

05.02.2015  
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SPACE SYSTEMS

# Com4Offshore – Interactive Communication and Monitoring System for Offshore Wind Energy

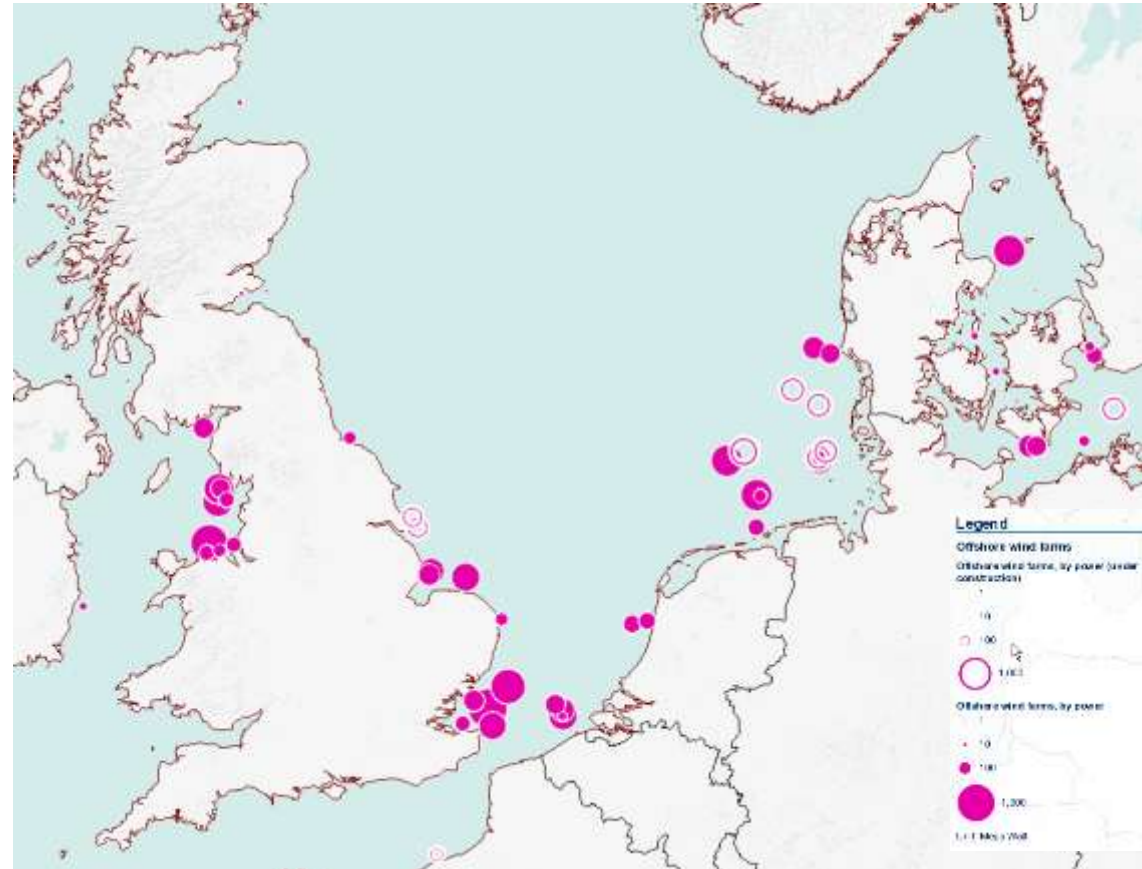
ESA ARTES Applications Workshop 2015, Geneva

We. Create. Space.

## Planned capacity of Offshore Wind in Europe and Germany

- Europe moves towards a fully decarbonized power system by 2050.
- EU targets renewable energies to provide 20% of Europe's energy supply by 2020 (“20-20-20 targets”).
- Offshore Wind Power is a key pillar of electricity source in the future.
- Offshore Wind Energy is able to provide base load power.
- The Offshore Wind Energy deployment has just begun.

„Germanys wind mills produced 9 Billion kWh per month in December 2014, more than all German nuclear power plants together in one month in 2013 (8 Billion kWh).“  
Der Spiegel (01.01.2015)

