DIN STRATEGIC INVESTMENT INITIATIVE
PROBLEM STATEMENT 2: UNDERSEA COMMUNICATION AND DETECTIONS

PROBLEM

How can we increase the capacity and effectiveness of underwater communications?

In an undersea environment with limited communications, computation and power, how can machines report reliable detections and make context aided decisions without human supervision? Collaborative autonomy is included.

Mid and deep water environments are specifically included (as opposed to shallow water environments).

NEED & RELEVANCE TO DEFENCE

Mission of the Initiative is to conduct persistent undersea surveillance operations which rely on remote unmanned and unwired systems, and sensors for enhanced defence situational awareness, in mid- and deep-water environments.

Defence has highlighted the priority of remote undersea surveillance through the 2020 Force Structure Plan and the StarShot program. From FSP2020, Protecting Australia's large exclusive economic zone requires understanding of the maritime environment under our control, sustained presence, and adapting to new technological developments that could increasingly complicate our ability to keep Australian interests safe in the Maritime domain.

RESEARCH QUESTIONS

- What are the security and encryption challenges?
- Can this be done in a covert way with a low probability of intercept?

EXPECTED OUTCOMES

- Includes algorithms, data processing, machine learning
- Identifying critical packages of data for transmission and communications
- May include collection and communication of open source data fusion and analysis