

Scenario - Maritime Autonomous Surface Surveillance System (MASS)

Your Company: You work for a large (50,000-100,000 employees) multinational organisation, PROCULUS GROUP, that designs and builds electrical systems and provides services for the aerospace, defence, transportation, and security markets. For this scenario, please imagine you are employed to do the same role that you currently primarily have.

Where: Three nations, ALPHA, BETA and TAU, are members of a multinational organisation, PANTHEON, which acts as a NATO-like supra-national body concerned with security, safety and cooperation. PANTHEON nations conduct maritime security operations using their intervention units, vessels, detection sites and operation centres. The nations monitor the vessels cruising in territorial waters and in their Exclusive Economic Zone. National operation pictures developed by countries support national situation awareness and are merged, fused, and coordinated by the PANTHEON OPERATING CENTRE (POC).

Why: The use of unmanned autonomous vehicles, particularly surface vessels, with high autonomy, intelligence and reduced needs of communication and human resources, appears as a very promising opportunity to improve the maritime surveillance capabilities of the TAU nation, particularly in areas farther from the coast, where it is necessary to increase the coverage, temporal resolution and spatial resolution of their surveillance operation.

What: Maritime autonomous surveillance systems capable of providing a Common Operational Picture for supporting situation awareness over vessels, routes, shipments, ports access and for the implementation of the law and the execution of emergency measures. Although TAU has been conducting maritime surveillance operations for a long time, and consequently developed rich concepts and doctrine for such operations, autonomous capabilities have only recently emerged as a feasible option.

How: The following measures of effectiveness have been provided by the TAU organisation to support companies wishing to provide systems in response to their invitation to tender: a) the scope of surveillance (type of vessels, types of tracks and the definition of the area of surveillance), b) the number of objects or targets that can be detected and monitored in the area of surveillance, c) the number of objects or targets equipped with Automatic Identification Systems (AIS) that can be monitored in the area of surveillance, d) the number of surveillance vessels required e) the resource constraints of the system: through life cost, training, equipment, personnel, maintenance, f) the security and interoperability of the system.

Who: Your organisation, PROCULUS GROUP, has supplied various systems and services to TAU before, in a variety of markets, and at various financial scales. Your organisation considers TAU to have a mature acquisition operating model and your organisation is experienced working with them. While TAU has acquired remotely operated systems in the past in other domains, often with autopilot functionality and some supervised autonomy, your organisation suspects that the introduction of MASS to the maritime domain presents several social, technical and acquisition challenges (e.g., how to validate the autonomous capabilities, lines of responsibility for data obtained during operations which is used to generate future intelligence or object identification, public perceptions of the use of autonomous capabilities, etc.).

The MASSS Bid: The procurement and acquisition body of TAU's government has released an Invitation To Tender for the provision of their maritime autonomous surveillance systems. In response, your organisation has launched a project to develop a Maritime Autonomous Surface Surveillance System (MASSS), that can be used to provide maritime surveillance functionality in support to the Search and Rescue and on-going maritime surveillance missions. The MASSS development project is currently at pre-bid stage, prior to responding to the Invitation to Tender.

Your Team and Task: PROCULUS GROUP has recently suffered the consequences of several, high-profile issues with major projects resulting in delays and additional costs. An investigation by external consultants has recommended that independent project reviews should be undertaken at key stages of every major project to help avoid this in future. To this end, you have been gathered into an independent team tasked with determining the complexity of the MASSS system and its development project and suggesting relevant mitigation where appropriate.

The senior management team understands that you have not been given all of the time and information that you would ideally like. Nonetheless, your evaluation of the complexity of the system is sought in order to inform the gate review decision on whether to proceed with a bid.

Tool: To support your evaluation, you are to use a tool, the Complexity Register. Your completed Complexity Register will provide a view that helps the project stakeholders understand the likely difficulty in the project, framing the decisions and direction that they should consider.

Deadline: You have one hour to conduct this activity.

Handouts: Alongside this scenario document (yellow border), you have been provided an overarching architecture (red border) and development details (green border).