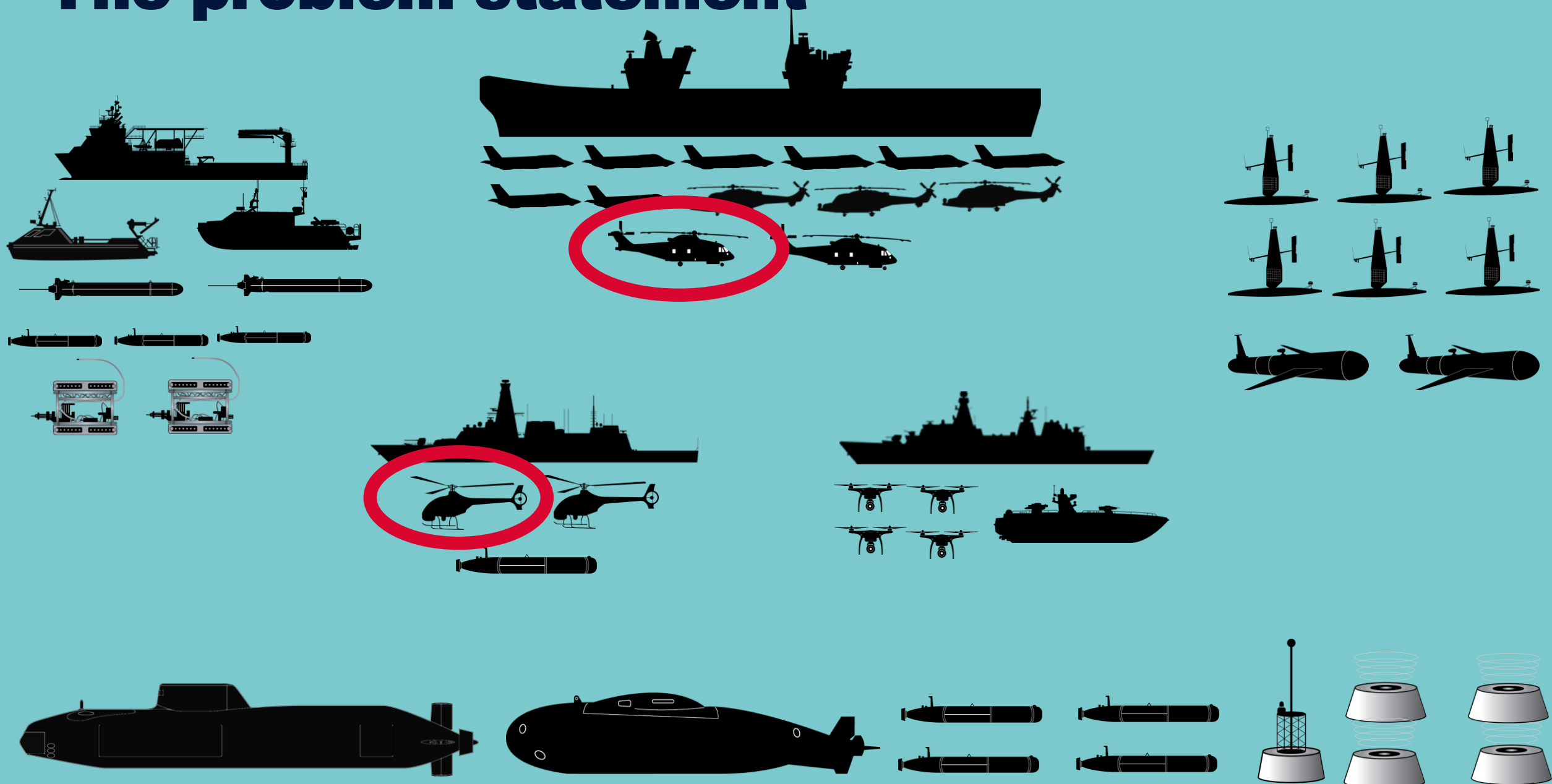




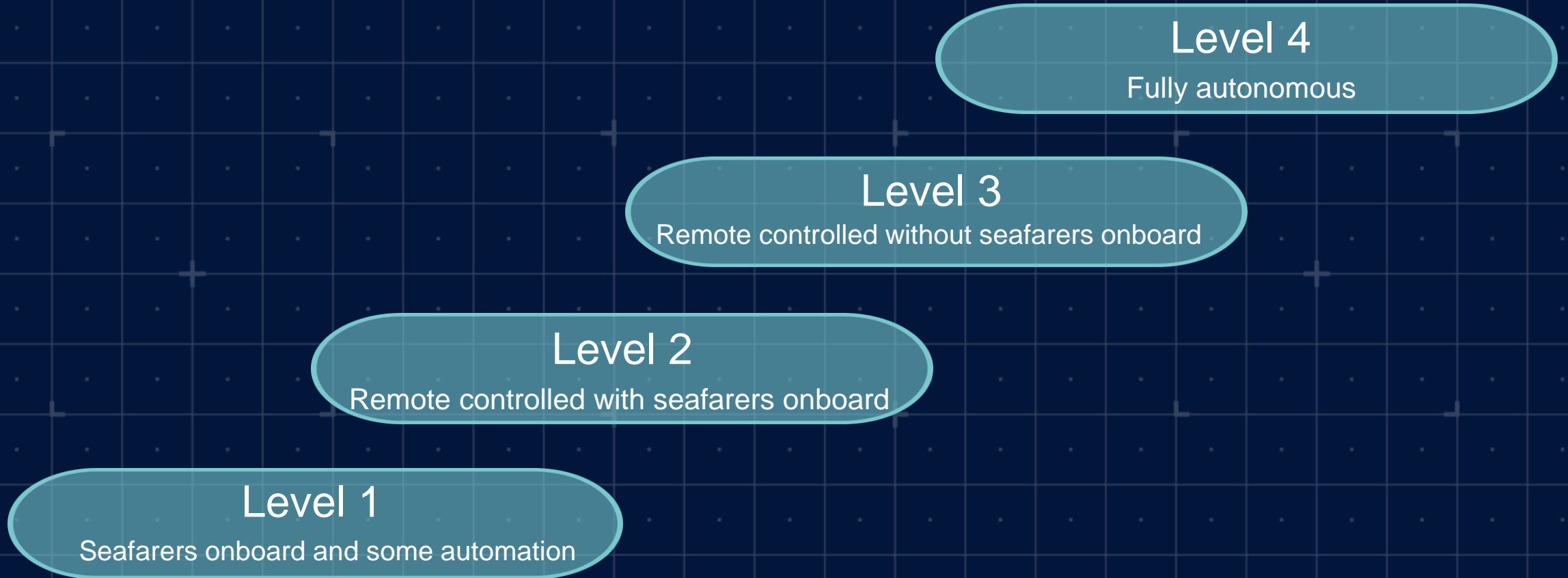
Royal Navy insights into integration of maritime unmanned systems

