HAPiWEC

MULTI-USER
REMOTELY ACCESSIBLE
PROOF OF CONCEPT DEMONSTRATOR

Holistic Advanced Prototyping and Interfacing for Wave Energy Control

HAPiWEC – Current Project Focus

Engineering and Physical Sciences Research Council

University of Strathclyde Engineering

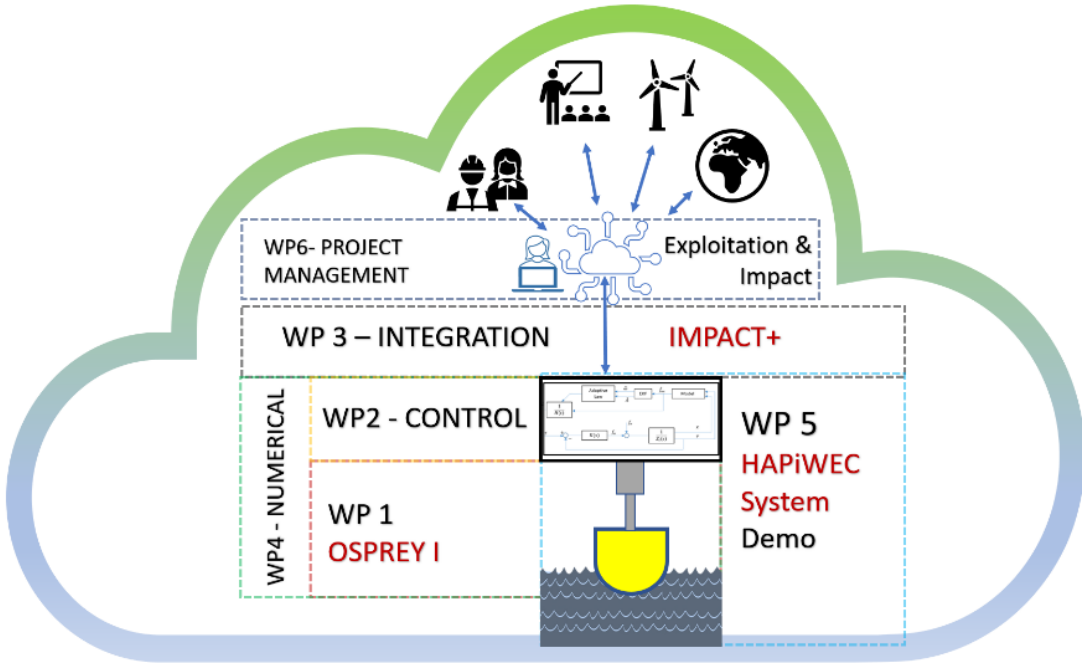
THE UNIVERSITY of EDINBURGH

UK Research and Innovation

Holistic Advanced Prototyping and Interfacing for Wave Energy Control

HAPiWEC

"This project proposes that through the implementation of rapid prototyping hardware and remotely accessible user control, novel control algorithms can be demonstrated and validated at unprecedented levels of efficiency"



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Prof. Bill Leithead, Dr. Adam Stock, Dr David Campos Gaona (UoS)
Dr. Brian Sellar, Dr. Dr David Forehand, Dr. Thomas Davey, Prof. Alasdair McDonald (UoE)

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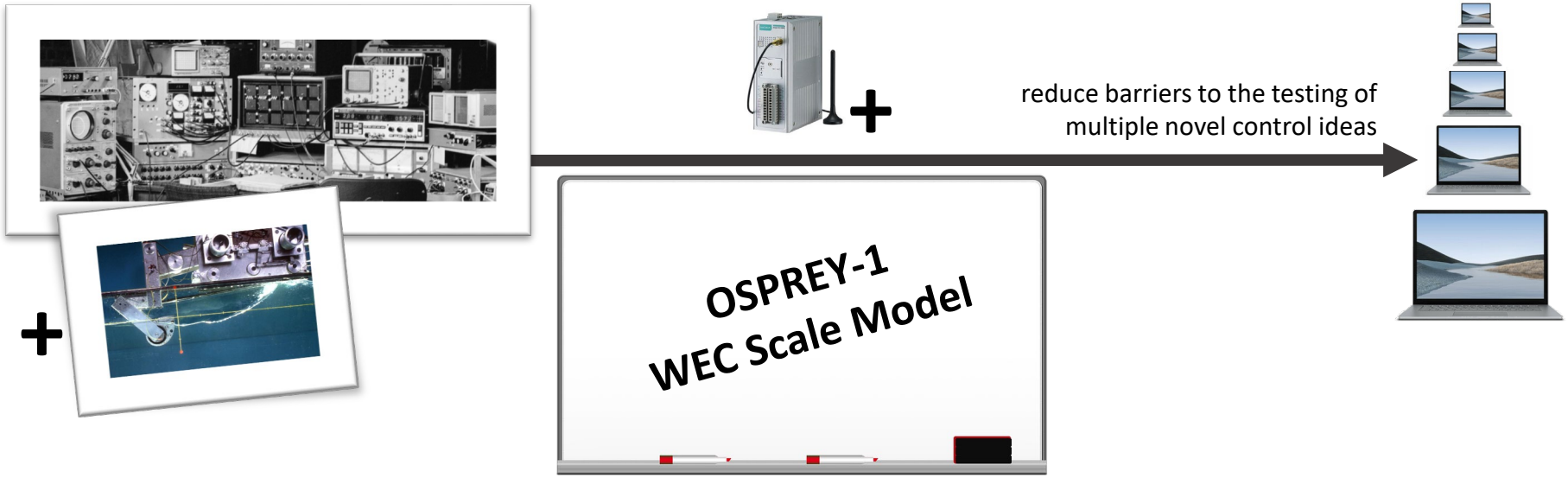
WP1 The OSPREY-1 Test-Rig

