



# EVRESYS

Your RTLS and IoT platform



Case report

## Total offshore oil production platform



*Evresys offshore solutions*

# Crew safety in hazardous environments

Whether people or things, using Evresys' RTLS services you always know exactly where they are. Providing you with direct insight in both live locations and long-term trends. Adding automated event-driven actions to your preference, Evresys saves you time, money and offers peace of mind.

The Evresys platform is developed to meet the high standards and demands of leading companies, like French oil and gas company Total. In this case study, you'll learn how Evresys helped Total to improve personnel safety in the hazardous and challenging environment of an offshore oil production platform.



## The Total case

Working on an oil and gas production platform offshore is one of the toughest and most dangerous jobs out there. The risks are high: dealing with highly combustible materials twelve hours a day while facing harsh conditions and being isolated at sea.

Such conditions go for Total's oil production platform K5CC, located in the Northsea, in the territorial waters of the Netherlands. It consists of 3 separate structures, connected by bridges. On average a crew of five operators do the hard and hazardous work at the platform. Their work is overseen by one operator authority in charge, monitoring the entire operation.

### PROBLEM STATEMENT

#### Request for proposal

Total asked Evresys to provide solutions for:

1. Real-time knowledge whether all platform crew are safe and well.
2. 24/7 live insight in the exact location of each crewmember.
3. Easy communication between crewmembers and third parties.

#### Challenges

For meeting these demands, Evresys was faced with four challenges:

1. Adapt Evresys to a stand-alone service on the oil production platform, without any internet connectivity.
2. Have the live localization algorithms function accurately in the heavily steel-based environment of an oil production platform.
3. Find a way to continuously monitor each crewmember's safety.
4. Develop a clear and simple way of communication.



*Oil production platform (not Total K5CC)*



## Solutions

With Total's specific demands in mind, the Evresys-team developed a number of solutions to meet each challenge.

### Run Evresys on an offshore rig

Usually, Evresys runs its software as a cloud-based service. However, the oil production platform has no internet connectivity we could use. Also, Evresys usually uses Bluetooth Low Energy (BLE) beacons to tag and track moving objects. This setup usually requires BLE-receivers to get their signals to the Evresys platform over Wi-Fi or ethernet. But neither of those are available, nor an option at the oil platform, due to both security and financial reasons.

#### How Evresys met this challenge

- The Evresys system was deployed as a stand-alone service on a local server, so there's no more need for a cloud connection.
- In collaboration with implementation partner

**4G LTE** Lumiad, Evresys installed a private LTE network. This provides full data coverage at the entire oil production platform.

