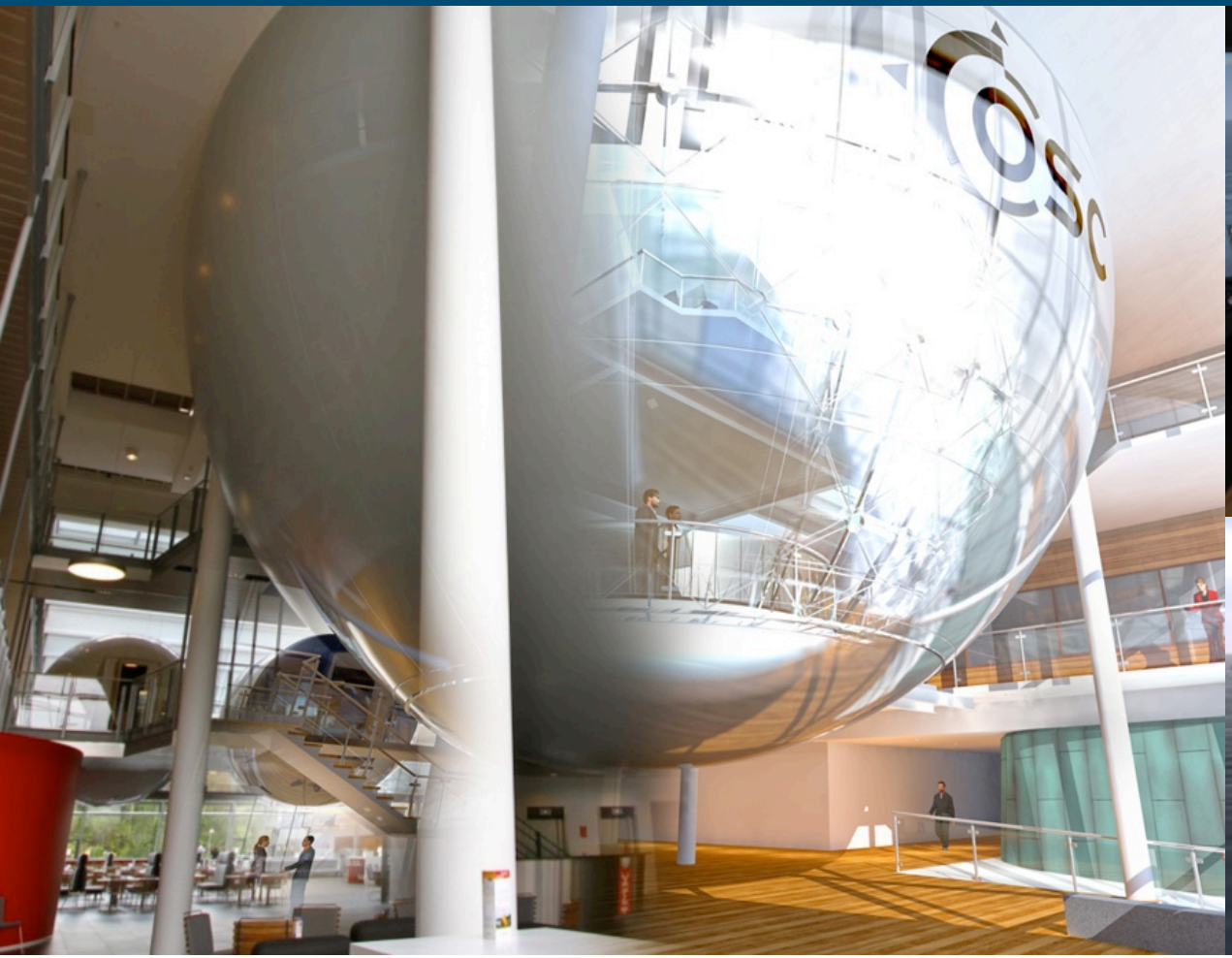
OFFSHORE SIMULATOR CENTRE

Delivering the worlds most advanced offshore simulators

Joel Mills

The worlds most advanced offshore simulators



In 2005 OSC started as an innovative university “spinoff company” and now has developed into a world leading professional and mature company and today OSC is still breaking new limits.

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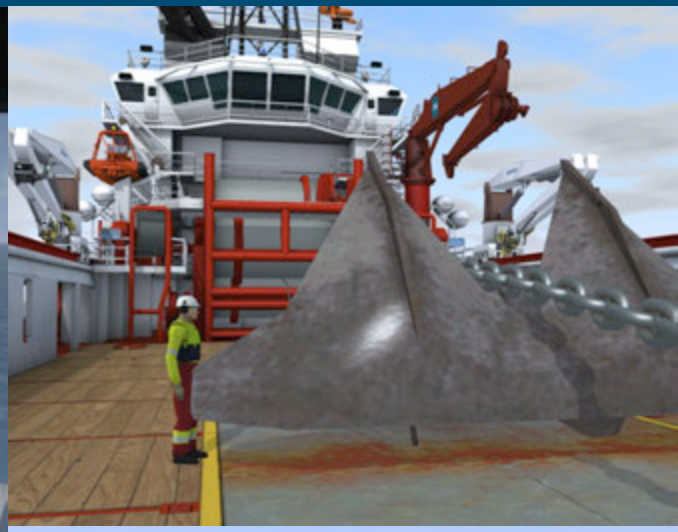
Solution so real you forget you are in a simulator



It is easy to know what a good simulator is… You forget you are in one.

1. Rich environment (Real equipment/amazing visuals, depth of field)
2. Real physics
3. Most importantly linking together real people.

