

Integrated Operations in the High North

Integrated Operations in the High North – Joint Industry Project



Project Outline
September 2008



Contents



- Background
 - Integrated operations
 - Oil & Gas in the High North
- Integrated Operations in the High North
 - Objectives
 - Project layout
 - Scope and schedule
 - Participants and funding

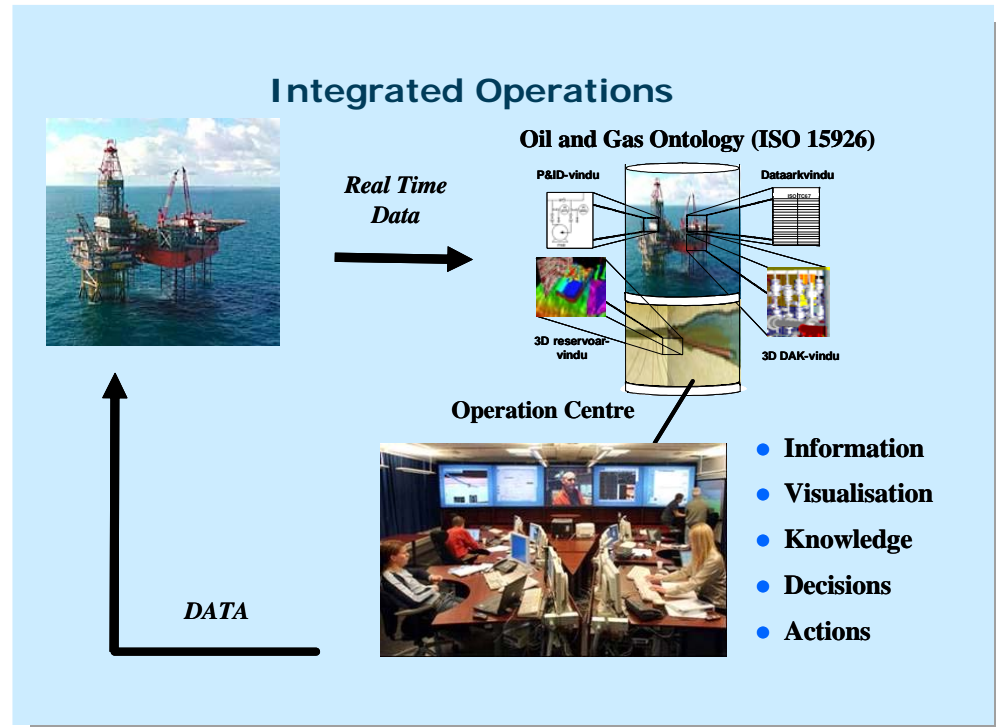


IO in OLF

- **Awareness**
 - ✓ IO potential
 - ✓ Consequences of IO technologies on integrated work processes
- **Common industrial solutions**

Common digital infrastructure (focus on data):

- **Communication**
 - ✓ Data capture
 - ✓ Data transmission
- **Information Security**
- **Interoperability**
 - ✓ Common Oil & Gas Ontology (Terminology)

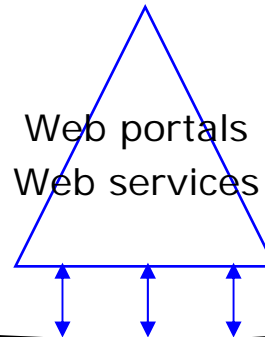


OLF's Information Management Strategy

An efficient pipeline for real-time data transferal and analysis



Smarter solutions



Vendor



Operator



Vendor

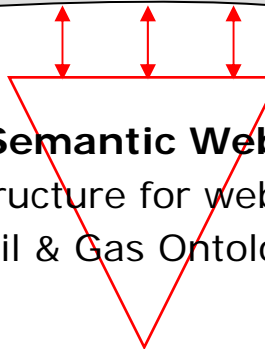


Common XML schemas

Semantic Web

- Infrastructure for web services
- Oil & Gas Ontology

Smarter data



Field data

- Health, safety, environment
- Seismic
- Drilling & Completion
- Reservoir & production
- Operation & maintenance