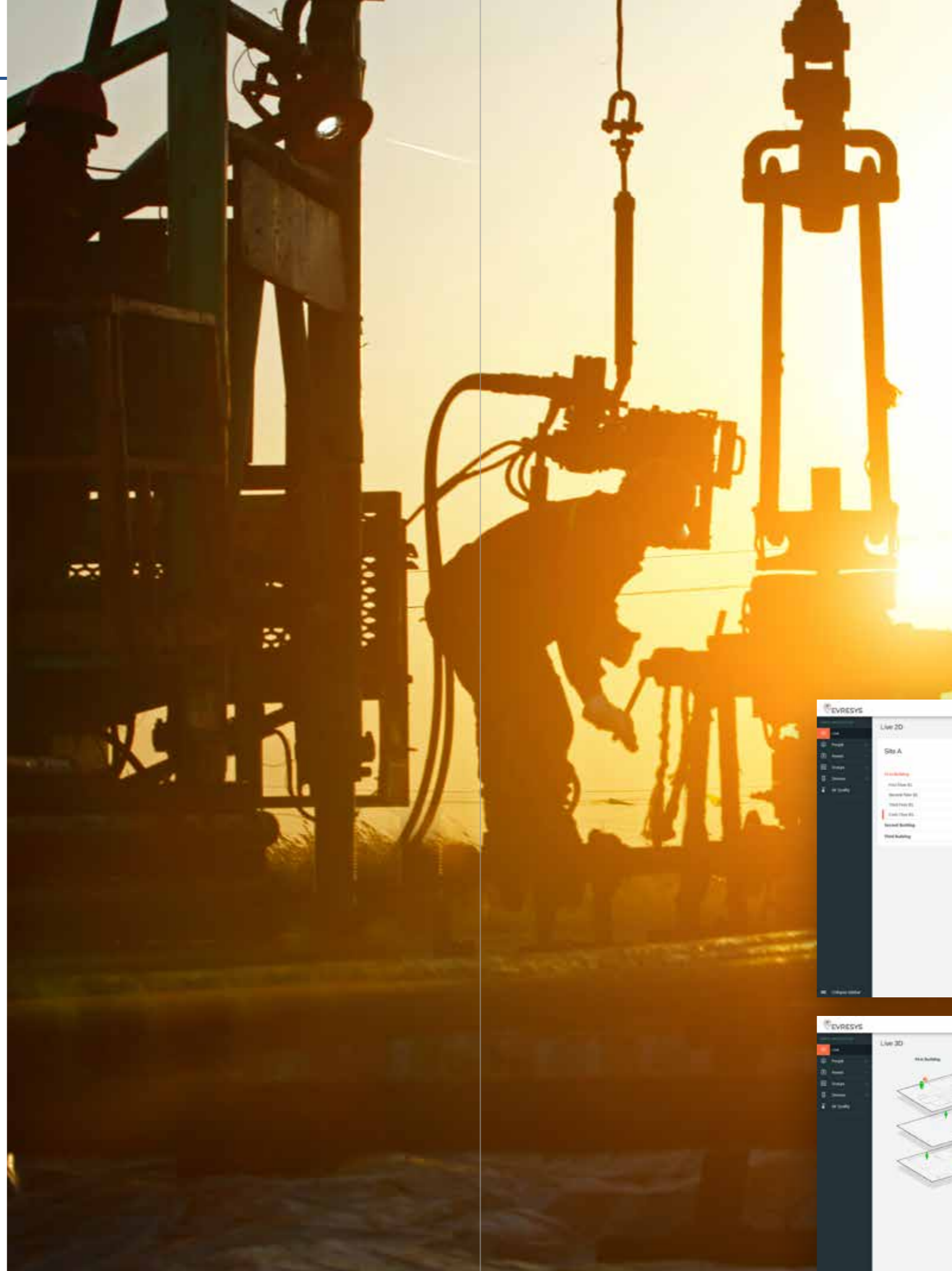
### Accurate localization on the oil platform

In case of an emergency, overview is key to lead a successful rescue operation. Hence, Total wanted to:

- have an overview of where the operators are;
- know which person set off an alarm and follow its live location;
- see the location where the alarm was set off.

