The Sensor: Unfamiliar waters: Navigating autonomous vessels' potential and perils

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Autonomous technology is advancing in every sector and in many ways the maritime industry may well be viewed by some as being ahead of the pack. From crewless ships to autonomous loading and offloading, there has been a steady increase in the use of autonomous technology on commercial vessels. Like any disruptive technology, however, autonomous vessels present their fair share of challenges.

One of the biggest challenges is staying on the right side of the law. It is unclear how autonomous vessels could comply with some of the current applicable legislation, particularly that which goes beyond the safe operation of the vessel. For example, under the United Nations Convention on the Law of the Sea (UNCLOS), masters of vessels sailing under the flag of signatory states must assist those in distress at sea. An autonomous vessel may be able to pilot itself around obstacles, but will it be able to identify someone in distress? What mechanisms would or should it have to assist such a person? The International Convention for the Safety of Life at Sea (SOLAS) may also require an update. SOLAS includes minimum crewing requirements, which likely have to be adapted, as they were not drafted with crewless ships in mind.

Other concerns include the legal implications for insurers in the absence of updated legislation that can address issues surrounding liability. A safer voyage is one of the purported benefits of autonomous vessels, however, it is worth noting that although there may be statistics regarding how many maritime casualties result from human action or omission, there is no way to quantify how many potential incidents have been averted because of a crew's intervention. In addition, autonomous vessels could be more susceptible to cyber hacking and pirate/terrorist take over. Loss of jobs is also no small matter as these technologies will disrupt the lives and careers of the thousands of seafarers employed in the industry.

In September 2018, Transport Canada invited members of the maritime industry (including BLG) to a workshop on Maritime Autonomous Surface Ships (MASS) and provided some insight into their plans for regulating autonomous ships in Canada. They received concerns and comments from members across the industry, including seafarers. Legal and technological perspectives were also included. The most common requests heard from industry members were:

- if regulatory changes are to be made, representatives from all parts of the shipping chain should be involved in developing those changes;
- there should be a mechanism in place whereby regulatory changes can adapt swiftly to the changing landscape, or the Canadian maritime industry risks falling behind the rest of the world;
- Canada's harsh environment should be considered when developing the regulations such that the practicality of international agreements is not hampered; and
- within the limits of existing regulations, it would be beneficial to grant local exemptions or permits to allow testing or operation of autonomous and semiautonomous vessels in local waters or specific navigational areas within Canadian waters such that testing can occur before international agreements are agreed to and adopted.

Transport Canada is aiming to have draft regulations ready by 2020 to coincide with the timing of the International Maritime Organization's scoping effort. Although it is difficult to predict how the future of autonomous vessels will unfold, it certainly will be an interesting voyage to watch.

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