The work plan is organised around seven main subprojects (SP):

- **SP1**: Specifications for modular EMA
- **SP2**: Technology modules
- **SP3**: Method and tools
- **SP4**: Control and Monitoring
- **SP5**: Modules integration
- **SP6**: Validation
- **SP7**: Management, standardisation, dissemination and exploitation

**Expected Results**

- Standardised modules for multi platforms and multi systems
- EMA design processes supported by standard methods and tools
- Modular test bench for module and interoperability testing
- New mature EMA actuation technologies (TRL 5)
- Commonality and scalability in qualification process, enabling faster certification

**Consortium**

54 partners – 12 countries

**ACTUATION 2015**

Modular Electro Mechanical Actuators for ACARE 2020 Aircrafts and Helicopters

**Contact**

**Project Coordination**

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**Objectives**

*From More to Full Electrical Aircraft*

The All-Electric Aircraft is a major target for the next generation of aircraft in order to lower consumption of non-propulsive power and thus fuel burn. To eliminate hydraulic circuits, pumps and reservoirs, Electro Mechanical Actuators (EMA) are mandatory but now need to meet cost, reliability and weight requirements from the airframers.

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**Considered Applications**

- Primary Flight Control (PFC)
- High Lift Systems (HLS)
- Trimmable Horizontal Stabilizer (THS)
- Landing Gear System (LGS)
- Braking system (BS)
- Cargo Doors (CD)
- Thrust Reversers (TR)

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**ACTUATION2015 Approach**

To overcome these last barriers ACTUATION 2015 partners are currently **developing** low cost electrical actuator modular technology. The modules will be **integrated** on demonstrators for **validation**.

The technical approach has been to gather detailed requirements for a complete range of aircrafts actuators and power needs. Then, a set of standard modules has been specified. **Prototypes will be manufactured** for assessment at component and actuator level via test rigs and virtual validation. In parallel, an integrated EMA design process supported by standard methods and tools has been developed.

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**Standard Modules**

The level of breakdown of sub-assemblies and the definition of associated modules will be the major output of the project.

Three assemblies are targeted, each one composed of sub-modules to be developed as Shop Replaceable Units:

- **Motors**: simplex and redundant electrical motors
- **Power Drive Electronics**: Power Core Module (PCM), Control and Monitoring Module, casing and thermal management standard concepts
- **Mechanics**: screw, reducer, gear box, torque limiter, anti-rotation and lubrication standard concepts

The pre-standardization of the most relevant modules has started with the European Committee for Standardization in Brussels. It is a 12-month process open to any organizations, either partner of ACTUATION2015 or not.