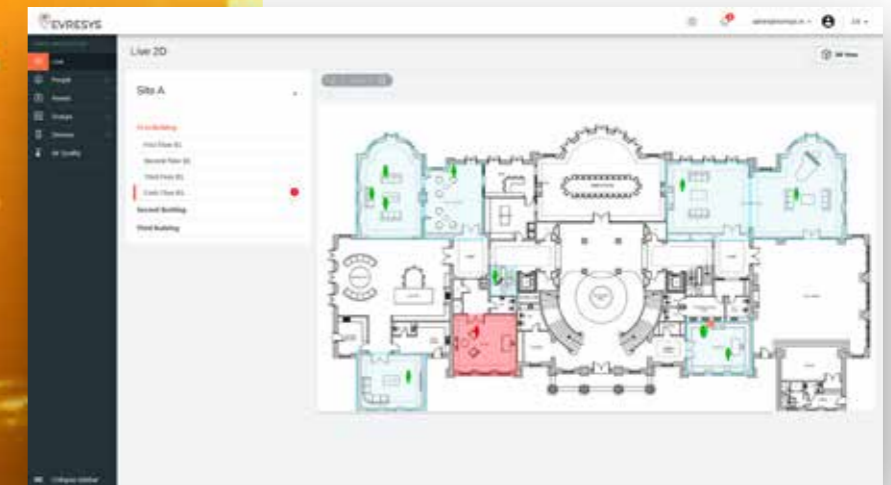
#### How Evresys met this challenge

First, Evresys reworked its algorithms for localization to work 'the other way around', as compared to the usual setup. Instead of the usual mobile beacons combined with fixed BLE-receivers throughout the building structure, Evresys mounted fixed BLE-beacons throughout the building structure, and had the crew's mobile phones act as BLE-receivers to send the BLE-beacon's data to the Evresys server through



the private LTE network. To make this work properly, Evresys had to deal with the heavily steel-based structure of the oil production platform, which to a great extent obstructs radio-based localization. Evresys however managed to achieve outstanding accuracy and reliability in this challenging environment.

To provide the operator authority with real-time insight in the crew's whereabouts, Evresys developed a digital 3D overview of the entire oil production platform. In this view, the live location of each crewmember is shown. This way, the operator authority can see which crewmember set off an alarm, follow his live location and see which other crewmembers are in the potentially dangerous area where the alarm was initially set off. For a more detailed view of a specific deck, an additional 2D view of each deck can be shown.





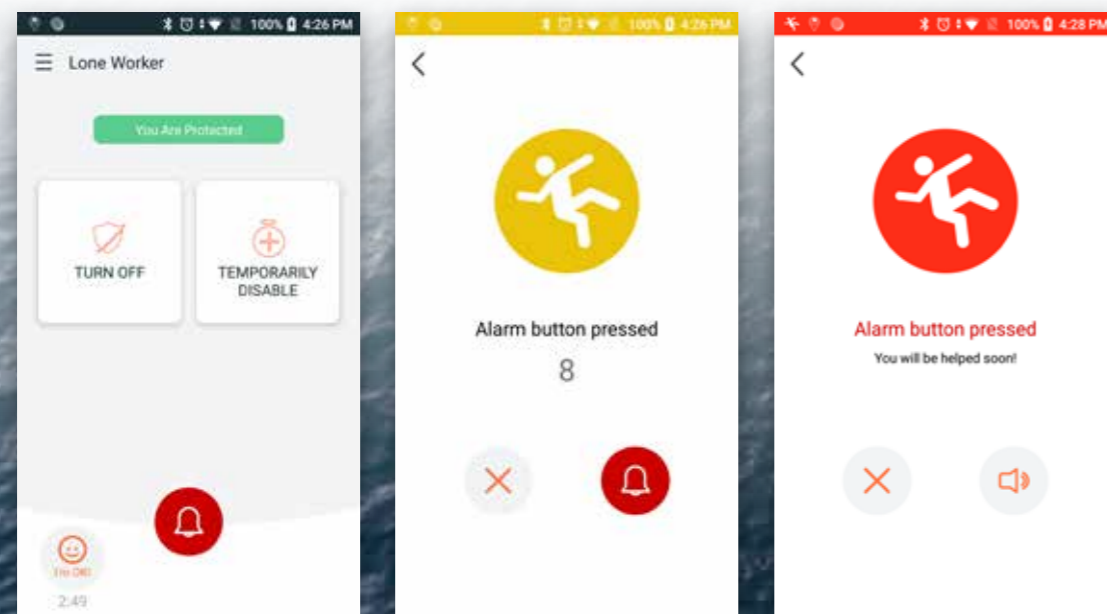
## Lone Worker Protection (LWP)

Working at an oil platform is a dangerous job in a hazardous environment. With a crew of only five spread over the huge structure, crewmembers often don't see each other for most of the day. Despite the daily risks on the job, the oil production platform didn't have a proper alert system in case someone got hurt or needed help. For Total, this was unacceptable. Evresys was asked to provide a safe solution.