Lt Cdr Kara Wansbury, RAN

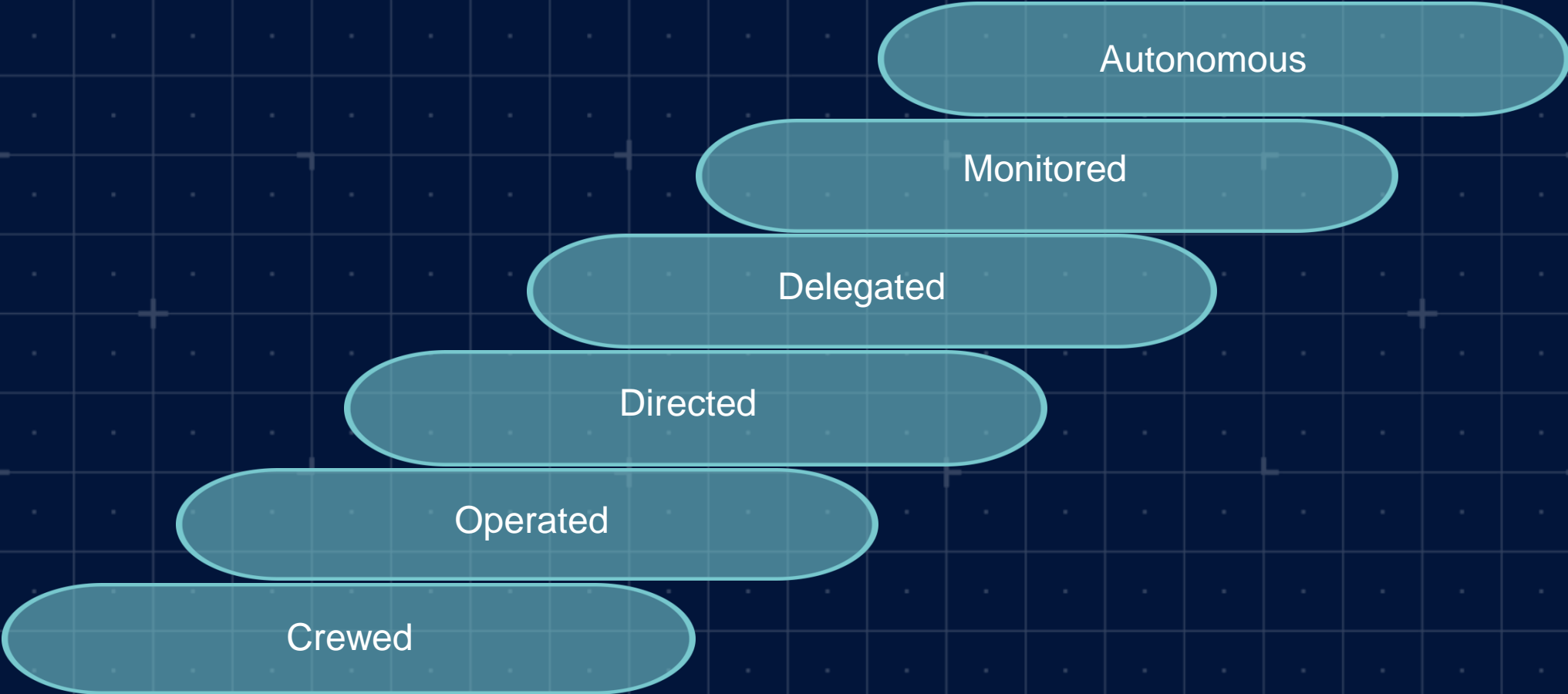
The problem statement

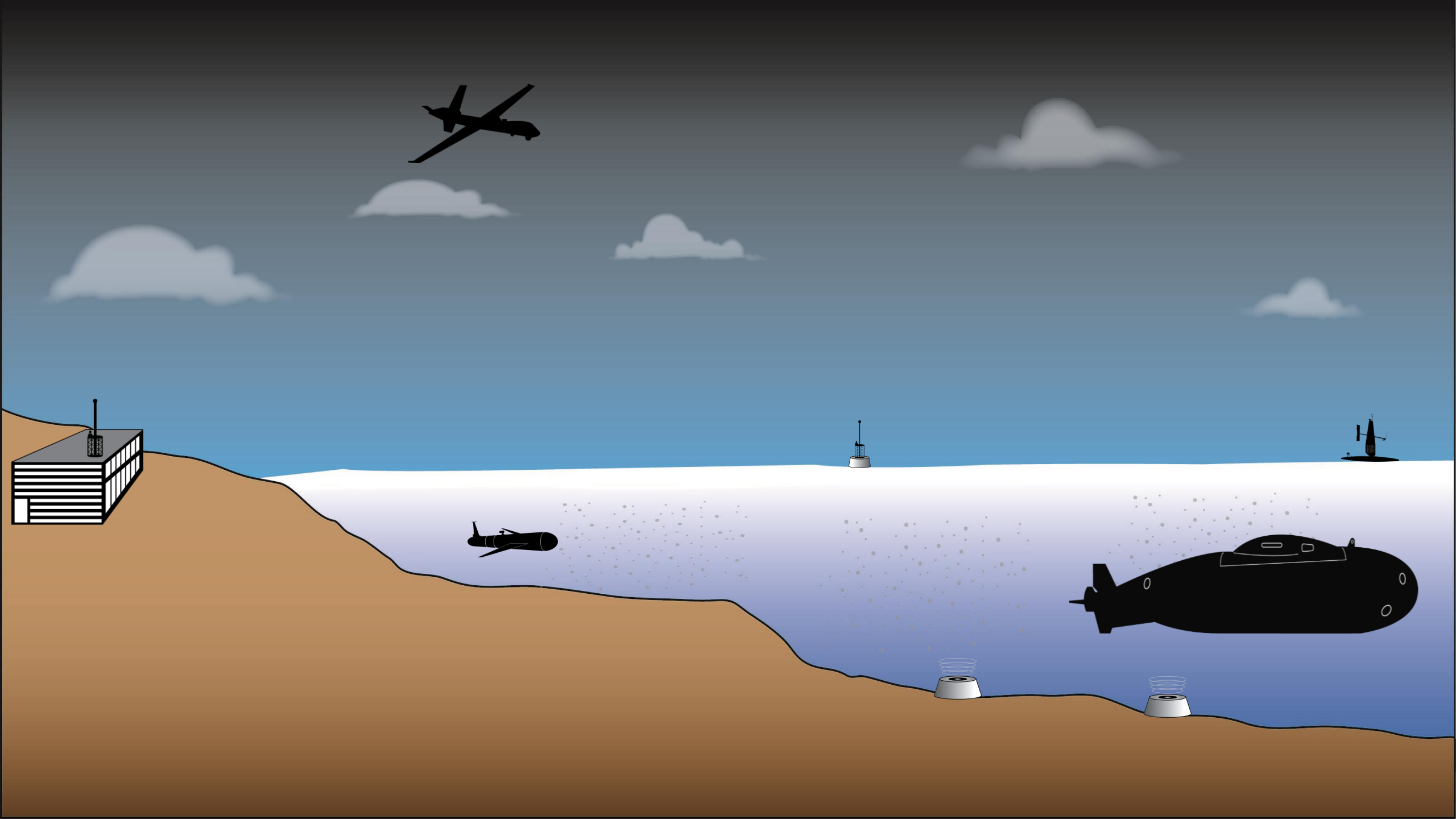


Existing autonomy levels



