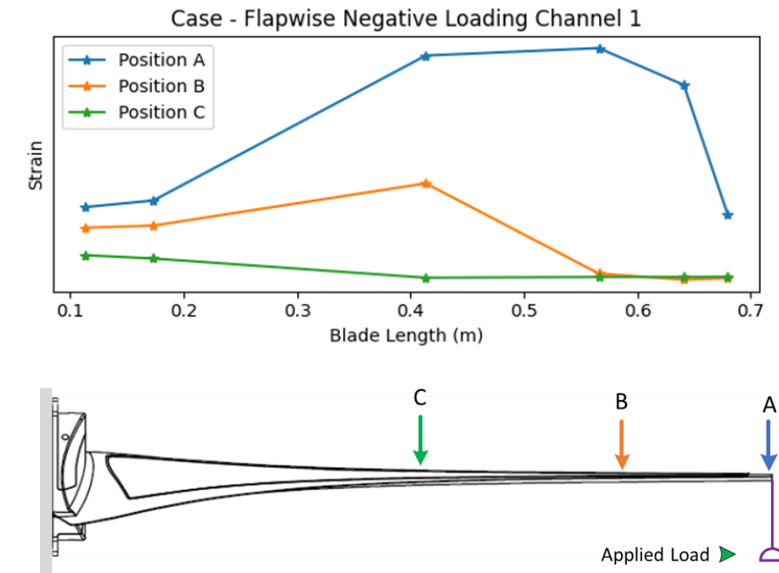
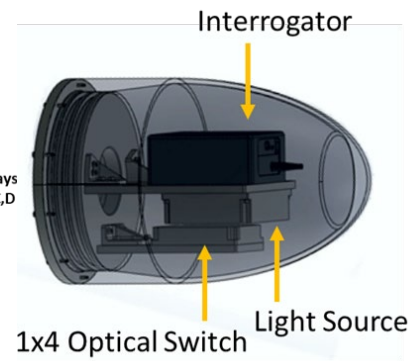
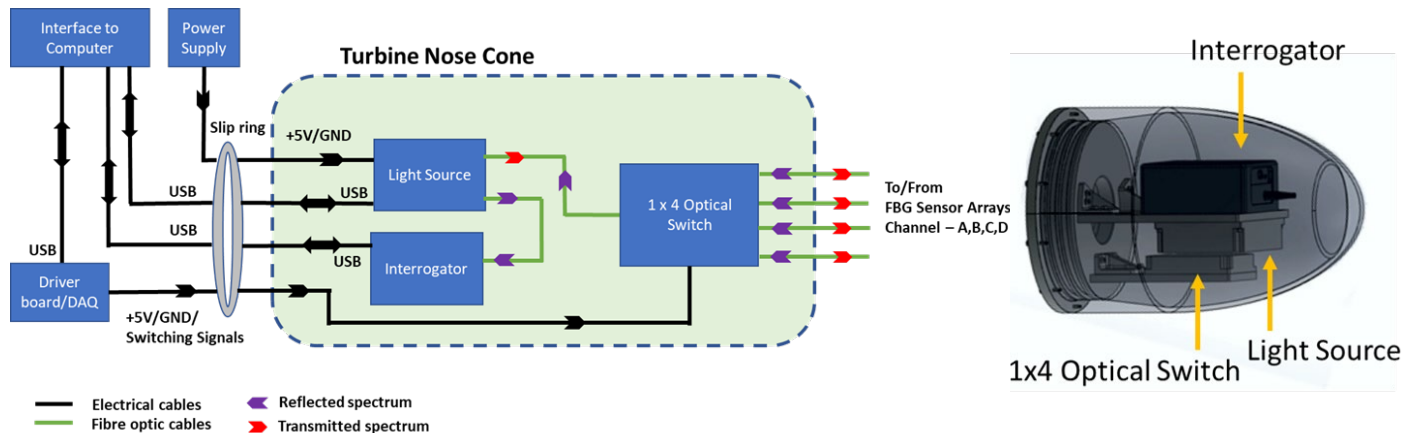