### How Evresys met this challenge

To monitor each crewmember's safety, Evresys developed the Lone Worker Protection (LWP) app as an extension to the standard Evresys-app, which runs on the Android-based Ecom SmrtEx-01 smartphone. Each crewmember is equipped with one of these sturdy ATEX-approved phones, to continuously monitor their safety and to detect potentially dangerous abnormalities: man-down, no-movement, weak-movement, and free fall. The LWP-app also boasts a dead men's switch, which needs to be pressed regularly to confirm that the crewmember is doing well. By pressing the phone's integrated alarm button, crewmembers can call for immediate help. When one does, all crewmembers are alerted automatically, receiving detailed information for them to act swiftly and directly, like:

- Who is in danger;
  - What happened;
  - The exact location of the crewmember in need.
- To avoid false alarms, the system sends a pre-alarm first, for the crewmember to cancel within 10 seconds. After 10 seconds, or immediately if the crewmember confirms the pre-alarm, the alarm is sent and help is underway.



## Clear and simple communication

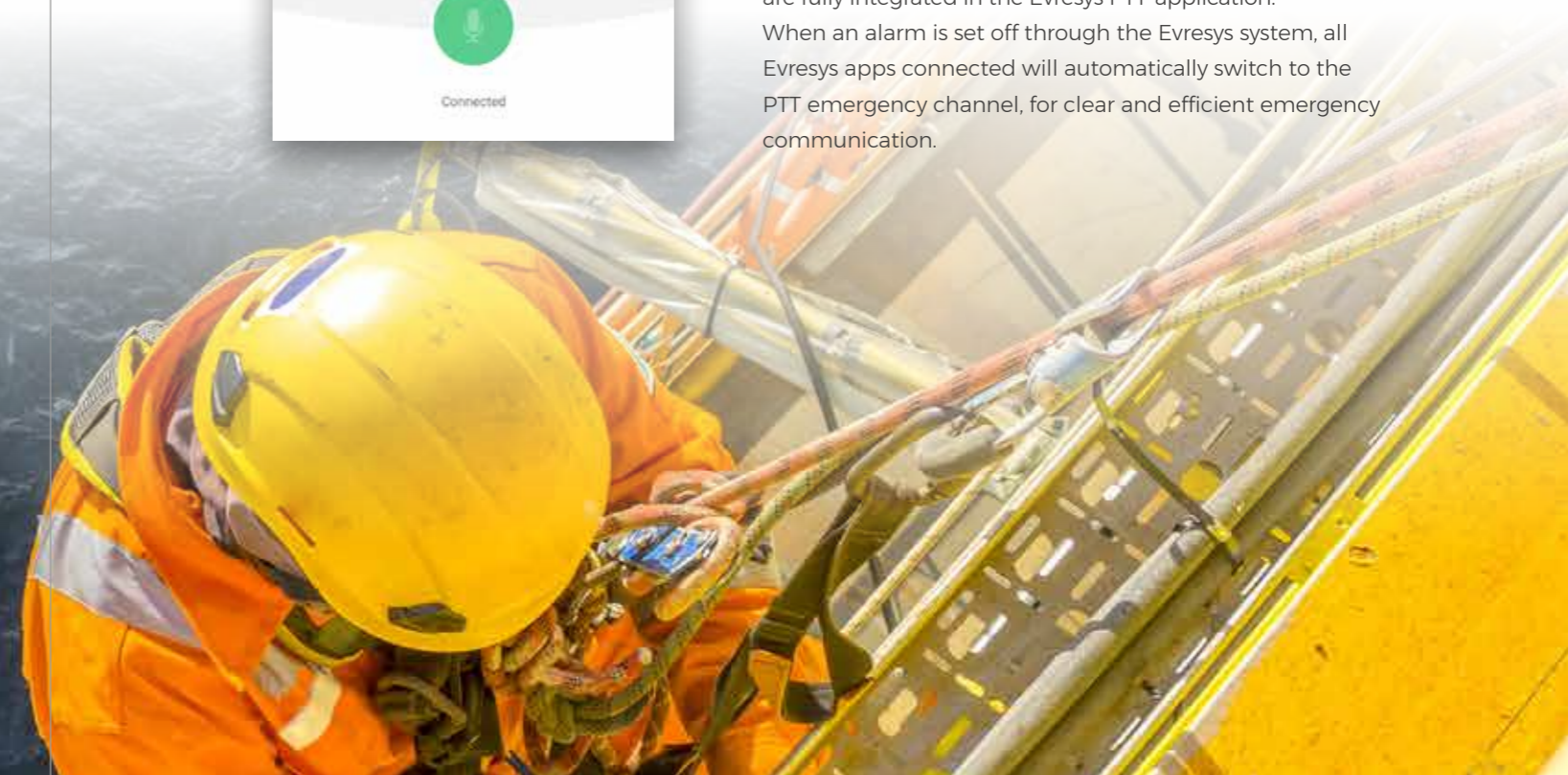
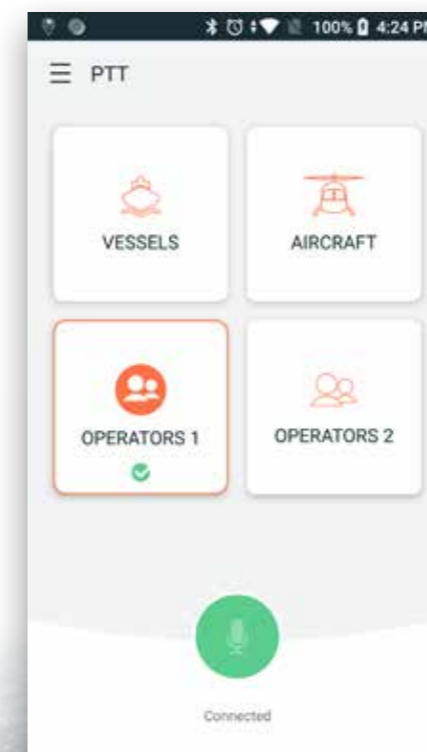
The hazardous environment of an oil production platform requires easy and effective communication with both on-site crewmembers as well as off-site helicopter pilots, vessel crews and on- and off-site control rooms. Traditionally, separate radio devices were used: handheld transceivers for on-site, and both marine radio and aero radio for off-site communication. Using three separate radio devices though is both inconvenient as well as inefficient.