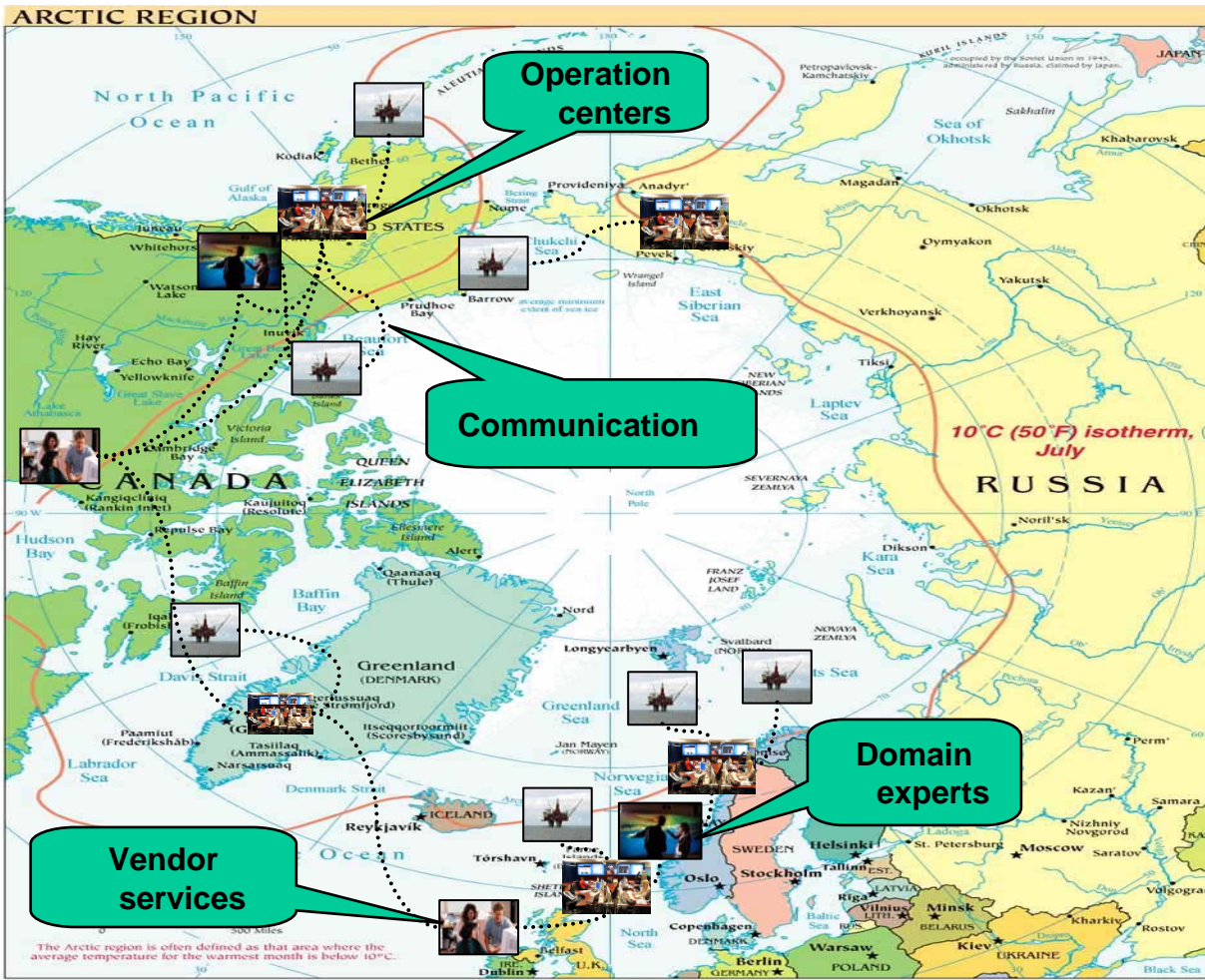


*Ontology = A hierarchical data structure containing concepts, relationships, properties and rules for a specific domain

