The unmanned ship - Hazard to navigation or improved safety

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Manned vessels
Drones and autonomous ships

• Hazard to navigation? No, but
• Improved safety? Yes, but

Online digital control
• Owner
• Traffic coordinators
• Authorities
• Class

Sammen for økt sjøsikkerhet i rent miljø
The solution to our problems...

• “... More than 80% of all accidents at sea are attributed to the Human Element. The MCA team have raised global awareness of this phenomenon and given some very practical advice to ships Captains and operators on how to mitigate the risks ...”

• Sir Alan Massey - UK MCA Chief Executive

Source: http://www.thehumanelement.org.uk/
…or a whole new set of problems…
...at the end of the day

![Graph showing fantasy performance of UMS vs manned navigation with random numbers generated by Excel.](image-url)
e-Navigation concept

Source: John Erik Hagen-Kystverket
e-Navigation concept vs. autonomous ship

- If we look at the opportunities and isolate the challenges, there may be a room for autonomous ship in the Marine Electronic Highway (MEH) in the future.
- On-board the integration of equipment may be synchronised and made available remotely from shore via seamless communication means.
Integration and remote access of equipment on-board

- Local weather data (Waves, Wind, temperature)
- System (GPS, GLONAS, DGPS, ARTEMIS, etc.)
- Digital indication displayer (ROT. Pitch, Rudder, propulsion)
- MSI receiver and sender (NAVTEX)
- Echo-sounder
- Speed logg
- Anti-collision system (AIS)
- Gyro system
- ECDIS
- Radar
- Autopilot
- Machinery data (electronisk Maskin dagbok)
- Deck log (electronic deck's dairy, garbage diary, etc.)
- Operation log, maintenance system
- E-navigasjons DISPLAY (lokalt «single window»)
- Switch/s-box/data distributor
- HUB/database/Single Window/Datacenter (LRIT)
- Port Authority
- Police
- Custom
- Immigration
- Departments and other governmental agencies
- SAR
- Distributors
- Brokers
- Agents
- Charters
- VTS
- Chart and weather
- Other

Source: Svein David Medhaug - Sjøfartsdirektoratet
Streaming of VDR data – easing enquires
The Norwegian Flag

- International respect and influence
- World-leading in technology and development
- A complete and innovative maritime administration
- Quality at all levels
- Strong safety culture
We have done it before

- Innovations
- Cooperation
- International standard
The Norwegian maritime Authority (NMA)

- Encourage the Industry to invite NMA to be observer in development projects
- Ensure early evaluation of proposed alternatives or new technology
- Consider the need for update of international regulations
- Invite relevant parties to participate in developing new international safety standards
NMA - Preparing for the future

- A series of workshops between developers of Drones and Autonomous systems and related systems to:
  - Get in-depth understanding of the technology
  - Learn how these ships are planned to be managed
  - Understand what operational options there might be
  - Learn what competence the systems, management and operation need
- Why: To prepare for what new regulation that may be relevant in the future
- How: Project by project to ensure confidentiality on IP issues
- When: Invitation to be sent in August 2015, workshops during October/November 2015
Sammen for økt sjøsikkerhet i rent miljø
Hurdles

- Technical solutions
- Technical demonstration over time
- Political acceptance
- Regulatory nationally and/internationally
What’s important to our customers, is important to us

Good service
Short processing time
Accessible employees
Communication in English
Close dialogue
User-friendly digital services

We wish to improve
Tell us how we can meet your needs
Norway – a Maritime Superpower

• The world’s: 4th largest fleet in terms of value
  6th largest fleet measured in number of ships
  8th largest fleet in terms of tonnage

• World-leading within the development of specialized vessel types
• 100,000 employed in the maritime industry
• The industry has an annual turnover of over NOK 160 bn (EUR 20 bn), approx. 12% of the country’s GDP growth and one-third of all export value
• Driving force in the development of regulations in international bodies such as the IMO, ILO, EMSA and EU
• Key contributor in the development of regulations for LNG as fuel, the Polar Code, and more
Flying the Norwegian Flag Contributes to:

- strengthen Norway’s position as flag State
- support recruitment to the industry
- develop expertise in the maritime cluster
- increase Norway’s international maritime influence

• Read More at: www.sdir.no

Thank You for Your Attention!