



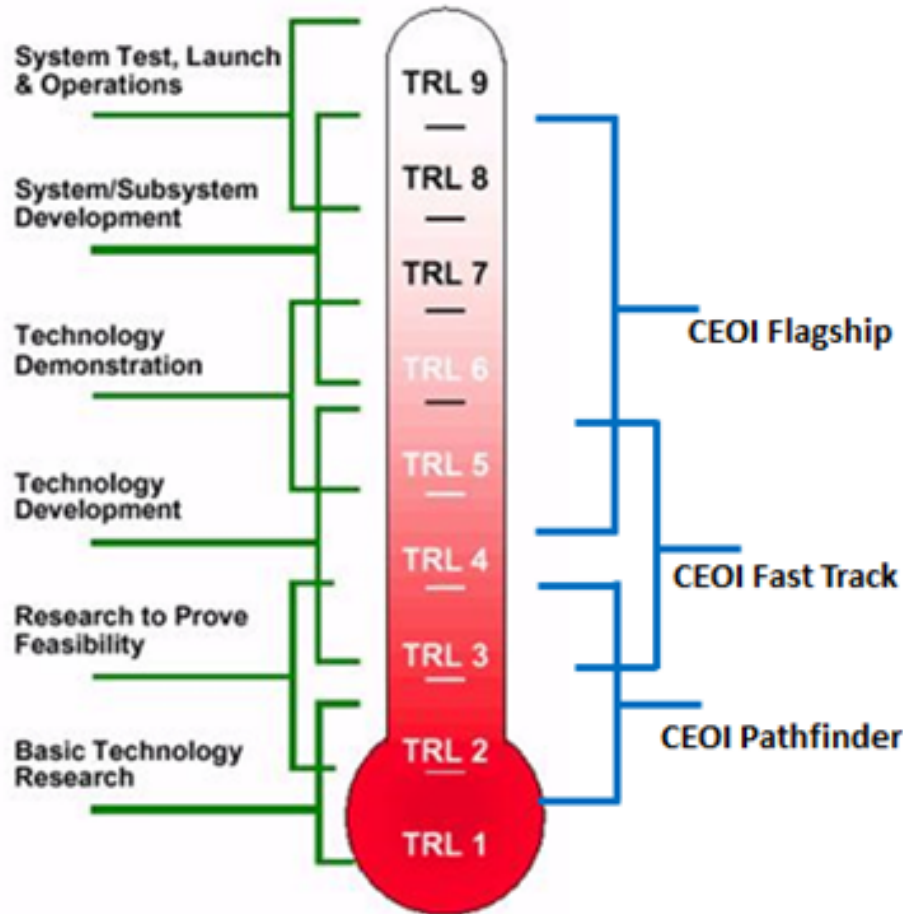
**Welcome to the CEOI
Emerging Technologies Challenge Workshop**

May 2019

Workshop Objectives

- To reveal and discuss new and emerging technology developments for future EO instrumentation and missions:
 - Which new technologies and techniques are coming over the horizon in the next 5-10 years
 - How will the new technologies under development make a difference to future EO missions
- To examine how these developments will benefit the UK in terms of science, society and the economy

CEOI Project Types vs Technology Readiness Level (TRL)



TRL9 - Actual system "flight proven" through successful mission operations
TRL8 - Actual system completed and accepted for flight ("flight qualified")
TRL7 - Model demonstrating the element performance for the operational environment
TRL6 - Model demonstrating the critical functions of the element in a relevant environment
TRL5 - Component and/or breadboard critical function verification in relevant environment
TRL4 - Component and/or breadboard functional verification in laboratory environment
TRL3 - Analytical and experimental critical function and/or characteristic proof-of-concept
TRL2 - Technology concept and/or application formulated
TRL1 - Basic principles observed and reported

What is the CEOI?



- UK Space Agency initiative to boost UK capability and remain at the forefront of EO technology for space
 - UK EO technology programme, launched in 2007
 - Parallel industry investment, total approx £2-3M pa
- CEOI-2020 Programme focus on:
 - development of new EO instrumentation and technologies, increasing technology readiness
 - horizon scanning and knowledge exchange
 - building highly capable academia/industry partnerships
 - Implementation of EO Technology Strategy
 - Informing ESA about UK developed technologies
- Partnership led by Airbus with QinetiQ, STFC/RAL and University of Leicester



CEOI 11th Call Flagship Projects



7 projects started in April 2018, duration 18-24 months:

- High-resolution multispectral camera system for EO applications using a new TDI CMOS image sensor (Teledyne e2v)
- Characterisation of MCT APD infrared arrays in the ANU hyperspectral instrument (Leonardo MW)
- Next generation Infrared calibration sources (STFC RALSpace)
- Fast slew gimbaled optics for real-time EO applications (Uni of Surrey)
- OVERPaSS: On-board video rapid processing (Earth-i)
- GRaCE: G-band radar for cloud evaluation (STFC RALSpace)
- Compact multispectral imager for nanosatellites (Uni. of Strathclyde)

CEOI Events in 2019



Date	Event	Description
26 April 2019	Quantum Technologies Workshop	Workshop to investigate the potential offered by new Quantum Technologies for the next generation of gravity sensors. Joint workshop with Quantum Technology Hub for Sensors and NCEO. Venue: University of Birmingham
1/2 May 2019	CEOI Emerging Technologies Workshop	Targeting CEOI technology and EO science community, to investigate promising new technologies, future needs and opportunities. Venue: Cosener's House, Abingdon
28 Jun 2019	Space 4.0/New Space Industrial Consultation Workshop	Small focussed workshop to bring together insurance/finance sector with new space companies to investigate new markets and space solutions focused at land surface applications.
tbd	Joint ESA/CEOI Regional EO Workshop	To raise awareness of ESA and CEOI in north Wales and NW England, with a focus on the instrumentation to support EO (satellites/HAPS/UAVs) and the ways to capture/exploit the data that this technology generates Venue - OpTIC centre, St Asaph, North Wales
2-5 Sep 2019	NCEO/CEOI Conference	Annual conference to bring together the UK EO community to discuss how EO research, technological innovation, products and services will impact upon wider society. Venue: Nottingham Trent University