





Offshore Wind



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Offshore Wind

- Access



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 July 2002

- Conference on wind energy
- A presentation on access
- Design something better
- An invention needs a codename: Ampelmann

"Offshore access, as easy as crossing the street"



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The problem



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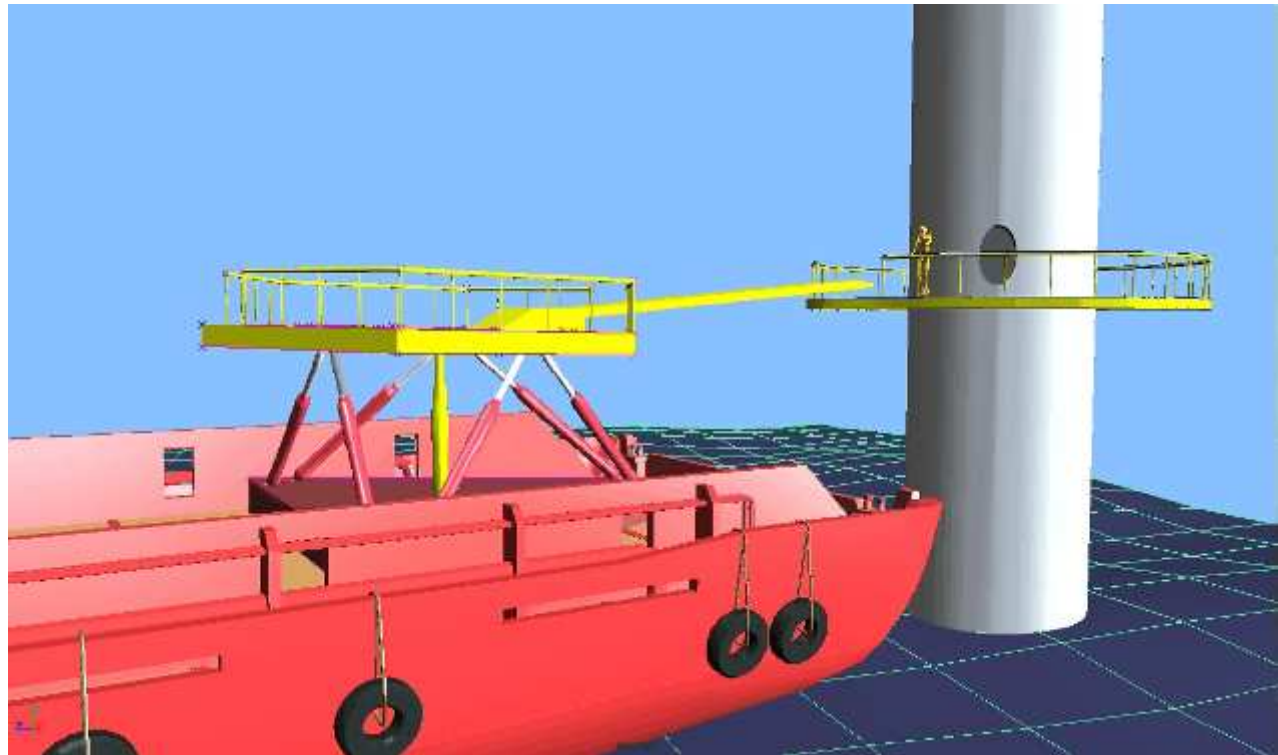


The problem



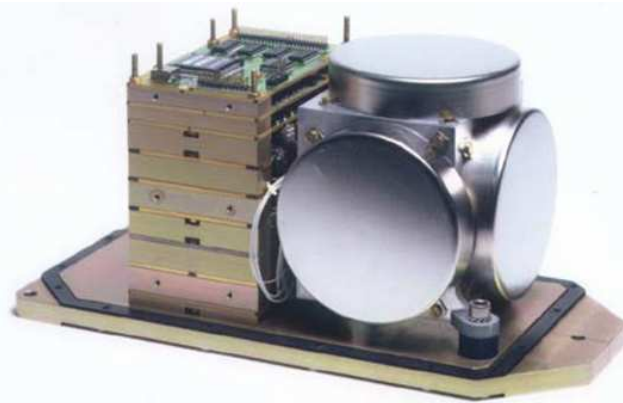
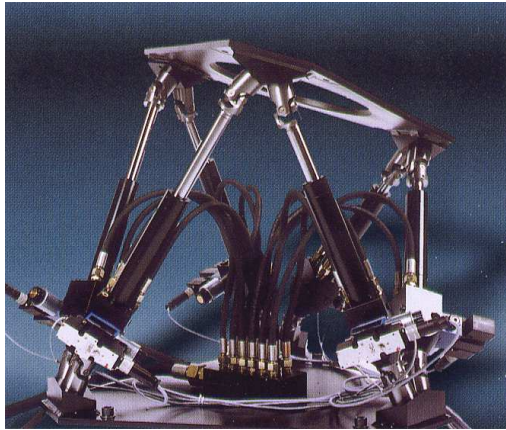
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 The solution



