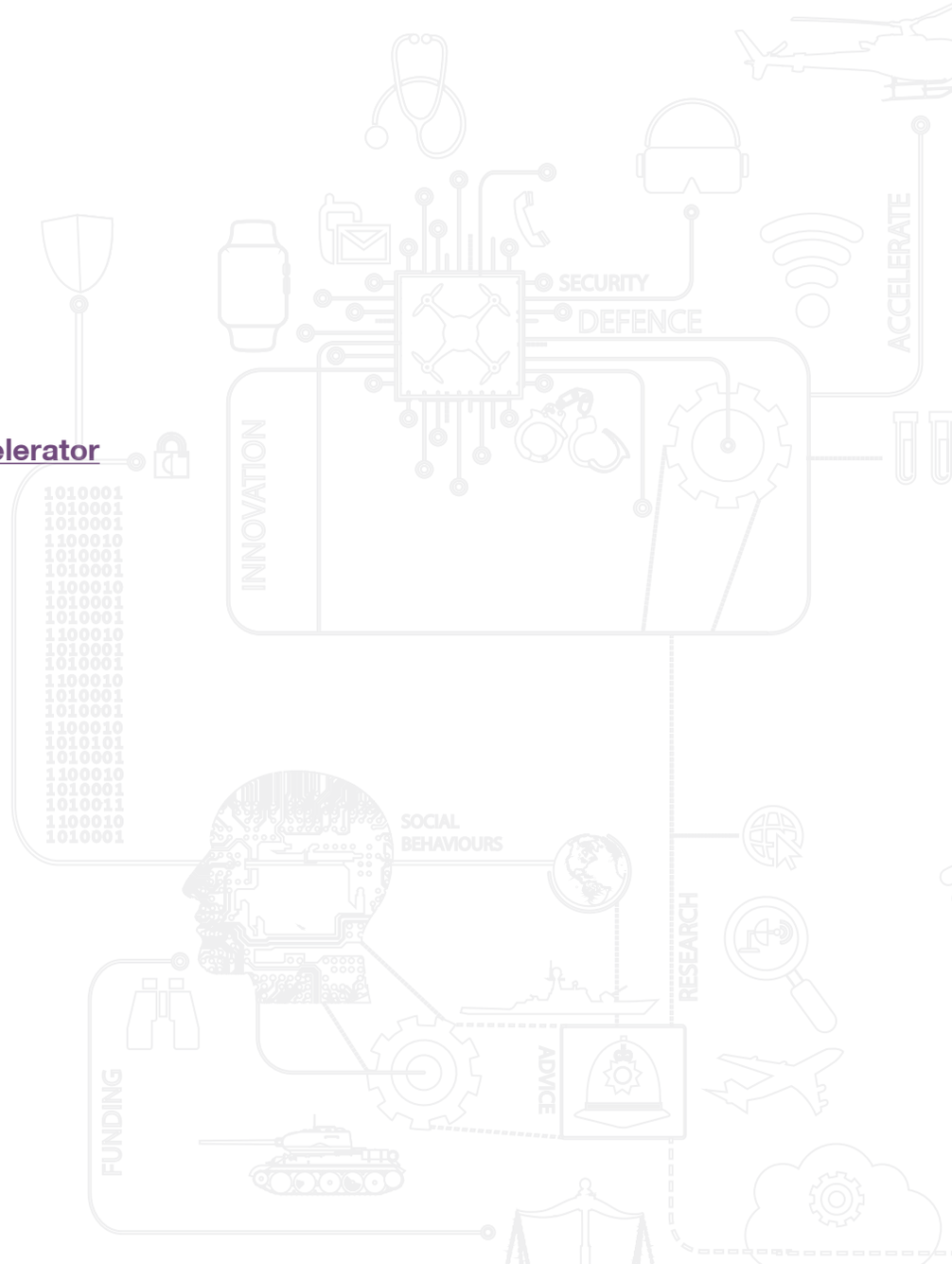
GET IN TOUCH

# THANKS FOR READING

For more information about DASA's work visit
**www.gov.uk/government/organisations/defence-and-security-accelerator**

We can be contacted through **accelerator@dstl.gov.uk**

or **01980 950000 Option 3**.

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