SDVs in support of Special Operations

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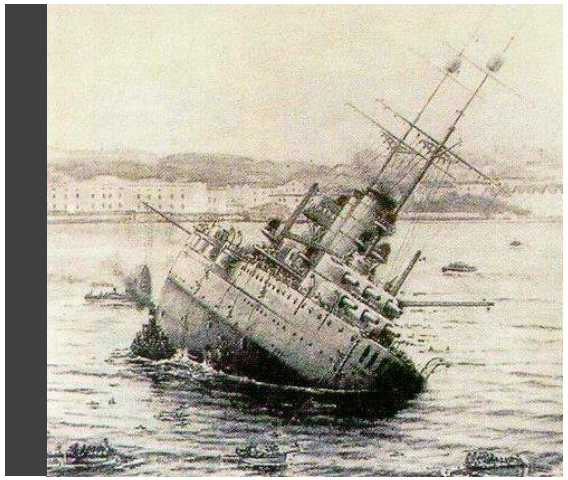
confidence under pressure

AGENDA

- The human torpedo
- A brief history
- The ‘payload’
- A diver’s limitations
- Development of DPDs and SDVs
- Integration with submarine systems
- Midget submarines
- Hybrid crafts
- Challenges and future SDVs

THE HUMAN TORPEDO

A BRIEF HISTORY



Viribus Initis | Sunk in 1918 following attack by Italian Navy in primitive SDV.

HMS Valiant / HMS Queen Elizabeth | Damaged by limpet mines placed by Italian frogmen who entered Alexandria harbour riding two-man human torpedoes.

1918

1941

THE PAYLOAD

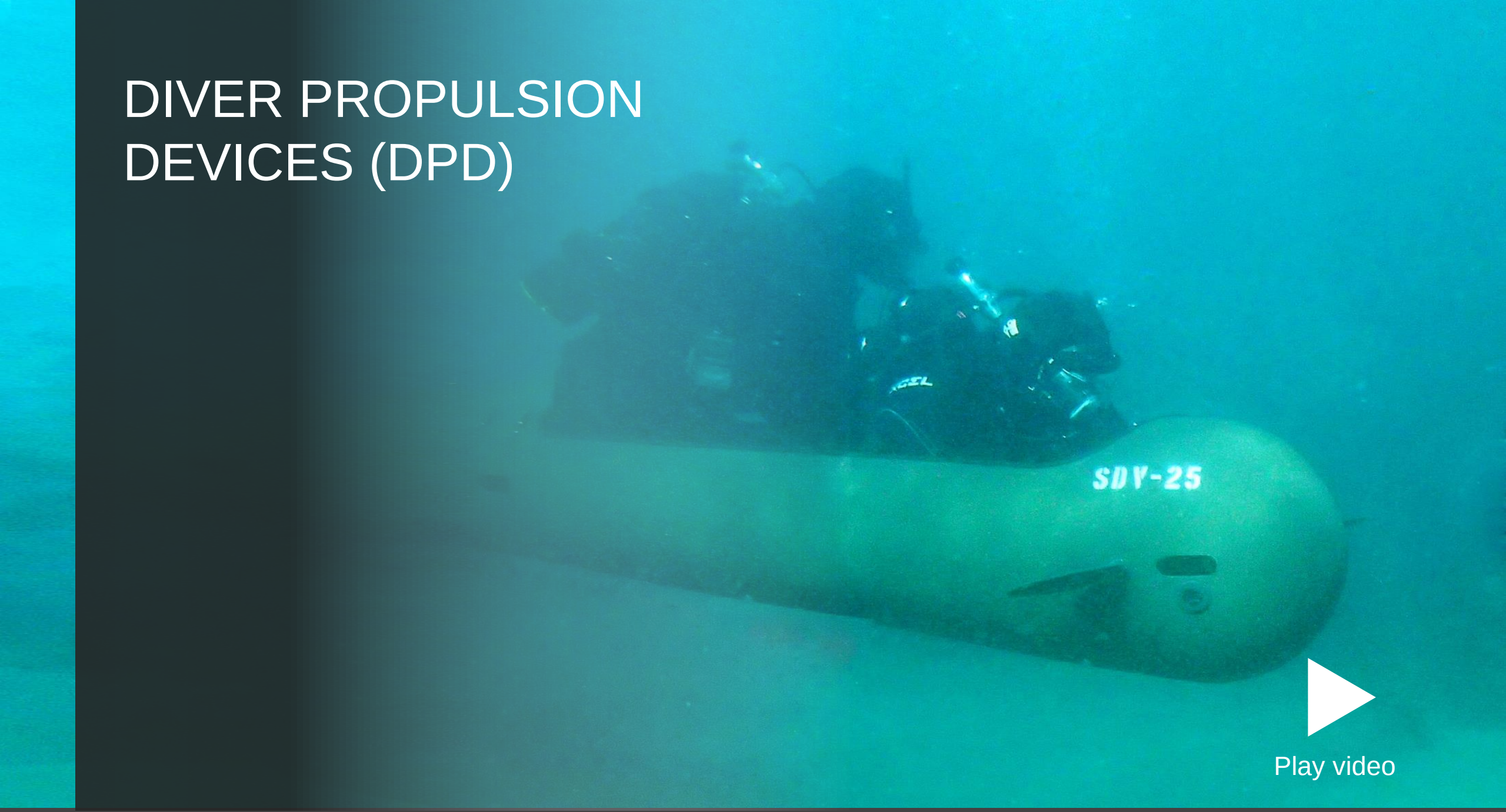
THE PAYLOAD

A DIVER'S LIMITATIONS

A DIVER’S LIMITATIONS

- Limitations from dive system
- Physical limitations
- Limitations from environment

