

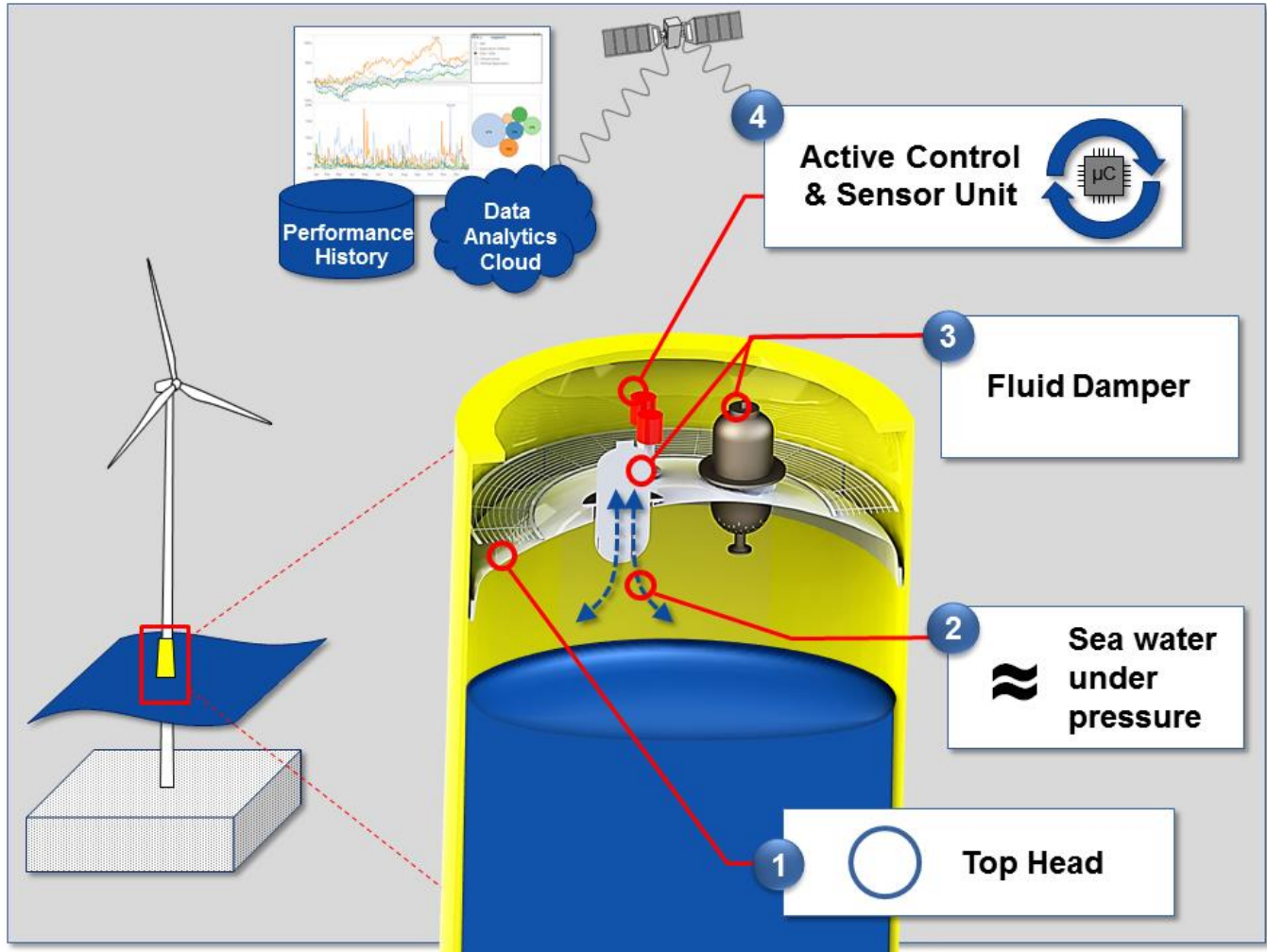


Building innovation in Offshore Wind - the Technology or the Company?





ZeaDamper



The Company



Photography by Sjors Massar

ir. Zdravko Angelov (CEO)

- IT Strategy
- Software Engineering and Data Analytics
- Project Management and Consulting

Dr. ir. Valentin Angelov (CTO)

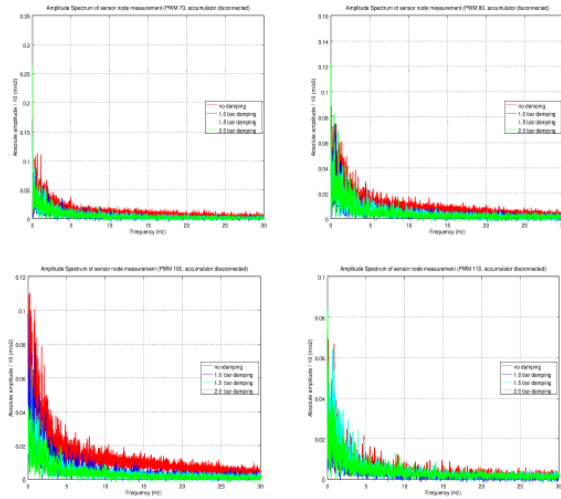
- Offshore foundation engineering
- Dynamic behavior of foundations and fatigue
- Numerous patents worldwide