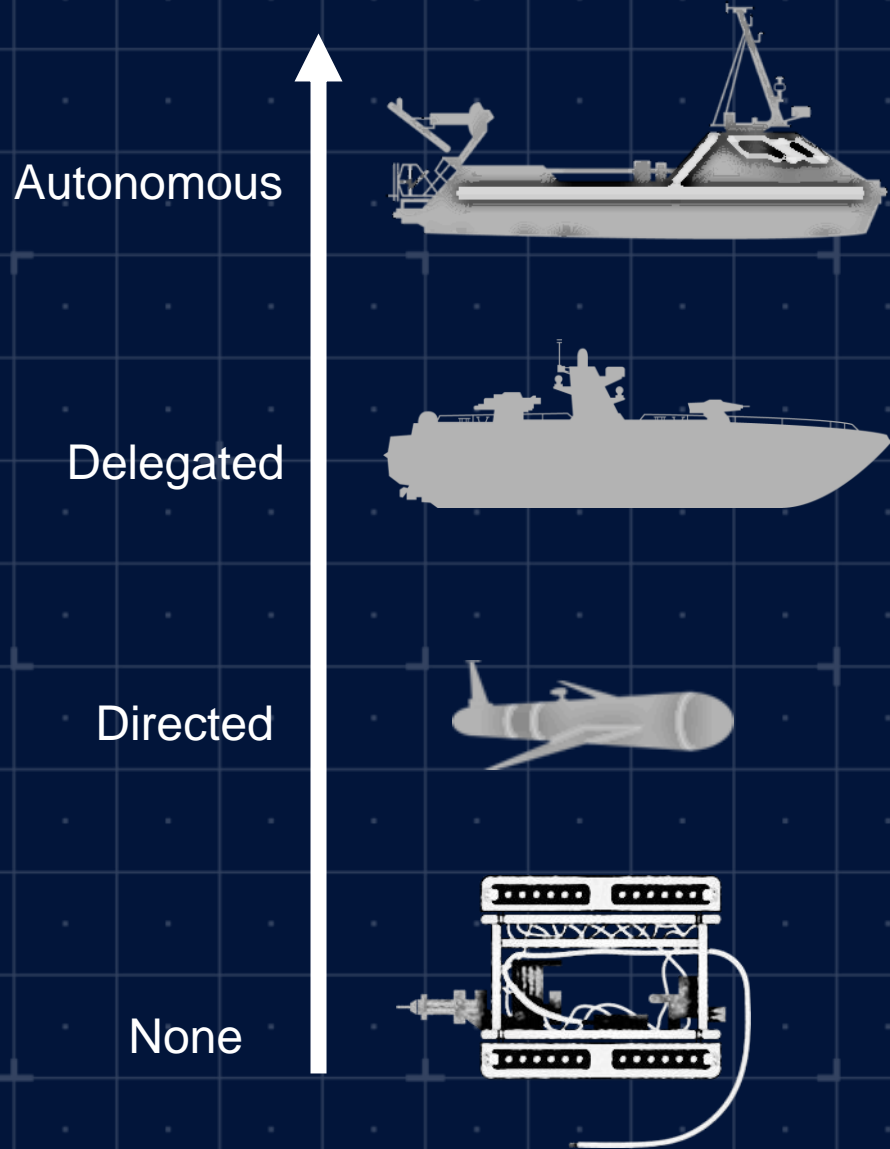
Existing autonomy levels



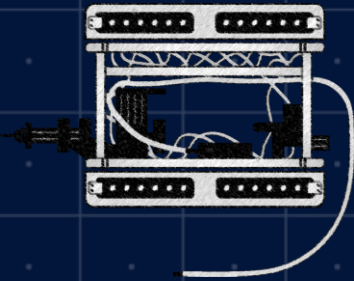


Military operator oversight and automated decision-making levels (MODL)

