



**ETIP** OCEAN

European Technology & Innovation Platform for Ocean Energy

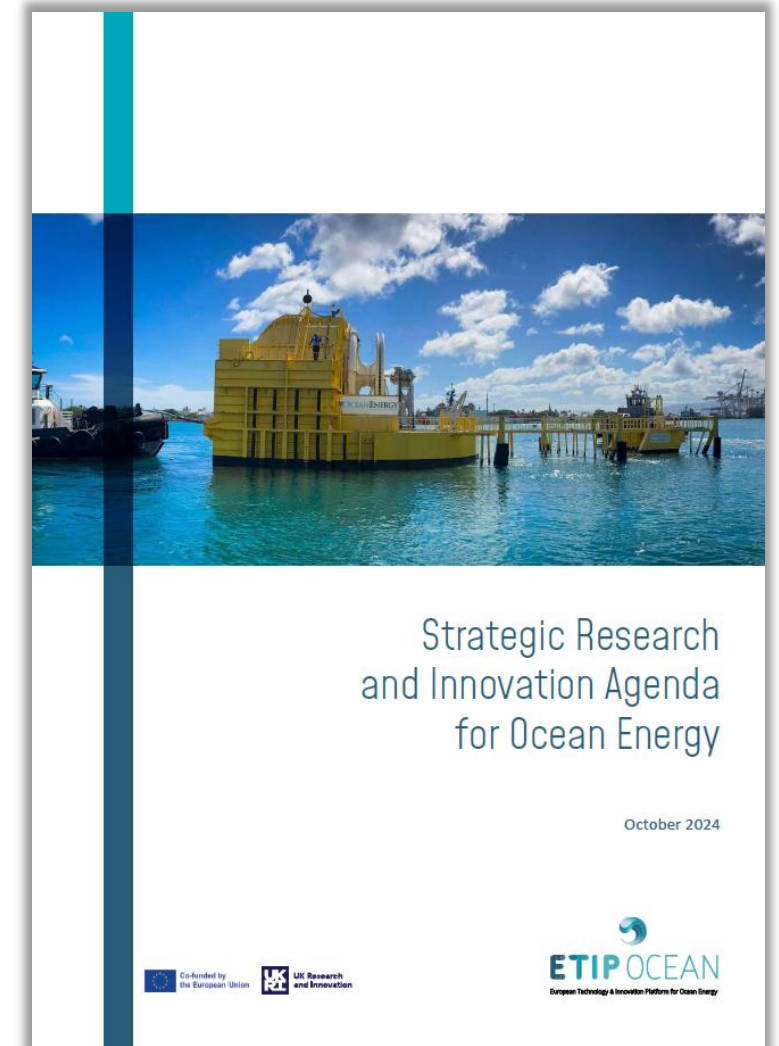
**ETIP Ocean webinar  
'Analysis and modelling tools for ocean energy'  
12th December 2024**



