

# Regulating Autonomous Ships in Norway

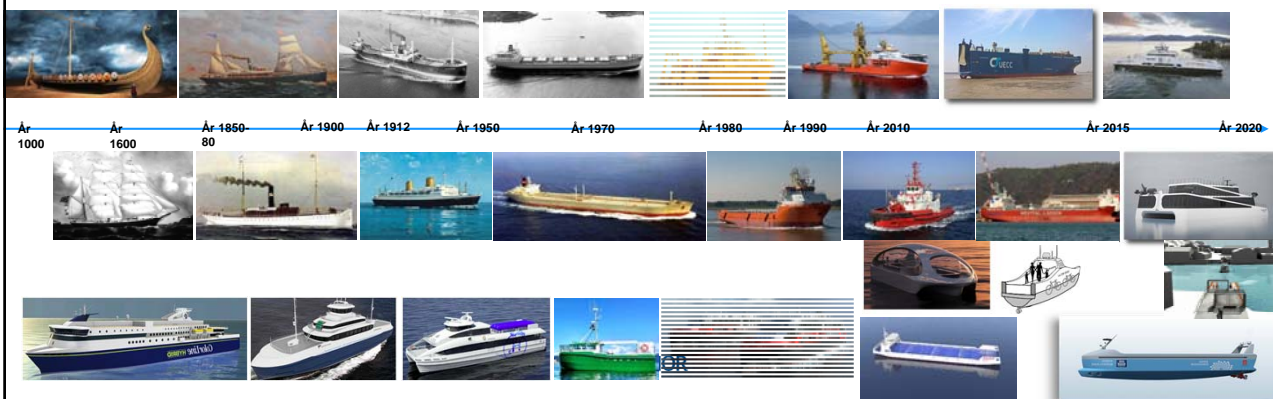
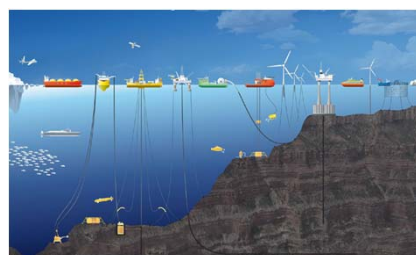
Progress and challenges

Svein David Medhaug



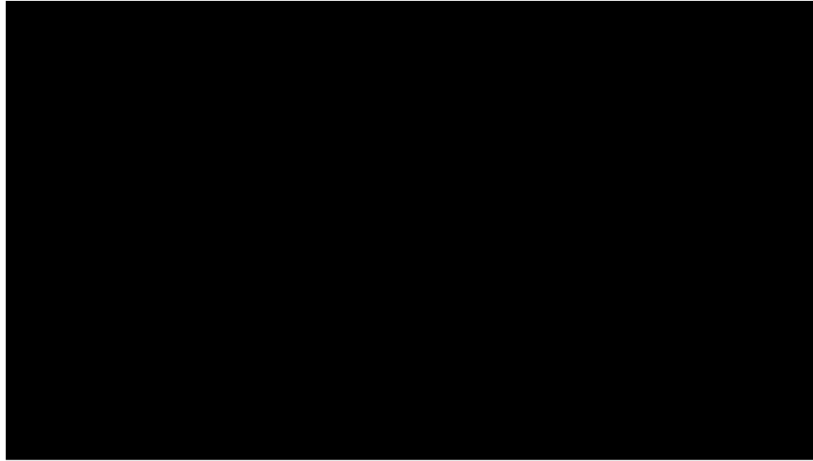
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## Norway A major Maritime Contributor



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## Innovasjon og ny teknologi



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## Norway's goal

Pioneers providing;

- Safer
- Smarter,
- greener and more
- Efficient

In a Blue, sustainable shipping segment



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## Regulating Autonomous Ships in Norway National strategies



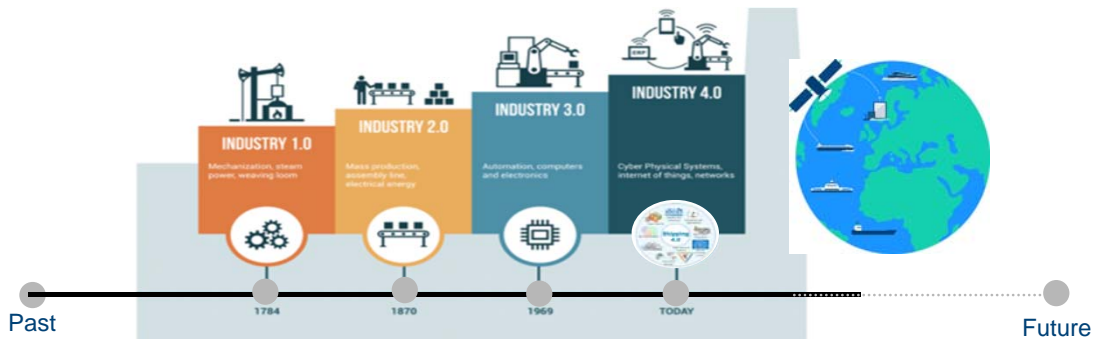
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Norwegian Maritime Authority

