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# COMPACT POWERFUL AND RELIABLE PIEZOELECTRIC ACTUATOR FOR LANDING GEAR SYSTEMS

## OBJECTIVES

The objective of the AUDACITY project is to make the demonstration for a compact powerful and reliable piezoelectric actuator for future locking applications in aerospace.

### > WHY AUDACITY?

The technical requirements target a high power to mass density associated with a long stroke efficient actuator.

- Existing Piezo mechanic actuator achieves the correct power to mass density but with a factor 10 of stroke limitation
- Existing hydraulic piezo actuator achieves the minimum stroke required but with a factor 10 in speed limitation.

**AUDACITY is required to demonstrate performance improvement with one order of magnitude compared with the State of the Art.**

System ITD Strategic Objectives is the reduction of **environmental impact** and **enabler for More Electric Aircraft** (MAE).

**AUDACITY is also necessary to get rid of the well-established hydraulic actuators, and to compete ElectroMechanical Actuators (EMA) as well as Electro Hydraulic Actuators (EHA)**

The actuator typology proposed in AUDACITY is based on a 100% piezoelectric actuator technology. The long stroke is achieved by an accumulation of steps, such as the Inchworm piezo motor type or resonant. Although the principle is not new, the passed developments highlighted limitations on several aspects: thermal stability, limited speed, power management, poor friction interfaces...

The consortium of AUDACITY has come to the conclusion that every technical limitations on piezo motors has been improved one by one during the 20 past years. The technical objective is then to integrate all these individual progresses within a prototype for TRL4 demonstration. **This demonstration is today without equivalent in Europe.**

This project has received funding from the European Union's Horizon 2020 research and innovation programme through CleanSky2-CFP08-2018-01 under grant agreement No 831795

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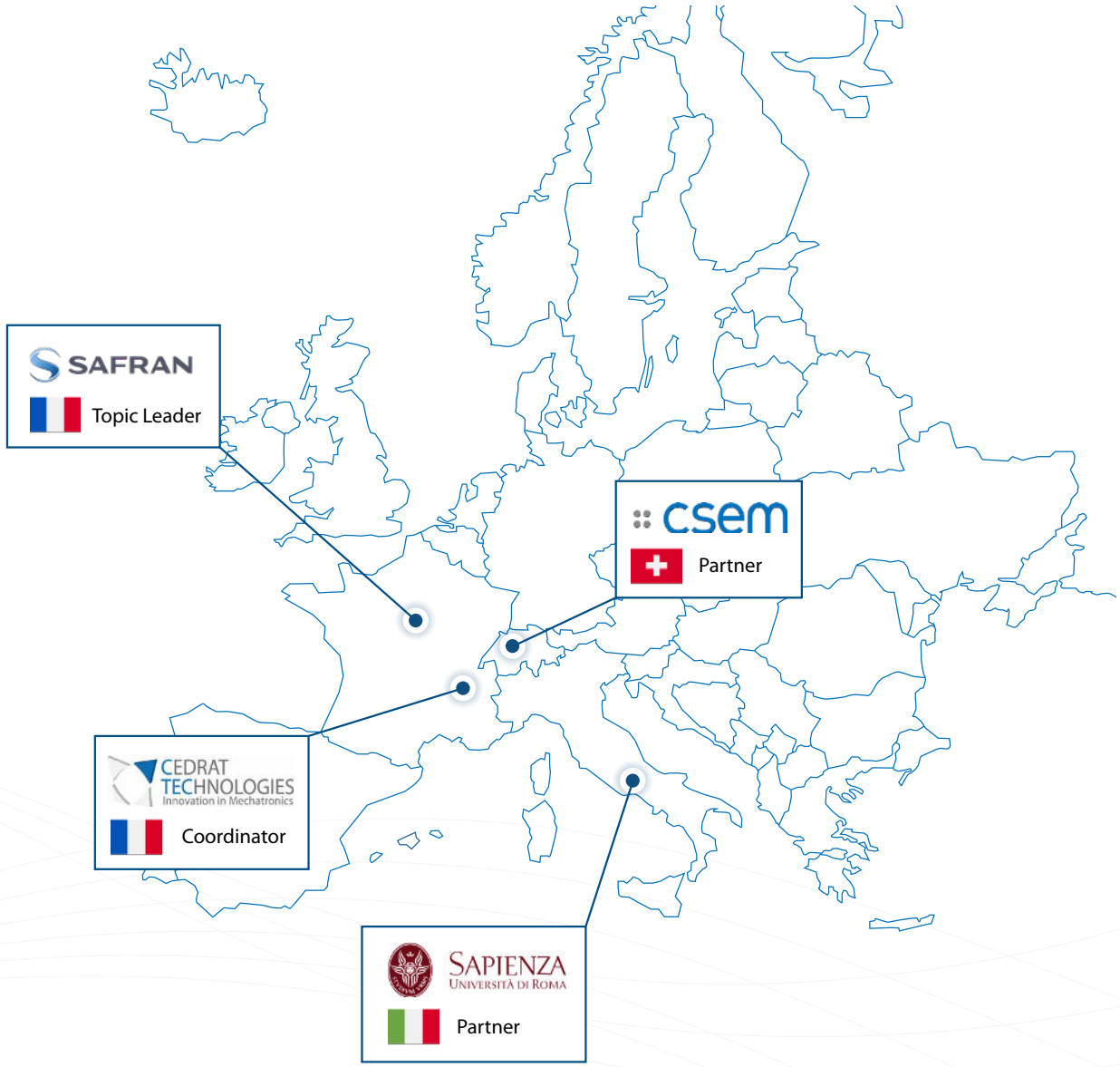
## PARTNERS

The proposed consortium consists of three partners: CEDRAT TECHNOLOGIES (CTEC) as a Coordinator, CSEM and the DIMA department of the Sapienza University of Rome, as core partners and applicants for these activities, and SAFRAN as topic Leader.

AUDACITY aims at impacting the competitiveness of Europe and Associated countries with the direct creation of 20 jobs and 45 Millions of cumulative sales before 2030.

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