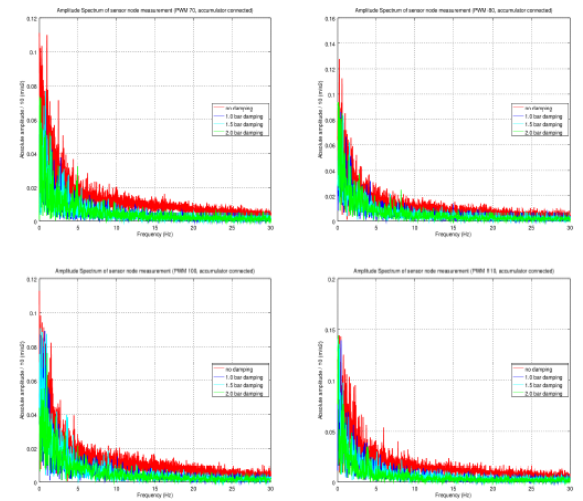


Appendix 5 Other data sets amplitude-frequency spectrum

Accumulator disconnected



Accumulator connected





VIZIONZ

ZeaDamper™ Project
Cost reduction for Offshore Wind



VizionZ Engineering BV | www.vizionz.nl | Molengraaffsingel 12, Delft







Building innovation in Offshore Wind - the Technology or the Company?



The road to success is
always under construction.

- Lily Tomlin



MOTION MONITORING SYSTEM CAPABILITIES

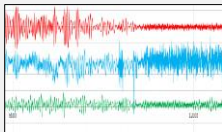
Data Collection



GPS tracking



Motion time history

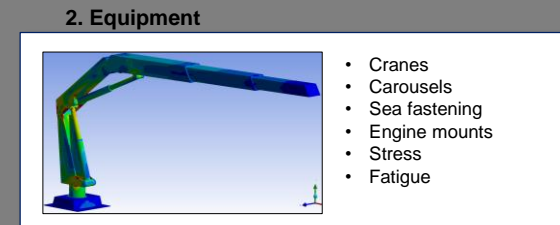
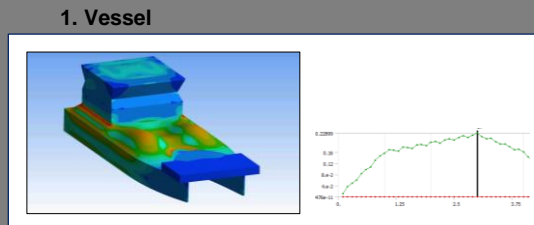
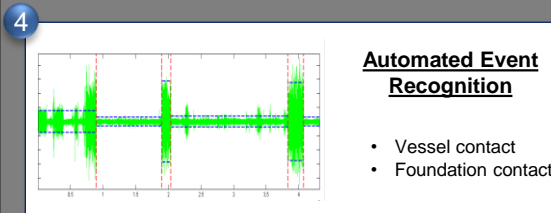
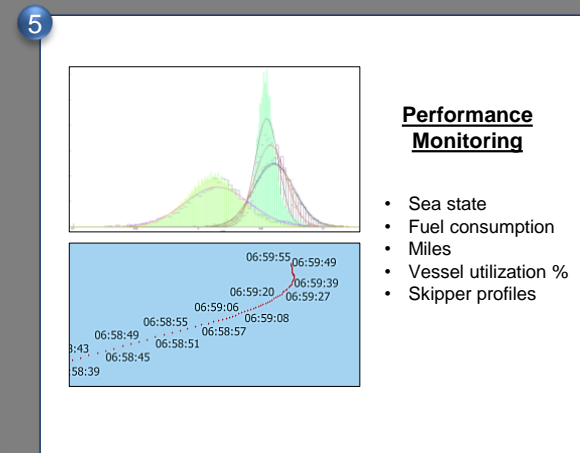
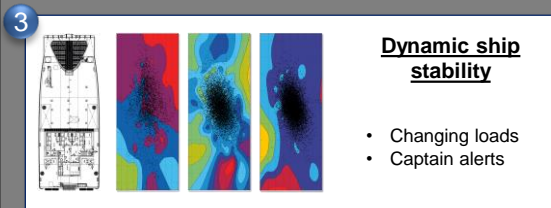
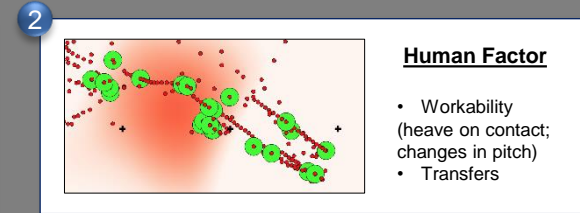
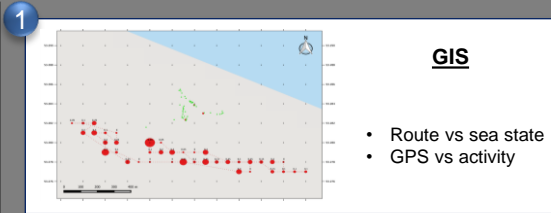