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 Proof-of-concept



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Team



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The solution



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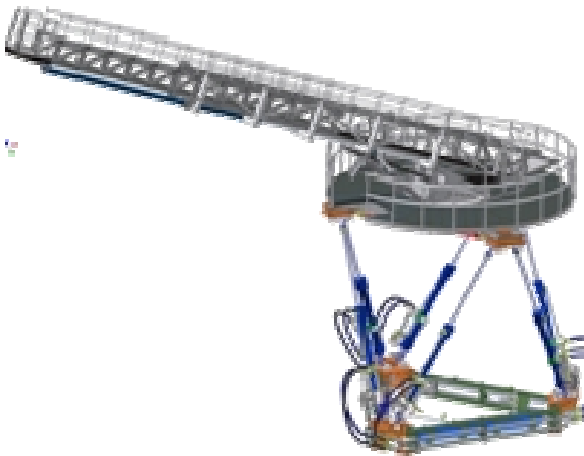
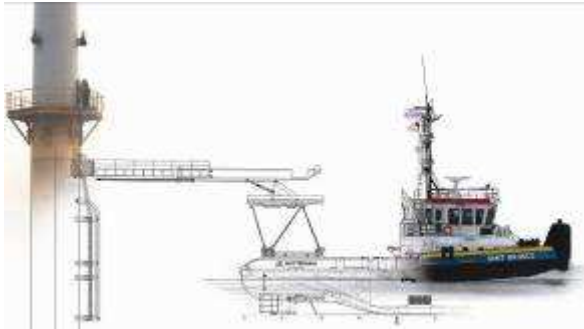
The solution



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Demonstrator phase



- 2 meter stroke cylinders
- Offshore proof
- Design for safety
- Test in offshore environment

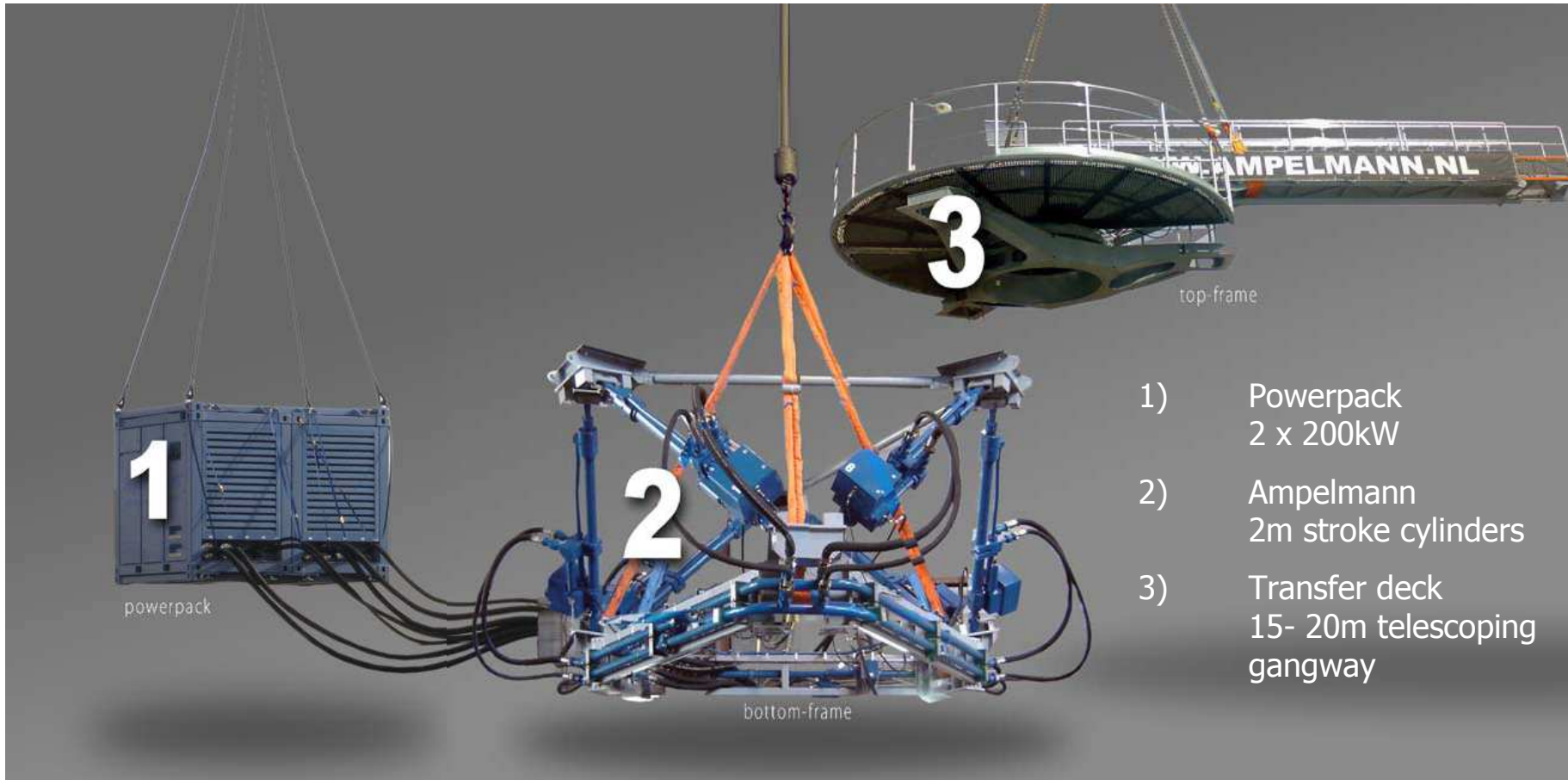
- Design:

