

INDRA AND UPM WILL COLLABORATE IN THE DEVELOPMENT OF SENSORS FOR THE SPANISH NAVY'S F110 FRIGATE

- **The partnership agreement has been reached under the auspices of the Industrial Plan for the PROTEC F110 program, through which Indra will boost collaboration with companies and research centers**
- **Indra is developing the latest-generation sensors that will protect and equip the vessel with the most advanced capabilities**

Madrid, November 22, 2016. Indra has reached an agreement to include the Polytechnic University of Madrid (UPM) in the Industrial Plan for the PROTEC Program launched to develop and integrate the sensors for the Spanish Navy's future F110 frigate.

The deal was formalized through the signature of a partnership agreement with the UPM Rogelio Segovia Foundation for the Development of Telecommunications (Fundetel) and the Indra-UPM Research Chair at the university's Faculty of Telecommunications Engineering.

The works will commence this year and will last until 2019. The first areas of collaboration that have been identified are related to the analysis, design and development of elements for the identification friend or foe (IFF) system, the X-band radar for the surveillance of surface and low-flying aerial targets, and the radar electronic support measures (RESM) system.

Indra will start working with the UPM Radiation, Microwave and Radar groups, with which it has collaborated in other projects in the past.

Other areas of collaboration under the auspices of the agreement will be determined in later stages of the PROTEC F110 program.

The agreement enables Indra to forge ahead with the Industrial Plan associated with the PROTEC F110 program in which it is acting as the driving organization for reinforcing the business fabric and developing research centers at Spanish universities.

The company will therefore help shine the spotlight on the expert knowledge of university professionals who work in highly specialized fields. For the UPM, it is an opportunity to participate in a cutting-edge technological project which will help it consolidate work and research groups that have experience in and knowledge of the development of the technologies of the future.

The agreement highlights the benefits to be gained from university-business collaboration in the development of highly complex technological solutions.

Integrated mast

Indra and Navantia are working closely together in the PROTEC F110 R&D program to equip the Spanish Navy's new frigate with a novel mast that will house all of the vessel's sensors. These will be composed of flat elements to lower the radar cross section, making them harder to detect. Meanwhile, the high level of digitalization involved will significantly enhance their functions and performance.

Indra's input in the program consists in developing the primary radars for both aerial and surface surveillance; the secondary radar or IFF system; the radar electronic support measures and communications systems, and their countermeasure systems to protect the vessel; and the Link 16 communications system. All of these systems will be integrated into the Navantia SCOMBA combat system.

The development of these sensors entails considerable R&D because they will incorporate the most advanced technology to ensure that the systems remain state-of-the-art throughout the entire useful life of the vessel. Moreover, their development is closely in line with the technology demanded in the most advanced international markets.

About the UPM Faculty of Telecommunications Engineering

The Faculty of Telecommunications Engineering (ETSIT) of the Polytechnic University of Madrid (UPM) is the doyen of these faculties in Spain. With more than 2,000 students and 260 professors, the ETSIT offers undergraduate programs in Engineering Technology, Telecommunications Services and Biomedical Engineering, as well as a master's program in Telecommunications Engineering (which entitles recipients to practice as telecommunications engineers). The ETSIT is a national and international benchmark in telecommunications engineering training and has agreements with more than 100 universities in 28 countries. It boasts 36 research groups engaged in more than 400 active R&D&I projects, three research institutes and 15 business chairs (including the Indra-UPM Chair), which encourage close ties between the business and academic worlds.

About Indra

Indra is one of the main global consulting and technology companies and the technology partner for core business operations of its clients businesses throughout the world. It offers a comprehensive range of proprietary solutions and cutting edge services with a high added value in technology, which adds to a unique culture that is reliable, flexible and adaptable to its client's needs. Indra is a world leader in the development of comprehensive technological solutions in fields such as Defense & Security, Transport & Traffic, Energy & Industry, Telecommunications & Media, Financial Services and Public Administrations & Healthcare. Through its Minsait unit, it provides a response to the challenges of digital transformation. In 2015 it reported revenues of €2,850m. had a workforce of 37,000 professionals, a local presence in 46 countries, and delivered projects in more than 140 countries.