DIVER PROPULSION DEVICES (DPD)



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DIVER PROPULSION DEVICES (DPD)

- Initially short range, designed around the battery system.
- More efficient batteries
- Exposure to the streaming water.
- Advanced navigation systems

SWIMMER DELIVERY VEHICLES (SDV)

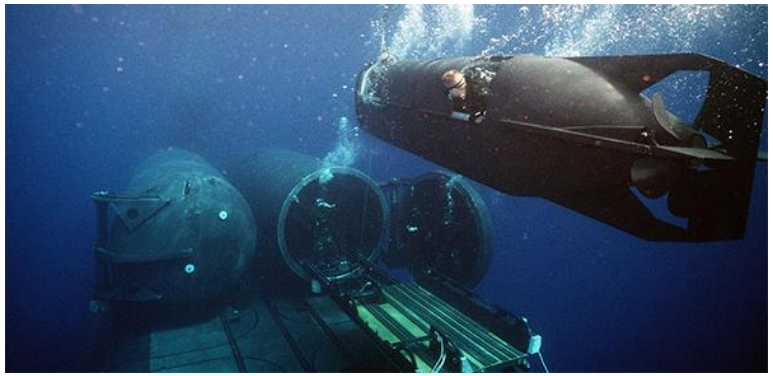
SWIMMER DELIVERY VEHICLES (SDV)

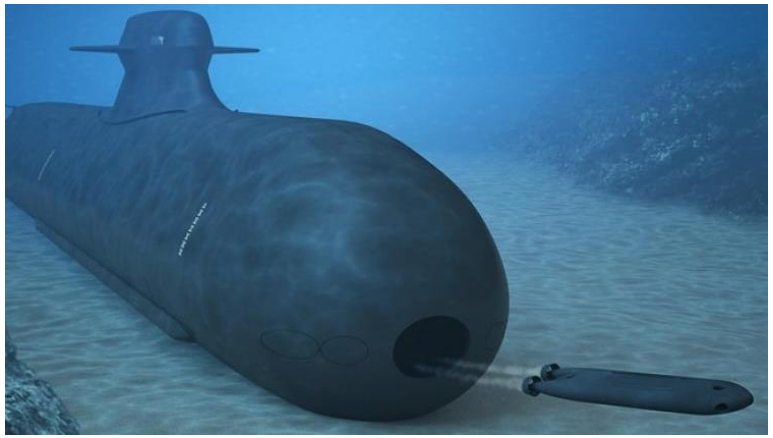
- Need for increased speed and extended range.
- More space for more divers and payload
- A comfortable environment for the pilots and divers.
- Redundancy
- Increased operation security

