| Use Case	SignalShark

Border surveillance to protect against illegal migration and trafficking

An advanced border surveillance system was developed and demonstrated as part of the EU-funded NESTOR project.

Narda contributed with its SignalShark receiver and automatic-direction-finding antenna ADFA products among a total of 21 European institutions, industrial companies, law enforcement/border control agencies, research institutes and consulting firms participated.

Here, the SignalShark was used in conjunction with the ADFA for the following tasks:

- Sensor for radio monitoring and direction finding in a very difficult to monitor area (land and sea).
- Mobile, offline detection of PMR communications from a boat approaching shore and people illegally crossing the border on foot.
- Detection, bearing and localisation of communications by geolocalisation software embedded in a BC3i platform.
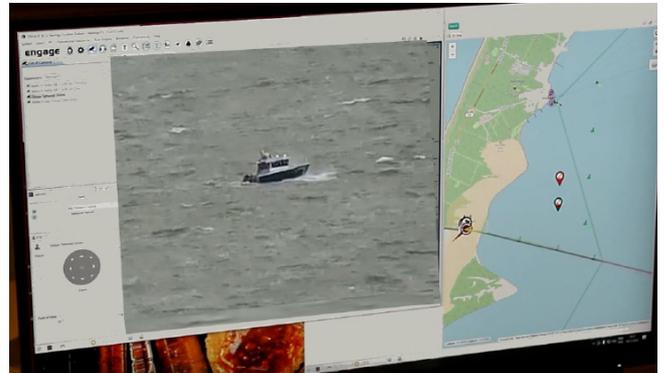

In preparation for the scenarios described above, numerous questions had to be clarified:

How many sites are to be equipped with the "radio monitoring" capability? Are they positioned correctly in relation to each other in order to be able to localize effectively in the target area?

►Watch the Video:
1. SignalShark - RF Localization of illegal Smuggling

RF localization through fixed and mobile Narda RF sensors and BC3i receives the data
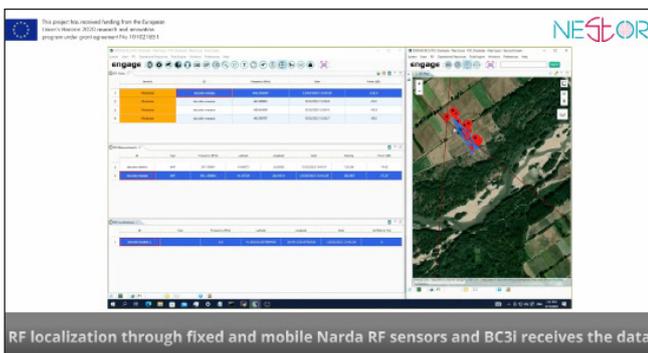
With the results from these tasks, the other sensors in the system could be focused on a specific target area to gain the most holistic picture of events along borders / EU external borders. An important aspect in the Nestor project was on border surveillance, especially to protect against illegal migration and against trafficking.

BC3i operator receives data from multiple Narda sensors
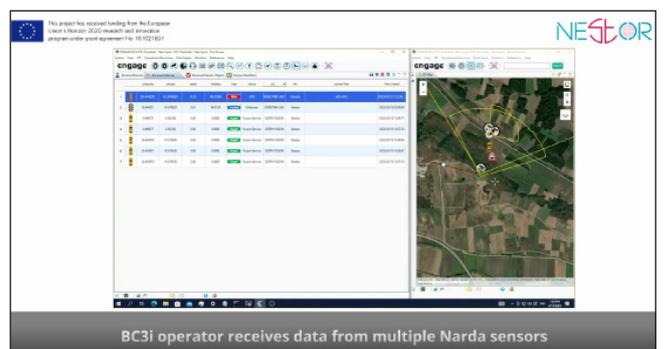
How is the local infrastructure designed? What is the power supply? What mast height is available? How is the lightning protection realized? What are the limitations due to other sensors on the same mast?

How are the SignalSharks connected to the network and what is the maximum permissible data rate?

Especially in cases where SignalShark and ADFA are mounted on a mast and next to numerous other devices (antenna, radar, camera), additional challenges arose. Here, frequency-specific correction values had to be determined with the help of reference bearings, which are stored in the device and improve the results of the bearing.

► Watch the videos

2. SignalShark - RF Localization of Cross Border Drug Smuggling
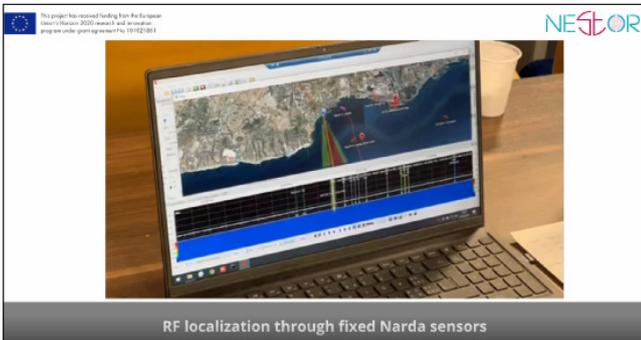
3. SignalShark - RF Localization of Cross Border Human Trafficking