$H_s = 2.5\text{m}$, 50m vessel \rightarrow no motions



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Modular design



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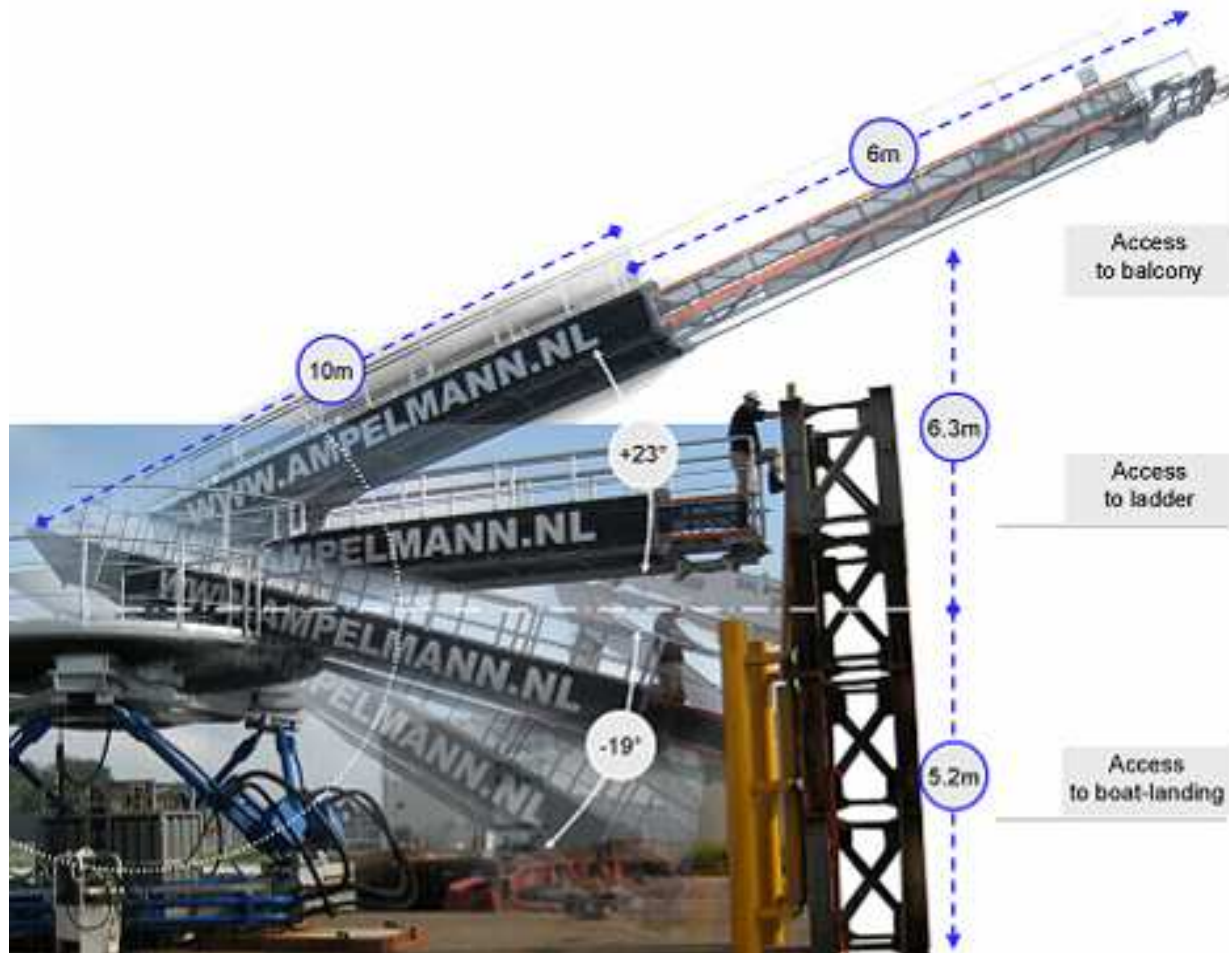
 Offshore test, July



