

Keywords:

#standardisation, #digitaltwins,
#mathematics, #modelling, #simulation,
#optimisation, #acoustics



Reduced Order Modelling, Simulation and Optimization of Coupled Systems

The project standardisation needs

ROMSOC's subproject ESR2 is focused on designing, implementing, and deploying accurate digital twins of any process of interest to achieve the best performance of mathematical modelling, simulation, and optimisation techniques. The objectives of this research project are the mathematical modelling and numerical simulation of acoustic coupled systems. The numerical results will play a key role in designing novel windscreens to mitigate the flow effects on the measures of acoustic probes.

The project identified three specific needs: A) how to use standardisation procedures for any stage regarding digital twins in non-destructive frameworks, B) how to transform the classical standards focused on real-world measurements into a digital twin scenario, and C) how to certify the digital twin predictions of non-destructive testings using standardisation. ROMSOC Consortium applied for the Standardisation Booster service to get valuable guidance in achieving these three goals.



THE HSBOOSTER.EU EXPERT

Muslim Elkotob

Principal Solutions Architect, Vodafone; Senior Expert at ETSI, ITU-T, IEEE, TMForum, BBF & other SDOs

"It was a pleasure – but also a challenge – to serve on ROMSOC. I delivered a lot and even learned a few things myself; the platform is very good and the team is excellent."



PROJECT REPRESENTATIVE

Andrés Prieto

Associate professor, Department of Mathematics (University of A Coruña), researcher in CITMAga

"The training academy is a great source of information, the expert choice was adequate and the curated material on the web is very helpful."

The HSbooster.eu Consultancy service

ROMSOC's subproject ESR2 deals with mathematical modelling and numerical simulation of coupled porous multilayer systems for enabling particle velocity measurements in the presence of airflow. The core objectives of the HSbooster.eu consulting service include the analysis of the standardisation potential and perspectives of the work done in ESR2 on developing a digital twin of an acoustic device, to recommend a set of further potentially relevant standards to look at (in the areas of Digital Twins and Device Simulation), and to provide a high-level description of important steps for successfully standardising work in the Digital Twins area.

The service was a first step to set the frame for connecting the work done in ROMSOC ESR-2 to the world of standards and standardisation. If the developed acoustic device model is successfully aligned to standards, and the new parts are then set as new standards for the industry, this would be a trendsetter for further similar developments.