

Aim and Objectives

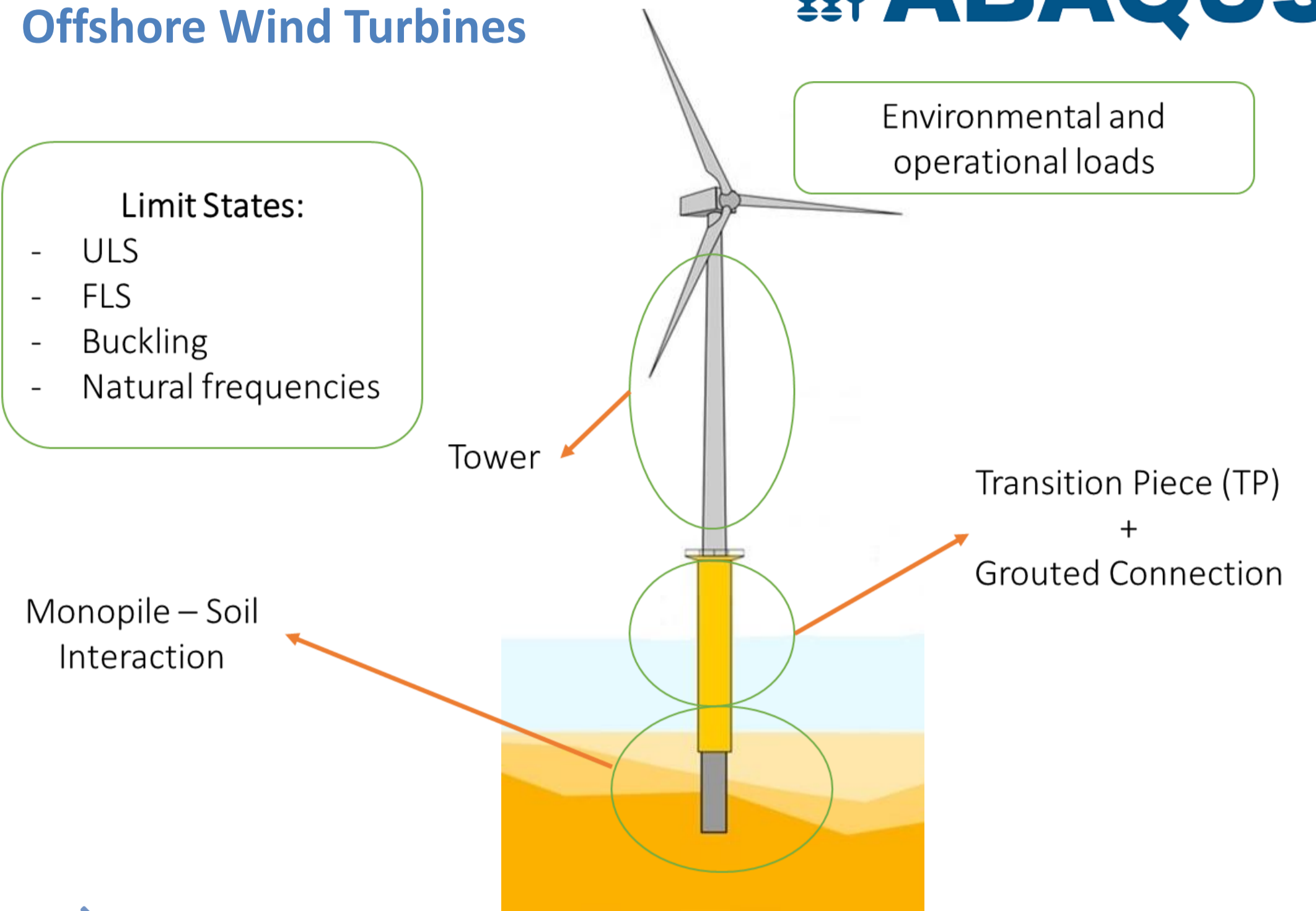
- 1) Investigation of potential response and failure modes under combined loads.
- 2) Data collection and characterisation. Data normalisation and cleansing
- 3) Development of a framework for structural integrity assessment
- 4) Interpretation of the data and evaluation of the residual fatigue life of the unit



