

News story: Underpinning data science – request for information

The Ministry of Defence (MOD) seeks to use cutting-edge data science techniques to develop novel approaches to sort, manage, store, fuse and exploit the vast range of data available now and in the future.

Such capabilities will help improve understanding and situational awareness from all available and pertinent information, improving decision makers' understanding, and thus improving their ability to make better decisions. We (Dstl) wish to gauge the current state of the art and capability across industry and academia to inform our project planning.

We are interested in capabilities that can be applied across defence and security. We also want to understand potential crossovers from other areas that have similar technical challenges (e.g. the legal, health and finance sectors).

Therefore, we are seeking information on the experience, capabilities, products, facilities and resources that industry and academia have in the following areas:

- The management of uncertainty: Support decision makers by exploiting multiple data feeds with methods for tracking and visualising uncertainty.
- Information science (including information theory): The ability to understand the nature of information; its inherent value; the extent to which questions can be tackled with the data available; and appropriate data reduction techniques to reduce the burden on users.
- Fusion and understanding of information: The fusion of multiple sources of data and information, in order to represent the same real-world objects in a consistent, accurate and useful manner, and to reduce uncertainty. This includes (but is not limited to): aspects of association and correlation; information normalisation; entity disambiguation; summarisation; and supporting the identification and inference of new knowledge.
- Predictive analysis: From rudimentary forms of prediction, such as temporal pattern mining, to predictive analytics, which includes identifying and selecting optimum courses of action for a given future scenario. Interest extends from operational and intelligence functions (e.g. inference of intent and campaign planning outcomes) to wider business needs (e.g. complex scenarios and/or predicting maintenance schedules in support of logistics).

- Hypothesis generation and evaluation: Approaches for generating, describing and evaluating hypotheses in support of decision making – in particular, methods that could improve the currently manual and human-led approach and improve corporate memory.
- People data analytics: Predictive workforce planning, specifically focussing on analysing personnel records and methods, and the wider ethical risks and issues in exploiting data analytics for workforce planning and management (note, that this is not the only applied example we have interest in and information on other applications is welcome).

Your response should detail the nature of the technologies where you have expertise, as well as the current technology readiness level (TRL) and the maturity these might be expected to reach within a two-year timeframe with realistic funding levels.

This is a request for information to support research activity only, and it is not the start of any formal procurement process. Dstl is looking to assess and understand the scope of the markets capability to formulate its plan for the multi-year research project. Submissions should not contain proprietary or commercially sensitive information.

We may choose to follow up submissions with a 'without commitment' discussion to further understand and explore the information submitted.

Please respond to this request for information no later than six weeks from its release date by emailing: DSTLUDSRFI@dstl.gov.uk.

If you would like to receive further information in the future, please let us know; any project-level communications will augment the standard open advertising of research opportunities.