

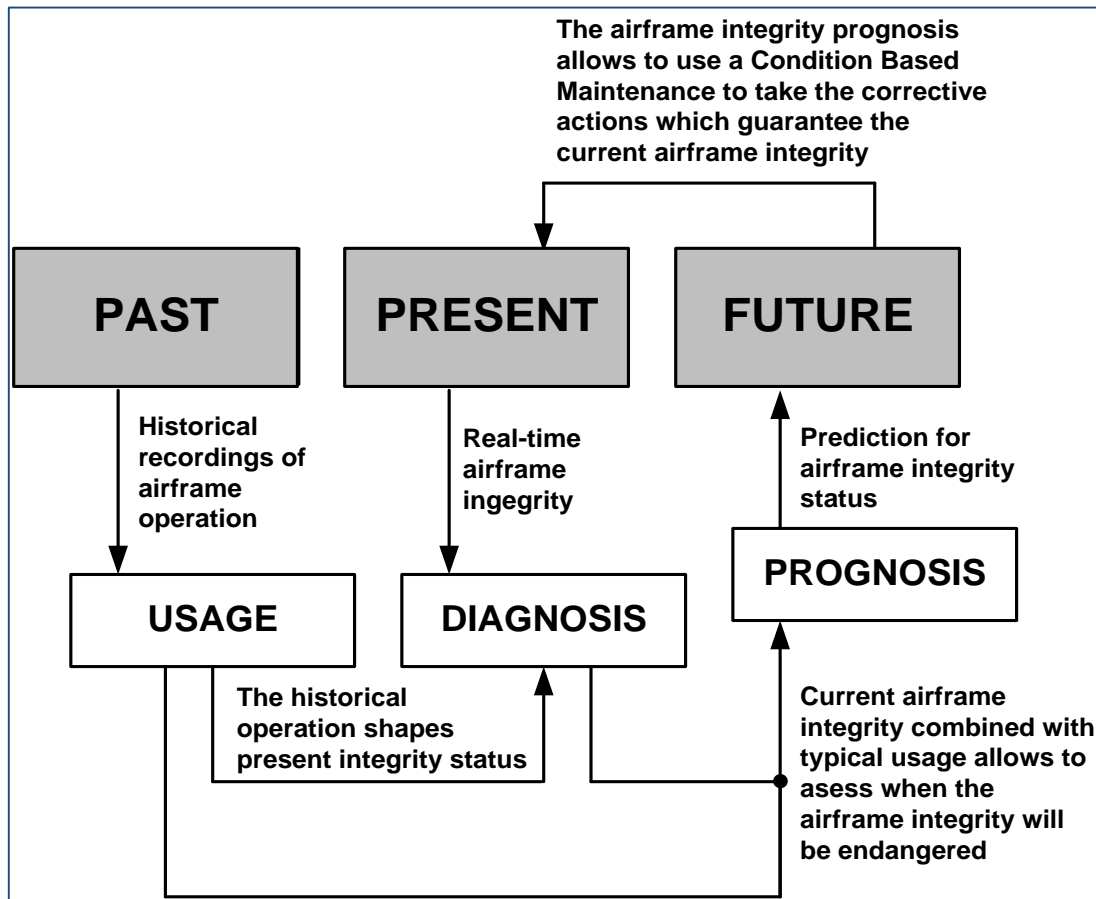
- Leading Companies: **Airbus D&S (CASA)**
- Indicative Funding Value: **350 k EUR**
- Duration: **36 months**
- Start date: **Q2 2020**
- Overview:

The research of the topic is focused on the evolution of the current wired sensors used in SHM Systems and Dynamic fields into miniaturized , wireless and self-power harvesting units.

This is one on the steps beyond in future SHM Systems applicable to multi-missions regional aviation. Those with potential use on Structural Health Monitoring Systems with incorporated data acquisition and processing and wireless data transmission to an aircraft computer into the sensor component.

The electrical power supply of the sensor component must be obtained directly from operational and environmental conditions at sensor position using an energy harvester.

## SHM Evolution: Towards PROGNOSIS



## OBJECTIVE:

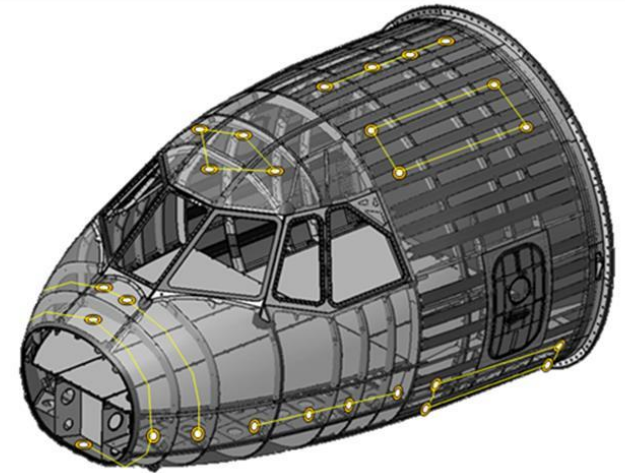
Evolution of current wired sensors which are used in SHMs systems into miniaturized and wireless, self-power-harvesting versions:

- Data acquisition
- Data processing
- Wireless data transmission
- Self-powered

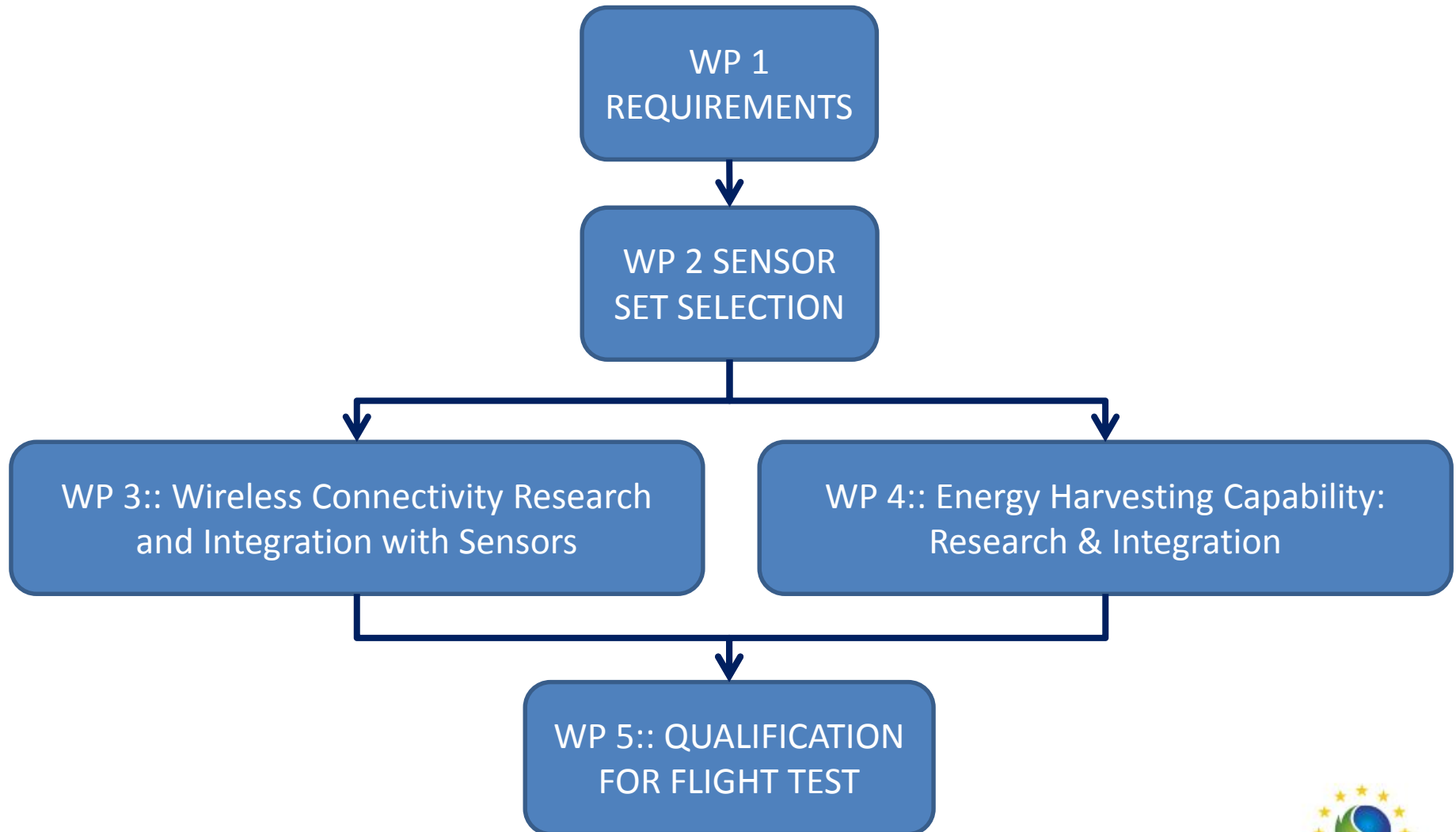
## Sensors design and miniaturization for SHMS.

### Main capabilities:

- Data acquisition
- Data processing
- Wireless connectivity
- Energy harvesting
- Miniaturization



Indicative Data	Physical Magnitudes
Operational Loads Monitoring	Strain
Vibration dynamic DIAGNOSIS	Acceleration Sound pressure
Event DIAGNOSIS	Strain Sound pressure Acceleration Rotation Temperature
Damage DIAGNOSIS	Strain



# JTI-CS2-2020-CFP10-SPD-XX-XX: SHMS and Dynamic fields sensors development (4/4) - WORK ORGANIZATION PROPOSAL

<b>WP1</b>	<b>Requirements</b>	<b>Due Date</b>
WP1.T1	Exploration of SHM requirements for new sensors	T0 + 3
WP1.T2	Sensors specification and requirements	T0 + 6
WP1.T3	Wireless DAQ specification and requirements	T0 + 6
WP1.T4	Energy Harvester specification and requirements	T0 + 6
<b>WP2</b>	<b>Sensor set selection</b>	<b>Due Date</b>
WP2.T1	Sensors design or selection	T0 + 9
WP2.T2	Sensors manufacturing or acquisition	T0 + 12
WP2.T3	Sensors testing	T0 + 18
<b>WP3</b>	<b>Wireless Connectivity Research and Integration with Sensors</b>	<b>Due Date</b>
WP3.T1	Wireless DAQ design or selection	T0 + 9
WP3.T2	Wireless DAQ manufacturing or acquisition	T0 + 15
WP3.T3	Wireless DAQ + Sensors testing	T0 + 21
<b>WP4</b>	<b>Energy Harvesting Capability: Research &amp; Integration</b>	<b>Due Date</b>
WP4.T1	Energy Harvester design or selection	T0 + 9
WP4.T2	Energy Harvester manufacturing or acquisition	T0 + 18
WP4.T3	Energy Harvester + Wireless DAQ + Sensors testing	T0 + 24
<b>WP5</b>	<b>Qualification for Flight Test</b>	<b>Due Date</b>
WP5.T1	Energy Harvester + Wireless DAQ + Sensors qualification for flight test	T0 + 30
WP5.T1	Energy Harvester + Wireless DAQ + Sensors installation for flight test	T0 + 32
WP5.T2	Energy Harvester + Wireless DAQ + Sensors flight test	T0 + 34