Parametric Modelling of Offshore Wind Turbines



- Limit States:
- ULS
 - FLS
 - Buckling
 - Natural frequencies



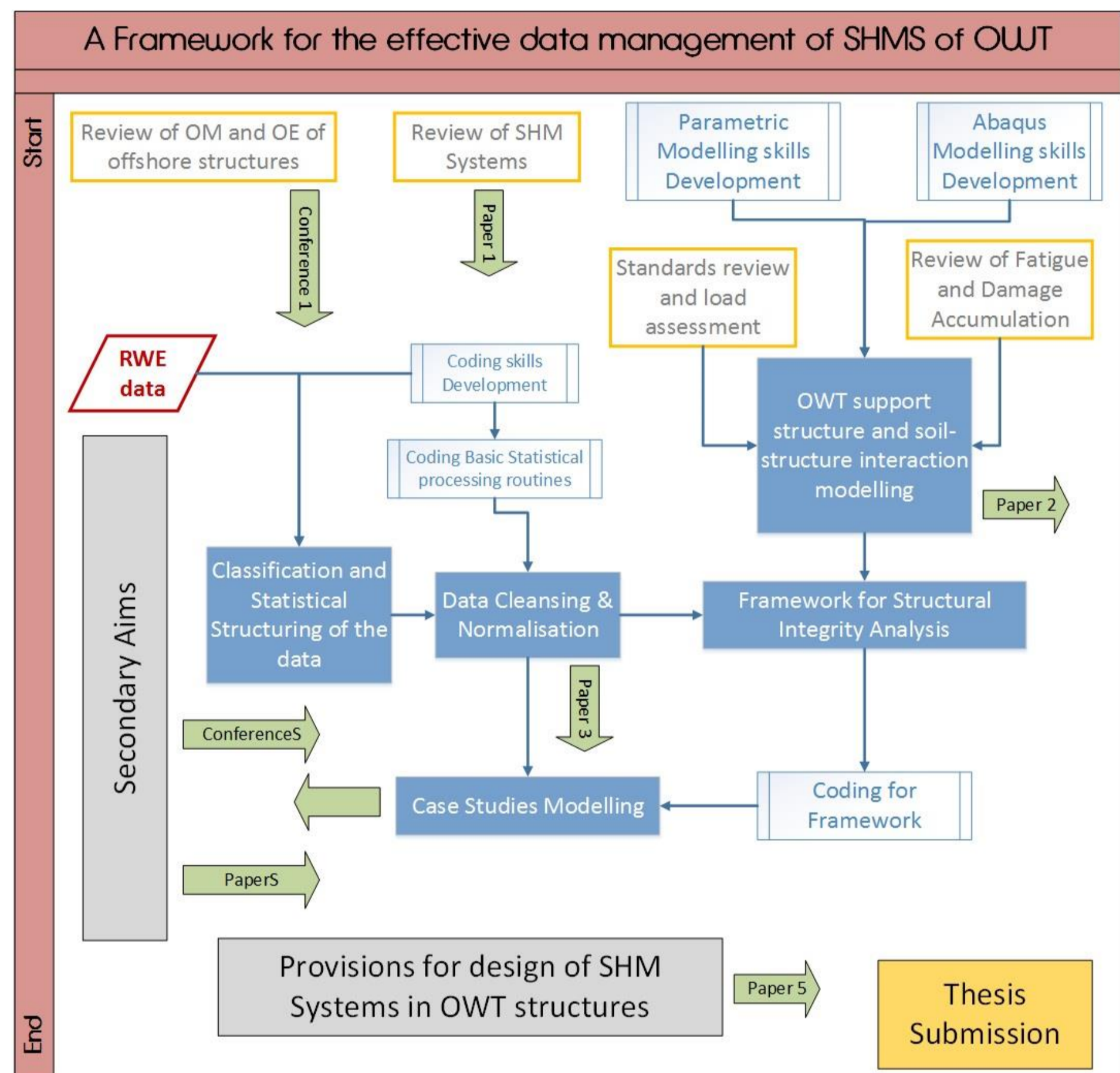
Case Studies

- [3] TP's & GC's length
- [3] Effect of size & number of stoppers
- [3] Scour development
- [5] Marine Growth