### How Evresys met this challenge

All crewmembers are equipped with an ATEX-approved Ecom SmartEx-01 smartphone. It runs the Evresys-app, extended with Push-To-Talk (PTT) functionality. At the push of the phone's PTT-button, crew can talk to both on- and off-site contacts using the same channel. In the on- and off-site control rooms, dedicated desktop devices are used.

In order to connect all different types of radio technologies to the Evresys-app, Evresys teamed up with communication solutions company MEP and integrated with MEP's communication server, bridging Evresys' SIP stream to marine, aero and handheld radio transceivers.

Since an oil production platform can be a noisy environment, platform crew is usually wearing ear protection, often with a built-in Bluetooth audio headset and PTT-button. Wirelessly connected to the Ecom smartphones, headsets are fully integrated in the Evresys PTT-application. When an alarm is set off through the Evresys system, all Evresys apps connected will automatically switch to the PTT emergency channel, for clear and efficient emergency communication.





# Information and contact

For more information about what Evresys can do for your organization, please contact us at

+31 (0)30 76 70 650 | [sales@evresys.nl](mailto:sales@evresys.nl)

**EVRESYS B.V. | VELDZIGT 24 | 3454 PW UTRECHT | THE NETHERLANDS**  
**[WWW.EVRESYS.NL](http://WWW.EVRESYS.NL)**