# Science, Technology and Research (STaR) Shots

Eight STaR Shots will be established to focus strategic research and proactively develop new leap-ahead Defence capabilities.

STaR Shots will be established to focus strategic research and drive the development of leap-ahead Defence capabilities.

This strategy introduces a new concept – STaR Shots – that will concentrate strategic research efforts on a smaller number of bigger, specific and challenging problems of the scale and impact of JORN. An ambitious schedule will be set, with the aim of demonstrating leap-ahead capability within 10 years.
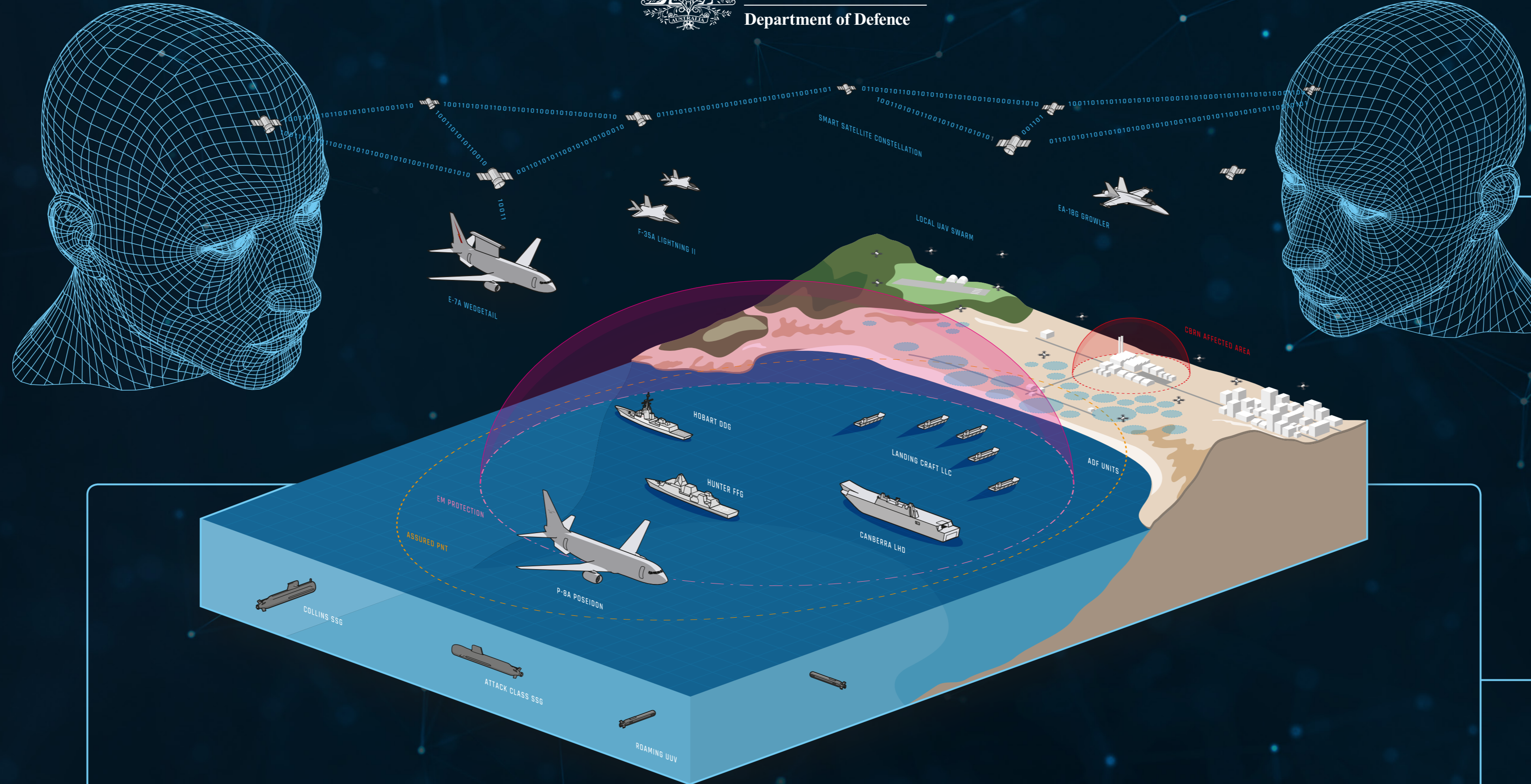
STaR Shots will be challenging, inspirational and aspirational, and will generate competitive capability best achieved through Australian investment. They will align with Defence strategic guidance, address future Force Structure priorities and be sponsored by at least one Defence 3-star leader. Crucially, they will have clearly defined transition pathways to take innovative ideas out of the laboratory and deliver real impact into the hands of the warfighter.

STaR Shots will focus the strategic research investment program but with an increase in scale and intensity that will be supported by investment from other innovation initiatives and partner co-investment.

The initial eight STaR Shots will be established to collectively support Defence's ability to prevail in contested environments. Aligning with capability needs across each of the warfighting domains, they will enable Defence to get to the fight, shape how the ADF operates and generate new military effects.

STaR Shots will be supported though investment in modelling and simulation, wargaming, prototyping, experimentation and trials. They will culminate in technology demonstrations during ADF exercises.

The STaR Shots are deliberately ambitious and reflect Defence's enduring commitment to invest in science and technology. As our strategic context evolves, new STaR Shots could be established to ensure that leap-ahead capabilities which align with Defence's needs continue to be delivered.

### RESILIENT MULTI-MISSION SPACE
Providing resilient global communications, position navigation and timing (PNT) and geospatial intelligence (GEOINT) capabilities direct to ADF users, enabled by a low earth orbit (LEO) SmartSat constellation.

### INFORMATION WARFARE
Delivering blended awareness and resilient effects across the human, information and physical realms through a contested information environment.

### AGILE COMMAND AND CONTROL
Developing a force-level capability edge at all levels to understand, shape and dominate the future multi-domain battlespace.

### QUANTUM ASSURED PNT
Assuring position, navigation and timing (PNT) in a contested environment.

### DISRUPTIVE WEAPON EFFECTS
Delivering emerging and disruptive weapon capabilities for multi-domain combat in highly contested environments.

### OPERATING IN CBRN ENVIRONMENTS
Enabling the joint force to operate safely and effectively in contested chemical, biological, radiological and nuclear (CBRN) threat environments.

### BATTLE-READY PLATFORMS
Delivering next generation data analytics and digital twin systems for the prediction of material state to guarantee platform availability and capability.

### REMOTE UNDERSEA SURVEILLANCE
Developing above/below water sensors, information processing, communication and data fusion systems to provide remote surveillance of undersea environments over Australia's area of maritime responsibility.

Given our rapidly evolving strategic context, it is crucial that S&T is focused to equip the ADF to prevail in contested environments. The scenario above illustrates a representative amphibious operation, bringing together a range of capabilities across the air, land, maritime, space and information domains. As a medium-sized defence force, the ADF relies on advanced capabilities rather than mass. The STaR Shots concept introduced in this strategy will focus our efforts in innovation and S&T to generate new leap-ahead capabilities that will enable Australia to retain its technological edge.

The ADF's ability to understand the operational environment, manoeuvre and project force will be transformed through advances in sensing, information fusion and dissemination, artificial intelligence and human-machine partnership. The way Defence sustains its capabilities will be greatly enhanced, increasing platform availability and reducing costs. Technological change will improve our resilience, support a new level of agility in command and control, and give us new options for effects, whether kinetic or in the information domain.