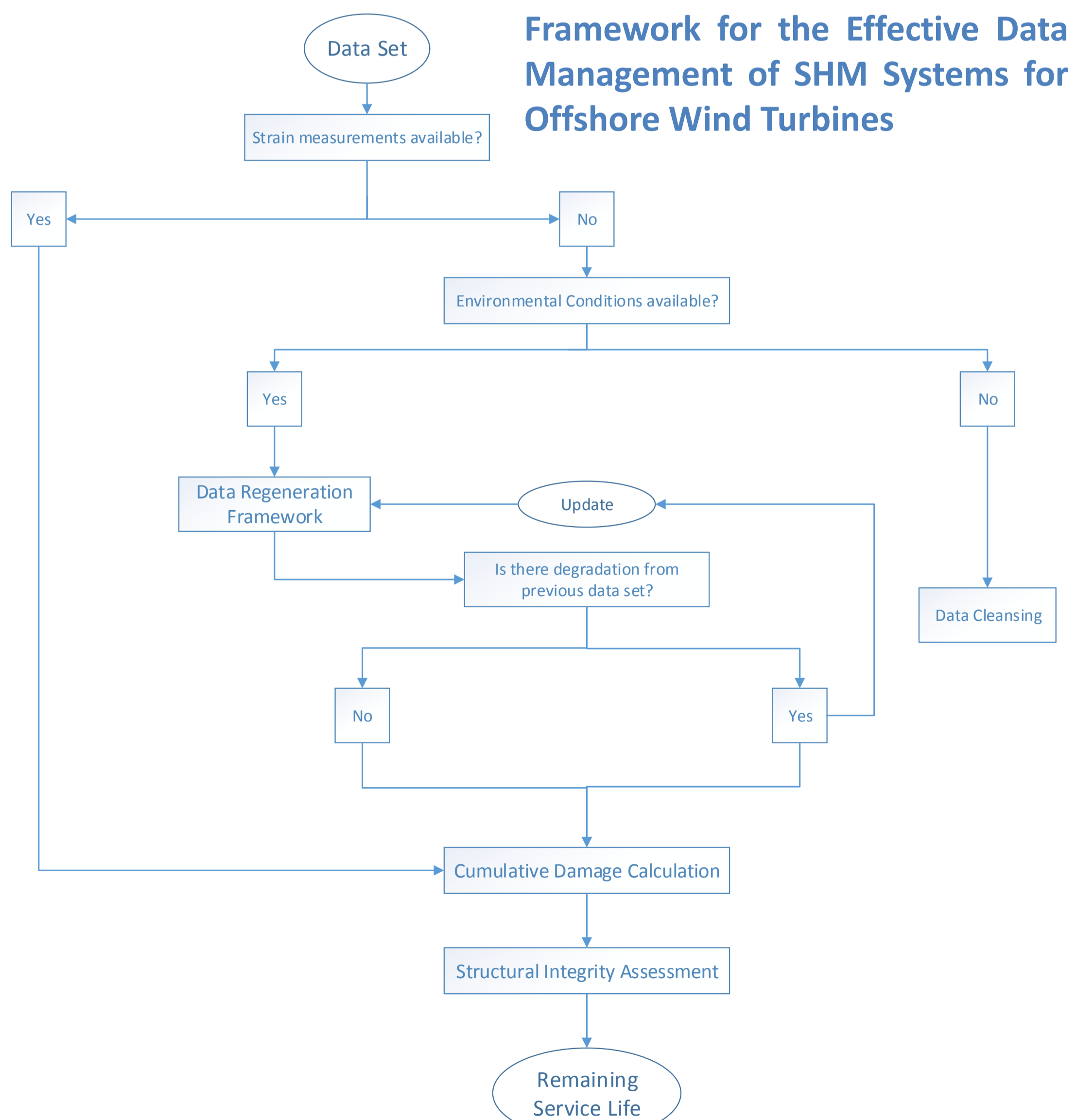
[3] Martinez Luengo, M., Kolios, A. & Wang, L. 2017. Parametric FEA modelling of Offshore Wind Turbine Support Structures: towards scaling-up and CAPEX reduction. International Journal of Marine Energy. (Under review)

[5] Martinez Luengo, M., Causon, P., Gill, A. & Kolios, A.J. 2017. Effect of Marine Growth in Offshore Wind Turbine Support Structures, 6th International Conference of Marine Structures, 8th - 10th May 2017, Lisbon, Portugal

