

AP-OE

Ambassador Platform Offshore Energy



Innovative Technologies and Solutions from Space (and an introduction to ESA IAP)

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ESA IAP Ambassador Offshore Energy

Offshore Wind Meets...

- ... Oil & Gas
- ... Defence
- ... Space

*Driving innovation, research and
collaboration between industries*

6th December 2016, at OrbisEnergy, Lowestoft



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Offshore Energy



PURPOSE OF ESA

“To provide for and promote, for exclusively peaceful purposes, cooperation among European states in **space research** and **technology** and their **space applications.**”

Article 2 of ESA Convention



Facts and Figures

- Over 50 years of experience
- 22 Member States
- Eight sites/facilities in Europe, about 2200 staff
- 4.4 billion Euro budget (2015)
- Over 80 satellites designed, tested and operated in flight
- Over 20 scientific satellites in operation
- Six types of launcher developed
- 200th launch of Ariane celebrated in February 2011



Integrated Applications Promotion

- Space-based sustainable operational services to new user communities
- Space systems include Satcoms, Satnav, Earth Observation ...
- Sectors include Transport, Health, Safety, and ... Offshore Energy



IAP is the principal gateway to ESA
for entrepreneurially driven satellite application support



ISSWIND

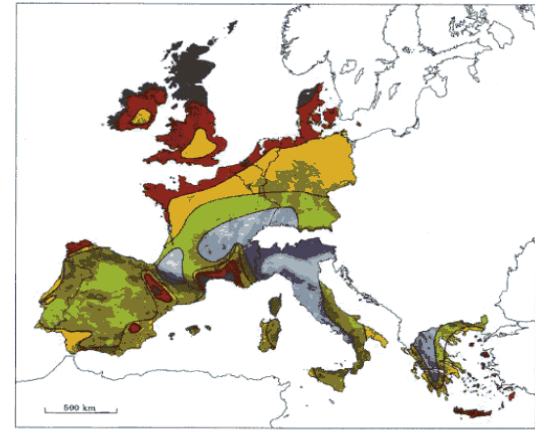
Support Services for Wind Power

Scope

- Wind resource assessments important economic risk element
- Penalties for missed power production estimates
- Beneficiaries: Developers, Park Operators, Transmission System Operators

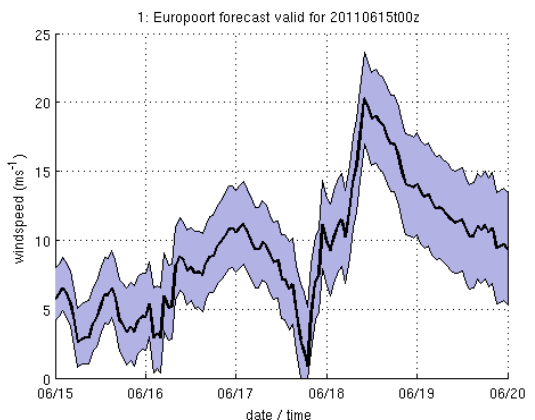
Services Studies

- Wind resource maps
- Wind and wave hindcast databases
- Weather forecasts
- Wind power forecasts



Wind resources¹ at 50 metres above ground level for five different topographic conditions

Sheltered terrain ²		Open plain ³		At a sea coast ⁴		Open sea ⁵		Hills and ridges ⁶	
m s ⁻¹	Wm ⁻²	m s ⁻¹	Wm ⁻²	m s ⁻¹	Wm ⁻²	m s ⁻¹	Wm ⁻²	m s ⁻¹	Wm ⁻²
> 4.0	> 200	> 7.5	> 500	> 8.5	> 700	> 9.0	> 800	> 11.8	> 1800
5.0-6.0	100-200	6.5-7.5	300-500	7.0-8.5	400-700	8.0-9.0	600-800	10.0-11.5	1200-1800
4.0-5.0	100-150	5.5-6.5	200-300	6.0-7.0	350-400	7.0-8.0	400-600	8.5-10.0	700-1200
3.0-4.0	50-100	4.5-5.5	100-200	5.0-6.0	150-250	5.5-7.0	300-400	7.0-8.5	400-700
< 3.0	< 50	< 4.5	< 100	< 6.0	< 150	< 6.5	< 300	< 7.0	< 400





