

Autonomous Ships – the Perspective of Shipowners



International Chamber of Shipping

Shaping the Future of Shipping

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MASS – Some Shipowner Considerations

- What does a shipowner want?
- MASS Potential
- What is an Autonomous Ship?
- Crew/operating issues
- Safety & environment
- Cost & profitability

This presentation is concerned with trans-oceanic shipping, the arguments for and against MASS are significantly different if considering inshore and small ships on near coastal voyages.



Perception

- Industry is often negatively portrayed in the media, and perceived as being obstructive and resistant to change
- Is this fair?
- If it was your money, would you be happy to spend £££££££'s on something without being certain that it would work and add value?



What does a Shipowner want?

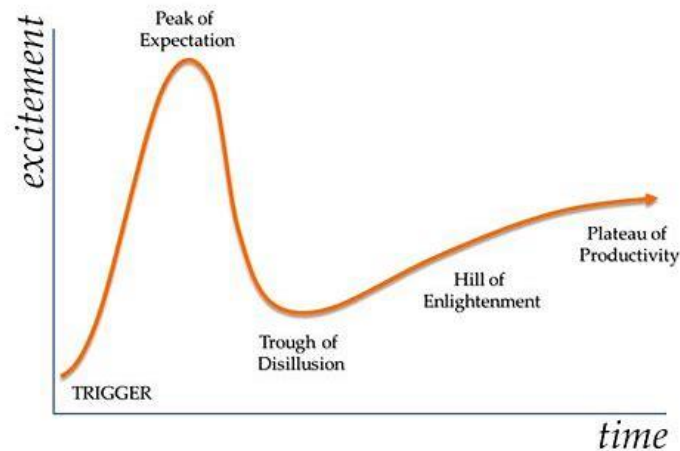
An obvious question, so obvious it is seldom asked, a shipowner wants a ship which is:

- Profitable
- Safe
- Compliant with applicable regulations



MASS Potential

- Reduced crewing levels, potentially fully autonomous unmanned ships;
- Safer ships with reduced emissions;
- Optimised operation and increased digitisation of the industry; and
- Lower operating costs and increased profitability.



What is an Autonomous Ship?

Autonomous ship \neq unmanned ship. IMO is considering four degrees of autonomy:

1. Ship with automated processes and decision support;
2. Remotely controlled ship with seafarers on board;
3. Remotely controlled ship without seafarers on board;
4. Fully autonomous ship, the operating system of the ship is able to make decisions and determine actions by itself.

In reality, most autonomous ships will retain seafarers on board and degree 1 just reflects long standing trends for increased automation.



Crewing/Operating Issues

- Ships are expensive assets which require continuous maintenance, will removing seafarers really save money?;
- Seafarers will require new skills to manage MASS degrees 2 and 3, degree 3 and 4 will require operating staff on land, what competence and certification standards will be applied to land based ship operators in control of ships?; and
- For degree 2 ships seafarers will need to retain the necessary crew skills to intervene and take control if necessary.



Safety and Environment

- MASS reduces scope for seafarer error, however, how is the dependability of software assured?;
- The industry will reduce emissions by adopting new fuels and energy carriers, an autonomous ship will not emit less than a well managed conventional ship; and
- MASS will co-exist with manned ships and must fit into the existing regulatory framework, such as the COLREGS.

A lot of work is needed at IMO to accommodate higher levels of autonomy in the safety and environment regulatory framework - is society ready to entrust care of the marine environment to fully autonomous (degree 4) ships?



Costs & Profitability

- MASS are expected to be more expensive to buy and insure;
- Autonomous ships will still require maintenance; and
- A ship is an expensive asset, the cargo may be still more valuable.



Summary

- MASS degree 1 represents longstanding trends to automate on board functions, degree 2 is a significant evolution but seafarers will remain essential - seafarer skills will evolve to meet the challenges of increased automation/autonomy;
- Degrees 3 and 4 present huge challenges on many levels and it is unclear when there will be a genuine business case for trans-oceanic ships beyond technology demonstration applications;
- Increasing automation and autonomy will change the risk profile of shipping but assuring the dependability of such complex software systems and regulating such ships will be challenging; and
- Reducing shipping emissions demands new fuels and energy carriers, not autonomous ships.





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