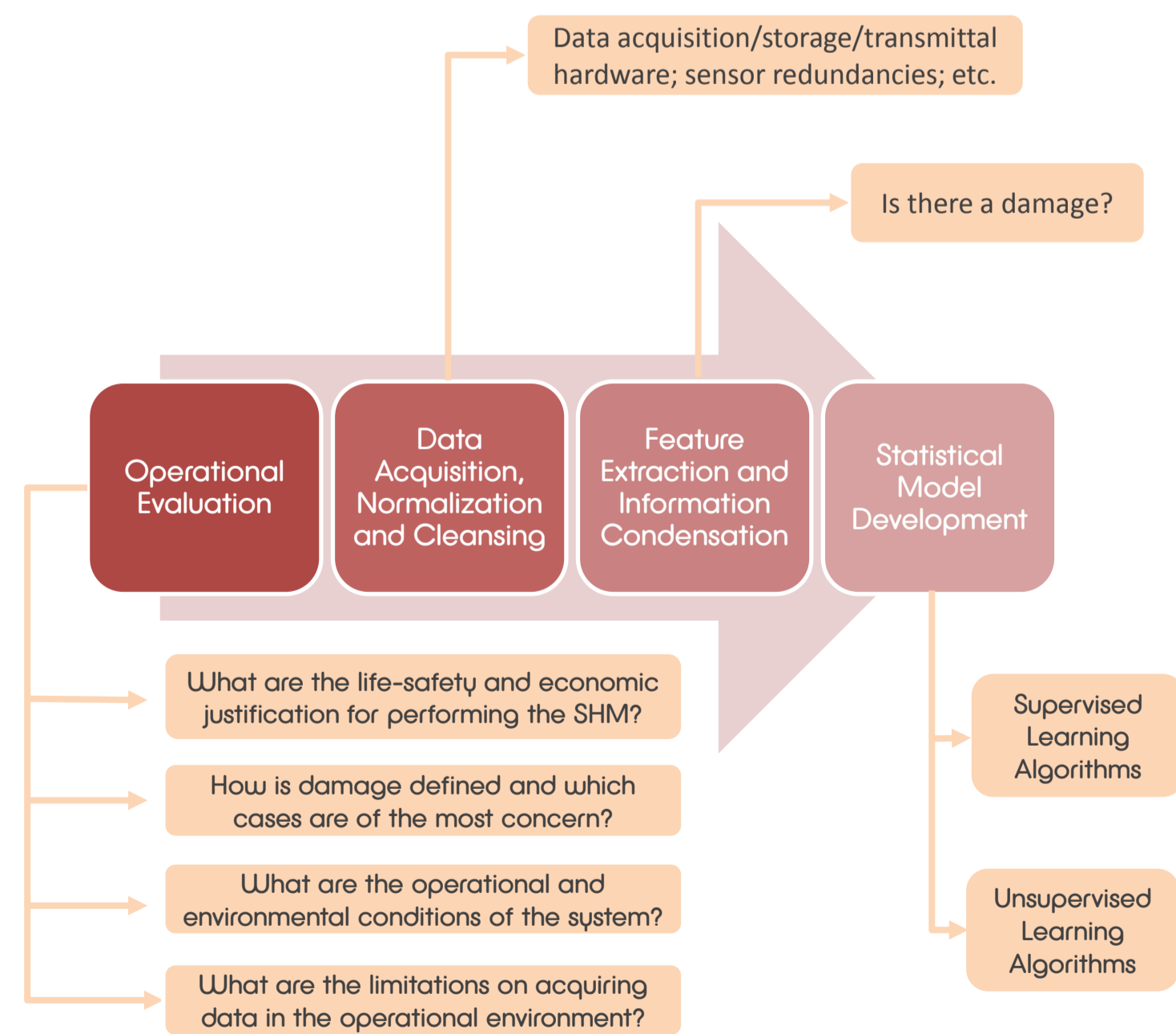
Flowchart of the project



Framework for the Effective Data Management of SHM Systems for Offshore Wind Turbines



Statistical Pattern Recognition Paradigm



[2] Martinez Luengo M, Kolios A, Wang L. Structural Health Monitoring of Offshore Wind Turbines: A review through the Statistical Pattern Recognition Paradigm. Renew Sustain Energy Rev 2016;64:91-105.

Publications

[1] Martinez Luengo, M. & Kolios, A., 2015. Failure Mode Identification and End of Life Scenarios of Offshore Wind Turbines: A Review. Energies, 8, pp.8339-8354.

[2] Martinez Luengo, M., Kolios, A. & Wang, L., 2016. Structural Health Monitoring of Offshore Wind Turbines: A review through the Statistical Pattern Recognition Paradigm. Renewable and Sustainable Energy Reviews, 64, pp.91-105

[3] Martinez Luengo, M., Kolios, A. & Wang, L. 2017. Parametric FEA modelling of Offshore Wind Turbine Support Structures: towards scaling-up and CAPEX reduction. International Journal of Marine Energy. (Under review) .

[4] Kolios, A.J. & Martinez Luengo, M. Operational management of offshore energy assets. J Phys Conference Series 2016; 687.

[5] Martinez Luengo, M., Causon, P., Gill, A. & Kolios, A.J. 2017. Effect of Marine Growth in Offshore Wind Turbine Support Structures, 6th International Conference of Marine Structures, 8th - 10th May 2017, Lisbon, Portugal.

Acknowledgements

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