NIS//NOR

The preferred maritime administration

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## Regulating Autonomous Ships in Norway: New Technologies A digital shift



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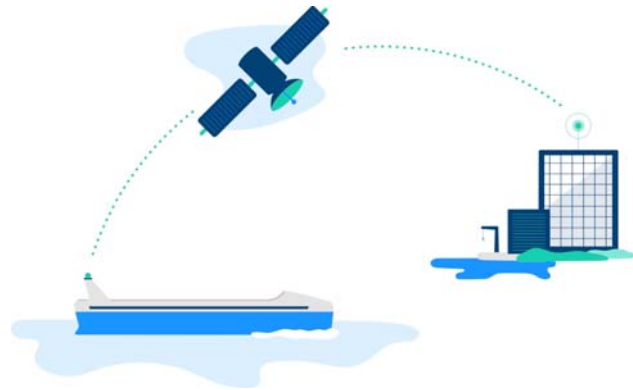
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Regulating Autonomous Ships in Norway: New Technologies

## Autonomous shipping

### Game Changer

- Reliable automation
- Decision superior
- Safety & security
- Continuously 24/7
- Complete digital solutions (Logistics)
- Interconnection



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## The Norwegian maritime Authorities role

- Facilitate for sustainable innovation
- Techno-neutral legislation

### But still:

- Protect the environment, vessel and the seaman.
- Safety and security



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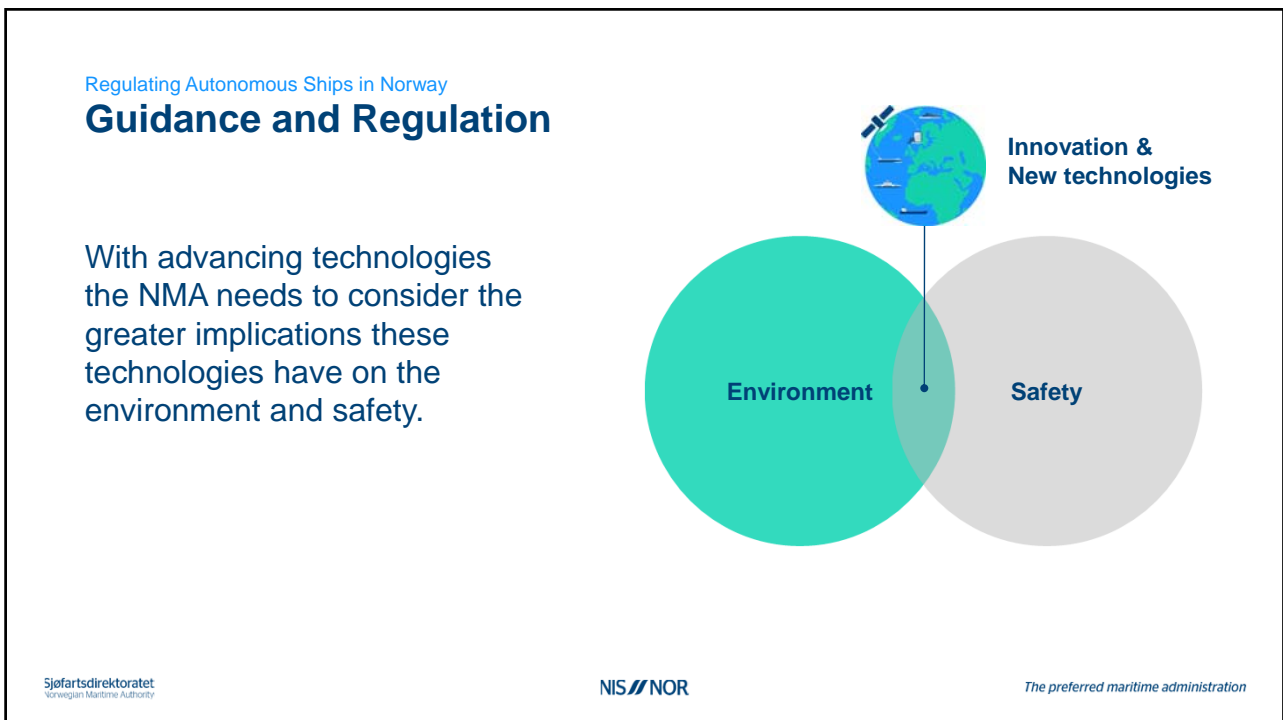
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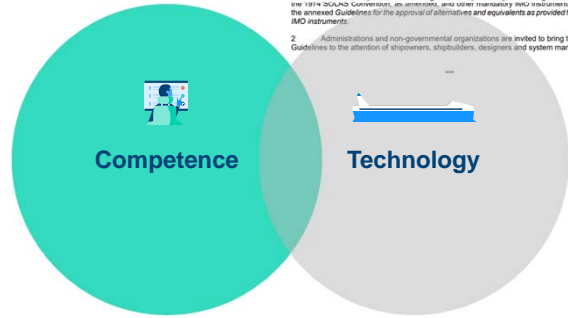


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# Regulating Autonomous Ships in Norway In-house competence

