

PROJECT

SEDNA

Safe maritime operations under extreme conditions: the Arctic case

Funding: European (Horizon 2020)

Duration: Jun 2017 - May 2020

Status: Ongoing

Total project cost: €6,726,565

EU contribution: €6,498,753



[CORDIS RCN : 210139](#)

Objectives:

Maritime traffic in the Arctic region is rapidly increasing. But there has been a huge increase in marine casualties in this region due to its extremely harsh environment and the severe safety challenges for ships' navigation teams.

SEDNA will develop an innovative and integrated risk-based approach to safe Arctic navigation, ship design and operation, to enable European maritime interests to confidently fully embrace the Arctic's significant and growing shipping opportunities, while safeguarding its natural environment.

More specifically SEDNA will create and demonstrate the improved safety outcomes of:

1. The Safe Arctic Bridge, a human-centered operational environment for the ice-going ship bridge using augmented reality technology to provide improved situational awareness and decision making whilst enabling integration with new key information layers developed by the project using innovative big data management techniques.
2. Integrated dynamic meteorological and oceanographic data with real time ship monitoring and ice movement predictions to provide reliable decision making for safe and efficient Arctic voyage optimisation.
3. Anti-icing engineering solutions, using nature inspired approaches, to prevent ice formation on vessels, eliminating ice as a ship stability and working-environment hazard.
4. Risk-based design framework to ensure that vessel design is connected to all key hazards of ship operation in the Arctic. The holistic treatment of the ship design, operating regime and environment will improve safety and minimise impact over the entire life cycle.
5. A CEN Workshop Agreement on a process to systematically address safety during bunkering of methanol as a marine fuel along with safety zone guidance for three bunkering concepts: Truck to Ship, Shore to Ship and Ship to Ship.

To maximise impact, SEDNA will provide formal inputs to international regulatory regimes regarding regulation adaptation requirements for its safety solutions.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Bmt British Maritime Technology

Address:

Orlando House, 1 Waldegrave Road
TEDDINGTON
UK - TW 118LZ
United Kingdom

Organisation Website:

<http://www.bmt.org>

EU Contribution: €1,216,305

Partner Organisations:**Dalian University Of Technology****Address:**

Linggong Road, Ganjingzi District No.2
Dalian
116024
China

EU Contribution: €0

Arkitektur Og Designhogskolen I Oslo**Address:**

MARIDALSVEIEN 29
0175 OSLO
Norway

EU Contribution: €695,375

Met Office**Address:**

Fitzroy Road
Exeter
EX1 3PB
United Kingdom

EU Contribution: €493,706

Cork Institute Of Technology**Address:**

ROSSA AVENUE BISHOPSTOWN
T12
CORK
Ireland

Organisation Website:

<http://www.cit.ie>

EU Contribution: €348,559

University Of Southampton**Address:**

Highfield
Southampton
SO17 1BJ
United Kingdom

Organisation Website:

<http://www.soton.ac.uk>

EU Contribution: €364,893

Aker Arctic Technology Oy

Address:

Merenkulkijankatu 6
980 Helsinki
Finland

Organisation Website:

<http://www.masa-yards.fi>

EU Contribution: €345,088

University College London

Address:

Gower Street
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WC1E 6BT
United Kingdom

Organisation Website:

<http://www.ucl.ac.uk>

EU Contribution: €959,700

Lloyd' S Register

Address:

71 Fenchurch Street
LONDON
EC3M 4BS
United Kingdom

Organisation Website:

<http://www.lr.org>

EU Contribution: €222,815

Stena Line Scandinavia Ab

Address:

Masthammsgatan
SEN/A40519 Gothenburg
Sweden

Organisation Website:

<http://www.stena.com>

EU Contribution: €421,563

Harbin Engineering University

Address:

Harbin Engineering University
Harbin
150001
China

Organisation Website:

<http://english.hrbeu.edu.cn>

EU Contribution: €0

Ulstein Power & Control As

Address:

OSNESVEGEN 118
6065 ULSTEIN
Norway

EU Contribution: €389,250

Chalmers Tekniska Hoegskola Ab

Address:

-
41296 GOTHENBURG
Sweden

Organisation Website:

<http://www.chalmers.se>

EU Contribution: €705,875

Technologies:

Emissions control systems
Computer simulations modelling climatic impact on Arctic marine transportation

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing, Network and traffic management systems

Water transport (sea &

Transport mode: inland)

Transport sectors: Freight transport

Geo-spatial type: Other