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BUSINESS | LOGISTICS REPORT

## Ship Operators Explore Autonomous Sailing

More automation will enable them to optimize use of cargo vessels, cut fuel consumption and labor costs

By **ROBERT WALL** in London and **COSTAS PARIS** in New York

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“All hands on deck” may become a thing of the past.

Ship designers, their operators and regulators are gearing up for a future in which cargo vessels sail the oceans with minimal or even no crew. Advances in automation and ample bandwidth even far offshore could herald the biggest change in shipping since diesel engines replaced steam.

Ship operators believe more automation will enable them to optimize ship use, including cutting fuel consumption. “The benefit of automation is as an enabler of further efficiency across the 630 vessels we operate,” said Palle Laursen, head of Maersk Line Ship Management, a unit of cargo-ship giant A.P. Moeller-Maersk A/S.

British engine maker Rolls-Royce Holdings PLC is leading the Advanced Autonomous Waterborne Applications initiative involving other companies and universities. It foresees technologies long used to improve commercial airline operations migrating to ships. The group also is tapping know-how from those working on driverless cars to adapt for safe at-sea autonomous operations.

A future unmanned ship could resemble some of the most advanced combat drones. It would sport infrared detectors, high-resolution cameras and laser sensors to monitor its surroundings. The vast troves of data would be transmitted to command centers where staff do little more than monitor progress and ensure ships are operating at optimum

speeds.

The consortium completed a study this year that concluded such vessels are feasible and offer savings.

Oskar Levander, vice president for innovation at Rolls-Royce's marine unit, said moving toward greater autonomy and unmanned shipping could cut transport costs 22%. The bulk would come from lower staff costs, though such vessels also would be more fuel efficient by eliminating the need to carry equipment to support people onboard.

The first steps already are being taken. The Stella ferry, used in the Baltic and operated by Finferries, has been equipped with a variety of sensors including lasers and thermal cameras to assess whether such sensors could allow autonomous operations.

A critical step toward floating remotely controlled unmanned cargo ships on the oceans by 2030, and autonomous ones by 2035, is the ability to pass large amounts of data from ship to shore to ensure safe operations. For years, lack of affordable bandwidth has made that a challenge. A new generation of communications satellites is promising lower costs to transfer data.

Satellite-services company Inmarsat PLC this year launched its Fleet Xpress service to provide improved connectivity to ship operators. It combines high-bandwidth satellites with a more secure connection to guarantee vital safety connectivity. Ronald Spithout, president of Inmarsat's maritime business, said the connection will let operators monitor engine and other ship functions more closely to enable enhanced automation.

Rolls-Royce, no longer affiliated with the luxury car maker, is betting that a push to smarter vessels will lift the fortunes of its struggling marine business. The prolonged slump in crude prices has led to a sharp drop in demand for sophisticated offshore vessels. Marine sales at Rolls-Royce fell 23% last year after declining 16% the prior year when oil prices started to slump.

Oil prices may rebound, but the demand for the gold-plated vessels used to service oil and gas rigs far offshore may never fully recover, said Mikael Makinen, president of Rolls-Royce's marine division. Rolls-Royce is betting smart ships will be a new growth market.

The company is already in talks with operators it wouldn't name to start trials of more autonomous vessels.

Automating shipping faces barriers, though. "There are a vast range of safety, security,

navigational and legal challenges to be solved before crewless container vessels can be considered in our fleet,” said Maersk’s Mr. Laursen.

The International Maritime Organization, the arm of the United Nations overseeing global shipping, prohibits ship operations without crew. The International Convention for the Safety of Life at Sea, known as Solas, requires all ships to be “sufficiently and efficiently manned,” the IMO said.

Safety rules emerged in 1914 in the wake of the sinking of the RMS Titanic two years earlier, which killed more than 1,500 passengers on the ship’s maiden trans-Atlantic voyage. Current rules, completed in 1974, have been adapted for new technologies such as introducing mandatory requirements for electronic charts and automatic identification systems for ships. Proponents of greater autonomy hope the rules may be further relaxed.

Separately, it is unclear as of yet how security issues like piracy and the mandate to help distressed ships will be addressed for these ships

IMO spokeswoman Natasha Brown said the British government-sponsored Marine Autonomous Systems Regulatory Working Group, set up in 2014, is reviewing pertinent regulations to potentially propose changes.

James Fanshawe, chairman of the working group, said it hopes to convince the international organization to pave the way for autonomous vessels before the end of the decade.

Capt. Thanasis Apostolopoulos, head of crews at Athens-based Springfield Shipping Co. and a sailor for 17 years, said the drive to unmanned ships may be inevitable. “It will be a sad day for seafarers when it happens,” he said.

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