



Defence Challenges and Potential Synergies between MOD Research and Aurora

Aurora Knowledge Exchange Workshop
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DEFENCE SCIENCE AND TECHNOLOGY
LABORATORY

Overview

- Introduction to Dstl
- Defence Science and Technology Challenges
- Potential Areas of Research Synergy
- Next Steps
- Points of Contact

What is Dstl?

- Part of MOD - an Executive Agency
- 3500 staff
 - All civil servants, plus 100 embedded military
 - > 70% practicing scientists, engineers and analysts
- Provides Defence and Security-related S&T support to MoD and OGDs
 - Includes research, scientific and engineering advice, decision support, S&T-based services
- Turnover around £600M pa
 - of which well over half is spent externally
- Widely connected with Defence and security-related external S&T organisations
 - International Research Collaboration, Defence Industry, Academia, Public Sector Research Establishments, Research Councils

Dstl's Mission and Roles

Mission: To Maximise the impact of science and technology for the defence and security of the UK

- Supplying sensitive and specialist Science and Technology services for MOD and wider Government
- Providing and facilitating expert advice, analysis and assurance
- Leading the formulation, design and delivery of the MOD Research Programme
- Managing and exploiting knowledge across the defence and security Science and Technology community
- Acting as a trusted interface between Government, the private sector, academia and allies
- Championing and developing Science and Technology skills across MOD

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Dstl Locations



Where will you find Dstl People ?

- At Porton Down, Portsdown, Fort Halstead, Alverstoke and Harwell
- In Theatre (Scientific Advisers / Operational Analysts)
- In Front Line Commands / Warfare Centres
- In MOD Head Quarters
- In Defence Equipment and Support Agency
- In Other Government Departments
- In Industry
- In Academia
- In the Defence Laboratories and Trials Facilities of our allies – e.g. Pentagon /Joint Combat Aircraft Office

Categories of Defence Research

- Support to Operations
- Evidence-based Decision Support
- Cost Reduction and Future Proofing
- Human Dimension
- Future Military Capability: Generation After Next
- Support to Critical Science and Technology Capability

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Defence S&T Challenges - examples

- Autonomous/unmanned systems
- Biological detection and countermeasures
- Survivability
- Physical Protection, including Counter Improvised Explosive Device
- Combat casualty care
- Compact sensors
- Cost reduction
- Defence sustainability
- Persistent/wide area surveillance
- Reducing the logistics burden on deployed forces (eg energy)
- Relieving the burden on the dismounted soldier (eg weight)

Example synergies

- **Autonomous/unmanned systems**
 - *Autonomous navigation through unstructured environments*
 - *Guidance navigation and control software*
- **Persistent/Wide Area Surveillance**
 - *Mobile /portable environment monitoring, detection and reporting*
 - *Micro/autonomous sensors and data exfiltration*
- **Biological Detection and Countermeasures**
 - *Biological containment and sterilization*
- **Physical Protection**
 - *Radiation shielding*
- **Reducing the Logistics Burden on Deployed Forces**
 - *Power sources and novel energy conversion*

How Different Are We?

“The exploration of space imposes specification goals on systems and sub-systems, demanding a combination of small size, light weight, low power, radiation hardened, vibration tolerant, and extreme longevity.”

Aurora Calling Notice

Replace “exploration of space” by “Defence operations” and this still holds!

Proposed Next Steps?

- UKSA to provide Dstl with visibility of the requests for proposals and possibly responses
- Dstl to assess alignment against MOD Research requirements / priorities
- UKSA and Dstl identify opportunities for cross fertilisation of AURORA and Defence research projects
- UKSA and Dstl explore potential for future joint funding of research where requirements are synergistic

Dstl Points of Contact

- **Dstl Gateway**

- Mr David Beard Dstl Space Lead and Strategic Relationship Manger with the UKSA
 - dwbeard@dstl.gov.uk
- Mr Harjinder S. Jolly, Strategic and Space Systems Group
 - hsjolly@dstl.gov.uk
- Mr Andy Watts, Strategic and Space Systems Group
 - amwatts@dstl.gov.uk

- **Dstl Programmes Office/ Domains**

- Dr Chris Gibson, Dstl Programme Director for Defence Capabilities and Systems
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Questions



Dstl Programme Organisation - 16 Research Domains

- Acquisition Policy
 - Air
 - Chemical, Biological & Radiological (CBR)
 - Centre for Defence Enterprise (CDE)
 - Counter Terrorism
 - Cyber & Influence
 - C4I
 - Human Dimension & Medical Sciences
 - Futures and Innovation
 - ISTAR & Sensors
 - Land
 - Maritime & Strategic Systems
 - Security & OGD
 - Strategy & Capability
 - Support to Operations
 - Weapons
- | | |
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