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OSC location Ålesund, Norway

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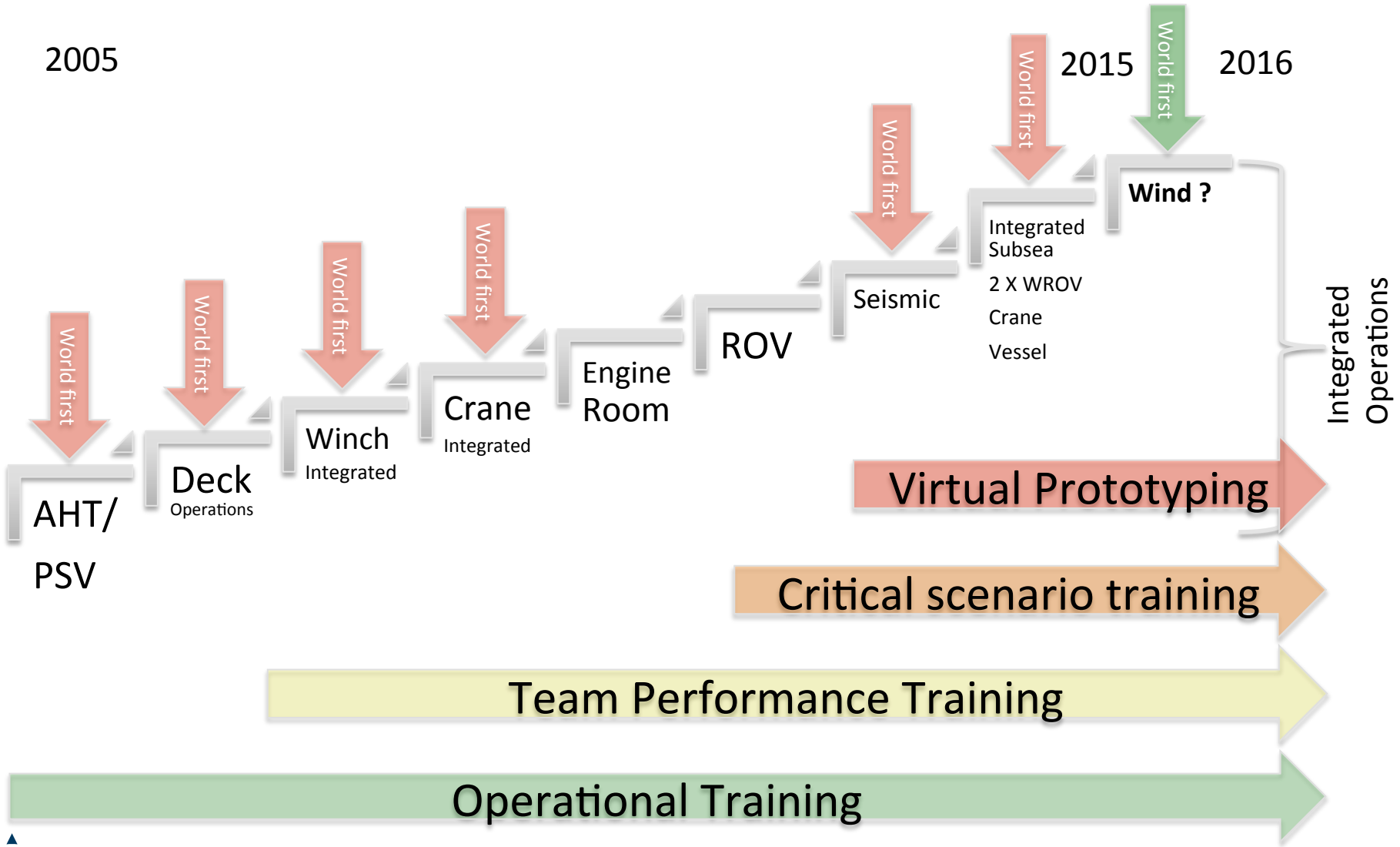
OSC Offshore Simulator Evolution



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Site locations

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Anchor handling, complete simulation

AHT:
Single or multi vessel training solutions:

Vessel bridge(s), rig bridge, engine room, winch, crane and deck stations

At least 75% of offshore accidents are due to Human error not equipment failure….*

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*IMO 1995

Platform Supply vessel simulation

Simulation of the total operation allows all involved to understand the complete process from all sides.

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Crane simulation

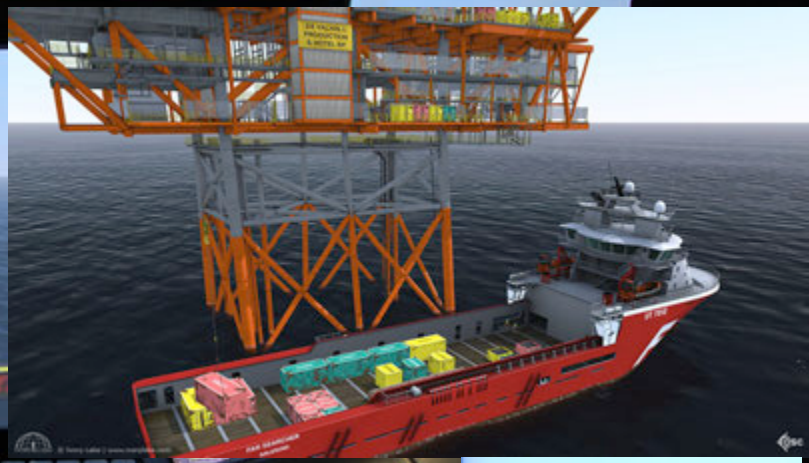
Working tightly with industry experts OSC has made our crane to the new **IMCA**, NORSOK and DNV Class A simulator standards. (Much higher than IMO requirements)

It is the only crane simulator Statoil use for all their crane training. (Also used by BP, Conoco Phillips and Petrobras)

Crane options include: Rig, Subsea & Construction Vessels, FPSO, Floating platforms, Fixed platforms etc

All linked with deck stations

This can be done for offshore wind also



Simulator Technology

Maritime Physical Equipment
- Consoles
- Handles
- Screens
- Etc.