Automated decision-making



Operator Oversight



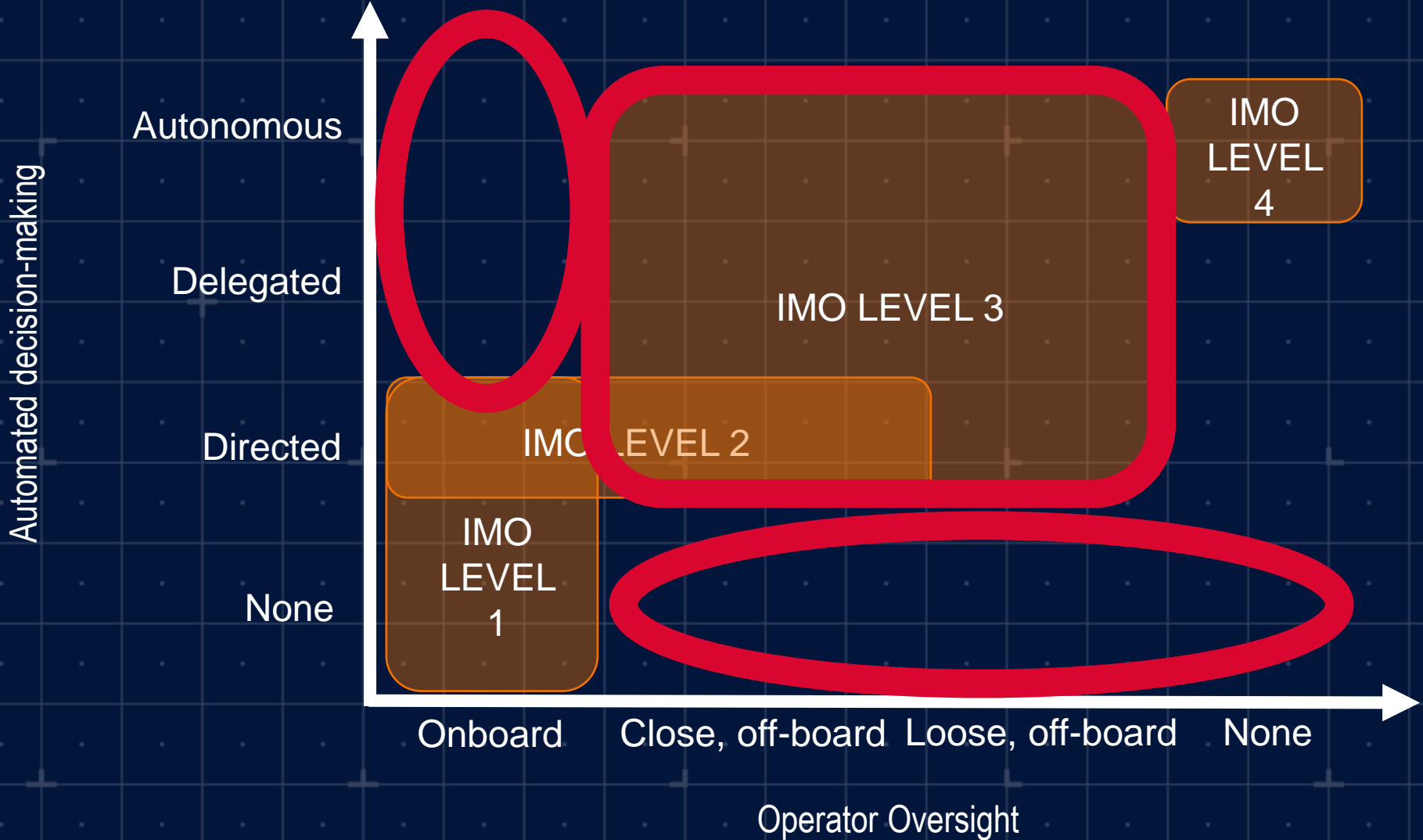
Onboard

Close Offboard

Loose Offboard

None

Comparisons



Human/machine teaming



Level 1

Seafarers onboard and some automation

Level 2

Remote controlled with seafarers onboard

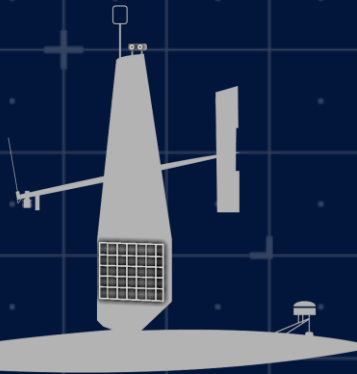
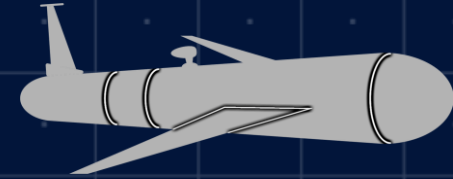
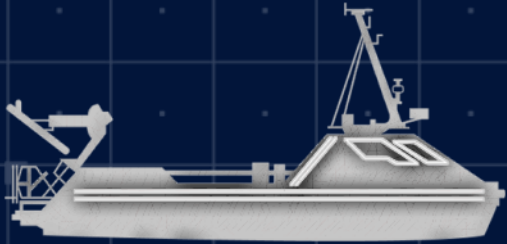
Level 3

