Defence Innovation Network Grant Scheme: Pilot Project

Air Traffic Controllers- Analysis of cognitive load

CONTEXT:

The Royal Australian Air Force (RAAF) No 44 Wing (44WG), headquartered at RAAF Base Williamtown, commands all of the eleven Air Traffic Control (ATC) detachments across Australia. It also commands the ATC Technical Ground Electronic Services workforce.

Through its detachments, 44WG is responsible for delivering aerodrome and radar control services to Army, Navy and Air Force, and providing tactical control of forward airfields, battlefield aviation and other airspace activity within Australia and for operational deployments.

44WG personnel have been actively involved in a number of recent operations including Sudan, East Timor, Iraq/Middle East, Solomon Islands and Indonesia. Their roles have ranged from active operational duties to peacekeeping and humanitarian missions.

THE PROBLEM:

RAAF Air Traffic Controllers are required monitor a range of complex data both in civil environments and on deployment. The decisions these operators make have a significant impact on the safety and security of personnel and equipment. The volume of information they are required to process to undertake this critical task can have a detrimental impact on an operator's ability to make effective decisions and lead to decreased situational awareness.
Improving the ability of combat air traffic controllers and related personnel to operate under difficult conditions is an important goal.

Unanswered questions subserving this goal include the efficacy of different training methods to improve situational awareness under high cognitive load and the relative value of various personnel selection procedures designed to identify the most capable individuals.

Potential projects leading towards answers for these questions could include analysis of the cognitive load on operators in current practices and the impacts of this on their decision-making.

Follow-up projects could investigate how changes in the delivery of information, and the selection and training of personnel can reduce cognitive load and increase effective decision-making.