INTEGRATION WITH SUBMARINES

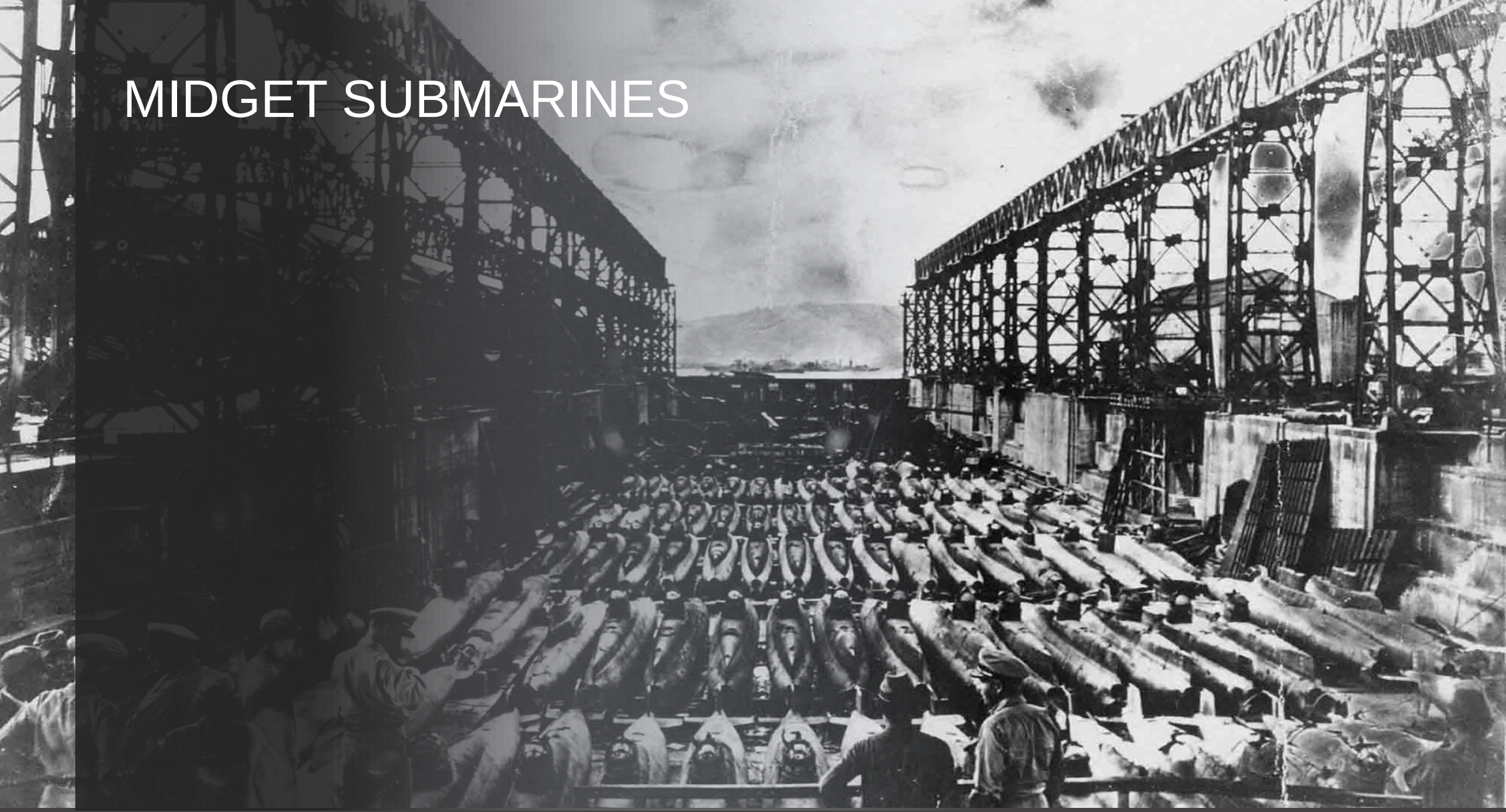
INTEGRATION WITH SUBMARINES

- Specially built submarines for special operations is not a new invention
- Removable dry dock shelters
- Internal dry docks





MIDGET SUBMARINES



MIDGET SUBMARINES

Before

- Been in service for a long time for operation in concealed areas.
- Mass production as weapon carrier.

Today

- Advanced platforms.
- Endurance.
- Command and control of special operations.
- Expensive.

HYBRID CRAFTS

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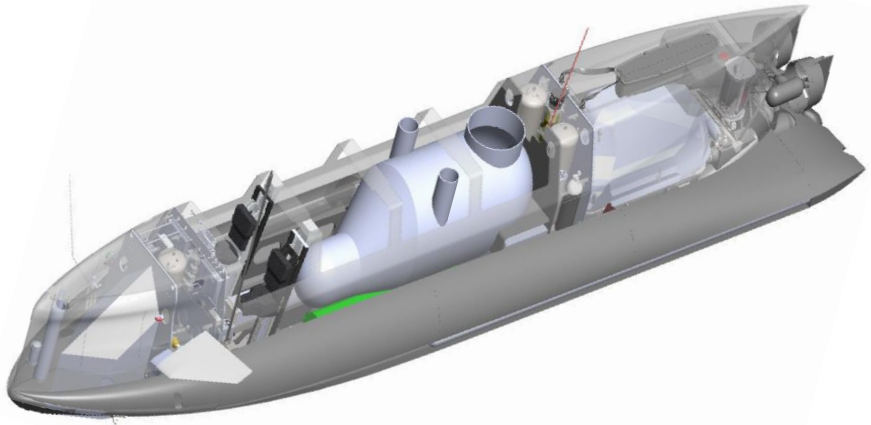
HYBRID CRAFTS

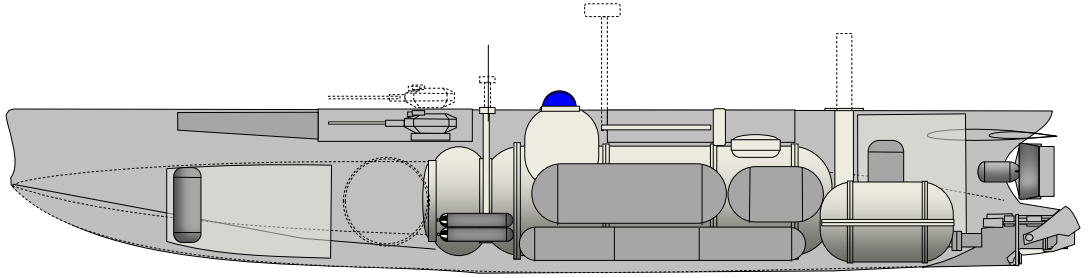
- Add over the horizon capability
- High readiness
- Operational flexibility
- Design challenges
- Not only an SDV, also a combat craft

CHALLENGES AND FUTURE SDVs

Doctrine

Paradigm shift



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