# Strategic Research & Innovation Agenda

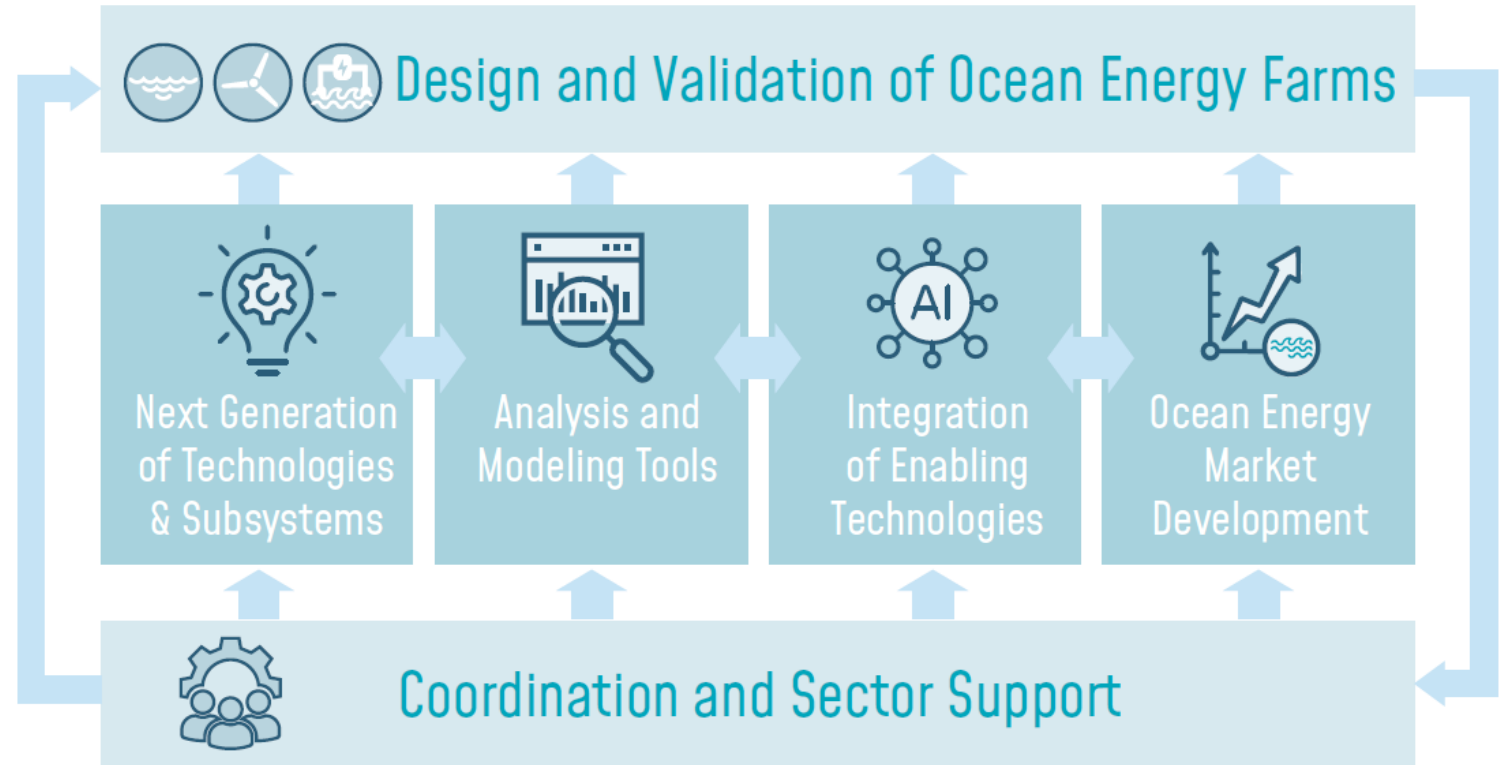
- A **reference document** for the whole ocean energy sector
- Identifies the **key R&I priorities** with the greatest impact on the ocean energy sector's progress
- Defines specific objectives and actions to **accelerate development and pave the way to commercialisation**
- Provides **guidance to all funders** of innovation: industry, EU, national and regional organisations
- Officially launched in **2024**, covers the period 2025-30.

[Link to download](#) (ETIP Ocean website)



# Challenges Areas: Research and Innovation priorities

- R&I fields that the Ocean Energy sector identified as most worthy of investment during 2025-2030
- Design and Validation as the central priority to achieve an ambitious cost reduction
- Four challenges to increase **technology maturity** and prepare for large scale deployment
- Coordination and support of innovation efforts to leverage private investment



# Challenge Areas and Priority Topics

## DESIGN AND VALIDATION OF OCEAN ENERGY FARMS

- Demonstration of pilot farms
- Demonstration of single devices
- Design and validation of other ocean energy technologies

## NEXT GENERATION OF TECHNOLOGIES AND SUBSYSTEMS

- Disruptive wave energy devices
- Innovative PTO and control systems
- Advanced moorings, foundations and power connections