Com4Offshore

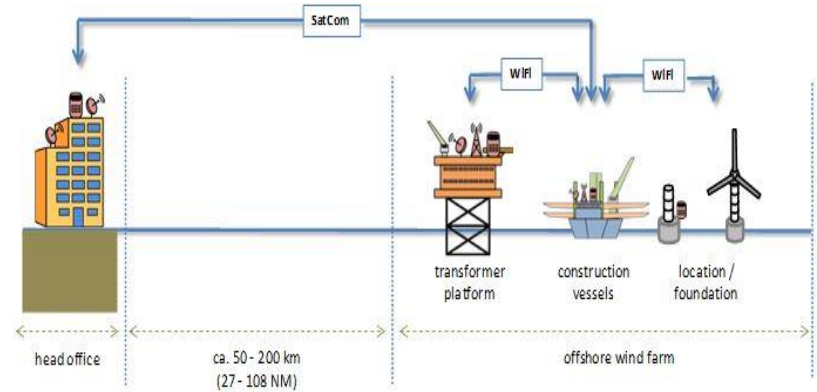
Interactive Communication and Monitoring System for Offshore Wind Energy

Need

- Most German/Baltic windfarms are more than 100 miles offshore
- There is no integrated communication during construction
- Over 20 vessels can be located simultaneously in the wind farm area.

Approach

- Improved info flow between onshore and offshore logistics management
- Dedicated satellite comms as part of integrated solution



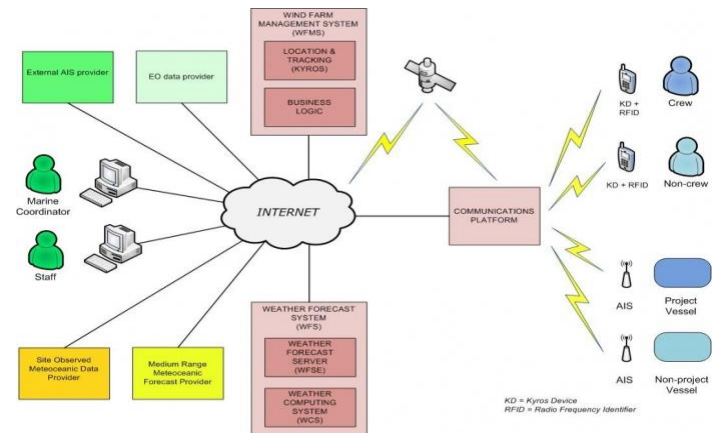
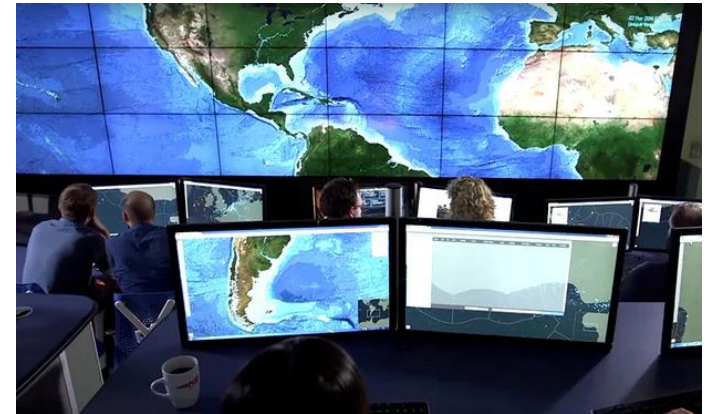