Remote controlled without seafarers onboard

Level 4

Fully autonomous

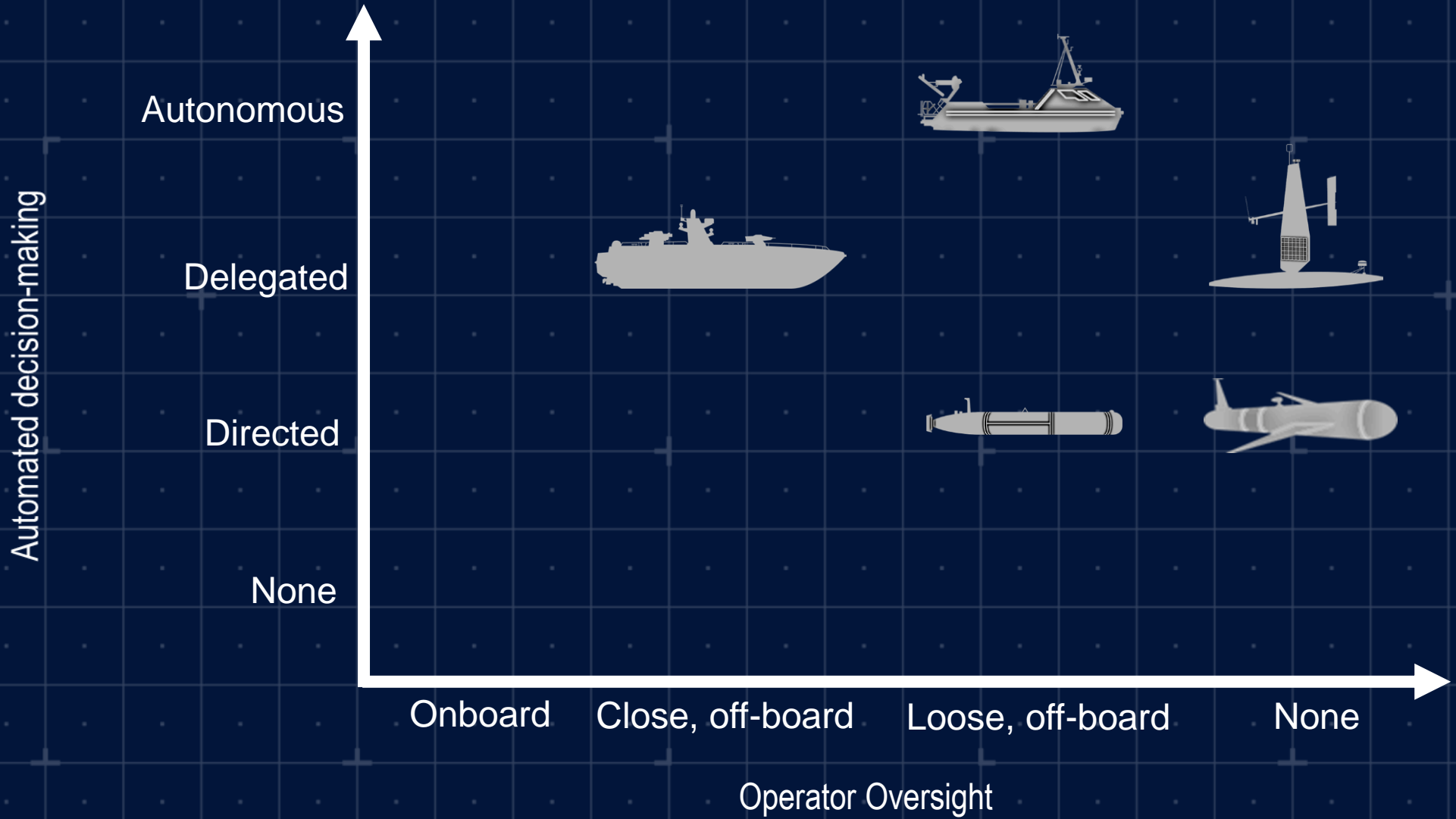
Human/machine teaming

