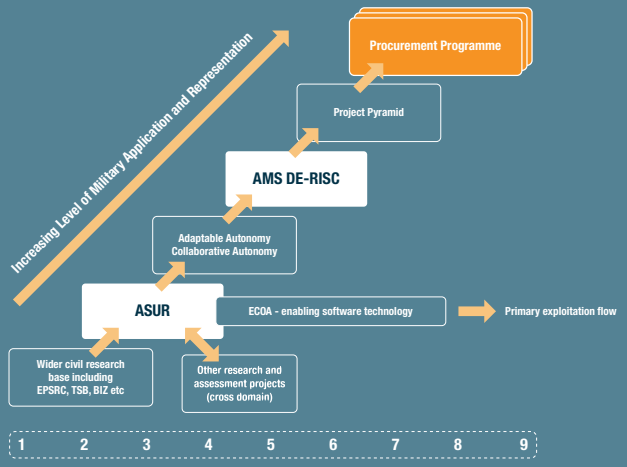
What is ASUR?

- Dstl funded framework for Low Technology Readiness Level research for Autonomous Systems across all Environments.
- Targeted at SMEs, Academia and non-traditional defence suppliers.
- Endorsed SBRI approach.
- Challenge led.
- Addressing system level problems.
- Dstl UAS S&T Programme funded.
- Operational management through BAE Systems supported by a team of industry experts from Leonardo, QinetiQ, Thales, Rolls Royce, MBDA and Roke.
- Dstl retains oversight and strategic management.



Approach

- Challenge based.
- Phase 1 and 2016 Phase 2 contracts.
- Open and fair access.
- Endorsed, SBIR compliant process.
- Consortium involved in setting and assessing challenges.
- Operational management by the Consortium.
- Early identification of exploitation paths.
- Seeking to align S&T funding across UK.
- £9M+ investment over 4 years.

Annual Autonomous Systems Engagement and Collaboration Event

- Increases exploitability by direct contact with Key Stakeholders, MOD and Industrial Primes.
- Access to Dstl to influence research
- Informs MOD and Defence community of the breadth of work.

The ASUR Team

[dstl] BAE SYSTEMS INSPIRED WORK
LEONARDO AIRBORNE & SPACE SYSTEMS MBDA MISSILE SYSTEMS
Roke Rolls-Royce
QinetiQ THALES

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ASUR

AUTONOMOUS SYSTEMS UNDERPINNING RESEARCH

Mission

"To undertake Autonomous Systems' underpinning research to address defence challenges leveraging civil funded research"

[dstl]

Role of Dstl

- Define defence relevant challenges.
- Provide linkage and pull-through into the core MOD Science & Technology (S&T) programme and beyond.
- Ensure coherency with MOD and other S&T initiatives.
- Assessment of proposals.
- Provide specialist technical guidance for ASUR projects.
- Act as facilitator for best route for exploitation.

Role of the Industry Team

- Operational management of the ASUR framework.
- Provision of an Independent Technical Director.
- Advising on working with defence primes.
- Commercial perspective and insights on the challenges.
- Support Dstl in the assessment of proposals.
- Provide Technical Partners for ASUR projects.

Why get involved?

- Fully funded projects.
- Access to MOD and key industrial primes.
- Opportunity to network across a wide range of SMEs, universities and UK prime contractors.
- Opportunity to work with and be mentored by Dstl and Industry experts.

Outcomes/Benefits

- Partners MOD, SMEs, Academia and Other Government Departments to develop collaboration and exploitation routes during development.
- Reduces technical risk of future unmanned systems
- Increases understanding of military utility and benefits of Autonomous Systems.
- Increases understanding of opportunities, risks and barriers to the application of autonomy technologies.
- Supports exploitation into core MOD S&T Programme, Equipment Projects and into Industrial Primes.

Areas of Interest

Small UAS (SUAS)

- Novel Data Link technology to provide enhanced communications for SUAS operating in non-line of sight environments such as inside buildings and deep 'urban canyons'.
- Novel Guidance, Navigation and Control technologies that have the potential to enable SUAS missions inside buildings and 'Urban Canyons' without GPS or Data Links.
- Bio Inspired technologies that have the potential to improve SUAS capability.

ASUR 2013

- Power and Heat Management.
- Operator-system decision making partnership.
- Interaction Techniques.
- Engineering Autonomous Systems.
- Information extraction from Sensor data in the context of mission goals.
- Reasoning about Metadata in a distributed autonomous environment to exploit, prioritise and adapt.

Intelligent Video CODEC

Roke - Chemring Group & SQR Systems

- Provide imagery analysts best video possible under constraints of bandwidth, security and SWaP.
- By applying video analytics prior to compression, more of the redundant information can be stripped out from the stream

ASUR 2014

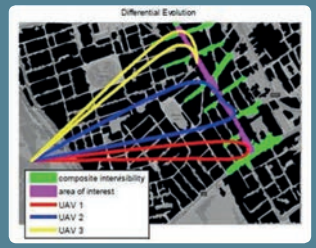
- Unmanned Sensor multi-layer control, optimization and exploitation.
- Enabling 'in-building' operations.
- Urban over watch.
- Understanding decision making in Autonomous Systems.
- Verification, Validation and Accreditation of Autonomous Systems.

Cooperative Surveillance planning for multiple Autonomous UAS

QinetiQ

A novel computational technique for automatically developing multiple UAV flight plans:

1. Differential Evolution



2. Fast Relaxation