

# Defence Innovation Network Grant Scheme: Pilot Project

## Supporting reconnaissance missions

**1. Minefield Manoeuvre:** In a contested battlespace, minefields (conventional or improvised) continue to be a cheap means of denying terrain and avenues of approach. For a reconnaissance patrol, minefields pose significant risks. Furthermore, active methods for neutralising mines, such as deliberately detonating the mine/s have a high likelihood of alerting a potential adversary to the presence of a reconnaissance patrol. **What emerging technologies are there that could assist a reconnaissance patrol in detecting and tagging mines allowing rapid passage through denied terrain?**

**2. Alternatives to GPS:** Presently, there are many military technologies that rely heavily on Global Positioning System (GPS) technology. In the future, conventional GPS may not be ubiquitous in the battlespace due to spoofing, jamming or environmental effects such as operations within urban areas where the urban canyons introduce errors. The result of this is a number of conventionally effective technologies may be rendered unusable. Alternatives to Position, Navigation and Timing (PNT) technologies, such as land based solutions (e.g. A digital Octant) may offer a potential solution to this problem. However the solution needs to be scalable, and compatible with legacy GPS systems to enable joint effects to be realised when required. **What advancements in technology can be applied to create novel PNT technologies to future proof ADF capability?**

**3. Real-time Radio Transcription:** Tactical teams operating in the battlespace relay radio communications via a command post. These communications are transcribed by hand into a radio operators log book. These logs are highly valuable in that they are utilised for training, after action review and intelligence collection. However the hand written nature of the radio logs places an unnecessary burden on soldiers during operations, but also post operation where the logs are transcribed to a digital format for archiving. These logs would be considerably more valuable if they were automatically transcribed digitally, with keyword (e.g. call sign) and metadata tagging. **How can Natural Language Processing or other methods be utilised to transcribe radio transmissions in real time, creating a searchable database?**

