SFI SMART OCEAN

Hosted by the Department of Physics and Technology at the University of Bergen.

Purpose

To develop a novel sensor- and communication system to secure sustainable industry operation and fact-based ocean management.

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Objective

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Autonomous and intelligent sensors operating in a wireless low power network providing data for analysis.

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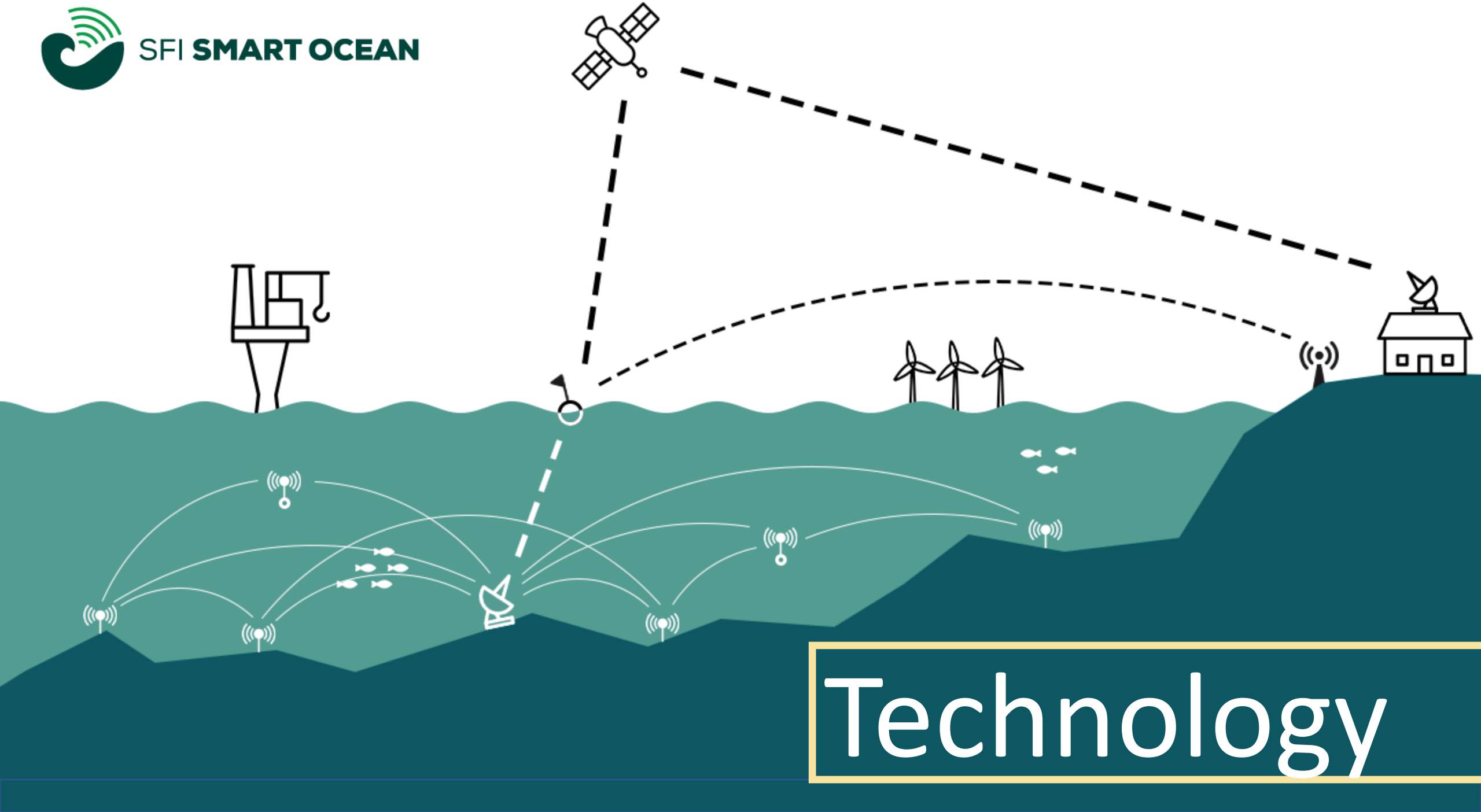