Manual input



Data Analysis

FEM



Online Access (Public Access Demo on website)



The screenshot displays the VizionZ dashboard interface. At the top, the browser address bar shows 'www.vizionz.nl/portal/voeshoofd.html'. The main dashboard area features a large 3D visualization of a vessel (a tugboat) in a harbor, with various data points and connections overlaid. Below this, there are several monitoring modules: 'My Vessels', 'Module: Interactive View (Selected: Vessel033420)', 'Module: Motion Plotter', 'Module: Motion View', and 'Module: CCTV (Motion Detected)'. The 'Motion Plotter' module shows two line graphs labeled 'Data Stream: Motion Roll' and 'Data Stream: Motion Pitch'. The 'CCTV' module shows a video feed of the vessel's interior. On the left side, there is a 'File Repository' sidebar with a navigation menu and a file upload area. The sidebar includes sections for 'Documenten', 'Bibliotheek', 'Categorieën', and 'Tags'. The file upload area contains instructions: 'Sleep bestanden om ze te uploaden.' and 'U kunt ook... Bestanden uploaden' and 'Een map maken'. At the bottom of the sidebar, it shows '0 - 0 van 0 << >>'.

DASHBOARD VIEW

Operational Performance



(Predictive) Maintenance

Design Optimization

ASSET TYPES

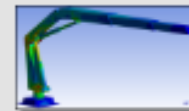
Vessels



Foundations



(Onboard) Equipment



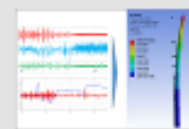
ASSET INTELLIGENCE MODULES

Alerts & Notifications

Geographic Intelligence (GIS)



Coupled FEM Analyzer



Structural Dynamics Module

ANSYS Connector

FEMAP Connector

Croflex Connector

Topology



DATA ACCESS

Live Access



Partial access of log files (opt. cloud storage)



COMMUNICATION MODULES

Satellite

3G/4G

WiFi

DATA SENSING

POWER USERS

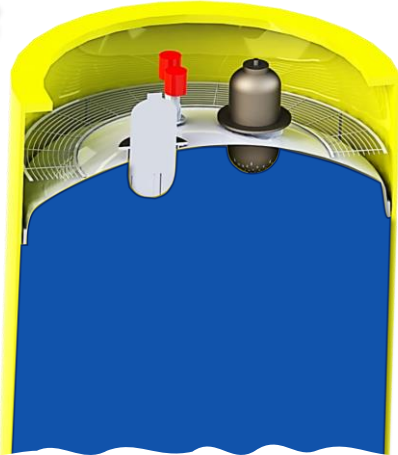
120Ah/DC

AC

Rechargeable Solar



Offshore wind foundation dampers



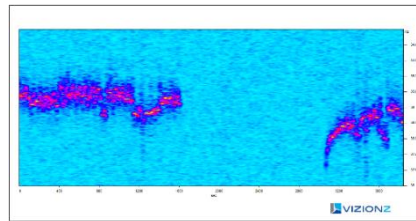
Monitoring & Active Control:

1. Use of turbine SCADA data for tuned damping
2. Active adjustment of the damping % based on environmental data
3. Wind farm wide damping coordination

Soil Vibration Monitoring



4G



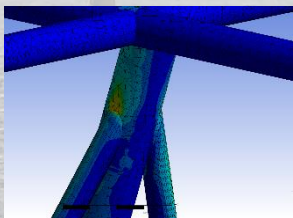
Time FFT

Remote Vessel Motion Monitoring

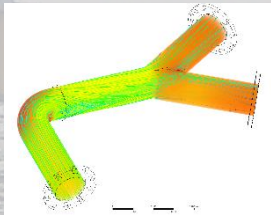


- Absolute timestamp
- Roll, Pitch, Heave (up to 200Hz)
- GPS coordinates

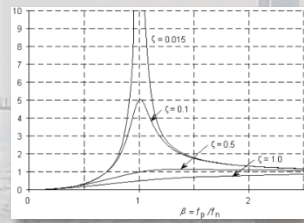
1. STRUCTURAL



2. FLUID



3. DYNAMICS



4. DATA