Simulator Core

Simulation logic
Interfacing

Simulator control panel
- Weather, wind, waves etc.
- Active training case etc.

3D Virtual World (front end)
- Built on PC Game Engine

Vessel Model Library
- 3D Models
- Mathematical Models
- Physics Models

Display Solutions
- Projectors
- Screens

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Quality in training

However realistic a simulator, without the correct understanding of training you will not be able to have a realistic learning environment.

Working together with the University college Ålesund (NTNU) allows:

- Simulation development to follow course/training needs
- Partnership leading to better results

- NTNU-Ålesund & OSC is also working on team training projects with NASA and Stanford University.

NASA

Stanford University

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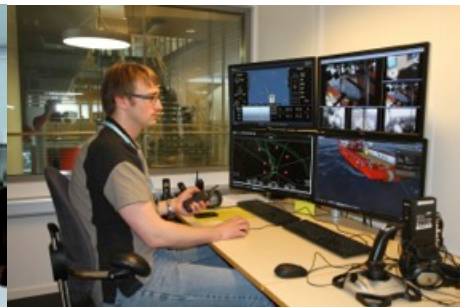
“One giant leap” into Subsea -Integrated installation



Simulation of the installation and service for the whole subsea setup.

- 2 Full WROV (+obs ROV)
- Full crane simulator for the SHS
- 360° Bridge of NSG with RRM DP
- OCS station (8 screens)
- Instructor station
- Debrief room

All working together

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Åsgard subsea compression

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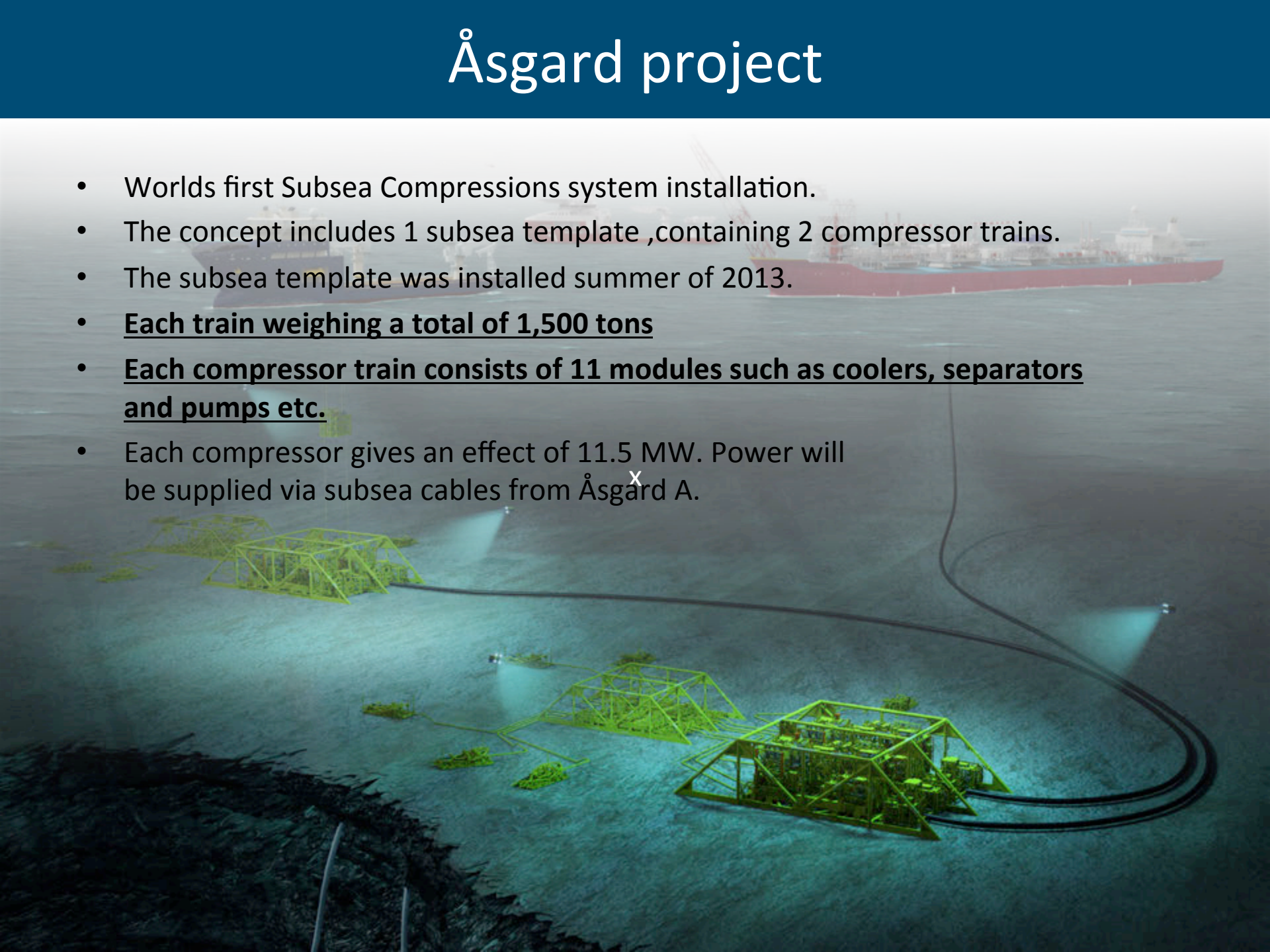
Åsgard project

- Worlds first Subsea Compressions system installation.
- The concept includes 1 subsea template ,containing 2 compressor trains.
- The subsea template was installed summer of 2013.
- **Each train weighing a total of 1,500 tons**
- **Each compressor train consists of 11 modules such as coolers, separators and pumps etc.**
- Each compressor gives an effect of 11.5 MW. Power will be supplied via subsea cables from Åsgard A.