## ① Facilitating for the future

- MSC Circ. 1455 "Guidelines for the approval of alternatives and equivalents as provided for in various IMO instruments"
- Approval in principle
- Third part verification.
- Our in-house competence

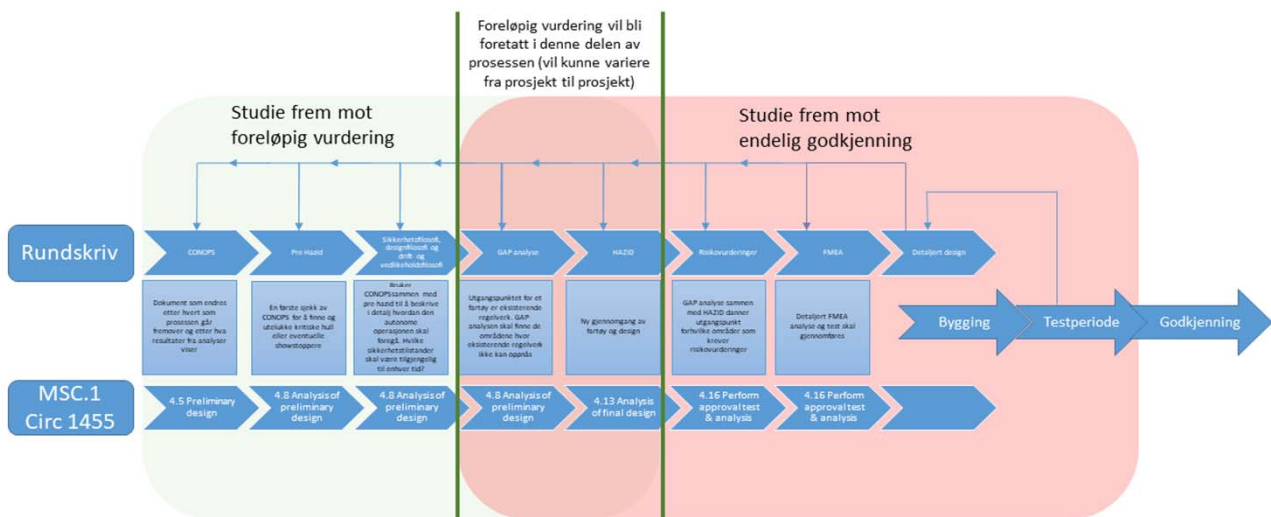


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### Flytskjema prosess for autonomiprosjekter (detaljert)

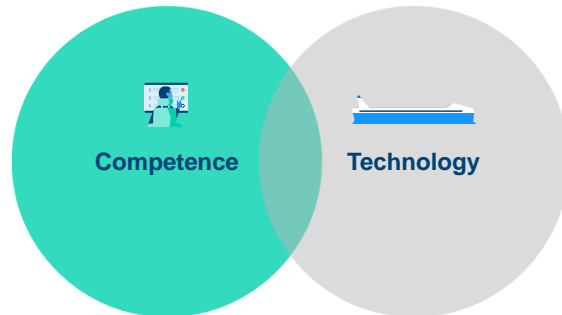


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## In-house competence

### ② Regulating for the future

- Tailored regulations and influence policies that enable innovation



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## Standardise for Autonomous shipping

### ③ Standardising for the future

Developing guidance and regulations for autonomous ships;

Design- and documentation requirements



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## Standardise for Autonomous shipping

### ③ Standardising for the future

#### Design- and documentation requirements

- CONOPS
- Pre HazID
- Design Philosophy
- Safety Philosophy
- Operations and maintenance philosophy
- Risk Assessments and HazID

Standardising for the future



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## Standardise for Autonomous shipping

### ③ Standardising for the future

#### Design- and documentation requirements

- CONOPS

Standardising for the future



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## Standardise for Autonomous shipping

### ③ Standardising for the future

#### Design- and documentation requirements

- Pre- HAZID

Standardising for the future



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## Standardise for Autonomous shipping

### ③ Standardising for the future

#### Design- and documentation requirements

- Safety Philosophy
- Design Philosophy
- Operations and maintenance philosophy

Standardising for the future



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## Standardise for Autonomous shipping

### ③ Standardising for the future

#### Design- and documentation requirements

- Risk Assessments and HAZID

Standardising for the future



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## Developing guidance and regulations for autonomous ships;

Standardising for the future

### ③ Standardising for the future

#### Design- and documentation requirements

National regulations based on equivalents

Risk assessments

Minimum Risk Condition and Safestates



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## Developing guidance and regulations for autonomous ships; Standardising for the future

③ Standardising for the future

### Test requirements

- Pre-tests
  - Data models
  - Physical test
- Test procedures
- Simulations
- Full scale testing

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Regulating Autonomous Ships in Norway

## The Norwegian Maritime Cluster

The Norwegian maritime cluster provides a holistic and collaborative environment for the maritime industry

Norwegian Maritime Cluster

National organisations and authorities

Education programs Research & Development

Ship yards and manufacturing

Ship owners

Classification societies

Marine Insurance Shipping Finance

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## Norway at the forefront

- Pushing international
- Innovation
- Sustainability



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## Thank you

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Innovation and new technology

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