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Gangway



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Offshore access, December



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Operational experience: P14-A

- Removal
- Operator: Wintershall
- Client: SMIT Marine Projects
- Vessel: Taklift 4

- Dutch HSE demand:
"Use safe gangway!"



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 P14 removal



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 As easy as crossing the street...



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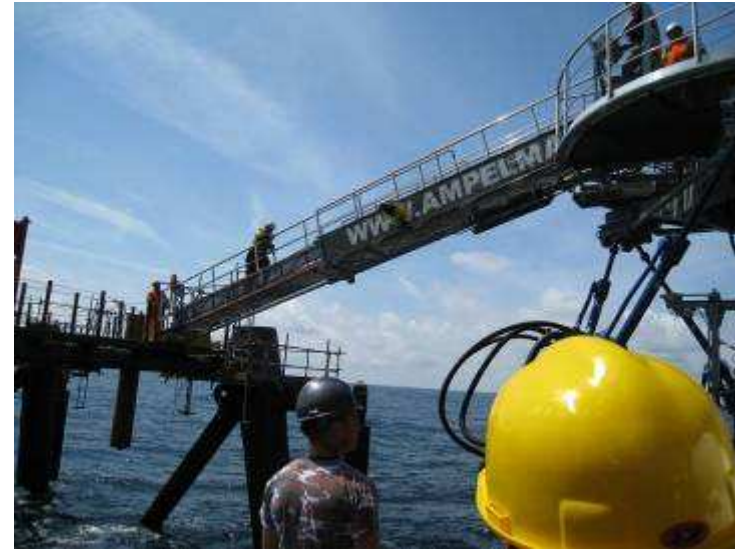


Topside lift on 5th of June



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Jacket removal



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P14 statistics

- Maximum transfer wave height (visual): $H_s = 2.8\text{m}$
- Maximum wind speed: 7 Bft

- Transfers: ~ 750
- Landings: ~ 170



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Access testing Oil & Gas



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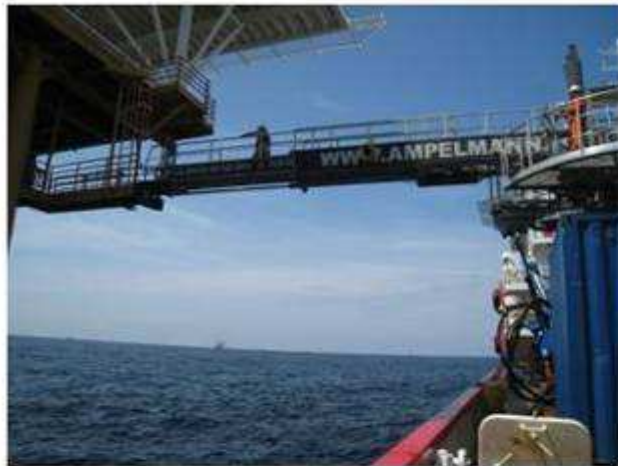
Brunei Shell Petroleum - Operations



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Brunei Shell Petroleum - Operations



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 As easy as crossing the street...



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Brunei Shell Petroleum - Operations

- Maximum transfer wave height : $H_{max} = 1.8\text{m}$
 - Evacuation drill: 45 people in 10 minutes
 - Access within 15 minutes of choosing the landing zone
-
- Transfers: 730
 - Landings: 85
 - Locations: 3



 Evacuation drill: 45 people in 10 min



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Ampelmann II

- More redundant components
- Hoses inside
- Faster luffing, slewing, telescoping
- Quick connection
- Ship to ship transfer with active TAB