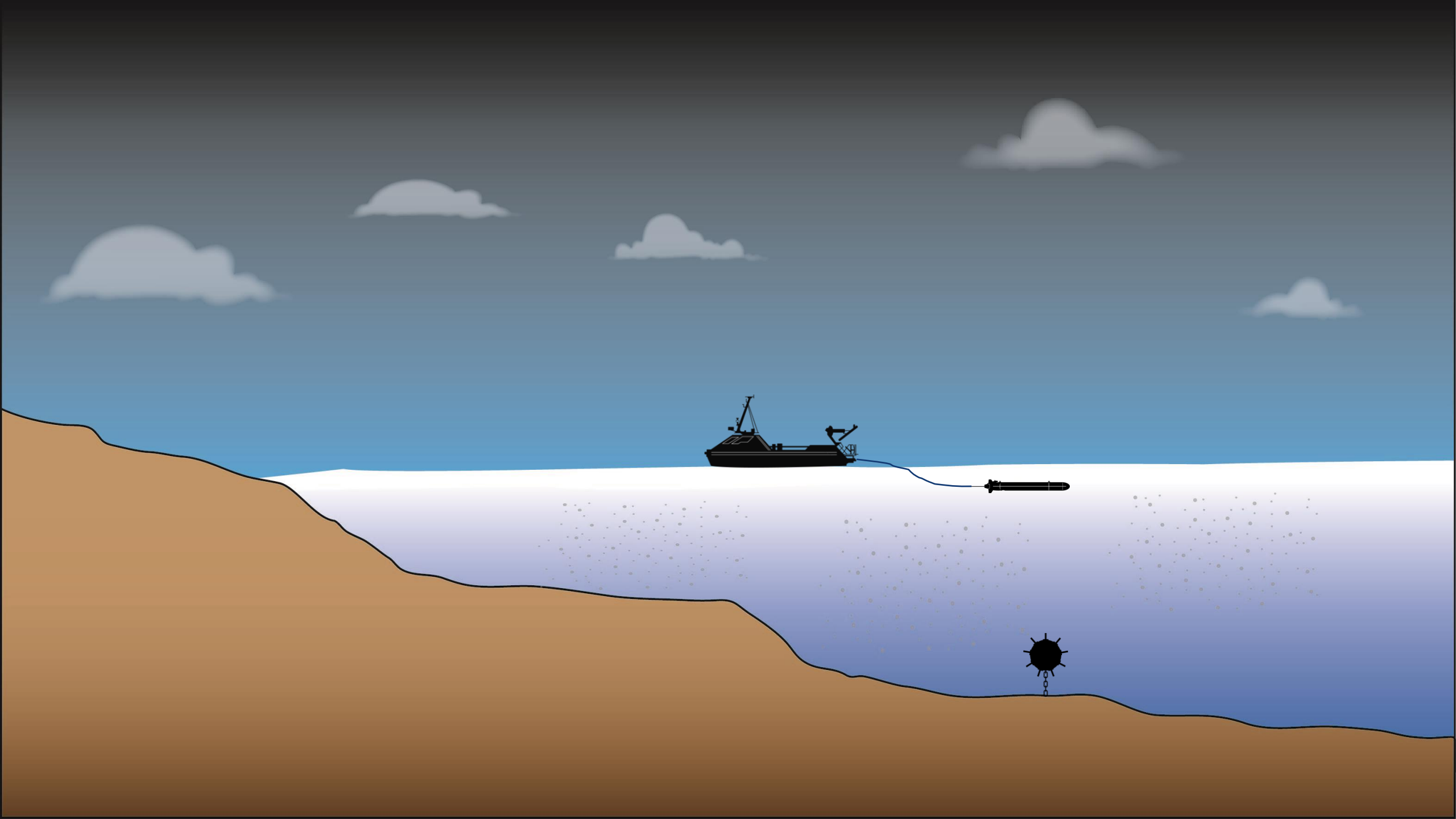


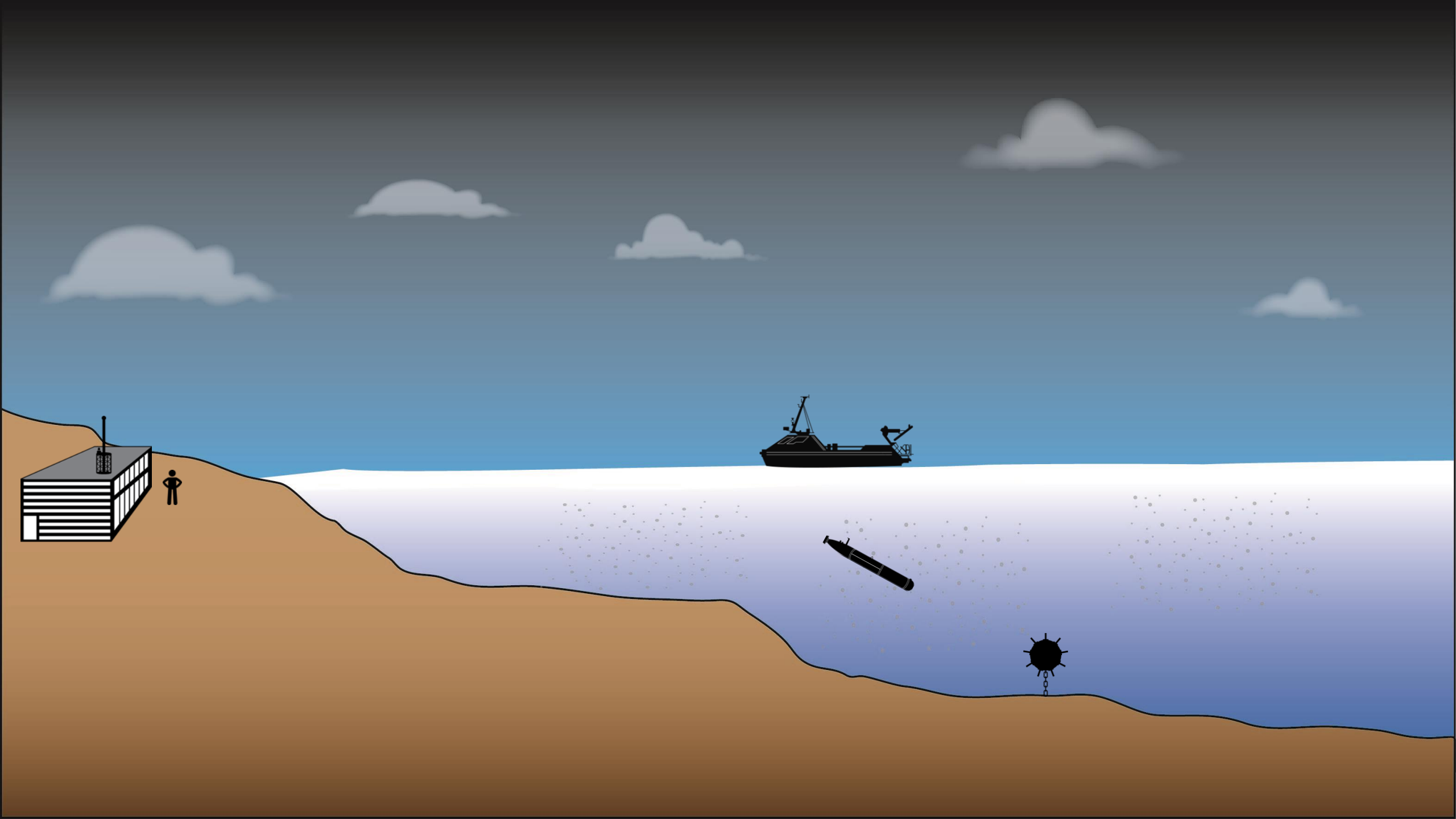
Level 3
Remote controlled without seafarers onboard

