FOSG support for a European Integrated Sea Information System (ISIS)

Introduction

FOSG considers that there is a compelling need for an Open Integrated Sea Information System (ISIS) to accelerate the development of marine energy resources, certainly of Offshore Wind and the Supergrid in the European Seas. Taking into account the foreseen investments in the short-medium term in the North Sea such a European system becomes even more urgent. ISIS will require the creation of a user-friendly solution which predicts and mitigates project risk. Today, investors need to deal with many different and disperse sources of Sea data that diminish the efficiency and accuracy needed for this kind of difficult investments despite the large financial expense that such data represents for the projects.

There are 4 layers to this solution which incorporates:

- advanced High Performance Computing,
- advanced visualisation technology,
- a data historian infrastructure, and
- encrypted fault-tolerant wireless communications.

1 ISIS Vision

A comprehensive model of Europe's Seas is needed, open to all, to help plan, develop, construct and operate offshore wind farms, other marine production technologies and grid investments across this important resource. Such a model will act as a decision support tool and needs to be more than 3 Dimensional; the model needs to be n-Dimensional. Moreover, analytical and foreseeable software tools are needed to predict, identify and mitigate risk. ISIS would accelerate the pace of development by removing risks, uncertainty, delays and errors which can in some cases amount to 5% of the project cost. With an openly available European ISIS, a knowledge base can be built, an industry can make better decisions, and sustainability can be achieved sooner. Developing and building offshore wind farms and the Supergrid elements would happen faster. Such a system would also help answer questions on long-term sea-life habitat formation, prevent of foundation scour and improve operational health & safety.

2 Benefits of ISIS

ISIS will convert Data into Wisdom by allowing for the visualisation of n-Dimensions of data (*seabed silt bars, ocean currents, bird migration patterns, etc*) and the identification of current risks and the prediction of future risk through the use of High Performance Computing to run a time-series prediction.
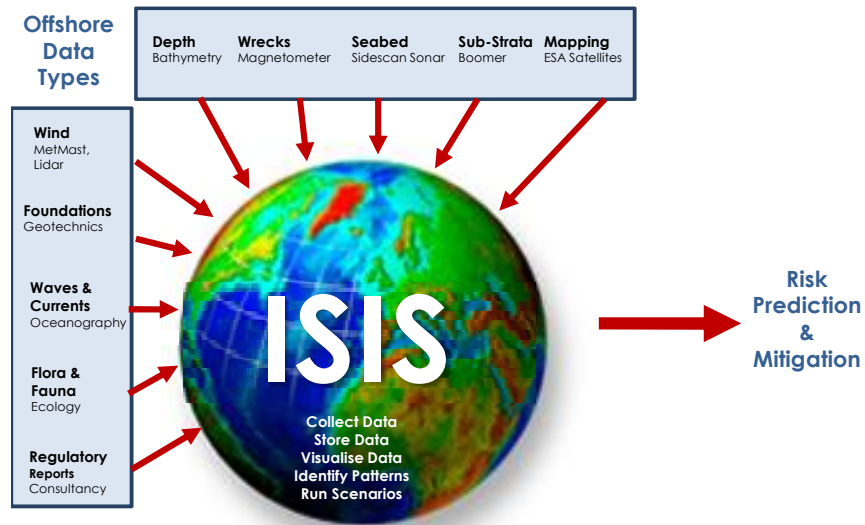
- Single Version of the Truth: N-Dimensional database,
- Faster Decision Making : Risk Identification, Prediction, Mitigation,
- Fast Replication of Learning : Open Standard models applicable to any project
- Efficient Work Flow : Integration with existing technology
- Increased Personal and Team Productivity : Clear , single repository for Data, Analysis, Decisions

Although ISIS cannot compensate for all survey needs (for instance, the level of detail needed for cable routes would be non-economical if extended to the entire seabed in Europe), it would certainly speed up the process in pre-development phase and reduce costs during project development.

3   Features of ISIS

The main objective of the ISIS project is to build a Risk Management tool which allows all the data to be collected, stored, visualised in one repository, facilitating risk identification, prediction and mitigation.

Convert Data into Wisdom

Key Features include:

- A single Pervasive Sensing Infrastructure to measure the Sea environment in real-time
- Integrated collection of EC Regulatory data on the Sea environment
- An accurate repository of Seabed information.
- Able to optimise the Positioning of foundations during the planning & construction phases.
- Modeling of Actual Data, what-If Scenarios, time

4   Conclusions

FOSG would strongly support any measure including regulatory, that the European Institutions would consider necessary to launch a private-public partnership that allows a European ISIS to be put in place.

Industry, academia, legislators and NGOs should all be part of ISIS.