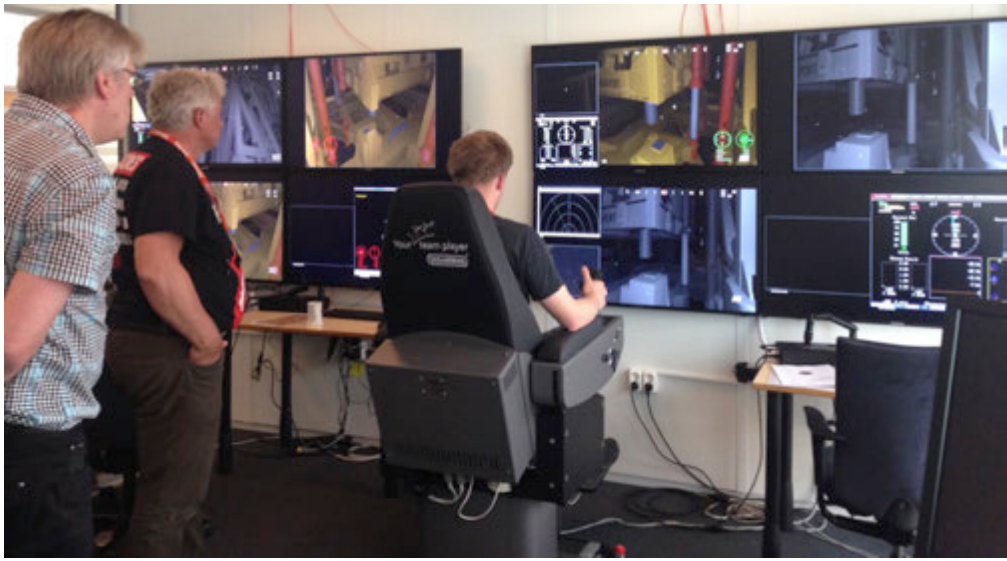


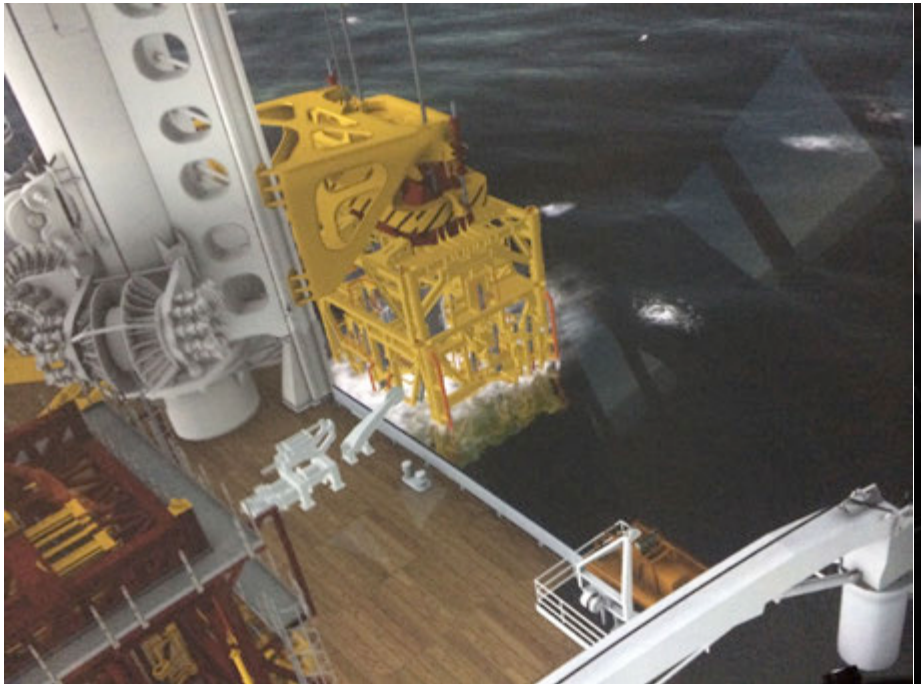
Statoil compression project simulation

The problem…..

“Lowering a 400 ton unit 260m into a template on the sea bed and getting it placed correctly to a few mm´s while a vessel is holding on DP in wave heights of 4.5m Hs”

Simple yes??





The subsea solution

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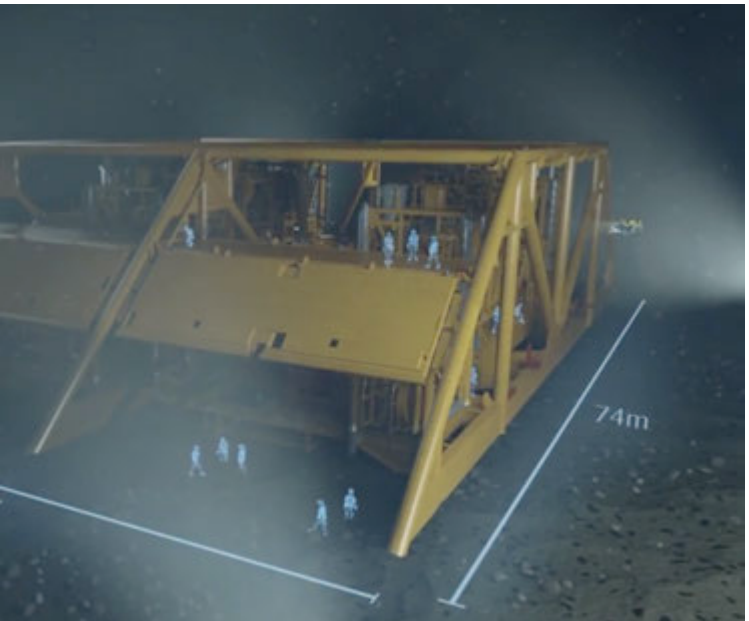
Insurance and cost saving

