



Dstl delivers the programme through three key areas of work.

1. Knowledge Management and Exploitation

This work enables MOD to make effective use of its wealth of S&T knowledge and supports the increase of innovation across MOD's S&T Programme. It will also:

- enhance world-wide reputation for UK defence, security, S&T
- deliver more efficient and cost effective S&T programme planning, execution and delivery

2. Strategic Engagement and Innovation

This work minimises MOD's risk of strategic surprise through collaboration and joint funding with key partners in priority S&T areas. It will:

- deliver broader and more effective use of MOD's expert advice sources
- increase resilience in the supply base
- harness excellence in partner capabilities

Dstl engages with wider Government, academia, industry and international partners through a challenge-driven approach for emerging technologies that are likely to prove the most disruptive and surprising, and could result in the greatest impact on the defence and security of the UK.

Dstl leads the Knowledge, Innovation and Futures Enterprise Programme which champions the cross-Government defence and security innovation culture. It also acts as a hub to provide advice and knowledge exploitation to the Ministry of Defence (MOD) and wider Government on the defence and security implications of science and technology (S&T) futures.

Approximate funding (2015/16):

£19.3 million - 63% is delivered externally*

*The 2015/16 funding is a projected forecast and is subject to change in-year.

3. S&T Futures

This work aims to articulate high impact, low probability risks to MOD present and future plans. It will:

- increase resilience to the range of credible futures
- maintain MOD's freedom of action in applying new S&T
- inform MOD's planning and action through authoritative analysis of S&T implications
- decrease MOD's vulnerability to future threats
- decrease probability of strategic surprise

Working in partnership

Some aspects of this programme may be contracted through a number of mechanisms throughout the 2015/16 year.

Details of these routes to contracting can be found in the 'How to sell to Dstl – get involved' factsheet.

Dstl is working with an UK university and a high technology company to create a gravity imaging system that will have game-changing capabilities. Gravity sensing cannot be shielded so it has a number of exciting applications, for example, detection of underground/hidden structures, voids, IEDs and prospecting for minerals or oil reserves.

Current opportunities include:

Advanced Manufacturing: Can rechargeable batteries be 3D printed into casings?

'Functional casing' incorporating integrated, portable, rechargeable

battery power would have a high impact on a wide range of defence and security applications. To embed such rechargeable units into modular architecture has been identified as a key enabler for field production of unmanned vehicles and security applications. The key benefit of advanced manufacturing over conventional methods for achieving this is that the design could be rapidly and easily reconfigurable. This could lead to a core technology being adapted to a wide range of applications, reconfiguration to allow interoperability with foreign equipment or even the potential to print the hardware 'in the field' to allow for mission adaptability.

Quantum Sensing: How do we reduce our reliance on GPS?

Advances in precision timing and other complementary technologies (such as inertial sensors) have the potential to enhance existing, or enable new, defence capabilities including positioning, navigation, communications, control and sensing.

Compact atomic clock devices provide the ability to rapidly 'hop on and hop off' available networks, form ad-hoc networks, and pass data more reliably and securely via precision time stamping and data authentication.

For more information about this programme, contact: centralenquiries@dstl.gov.uk.