SUMO

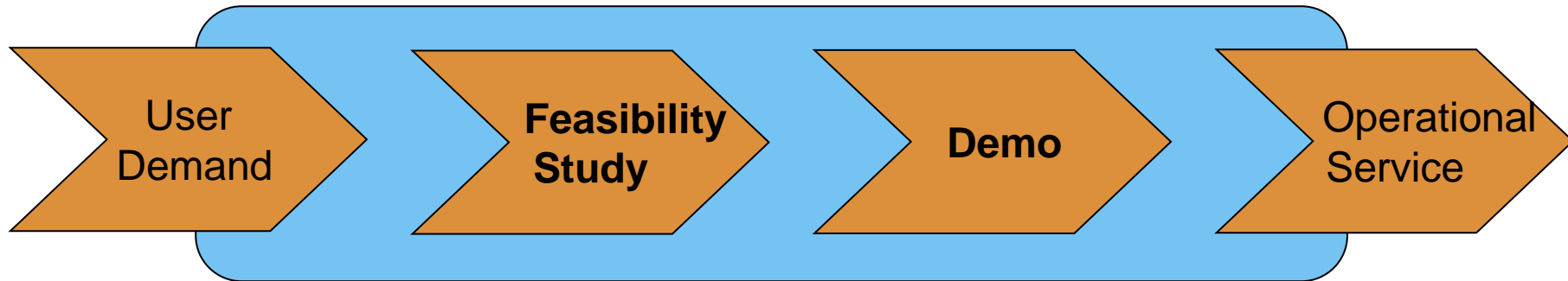
Interactive Communication and Monitoring System for Offshore Wind Energy

To Enable Marine Coordinators to improve control of the wind farm, logistics and Health & Safety

- Satellite Positioning is used for locating key personnel involved in operation activities.
- To achieve real time feature satellite positioning will be combined with sat-comms.
- Vessel positioning using land based and satellite based AIS.
- Sat-comms used to send data from a network of RFID swipe card readers and an AIS receiver to the Onshore Control Centre.
- Metocean data provided as a module within integrated system.



ESA IAP Funding



Funding by ESA:

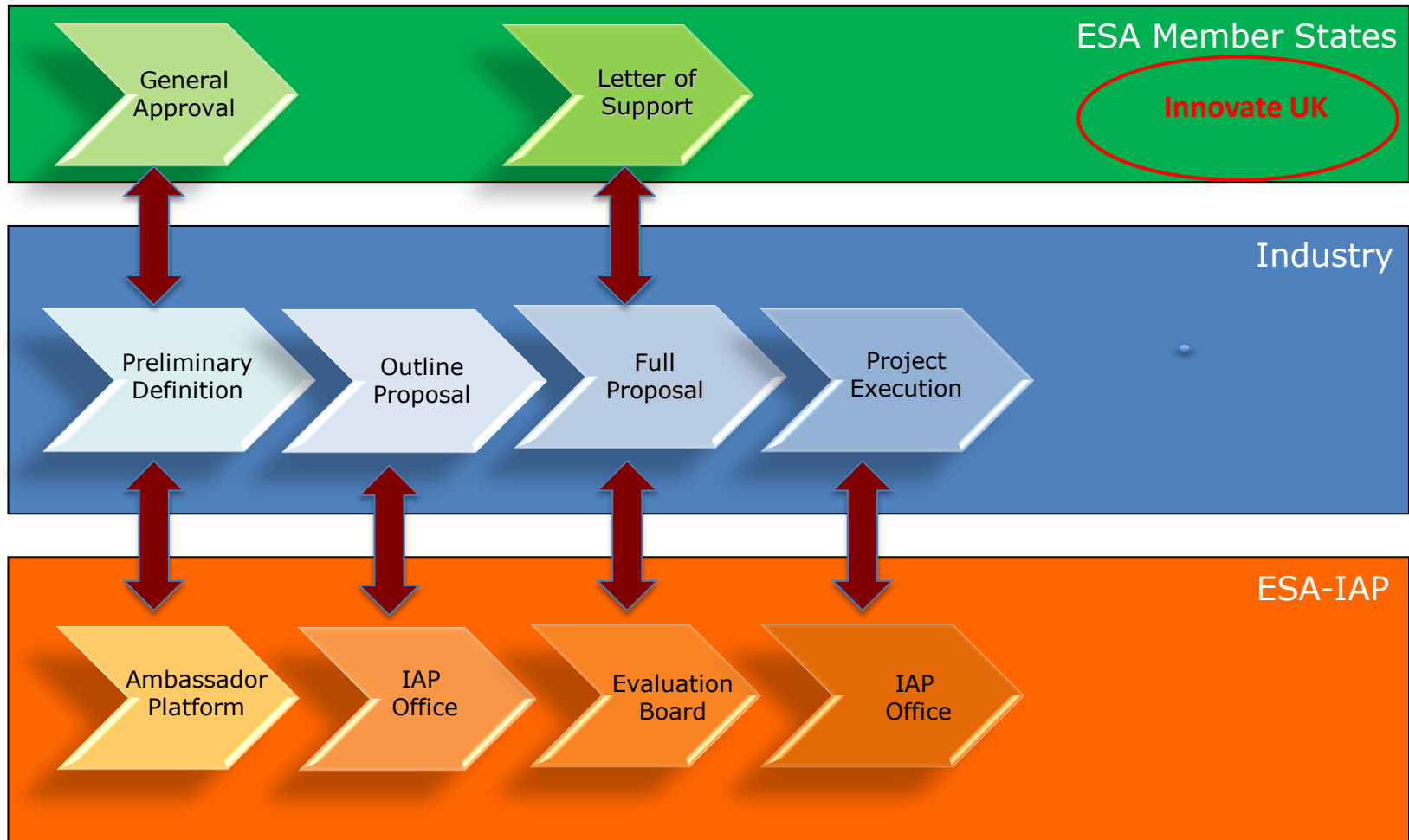
- 100% - ESA initiated activities in close collaboration with users / stake-holders.
- 50% * - Partner / industry initiated activities in close collaboration with users / stakeholders
- Fastrack support of 75% to €60k for certain themed quick studies.

Funding by ESA:

- 50% - initiated by ESA or industry

* For Feasibility Studies only:
Work carried out by universities and research institutes and justifying no further commercial interest in the final solution may be funded 100% by the Agency. For SMEs – support can be up to 75%

Application Processes



ESA Requirements in the Outline Proposal – a summary

- System/Service Overview
- Major Project Stakeholders
- Service Value Chain
- Competitive Positioning
- Market Analysis
- Financial Indicators
- User Requirements
- System/Service Architecture
- Implementation Approach
- Pilot Service
- Finance, Management & Administrative