Subsea compression project: First subsea compression ***(came online on the 17th Sept)***
Feedback from Statoil:

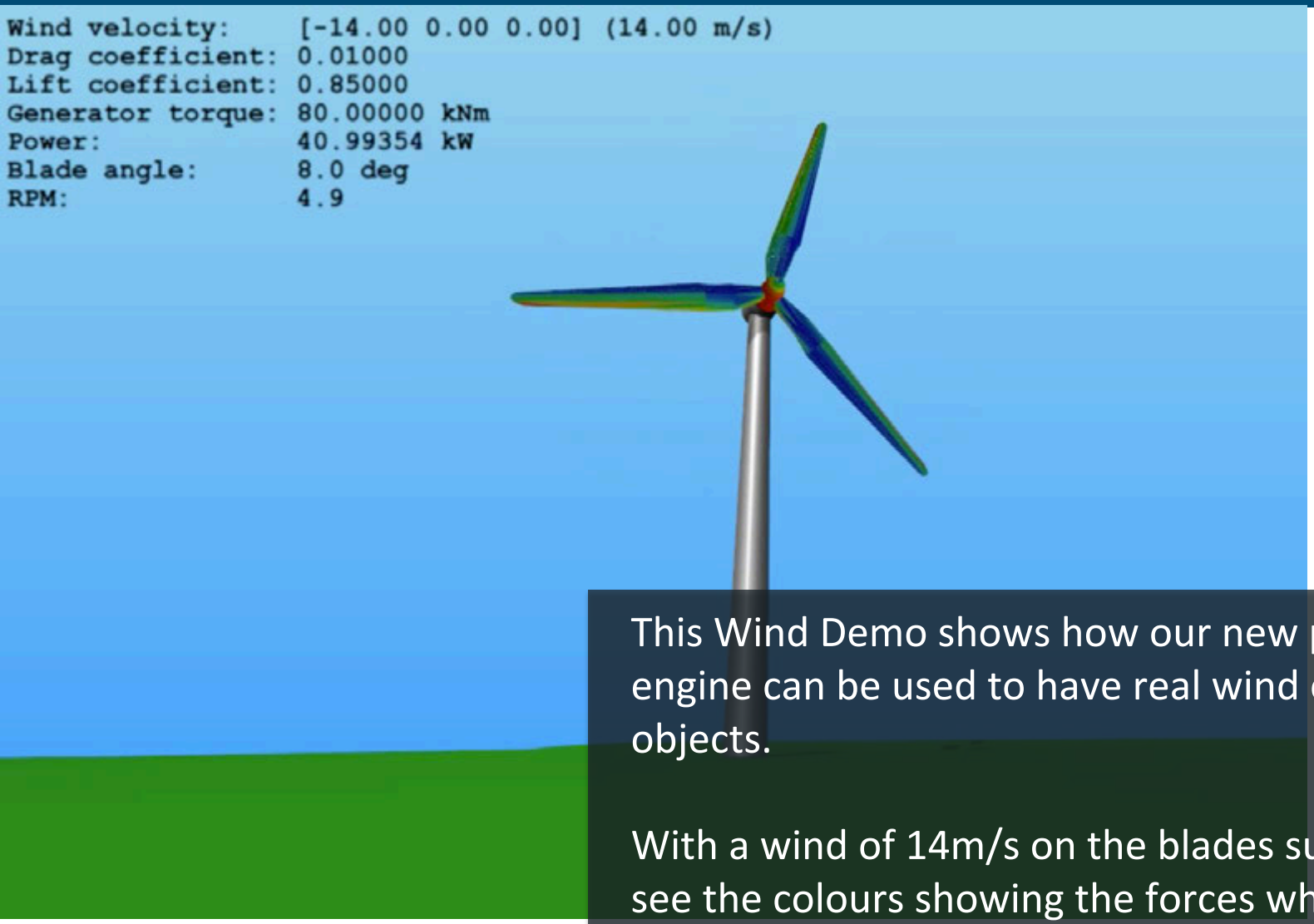
"Extremely good preparation- Simulating in Ålesund has paid for itself at least tenfold."
Ole Jørgen Johansen -Project Manager Åsgard Subsea Gas Compression at Statoil

OSC have similar quotes to the above for everyone one of the VP project we have been involved in.

Before installation Statoil sent their insurance underwriter team to visit our centre and the feedback was that this will have an effect on their insurance premium for this project.



Wind



This Wind Demo shows how our new physics engine can be used to have real wind effects on objects.

With a wind of 14m/s on the blades surface you can see the colours showing the forces which in this case make the turbine turn.

