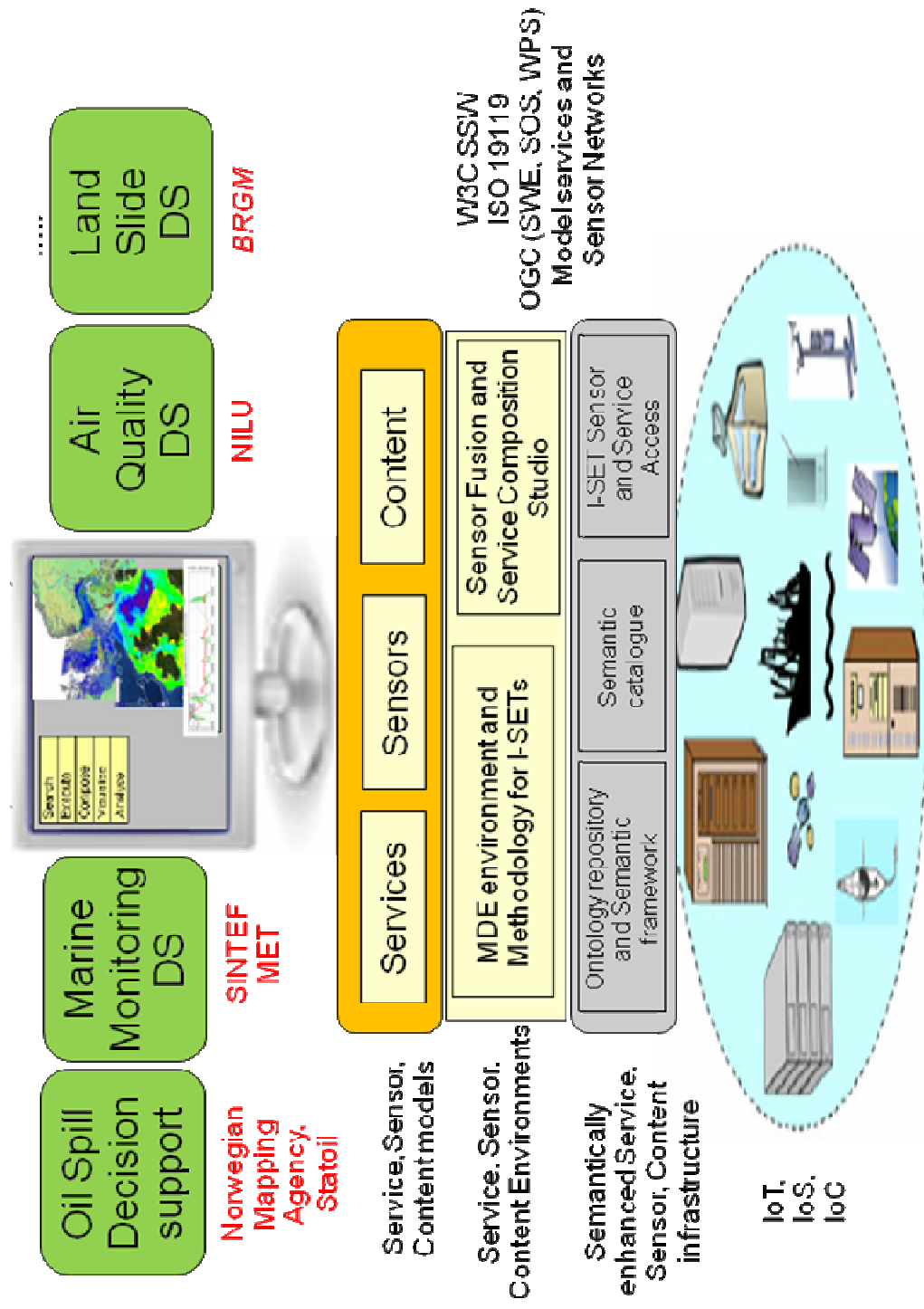


Future Internet Infrastructure for Environmental Services, Sensors and Content Use cases

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- The ENVISION project, ENVIRONMENTAL SERVICES INFRASTRUCTURES WITH ONTOLOGIES, www.envision-project.eu, is one of seven projects aiming at meeting the requirements of objective 6.4, based on the use of an underlying internet based platform.
- Objective ICT-2009.6.4 ICT for Environmental Services and Climate Change and 6.4b on *Flexible discovery and chaining of distributed environmental services*
- Linked to the Single Information Space in Europe for the Environment (SISE), the Shared Environmental Information System (SEIS), INSPIRE Directive and the Global Monitoring for Environment and Security (GMES) initiative

(1) Use case and scenario for large-scale experimentation with the Future Internet



(2/3) Innovation and Expected functionalities of Future Internet core technology platform