Do's and Don'ts courtesy of Andy German, Innovate UK

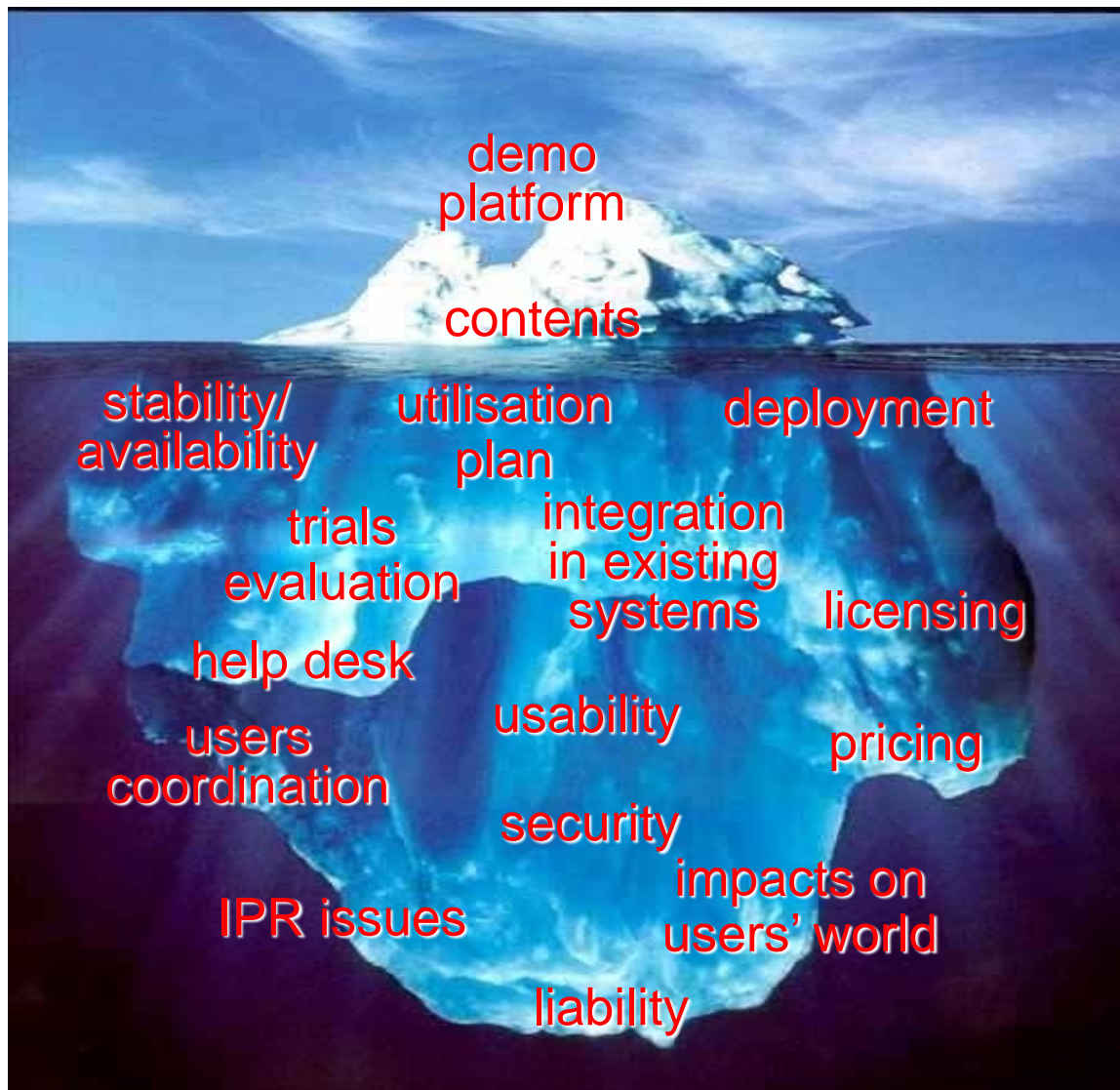
- Don't explain how the project helps build your business
- Do think of it as “ESA money” rather than UK public money
- Don't get the core Value Proposition straight before writing up the proposal
- Do focus on the technology and extrapolate forwards
- Don't get anyone else to sanity check your idea
- Do increase project size in order to prolog “Time to Market”
- Don't talk about job creation or revenue predictions.
- Do leave it until the week before the deadline
- Don't use diagrams, charts or pictures
- Do use jargon, extra words, unqualified statements
- Don't explain why you need public money
..... in order to guarantee nil investment

Feasibility:

Look, it works!

Sustainability:

It is an available and reliable 24/7 service



- **Links / Contacts**

- IAP Website: <http://artes-apps.esa.int>
- IAP Open Call for co-funded activities online on - EMITS: <http://emits.esa.int> (AO6124)
- Outline Proposal Development Tool <https://artes-apps.esa.int/news/outline-proposal-development-tool-for-artes-applications>
- Project web pages of IAP feasibility studies and demo projects <http://artes-apps.esa.int/projects>
- IAP general email address: iap@esa.int
- IAP Ambassadors Offshore Energy: callum.norrie@ore.catapult.org.uk