# WP4 – Design continued

## Smart Distributed Sensors for ORE applications

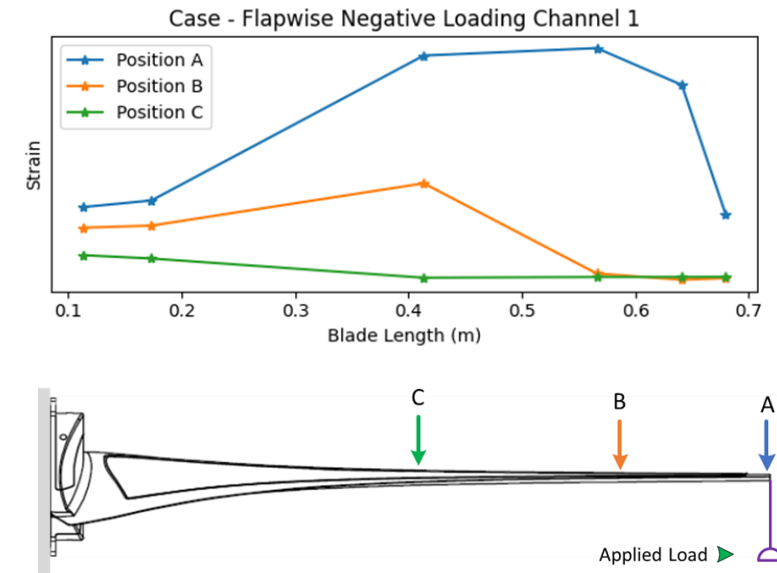
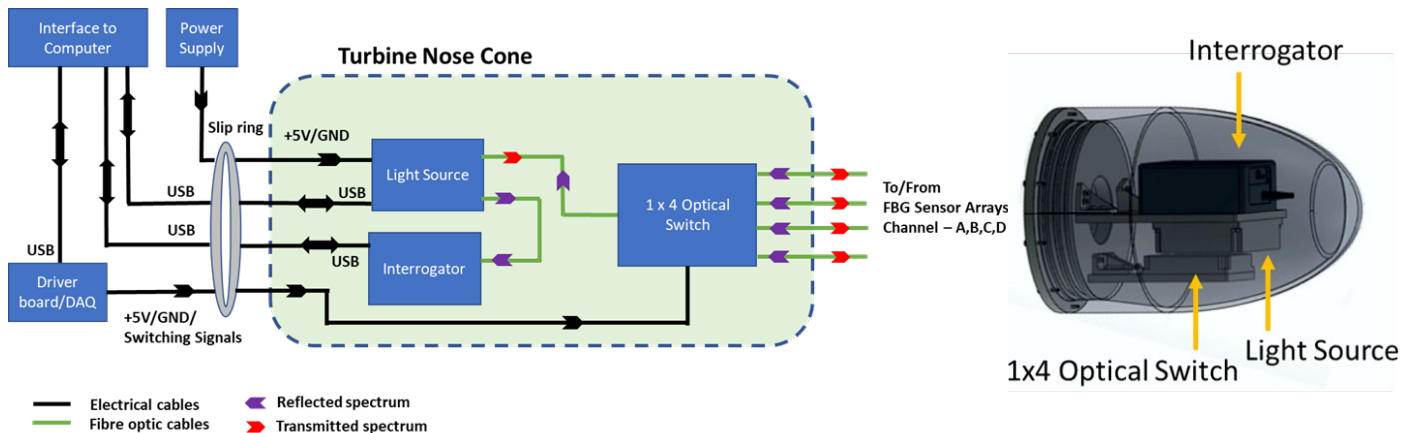
- Design of low cost, robust, multi-point sensor systems for large, complex structures subject to distributed loads
- Fibre optic strain measurement for Tidal Turbine Benchmark
  - 24 strain measurements at 6 stations along blade with interrogator built into nose cone
  - Signal processing to extract maximum information using low cost spectrometers
  - High speed interrogation to give measurements at 3° angular resolution
  - Fibre mesh networks to provide robustness to damage



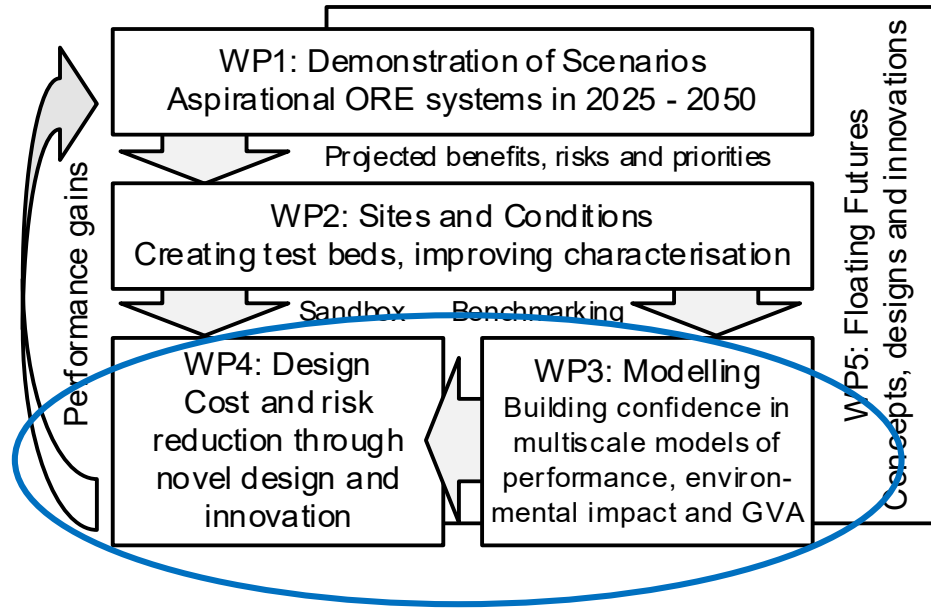
# WP4 – Design continued

## Future work

- Applying the techniques developed to other ORE applications
- Damage and defect detection in large composite structures
- Strain and curvature monitoring in dynamic cables for floating ORE systems
- Monitoring resin infusion during wind turbine blade manufacture to improve quality and speed introduction of new designs and materials



# Linkages within Core Research Programme



## Tidal Turbine Benchmark



## Links to Research Themes

- B. Fluid-Structure-Seabed Interaction
- C. Materials and Manufacturing
- D. Sensing, Control and Electromechanics
- E. Survivability, Reliability and Design