



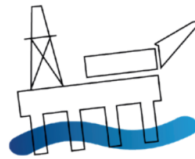
# CITEPH'S LINES OF ACTION

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**ENERGY AND  
ECOLOGICAL TRANSITION**



**RESPONSIBLE  
OIL & GAS**



**INDUSTRY 4.0  
FOR ENERGY**





# CITEPH'S INNOVATION TOPICS

- **Subsurface**

- Geophysics
- Geology
- Reservoirs
- Drilling
- Optimized resource management

- **Hydrocarbon Transport & Processing**

- Flow assurance
- Process engineering
- Refining

- **Offshore & Subsea Technologies**

- Surface/underwater robotics & drones (ROV, AUV, surface drones...)
- New installation/maintenance/support assets
- Mooring
- Hydrodynamics
- SURF (Subsea umbilicals, risers and flowlines)
- SPS (manifolds, Xmas trees...)

- **Carbon capture, use and storage (CCUS)**

- Capture
- Transportation
- Usage
- Storage

- **Alternative Energy Sources**

- Photovoltaic systems
- Wind turbines
- Marine power
- Native H2
- Bio H2 production

- **Low-carbon Vectors & Alternative Fuels**

- Electrolyser / H2 production
- LNG
- E-fuels
- Biofuels

- **Energy Storage Technologies**

- **Energy Distribution/Management Technologies**

- **New mobility & New marine propulsion systems**

- **Environmental impact reduction & energy efficiency**

- Environmental impact reduction
- Energy efficiency

- **New Design Capabilities**

- Simulation & material behaviour knowledge
- Nondestructive testing (NDT)
- New materials
- New manufacturing processes

- **Augmented Worker**

- Teleoperation
- Robotics & cobotics
- Virtual Reality (AV) & Augmented Reality (VR)
- Chatbot

- **Smart Assets**

- Sensors
- Big data & artificial intelligence
- Industrial internet of things (IIoT)

- **Safety, Cybersecurity & Reliability**

- Quality, Health, Safety and Environment (QHSE)
- Cybersecurity
- Reliability