Risk-based Inspection Planning of Offshore Wind Support Structures

Goal – To identify optimal inspection plan with minimum expected cost

Deterioration Modelling (Fatigue and Fracture Mechanics)

Inspection Modelling

Cost Modelling

- Failure cost
- Inspection cost
- Repair cost

Goal – To identify optimal inspection plan with minimum expected cost
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Reduction of total expected cost – by using simplified Failure Assessment Diagram as failure criteria

Through-Thickness + 1D FM Model Vs FAD + 2D FM Model

(a) Crack growth in an unstiffened tubular K-joint.

**Limitations – for redundant structures only, and high fracture toughness of the material**