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Back to the Future – The Shipping Way

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“Autonomous shipping is the future of the maritime industry. As disruptive as the smartphone, the smart ship will revolutionise the landscape of the ship design and operations”

Mikael Makinen, President Rolls-Royce Marine

Rolls-Royce presented its vision of the future at the 2016 Autonomous Ship Technology Symposium in Amsterdam. Together with other partners in the Advanced Autonomous Waterborne Applications (AAWA) project, Rolls-Royce joined forces with universities, ship designers, equipment manufacturers and classification societies with the aim of revolutionising the shipping industry.

The white paper released in 2016 by Rolls-Royce argues that autonomous ships will save costs, weight, space, as well as enabling more cargo to be carried and reduce human error on board vessels. The project has received €6.6 million of funding from Tekes (Finnish Funding Agency for Technology and Innovation) and is expected to run until the end of 2017.

AAWA is already undertaking trials with its partners Finferries, ESL Shipping and Brighthouse Intelligence. The “Stella”, a FinFerries ferry, is testing a combination of sensor technologies – for example, high tech cameras and various radar systems, including guided radar or ‘Lidar’ (Light Detection And Ranging), which enable the vessel to monitor both its environment and gather data for its own ‘health’. ESL Shipping will explore how remote and autonomous technology can be used for shorter cargo trips. Brighthouse Intelligence will focus on developing cybersecurity solutions and situational awareness packages: a pre-requisite for autonomous ships.

It is intended that vessels will be manned in operation rooms miles away from the ship. This will require new skills with the potential for new job opportunities, particularly for younger people. An added benefit for the ‘remote crew’ is that they will not be exposed to the normal risks of a life at sea – that can arise from both internal and external factors – and will be able to spend more time with their families.

Cargo management and emergency situations are set to be handled either by automation or tele-operation. The white paper does not yet provide a fixed formula as to how these will be handled. The effectiveness of cyber security will be vitally important in order to obtain industry approval. Again the white paper does not discuss specifics but recognises that remote and autonomous vessels need to be made “as safe as existing vessels with sufficient confidence taking into account relevant uncertainties”.

A fundamental question is whether a ship without a crew is a ship or a drone. The white paper concludes that autonomous vessels will qualify as “ships” under various laws. However, when current laws and regulations have been drafted in an era of crewed vessels substantial change will be required to address the issues and risks posed by driverless, or even crewless, vessels. Indeed, supporters of the idea recognise that the biggest obstacle to change is not technical but regulatory.

There is interest in the concept of autonomous vessels with the European Union funding a €3.5 million study – the Maritime Unmanned Navigation through Intelligence in Networks project. This suggests that eventually there will be widespread interest in crewless vessels with in consequence the need for everyone involved in shipping to address change. It has been said that “*autonomous shipping is not a question of whether or not but rather a question of when.*”

If or when it happens the transition to an autonomous unmanned shipping era will take place gradually. AAWA anticipates that the first ship with reduced crew and remote support will be sailing by 2020 and, after a further 15 years, there will be autonomous unmanned ocean vessels sailing international waters.

In 2017 such change may seem unlikely, or perhaps too much akin to a scene from a Star Wars film, but in much the same way that containerisation and diesel engines transformed shipping, driverless ships may do so too. Before then there are numerous challenges and hurdles to clear but autonomous vessels may represent the future, and some commentators see digital shipping and automation as a safer and less costly way forward for shipping that may offer a solution to the current depressed shipping markets.



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