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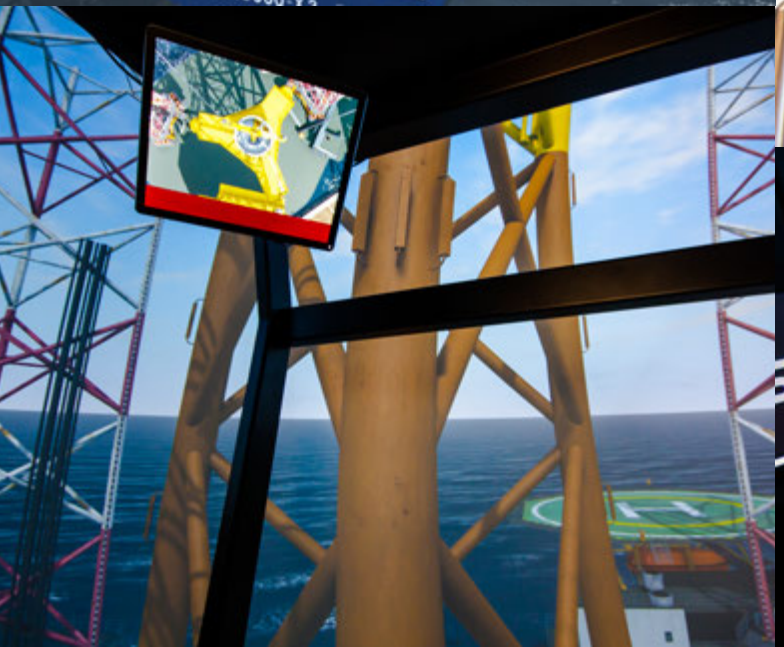
Subsea cranes & environments

OSC new crane platform will allow us to add with ease subsea vessels which can connect together with WROVs or Obs ROVs

We know that Subsea will become a larger market in the offshore industry in the coming years.

Wind simulator substructure mounting



Video of substructure installation simulation

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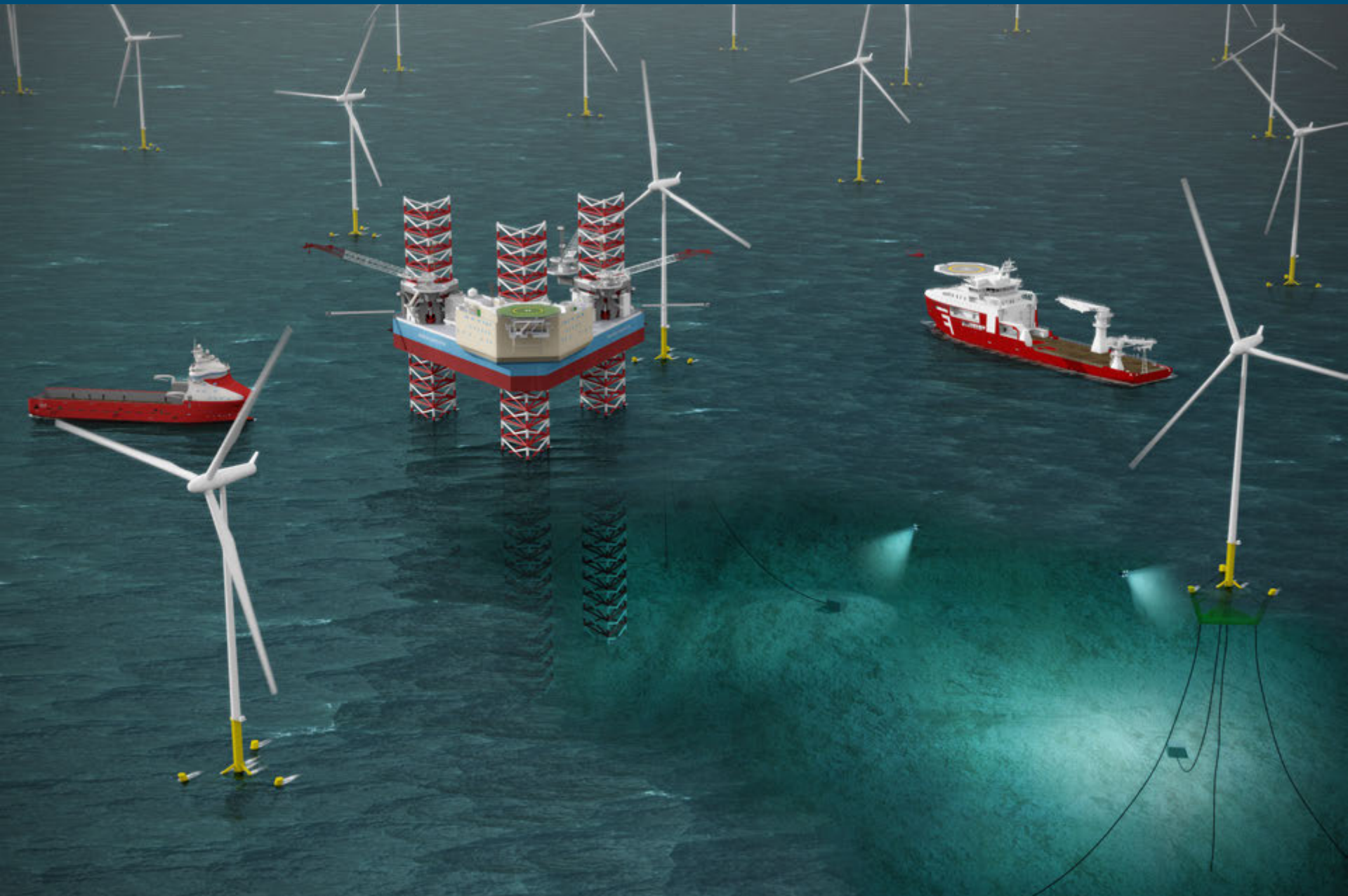
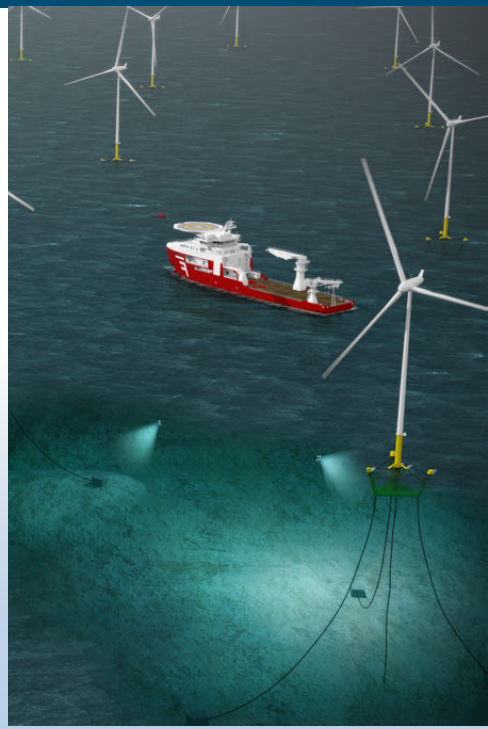
Floating wind turbine installation