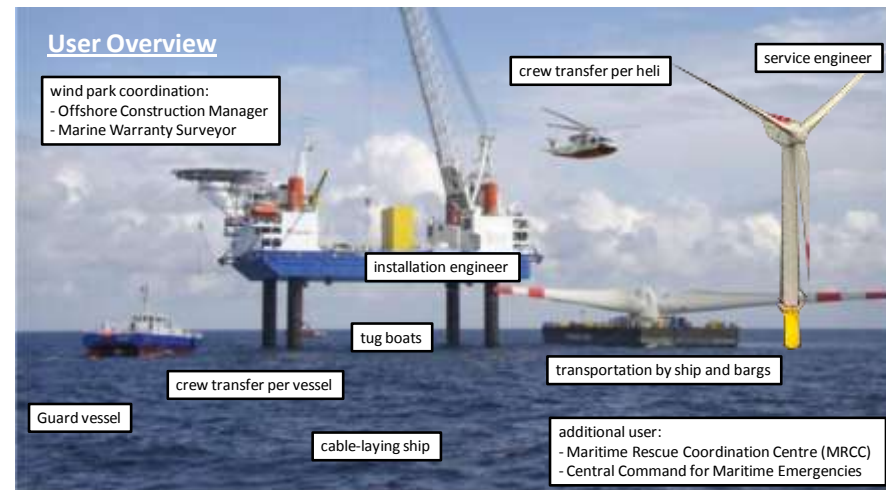


European Commission (2015): European Atlas of the Seas  
[http://ec.europa.eu/maritimeaffairs/atlas/maritime\\_atlas/](http://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/)

## Dimensions of the market

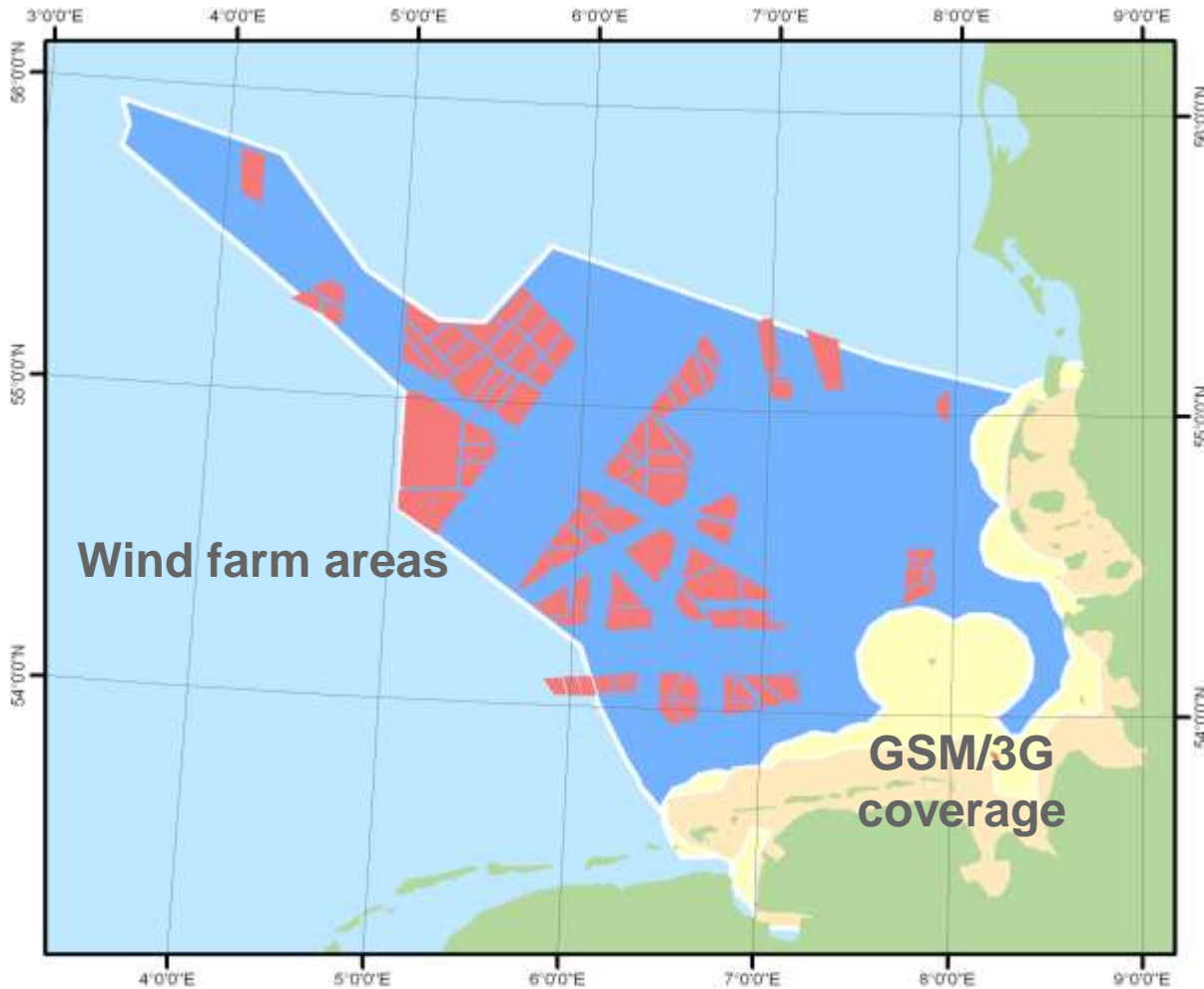
- Investment costs per wind park (80 x 5 MW turbines):  
ca. 1.5 billion €
- Construction time: ca. 2 years per wind park
- Daily charter rates:  
up to 100,000 – 250,000 € per vessel
- Over 20 vessels of various types can be located  
simultaneously within the wind park
- Several hundred employees are working on different  
vessels, installation barges or fixed offshore platforms
- Adverse weather and sea state conditions
- Potential savings through reduction of construction time  
(improvement of the installation logistics and construction  
processes) per wind park:  
**50 - 75 million €**

Source: Fichtner & Prognos (2013): "Cost reduction potential of offshore wind energy in Germany"





# Availability of satellite communication means



No terrestrial communication networks available during the construction phase.