Objective: To specify, develop, build and demonstrate a modular, open-hardware-software and remotely accessible experimental scale WEC test-rig prototype (Osprey I) to exploit and test new sensing and control techniques.



MOTIVATION

- Aims to remove barriers to the testing of novel control ideas for wave energy and deliver a step-change in participation levels
- Inspired by and builds on legacy wave-energy tank control work
- Seeks to replicate success of iterative and open *Tidal* Energy scale model testing

SPECIFICATION

- Readily controllable
- Integrated with
  -Control (WP2),
  -Rapid Prototyping (WP3),
  -Tank-Testing (WP5).
- Modular, upgradable and facility agnostic.

WORKPLAN

1. Test rig specification & architecture
2. Remote access to lab and device
3. Electrical machine design
4. Hydrodynamic and mechanical design
5. External/Intrinsic Sensor Interfacing
6. Manufacture and integration

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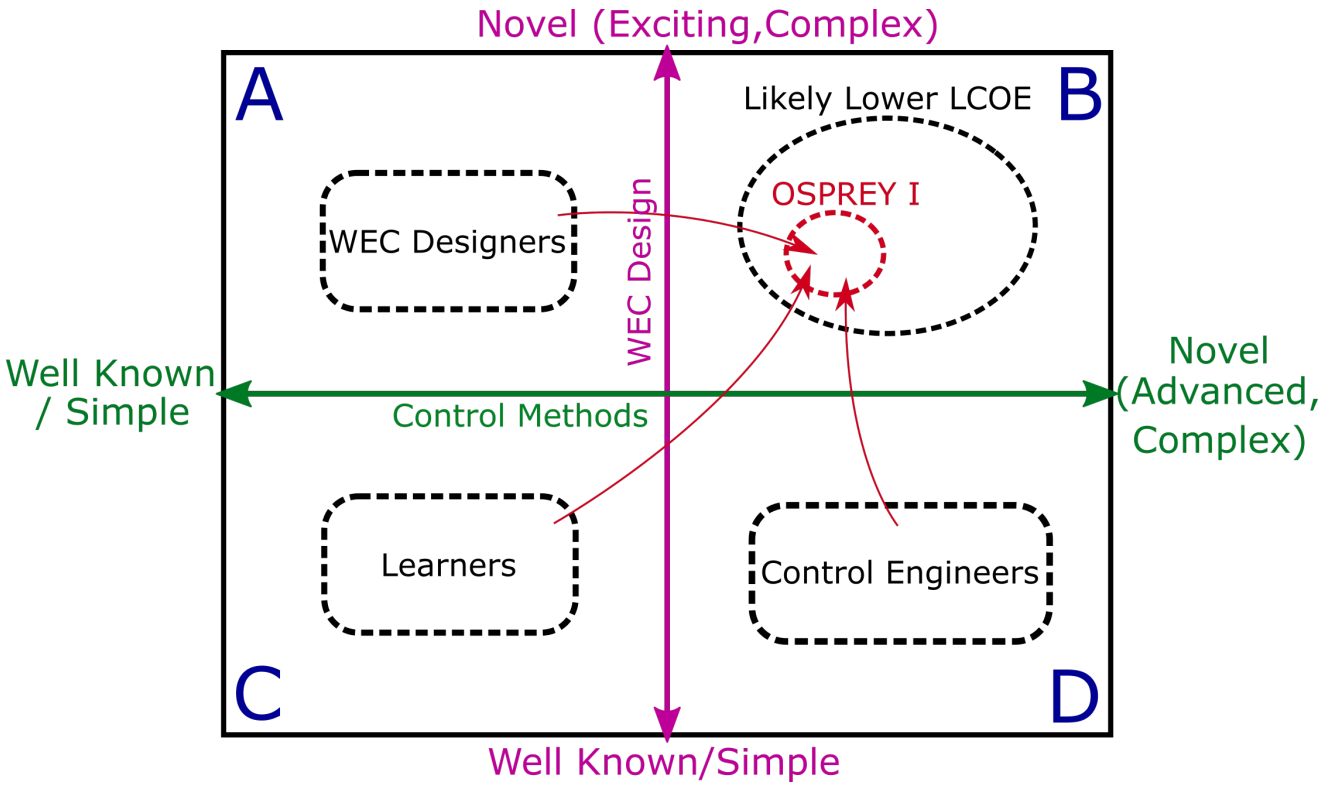
OSPREY-I Specification

CURRENT FOCUS

The current focus of the project is on the specification of the OSPREY I test rig – how can we provide a step change in capabilities?