Simulation as a tool streamline renewables

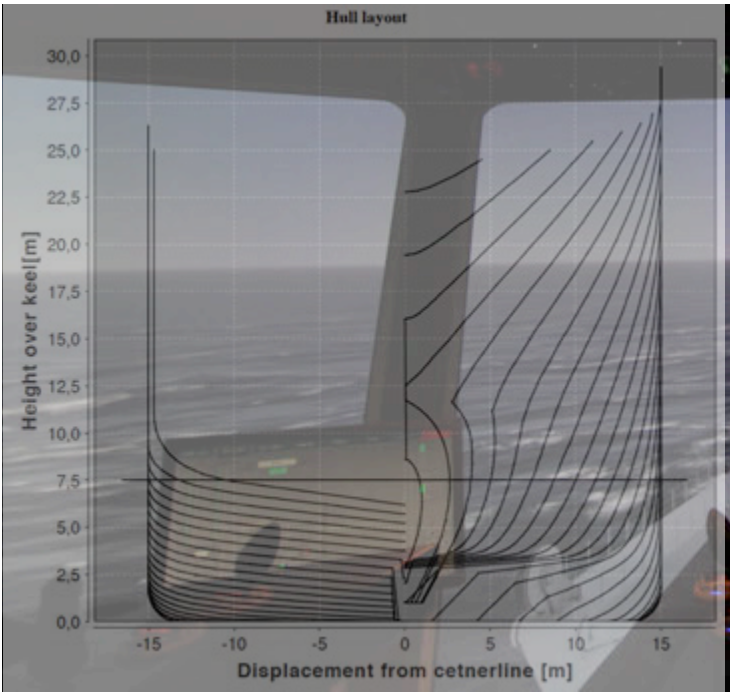
- **Simulation is not just for the large complex projects but will save time and reduce risk in the standard daily operations.**
- **Simulation can be the key tool to find more streamlined and cost effective methods for wind turbine installation and service**
- **Simulations competition is not other simulation companies but it is not using simulation.**
- **No one company will do this alone… Collaboration is key**

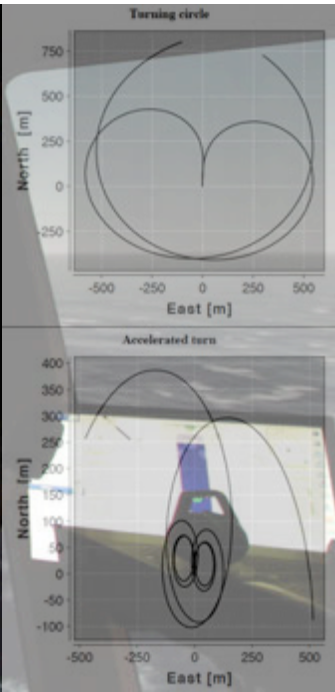


Value of simulation

Simulation has proven its worth.

- In the design phase having to think though simulation is key “Virtual prototyping”
- The simulator is a test platform for solutions and management of change
- Creation of procedures is so much easier in a simulator than on paper
- Common understanding of the operation is gained
- Problems can be solved before going offshore
- Reduced risk to equipment and people
- **Cost of simulation is so small compared with the savings**





The future is now..

"We need to solve a offshore challenge.."

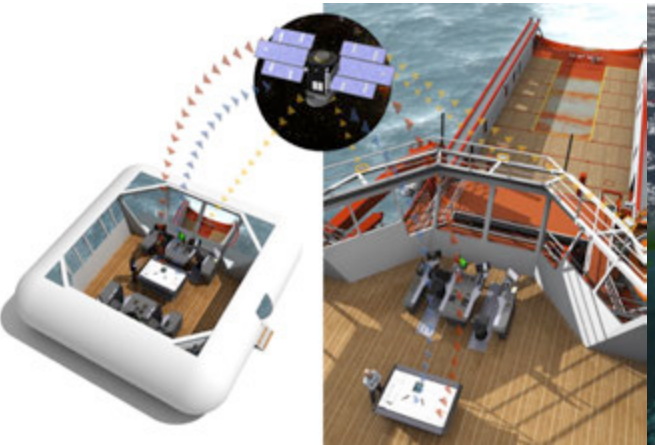
OK.. lets build it and try this out..

In weeks not years at no risk..