## ANALYSIS AND MODELLING TOOLS

- Advanced simulation of ocean energy subsystems and devices
- Analysis and planning tools for ocean energy farm deployment
- Modelling and simulation of farm construction and operation

## INTEGRATION OF ENABLING TECHNOLOGIES

- Innovative materials and manufacturing processes
- Application of latest instrumentation and sensor technology
- Use of artificial intelligence and big data

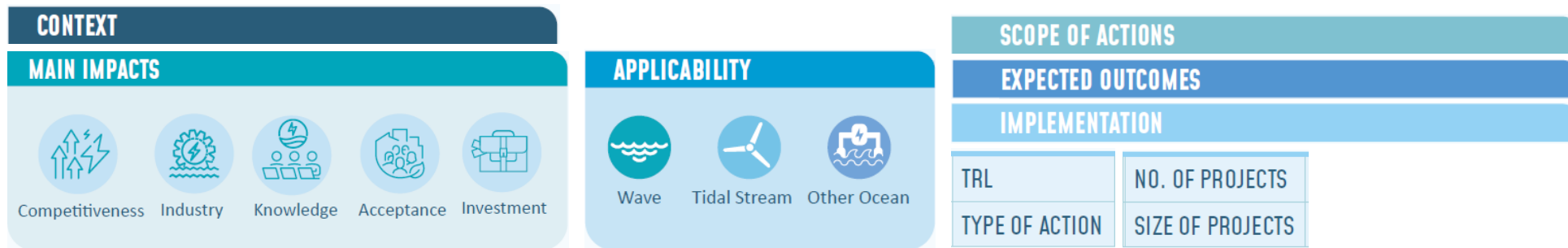
## OCEAN ENERGY MARKET DEVELOPMENT

- Application of ocean energy in off-grid markets
- Demonstrating grid-scale benefits of ocean energy
- Co-location of multiple technologies

## COORDINATION AND SECTOR SUPPORT ACTIONS

- Coordinating sector efforts
- Accessing and upgrading testing facilities
- Support to ocean energy sector development

The SRIA provides a general overview of the Challenge and specific description of each **Priority**

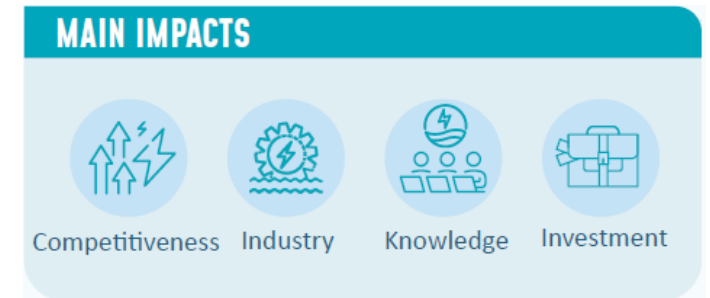




# Analysis and modelling tools for ocean energy

## Scope:

- Advanced simulation of ocean energy subsystems and devices
- Analysis and planning tools for ocean energy farm deployment
- Modelling and simulation of farm construction and operation



## Indicative examples:

- Increasing tool accuracy, computational efficiency, and spatial/temporal resolution
- Adapting numerical models and tools for array analysis, planning and operation
- Calibrating tools with experimental testing and hardware in the loop test rigs
- Updating models with data streams and experience from pilot arrays
- Validating, documenting and providing access to the tools beyond project end



# Thank you!

Pablo Ruiz-Minguela, TECNALIA



Coordinated by



Partners



THE UNIVERSITY  
of EDINBURGH



Funded by  
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Rue d'Arlon 63  
B-1040 Brussels  
Belgium

[www.etipocean.eu](http://www.etipocean.eu)

© Ocean Energy Europe



Plataforma Oceánica  
de Canarias



SUSTAINABLE  
ENERGY AUTHORITY  
OF IRELAND



Direção-Geral  
de Energia e Geologia