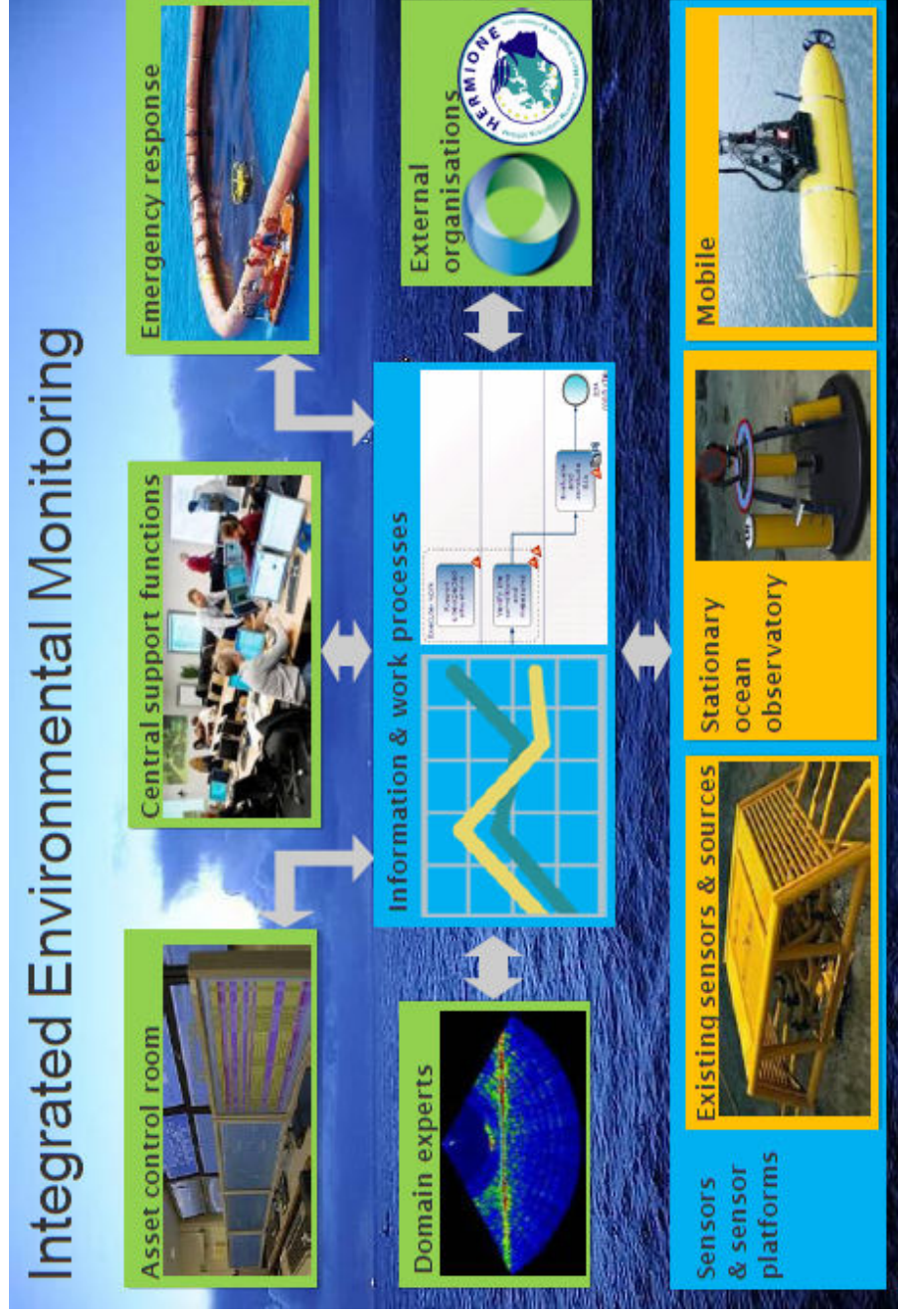
- **Federated Open Trusted Platforms (FOTs):** Cost effective design, development and deployment of Environmental models and applications requires FOTs to emerge, so that platforms developed for this (such as ENVISION) can inter-connect, inter-operate and inter-work with platforms for other verticals.
- **Internet of Services:** As seen from the environmental requirements, we see that several services from different verticals need to seamlessly inter-connect and inter-work in order to provide a suitable environmental service. Flexibility, adaptability and configurability of services is important to ensure adaptation to individual needs. The concept of Software as Services (SaaS) is also central to the environmental models, as costs and flexibility is crucial for sustainable deployment strategies. Services in the environmental domain, especially safety and security services rely on an infrastructure provided by a core platform that is dependable, reliable, and secure.

(2/3) Innovation and Expected functionalities of Future Internet core technology platform

- **Internet of Things:** Environmental solutions need standardised mechanisms for manageable sensors & actuators, sensor data storage and sensor fusion in order to provide the necessary quality of service. Availability through a core platform would ensure deployment in highly fragmented domains and environment, in a secure and stable manner. Models supporting this will need integrated mechanisms for handling Event Driven Architectures.
- **Internet of Networks:** Environmental infrastructures would need to integrate and bridge many different wireless and connected network infrastructure.
- **Internet of Content:** The Environmental community has large volumes of data that needs to be supported both in the context of simulations (suggesting use of cloud computing facilities), and in the context of efficient multi language search and retrieval. Ontologies and integrated support semantic technologies for handling this becomes important for the support of interoperability among various data sources.

(4) Requirements for an experimentation environment and prototype platform

- The emerging European environmental infrastructure would be able to provide a set of interesting use cases and requirements for a core internet platform, and also be able to provide an initial set of experimental environments for the first trials for use cases.



SINTEF ICT Position Paper

5. SINTEF in FI-PPP, the Environment Area

- Knowledge base of end user and developer needs and requirements in an Environmental setting. Cooperation with industry (Statoil) and government.
- Knowledge base of the use of standards (ISO, OGC, OMG, OASIS, W3C, ...) and contributing to the same.
- Open source and standards based service platform for the development of an Environmental service infrastructure.
- Experience from developing environmental services and running long-term field evaluations.
- Results from empirically evaluating use of technology platforms on developers and methodology for doing such research.

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