Wind farm areas (red), GSM/G3 coverage (yellow/orange), German Exclusive Economic Zone (dark blue)  
Source: GSMA™, GSM Association, <http://maps.mobileworldlive.com/>

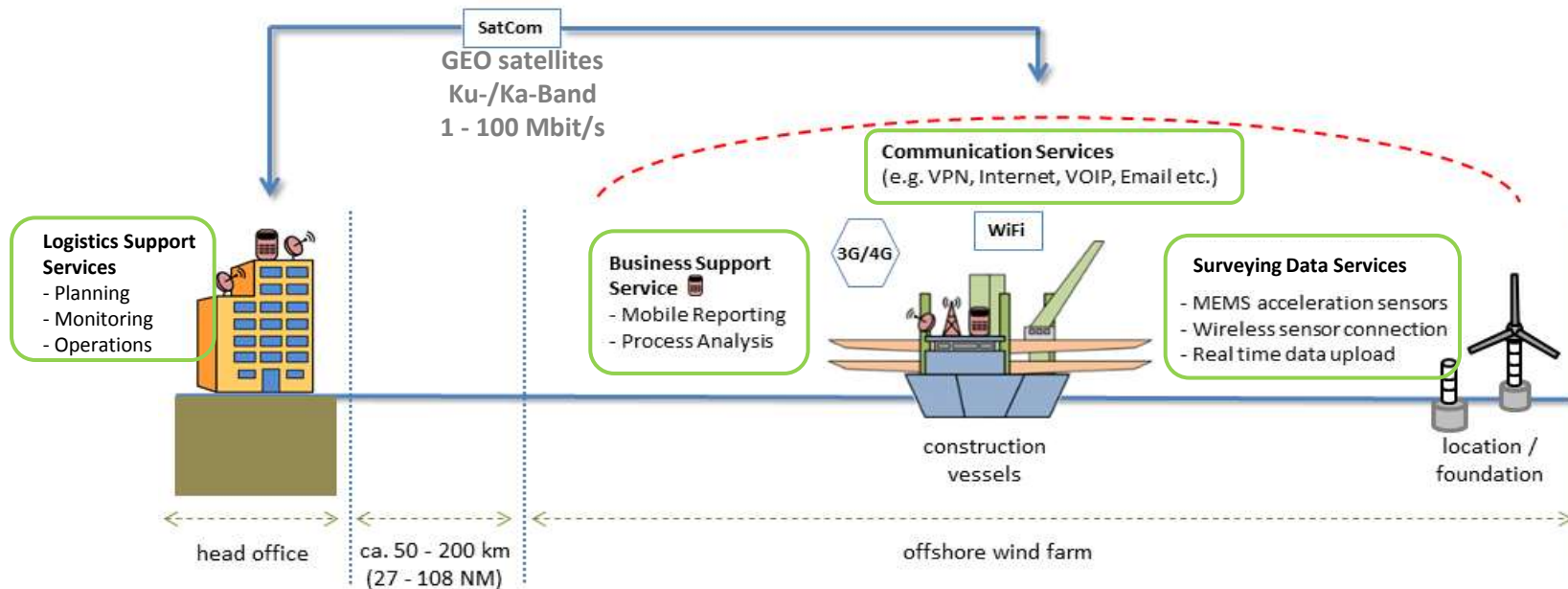
## Information sharing

- Tailored and flexible planning tools
- Delays of single process steps can have effects on the whole supply chain
- „Who and what is where and when?“

→ Optimization of processes by digitalization of operational procedures and permanent access to information



- Satellite based public service (“Hot-Spot”) supporting the communication needs of the different user groups in offshore wind farm areas
- Providing technically and economically optimal solution to the users irrespective of their location by combining wireless, mobile and satellite network technologies.
- Access communications services, sensor devices & software applications for offshore construction activities



## Overall Goal: Establishing Com4Offshore as Service Provider for Integrated Offshore Solutions

- Communication Services
  - Approx. 40 vessels already equipped with partner's Satcom solution
- Business Support Services
  - Prototype for mobile devices for daily reporting and situational awareness dashboard already tested in offshore environment
- Logistics Support Services
  - Partner already involved in the supply chain management of current construction projects





Many thanks for your attention!