

## Autonomous, Crewless Ships: Is the Ocean Freight Industry at Risk?

When Rolls Royce and Google announced a partnership, we knew something big was coming. By 2020, this powerful team will change the ocean freight industry forever with crewless ships. By addressing the positive and negative effects of having no crew, it becomes clear how risky the transition to these autonomous ships will be.

### **How Do Ships Run Without a Crew?**

The ship's computer system uses GPS, radar, cameras and sensors to avoid hazards on its journey. Rolls Royce will provide this technology through their object classification system, which is designed to "detect, identify and track surface objects".[1] Their artificial intelligence system will be trained by Google's Cloud Machine Learning Engine technology. Advanced technology means a crew is unnecessary because the ship will run itself.

Autonomous ships are both beneficial and risky to the ocean freight industry. First, let's focus on the benefits.

### **Saves Lives and the Environment**

A major benefit of autonomous ships is zero-emissions. In Norway, electric ships could replace 100 diesel truck journeys. The leading fertiliser company YARA hopes this will "reduce noise and dust emissions, improve the safety of local roads, and reduce NOx and CO2 emissions".[2] Carbon dioxide (CO2) emissions contribute to various harmful effects including acid rain, smog and the greenhouse effect that leads to global warming.

Another harmful gas is sulphur dioxide (SO2), which has been linked to lung cancer and heart disease. The shipping industry's SO2 limit was 3,500 times more than diesel cars on Europe's roads, but a new cap could reduce SO2 emissions by 85% and prevent 200,000 early deaths.[3] Zero-emission, autonomous ships would reduce emissions further and save even more lives.

### **Costly Short-term, Cheaper Long-term**

It's estimated that autonomous ships will cost \$25 million, which is three times higher than manned ships. However, long-term savings make the initial cost worthwhile. Investors say that with no "fuel or crew, annual operating costs would be cut by up to 90 percent".[4]

Another way autonomous ships will save money is through insurance costs. Pirate hijackings were a major threat to ships until companies increased security. Defensive measures like armed guards and barbed wire cut piracy from 163 incidents to 69 within a year, according to the International Maritime Bureau.[5] Fewer incidents means fewer insurance claims. Fewer claims means lower insurance costs. Autonomous ships would lower insurance costs further because there would be no crew to hold hostage for ransom.

Nothing is perfect and autonomous ships are no exception. Despite the great benefits to the ocean freight industry, there are also downsides to replacing a crew with technology.

## **Expensive Computer Glitches**

Every computer experiences glitches and they can be costly. A computer glitch in Melbourne's Metro Train system left passengers stranded for almost three hours, caused 378 late services and led to 224 service cancellations.[6] Metro Trains was fined \$1.2 million. Shipping companies might face fines if autonomous ships malfunction and cause serious, costly delays to multiple industries worldwide.

## **Less Employment or More?**

The International Maritime Union Nautilus expressed concern about staff members losing jobs to technology.[7] Their fear is justified. In 2015, the Bank of England found that in Britain "up to 15 million jobs could be at risk of automation. In the US, the corresponding figure would be 80 million jobs." [8] Rolls Royce suggests that the crew relocate to a different department, such as cybersecurity jobs on land.[9] Some employees might like earning more in the technology sector, but not if their dream was to work at sea.

The benefits of autonomous, crewless ships are lower costs, more safety and less pollution. Not only will these benefits increase ocean freight profits, but also save 200,000 lives and maintain a healthy environment for generations to come. The right backup system could prevent computer glitches so shipping won't come to a standstill. Unemployed crew could be retrained so they can work in lucrative technology departments. If the downsides of autonomous ships are addressed, both the ocean freight industry and their crew will thrive.