

Communication Release

September 2015.

Improved Navigation at Sea

The final event for project COSINUS¹ took place in Cuxhaven, Germany on September 16, 2015.

Heavy winds swept over the river Elbe as both, the research vessel “Otzum” and the yacht “Fräulein Smilla” sailed near the port of Cuxhaven demonstrating the exciting results from project COSINUS. The project demonstrator deployed an impressive collection of sophisticated equipment both on land and at sea. On board the “Otzum”, an integrated navigation system by Raytheon Anschütz interfaced to a collection of sensors from the eMIR² platform by OFFIS. On land, SIGNALIS furnished a fully functional, mobile VTS system complete with live RADAR and AIS receiver, including a provisional VTS control centre (“COSINUS Traffic”) inside the event hall. An additional live video feed from the ship bridge provided all invited maritime experts a direct view of the events at sea.

This setup allowed the project partners to clearly demonstrate the stated project goal: “A cooperative approach to navigation by providing all participants a common enhanced maritime picture, that explicitly highlights the intentions of all involved actors at sea”.

At the heart of COSINUS, a communication framework developed by OFFIS enabled the electronic exchange of routes and radar targets between ships and the VTS centre on shore over VHF or LTE mobile technology. The resulting common maritime picture has been enhanced with intuitive visualizations of potentially close encounters along intended routes well into the future. As a result, both VTS operators and officers at sea can easily avoid misunderstandings and potentially dangerous situations in a timely fashion. In addition, the University of Wismar provided a special software module, fully integrated into the ship bridge system by Raytheon that allows operators to visually prepare detailed manoeuvres with specific vessel dynamics taken into account. The resulting manoeuvre plan is used by the integrated ship bridge system to assist operators in real-time.

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² eMaritime Integrated Reference Platform (www.emaritime.de)

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Another aspect of COSINUS demonstrated at the event relates to improvements achieved in maritime situational awareness. Through the exchange of RADAR tracks between ship and shore, both sides are able to complete their maritime picture by including tracks that would have been missing otherwise due to limitations in sensor technology or blocking by obstacles.

“This new technology has the potential to significantly improve the safety and efficiency of marine traffic by allowing all participants to better anticipate the intentions of each other, and making the right decisions in a cooperative way“, says Michael Braun, project leader from SIGNALIS.

Professor Dr.-Ing. Axel Hahn from OFFIS pointed out that the COSINUS project is well positioned with regard to national and European e-Navigation efforts. He stated “The technologies shown here will be of immediate use in upcoming European projects such as *EfficienSea2* and *Sea Traffic Management* – successor to the MONALISA project. This will allow us to jointly promote the diffusion of e-Navigation technologies”.

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Within the COSINUS consortium, SIGNALIS has been responsible for project coordination and VTS related technologies. Raytheon Anschütz added route and track exchange capabilities to their integrated ship bridge system, as well as the optimized manoeuver plan software provided by the University of Wismar. OFFIS designed and engineered advanced data exchange mechanisms, sensor fusion algorithms, and novel visualization concepts for an improved maritime picture, including highlighting potentially close encounters.



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