STEP CHANGE

- Wave Energy requires a step change in performance
- Aims to move the research space in a "step change"
- Consider Wave Energy Control on a Complexity/Novelty Plane

- Create the opportunity to combine advanced control with novel devices.
- Facilitate movement from quadrants A, C and D to quadrant B

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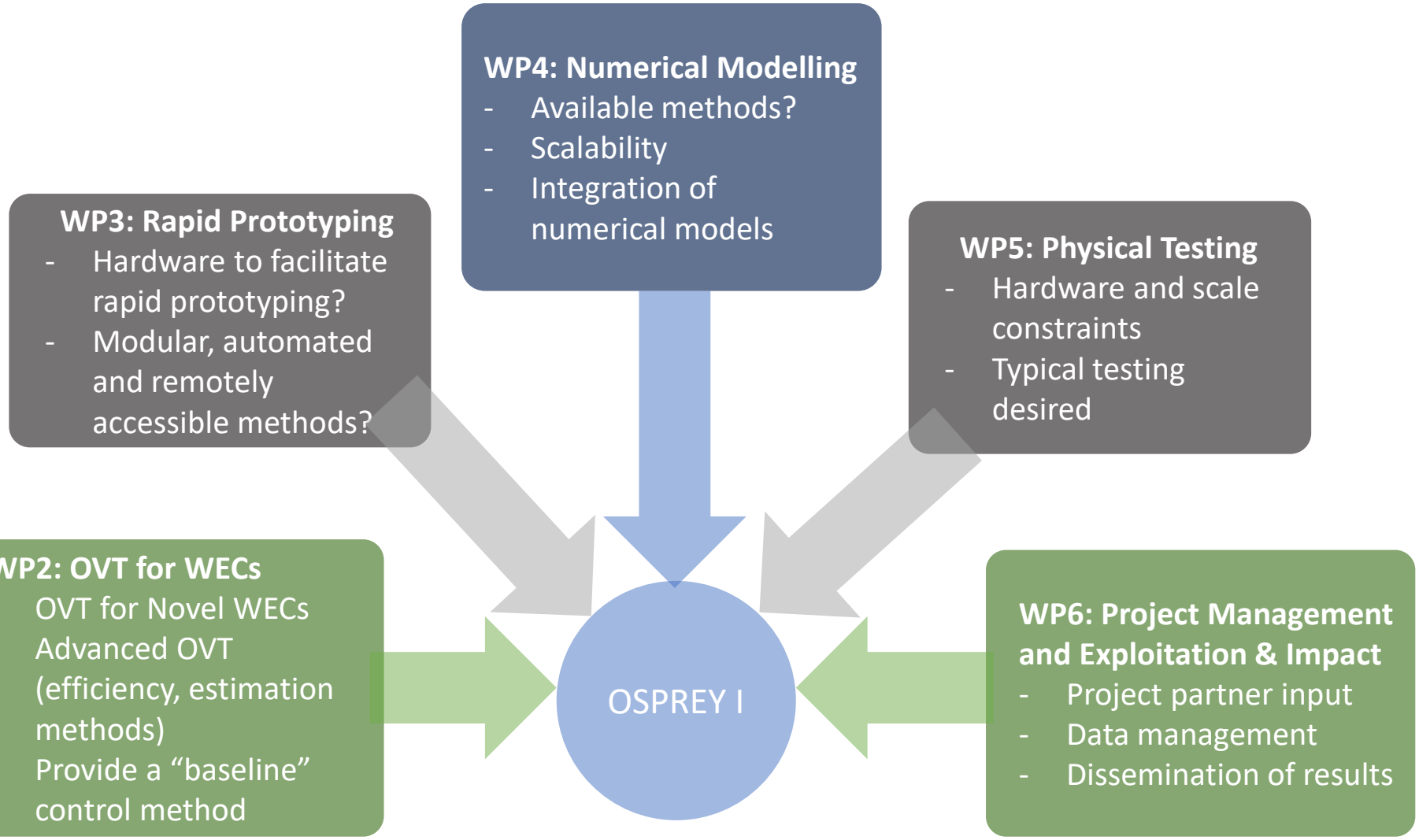
Other WP Feed-in

INTRA-WORK PACKAGE LINKS

- All WPs feed into the specification as all WPs rely on the test rig



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Partners and Collaboration

CENTRALE NANTES

WEAMEC MARINE ENERGY

NREL Transforming ENERGY

wave energy SCOTLAND

RENEWABLE DYNAMICS

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Project was late to start (mid September), so still in the early stages

Aiming to reach out to project partners (see above) and other academic and industrial stake holders

If you want to be involved contact adam.stock@strath.ac.uk