ROMEO

(Reliable O&M decision tools and strategies for high LCoE reduction on Offshore Wind)
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ROMEO Project

16.4 M€ Total Budget
(~10M€ funded by the EU)

Coordinated by Iberdrola Renovables

Three validation scenarios:

Teesside (UK)

East Anglia (UK)

Wikinger (Germany)

5 years Project (2017-2022)

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ROMEO Objectives

Greater reliability, less repairs, more safety

Increase wind farm reliability and decrease the number of failures leading to downtime

Increase the life time of key turbine components

Reduce the WT O&M costs through the reduction of the resources required for annual inspections of the turbine

Reduce the O&M costs associated to foundation through reduction in jacket substructures inspections
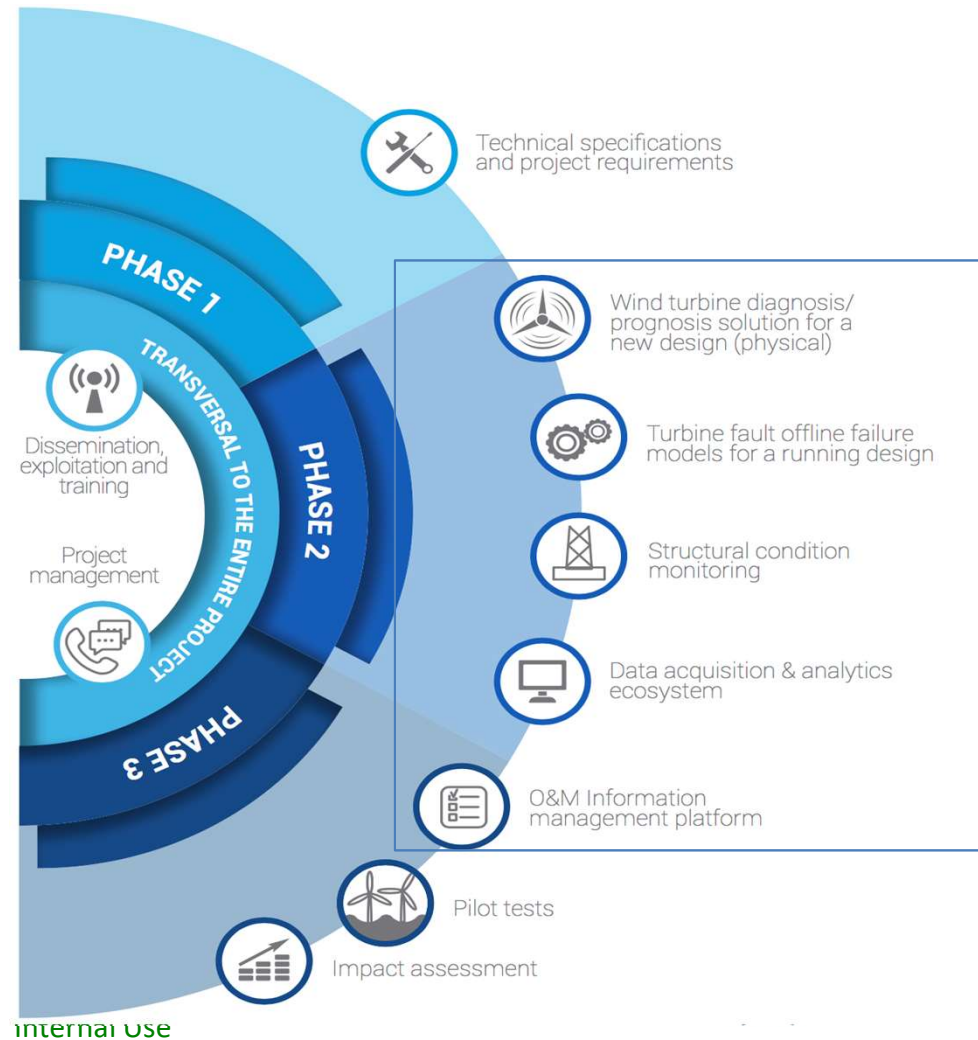
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ROMEO Project Phases

01 Definition of the technical specifications and the project requirements

02 Development of monitoring systems as well as the diagnosis and prognosis models for the detection of faults in key components

03 Final validation of the data management platform

Internal Use

ROMEO Main results

- FMECA workshops undertaken identifying critical failure modes both for WTG and substructure

- Algorithms for diagnosis and prognosis for main bearing, gearbox and blade bearing Electrical drive train algorithms. Small scale tests performed.

- Physical models for Wikinger (13) and Teesside (6) developed. ML models associated developed for Wikinger, East Anglia and Teesside

- Temporary monitoring campaigns for one jacket and OSS performed, initial FEM finished, 16 load iterations completed and low-cost monitoring methods for fatigue and damage developed and tested. Transferability and guidelines will be developed.

Internal Use

ROMEO Main results

- 3 ICT architectures developed for Wikinger, Teesside and EA1. Full connection with IBM Cloud ecosystem achieved. Main operability of the project from capturing data to getting results in the O&M tool demonstrated.

- New concepts developed for monitoring and analytics functionalities as well as advisory generation have been implemented in the O&M tool. Ramboll´s digital twin set up and implemented for Wikinger.

- Impact assessment tool developed including 5 modules: Site characteristics, FinEX, CAPEX, OPEX and environmental.

- **22 business models for exploitable results**

- Two training pills developed and scientific papers published (9)

Internal Use

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ROMEO Project Training pills

https://www.romeoproject.eu/1st-training-pill/

https://www.romeoproject.eu/2nd-training-pill/

https://www.romeoproject.eu/3rd-training-pill/

Internal Use

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