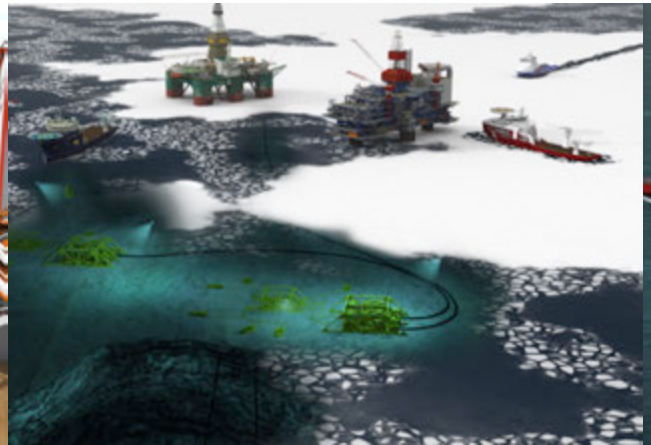
All in a virtual world. Then we can try different equipment, setups procedures

the sky is the limit.

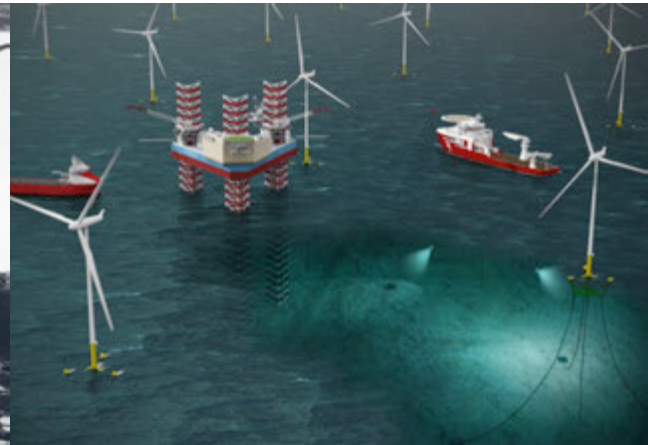
Mission control



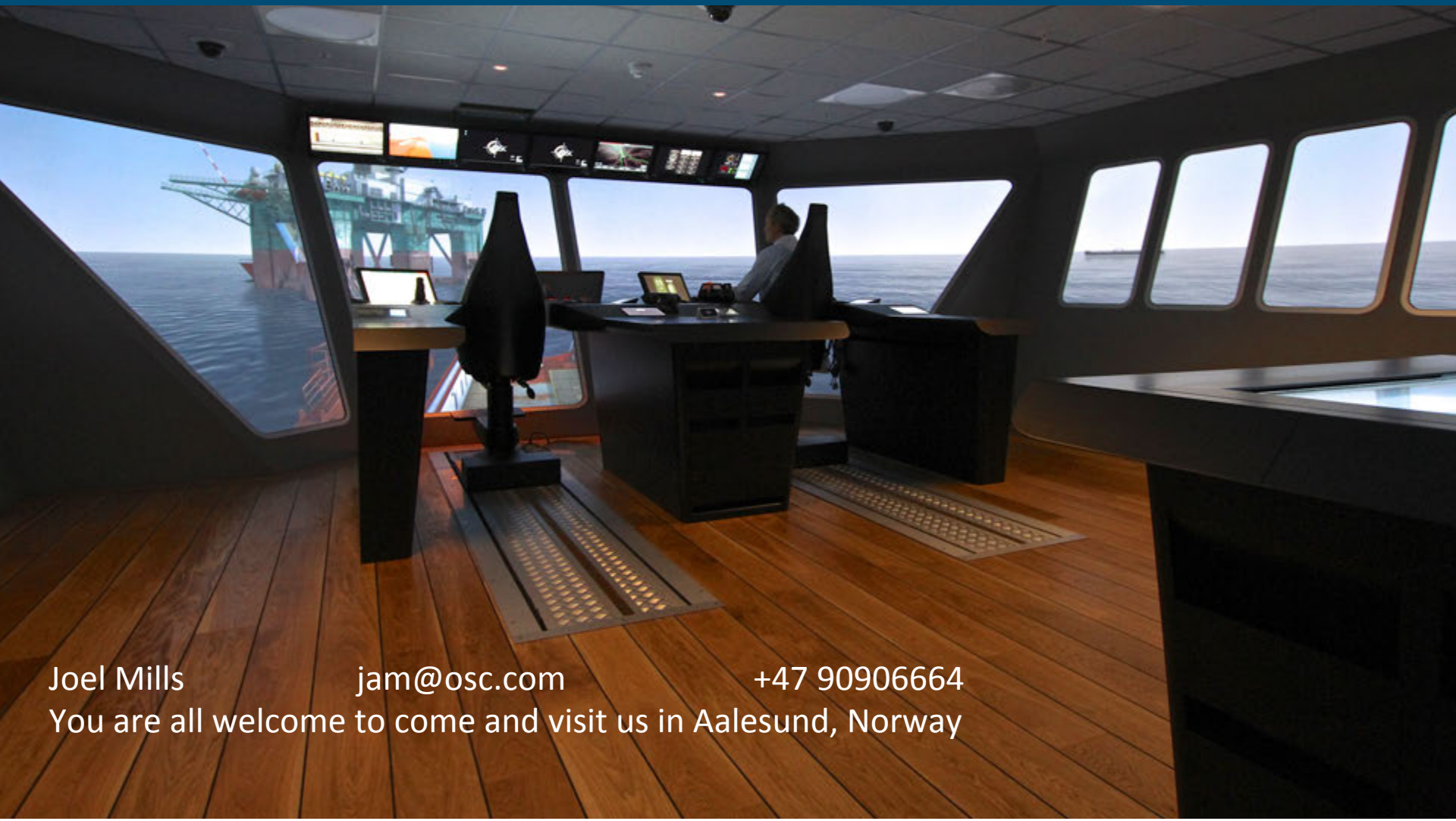
Extreme environments & Subsea



Renewables



Thank You



Joel Mills jam@osc.com +47 90906664

You are all welcome to come and visit us in Aalesund, Norway

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