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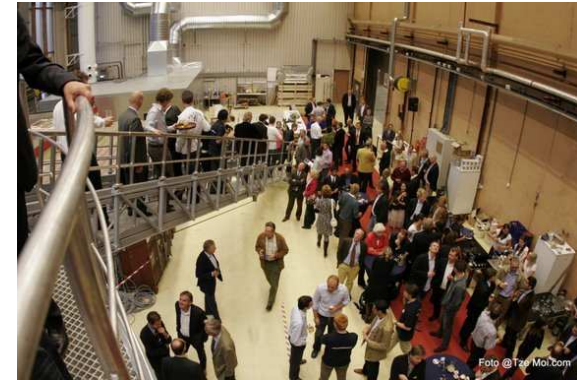
Ampelmann II



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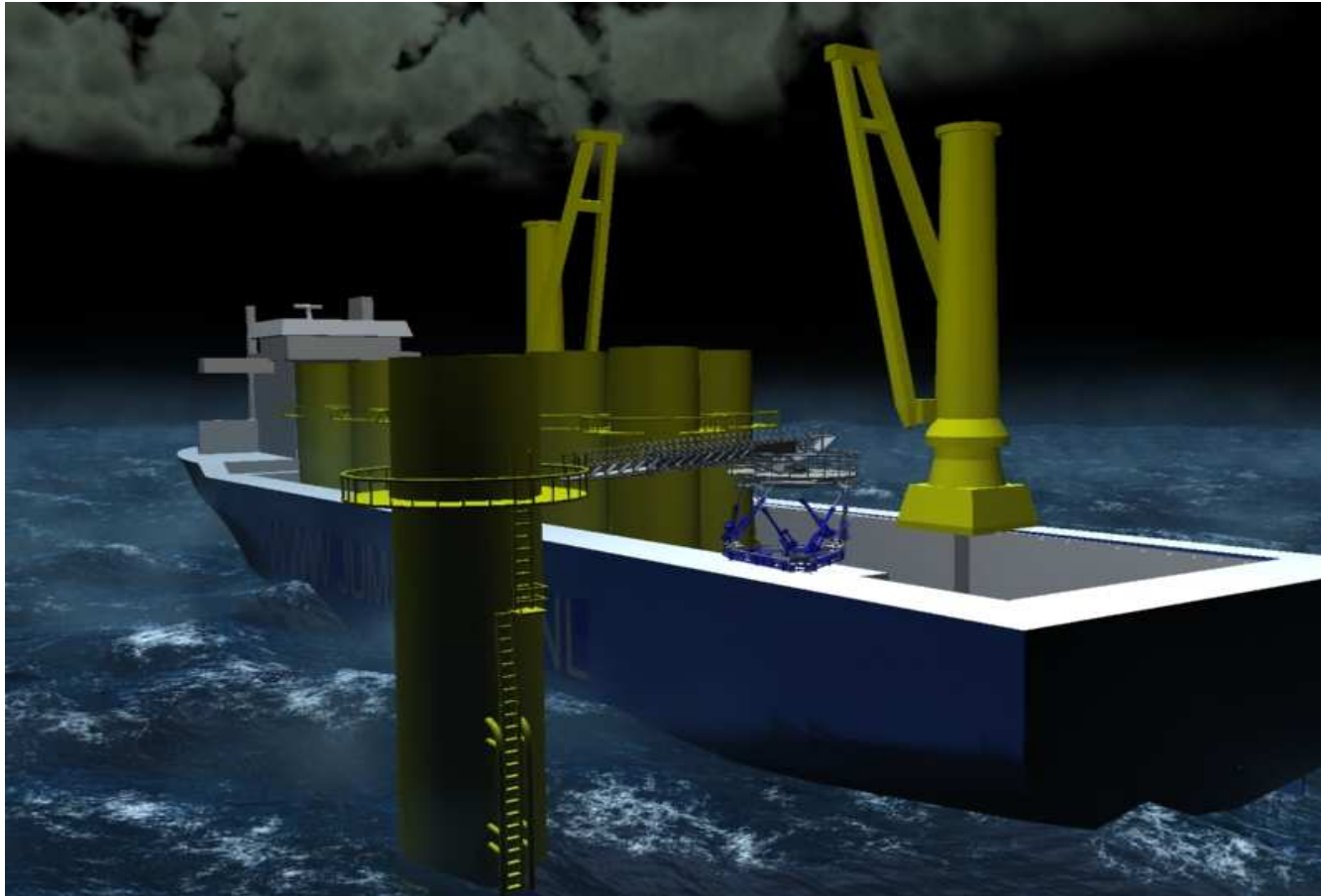
Grand opening 15 May



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This summer: installing offshore turbines



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Solution for offshore wind



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Innovation & Entrepreneurship

- Pitch
- Play the rules
- Build the network
- Live it
- Have fun



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Offshore access...

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