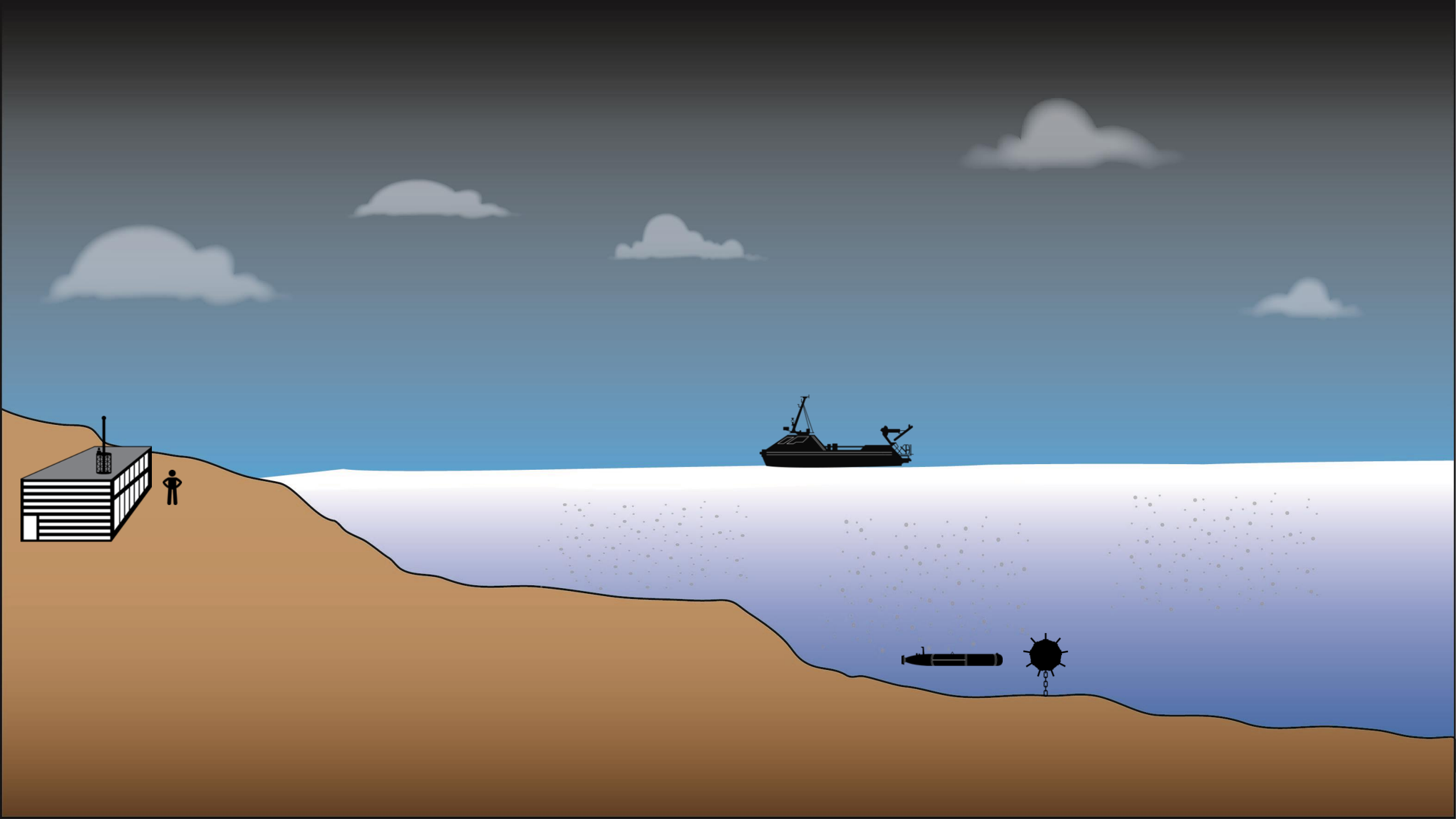


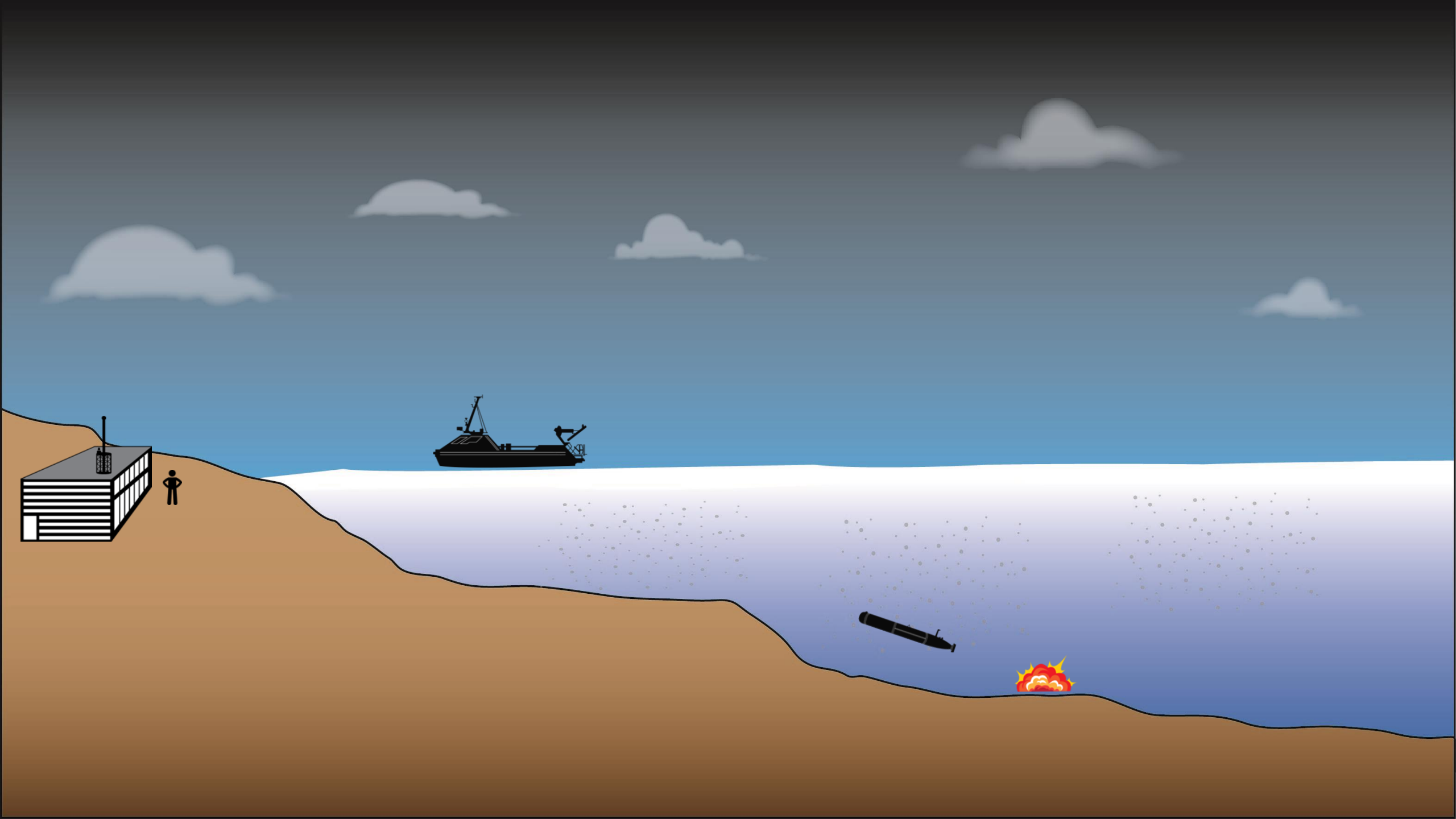
Comparisons











Worked Example



Level 1

Seafarers onboard and some automation

Level 2

Remote controlled with seafarers onboard

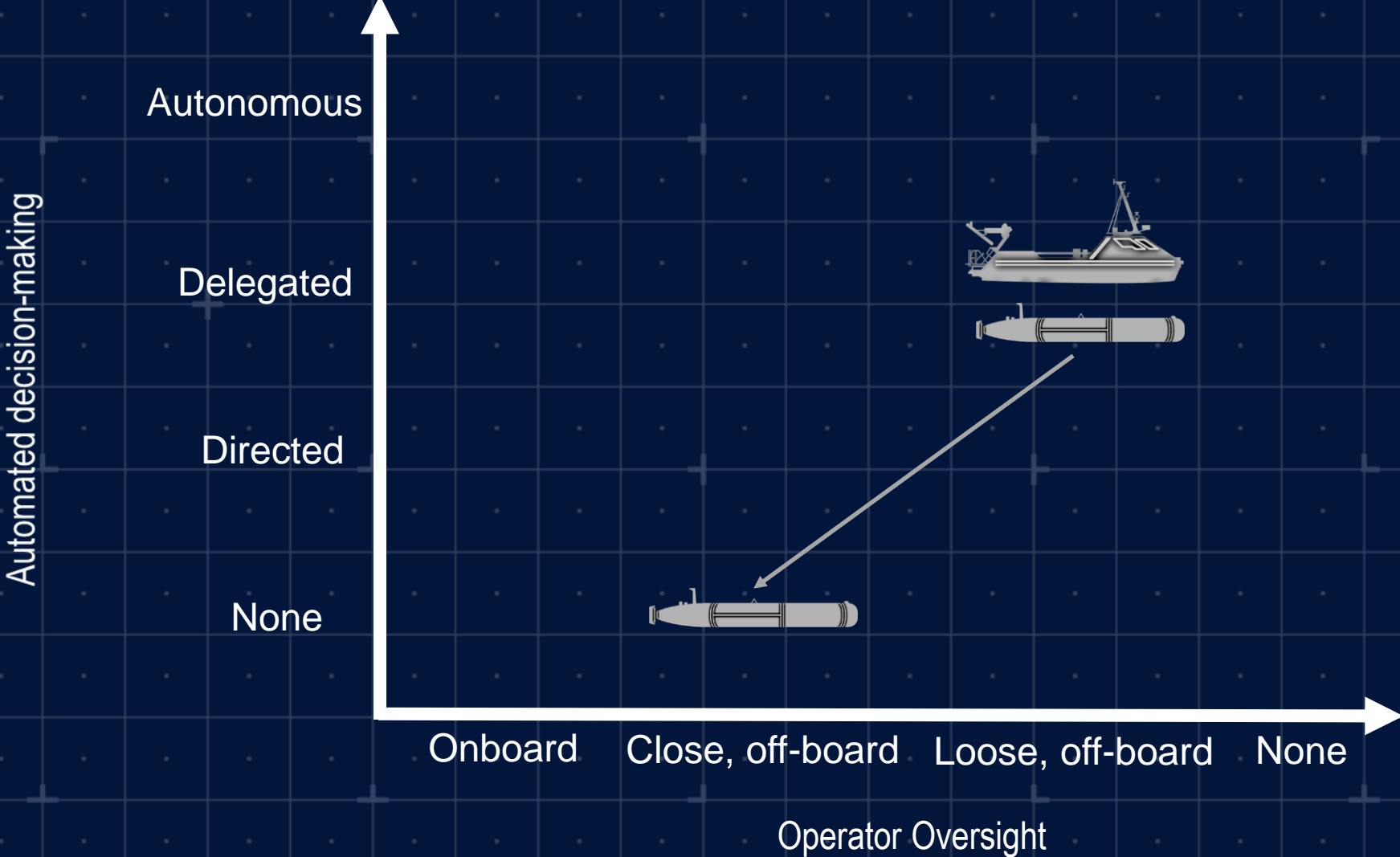
Level 3

Remote controlled without seafarers onboard

Level 4

Fully autonomous

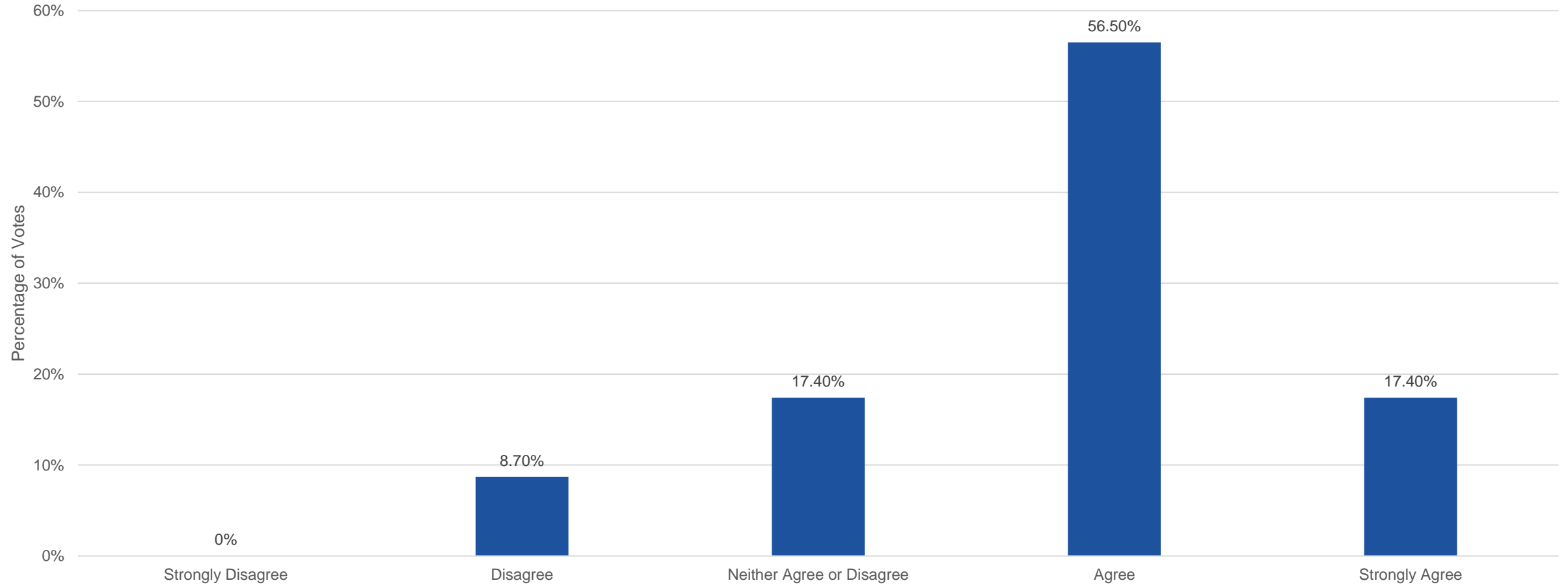
Worked Example





Results

Question 1 - I would use MODL frequently.



What did you like about MODL/what were the strengths of using MODL?
(What worked?)

A word cloud visualization of responses to the question. The words are arranged in a cloud shape, with larger words indicating higher frequency. The most prominent words are 'useful', 'easy', 'control', 'systems', and 'MODL'. Other visible words include 'flexibility', 'autonomy from level', 'level of automation', 'level of control', 'worked', 'level of manning', 'decouples level', 'different levels', 'level of supervision', 'stop EXTAC', 'level value', 'activities with the level', 'high level', 'level of autonomy', 'use', and 'level of automation'.

activities with the level
level value
stop EXTAC
level of supervision
different levels
decouples level
useful
MODL
high level
flexibility
systems
easy
worked
level of manning
level of autonomy
autonomy from level
use
control
level of automation
level of control



Operational experimentation insights

Standardisation

Complexity

Clarity





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