

 Generate **high quality jobs** along the value chain

 Accelerate the adoption of **IoT technologies**

 **40% Reduction** of GHG emissions

 **50% Reduction** of hazardous waste

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## InComEss

Innovative polymer-based  
COMposite systeMS  
for high-efficient  
Energy Scavenging and Storage

**InComEss will implement innovative lead free Materials, Systems and Structures to develop Energy Harvesting Systems able to power FOS, GPS and MEMS sensors in different Use Cases.**



This project receives funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement Number 862597

InComEss seeks at developing efficient smart materials with energy harvesting and storage capabilities combining advanced polymer based-composite materials into a novel single/multi-source concept to harvest electrical energy from mechanical energy and/or waste heat ambient sources.

## Three Energy Harvesting Systems (EHSs)

3 cost-effective and green EHSs configurations will be realized through the combination of high performance piezoelectric (PE), thermoelectric (TE) and Thermo-Piezoelectric (TPE) generators and monolithic supercapacitors (SCs)

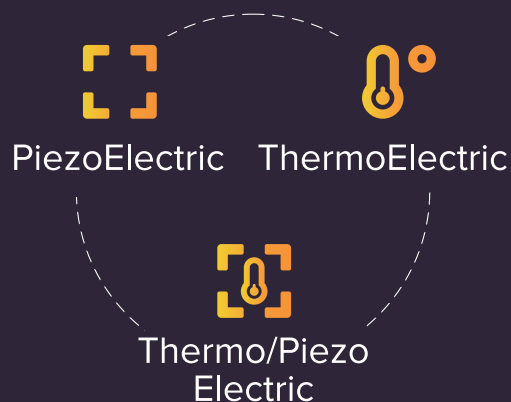
to power **selected wireless sensors nodes** to be implemented in different IoT scenarios

for **Structural Health Monitoring (SHM)** in buildings and aircrafts

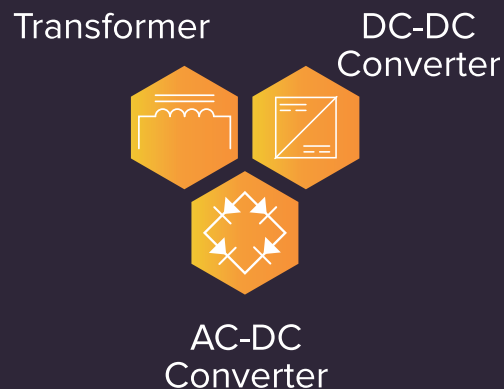
and **accurate location and monitoring of vehicles** through GPS and MEMS sensing.

Advanced concepts for efficient energy transfer will be implemented for increased energy conversion efficiency of the overall EHSs.

### Energy Harvesting/ Energy Generator Components



### Power Conditioning Circuit



### Energy Storage Component



### Wireless Sensor Nodes (WSN) & IoT