Technology

Research partners

UNIVERSITY OF BERGEN

Western Norway University of Applied Sciences

FFI Forsvarets forskningsinstitutt
Norwegian Defence Research Establishment

NORCE

NERSC

Havforskningsinstituttet

User partners/Industry clusters

GCE | NODE
GLOBAL CENTER OF EXPERTISE

GCE Ocean Technology

National authority observers

FISKERIDIREKTORATET

PETROLEUM SAFETY AUTHORITY NORWAY

User partners - Industries

AANDERAA a xylem brand

Lundin Energy

bouvet

tampnet

TSC Part of Eddyfi Technologies

MONVIRO

METAS

KONGSBERG

Sustainable ocean industry operations

Fact-based ocean management

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Centre organization

Work packages (WP) and Integrating Functions (IF)		IF 1				IF 2
		Pilot demonstrators				Overarching activities
		Environment		Integrity		
WP 1	Autonomous sensors and measurementment strategy	PD1 - Local scale environmental monitoring	PD2 - Mesoscale environmental monitoring	PD3 - Integrity measurements, offshore wind	PD4 - Integrity measurements, oil and gas	- Administration - Education - Data Management - Communications - Commercialisation - Innovation & IPR
WP 2	Wireless network communication					
WP 3	Software technology and big-data middleware					

Value to the offshore wind industry

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Smart and open

- Smart, wireless and energy efficient sensors and network
- Standard interfaces and protocols
- Any sensors/vendors
- All ocean industies
- Cost efficient installation including retrofit installation

- Open data
  - Non-sensitive data can be made publicly available
  - Knowledge based decisions for industry and regulators
  - Supporting environmental research and climate research

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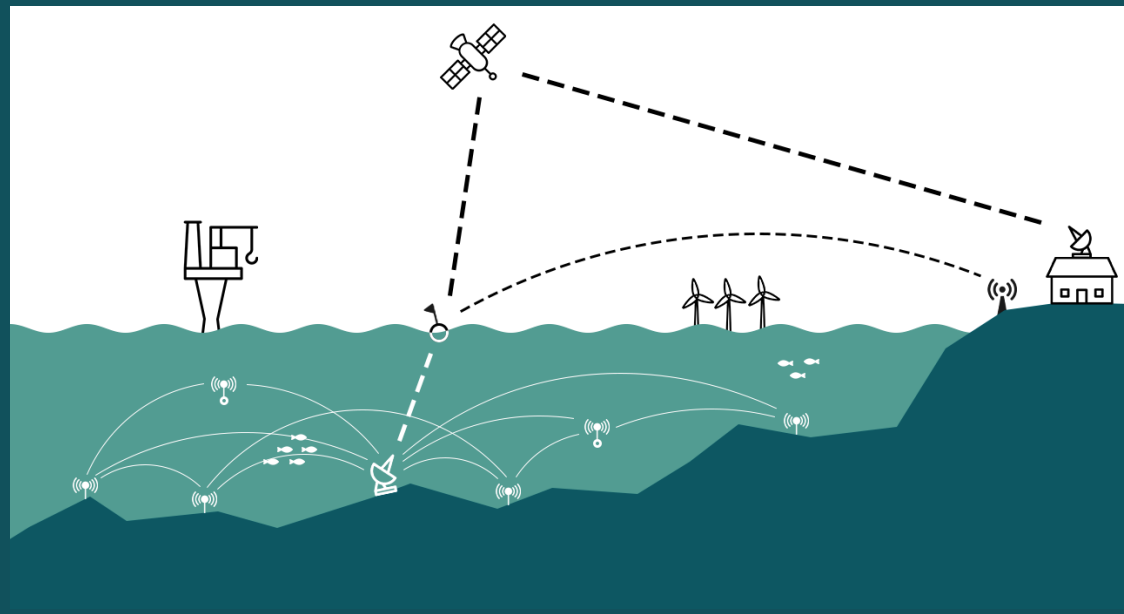
Reliable data collection

- No cables in splash zones and on moving parts
- Nano technology to prevent bio fouling on sensors and antennas
- Methodologies for uncertainty calculations, and detection and handling of drift in sensors



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Specific examples

Environmental monitoring

- Environmental impact and input to field design

- Parameters in current scope
  - Noise fields
  - Currents
  - Waves
- Examples of possible add-ons
  - Species in the water
  - Combine with other data, e.g. wind measurements, and integrity and operational data

- PD1: Main demonstrator at Austevoll

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Integrity monitoring

- Included in scope
  - Load-measurements; wave and currents
    - Threshold trigger alarms
  - Grouting integrity
- Examples of possible add-ons
  - Strain in support structure and mooring lines
  - Scour monitoring around fixed turbines
  - Vibration monitoring

- PD3: Integrity meas. offshore wind

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Thank you!

- Please do not hesitate to contact us

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Funded by the Research Council of Norway and Centre Partners

Contact details at:
https://sfismartocean.no/