

How wireless technology can dramatically improve ship safety

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The sinking of the Italian cruise ship Costa Concordia in 2012 – and the reported difficulties in evacuating over 4,000 people with the eventual loss of 32 lives –underlined the urgent need to accurately trace passengers during emergencies. Indeed, while most people on board were brought ashore during a six-hour evacuation, the search for missing passengers and crew continued for several months.

In response, the three-year LYNCEUS project, which ends in early 2015, set about revolutionising how rescues can be conducted in the future. The team sought to adapt low-power wireless technologies in order to help localise and track [passengers](#), and thus improve search and rescue operations. Innovative wireless tags have been developed that can

be embedded into life jackets, providing rescuers with the exact location of every passenger and crew member during an evacuation. A radar device has also been developed to detect the exact location of passengers who have fallen overboard.

In this way, the technology promises to address critical problems that the maritime industry has long faced when attempting to evacuate passengers and crew. Difficult to predict factors include ship motion, the floating position and unexpected or sudden changes in the environment, such as flooding and fire. Passengers are also often understandably frightened, which makes their behaviour unpredictable and sometimes irrational. Indeed, deaths on board are often the result of people failing to follow evacuation procedures – an issue that has become ever more critical as passenger ships get bigger and bigger.

Essentially, the LYNCEUS system will establish a centralised evacuation control system, capable of gathering a vast amount of information related to water levels, temperature, smoke detection and other factors, in real time. This will enable personnel to maintain a continuous assessment of the status of the vessel, provide updated information to passengers in the event of an emergency.

In addition to improving the chances of survival during an emergency, the wireless technology offers the maritime sector additional benefits. Medical officers can monitor the health of patients that wish to wear special bracelets, and help parents keep track of their footloose children on large cruise ships, which can carry thousands of passengers and crew. From a technical point of view, the [wireless technology](#) can be adapted to provide engineers with information on the need for maintenance and how to optimise ship operations.

The LYNCEUS project also promises to stimulate innovation in Europe, with novel technology transferred into the SME-driven market segments

of smoke alarm/fire detection systems, lifesaving equipment, emergency management decision support systems and assistive search and rescue equipment. The research will also enable major technological breakthroughs in hi-tech areas such as ultra-low power wireless systems, wearable antennas, wireless and sensor electronics, [digital signal processing](#) and decision support systems.

Ultimately, the project, which has received over €2.5 million in EU funding, promises to revolutionise current emergency management and ship evacuation practices, through the adaptation of state-of-the-art technology that offers clear benefit to both passengers and crew.

Provided by CORDIS

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