Integrated Operations in the High North



Integrated Operations in the High North – Joint Industry Project

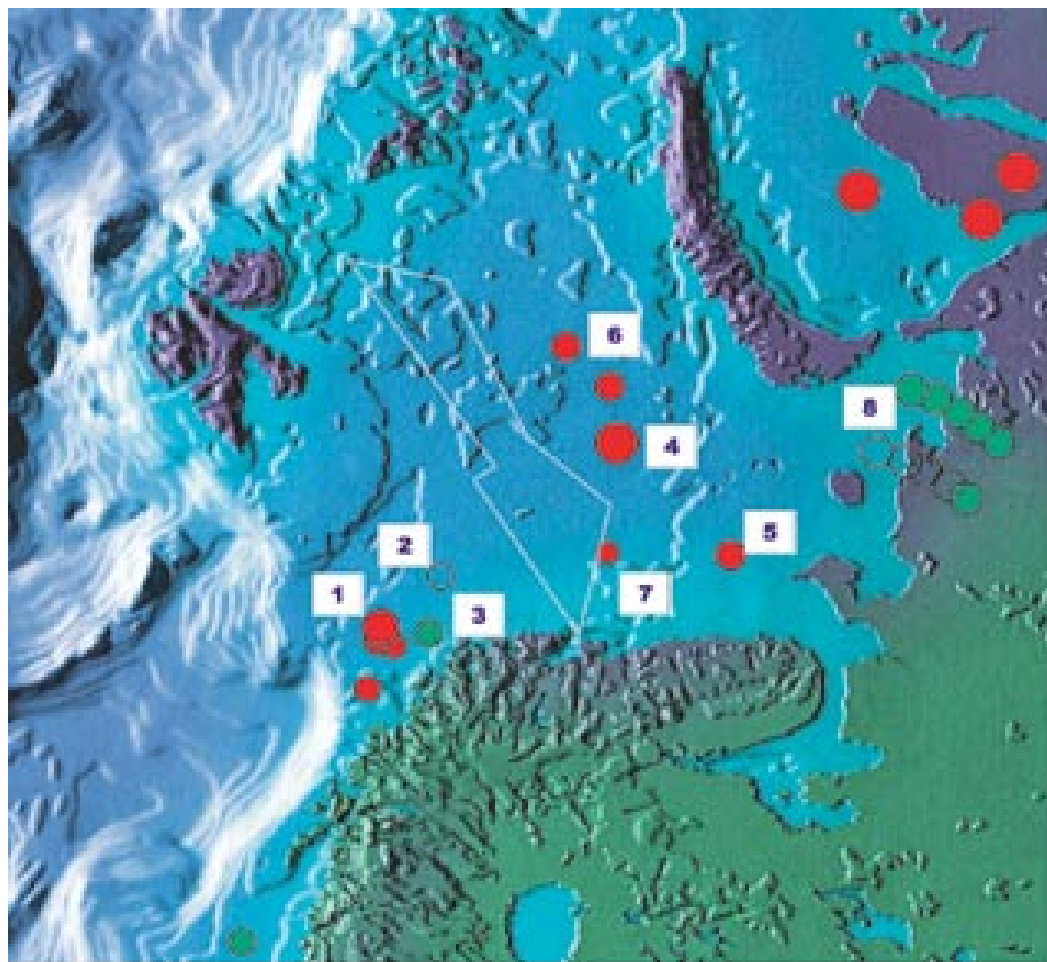


- Remote
 - Long distances
 - Insufficient infrastructure (Technical and "social")
- Hazardous conditions
 - Ice
 - Weather
 - Darkness
- Integrated operations supports work processes that is:
 - Distributed
 - Connected
 - Integrated



Oil & Gas in the High North

Integrated Operations in the High North – Joint Industry Project



- Gass**
- Olje**
- Gass og olje**

- 1: Snøhvit, Albatross, Askeladden
- 2: Dumbo
- 3: Goliath
- 4: Shtokmanovskoye
- 5: Murmanskoye
- 6: Ludlovs kaya
- 7: Kildinskoye
- 8: Prirazlomnoye, Medinskaya, Dolginskaya...



Main Objectives

- The primary objective of the project is to develop:
 - A demonstrated reliable digital platform for Integrated Operation Generation 2 (IO G2) in the High North
 - IO G2 pilots within drilling, R&P, O&M in the High North
 - Decision Support for drilling, R&P, O&M
- IO G2 for the High North shall facilitate operations in remote and hazardous conditions, the use of limited operational personnel and “zero footprint” solutions



Project Architecture – Technical view (Detailed)

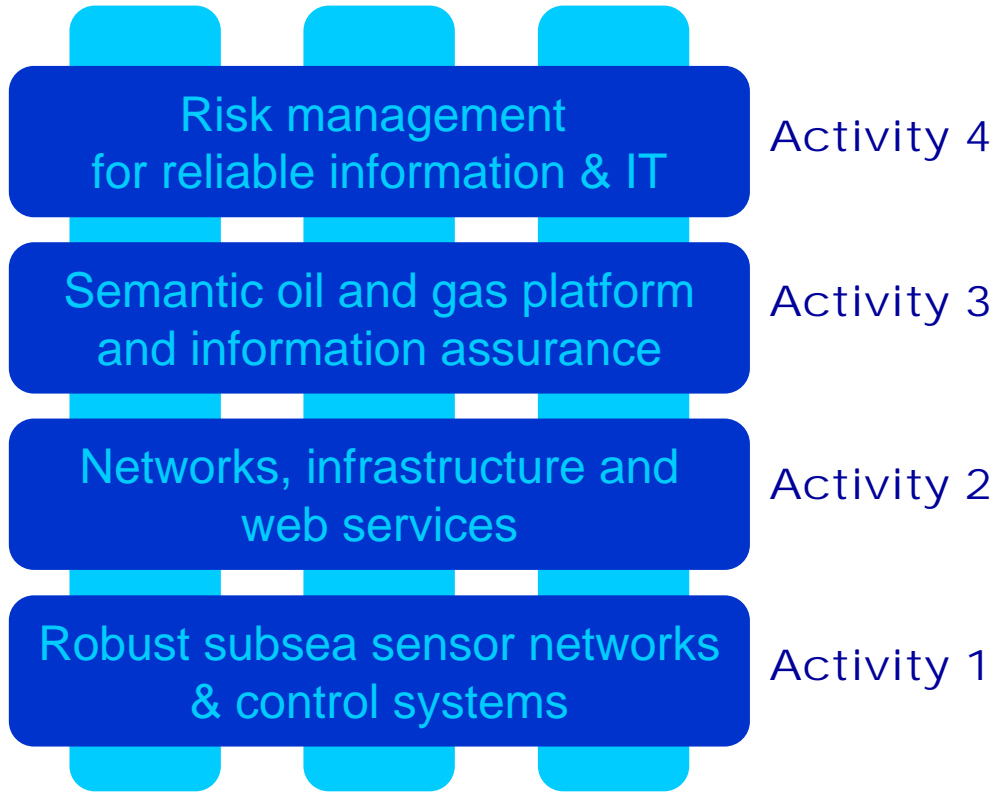
Integrated Operations in the High North – Joint Industry Project

IOHN

Business processes

Unmanned Drilling rig Improved production Sub-ice operation

Digital platform

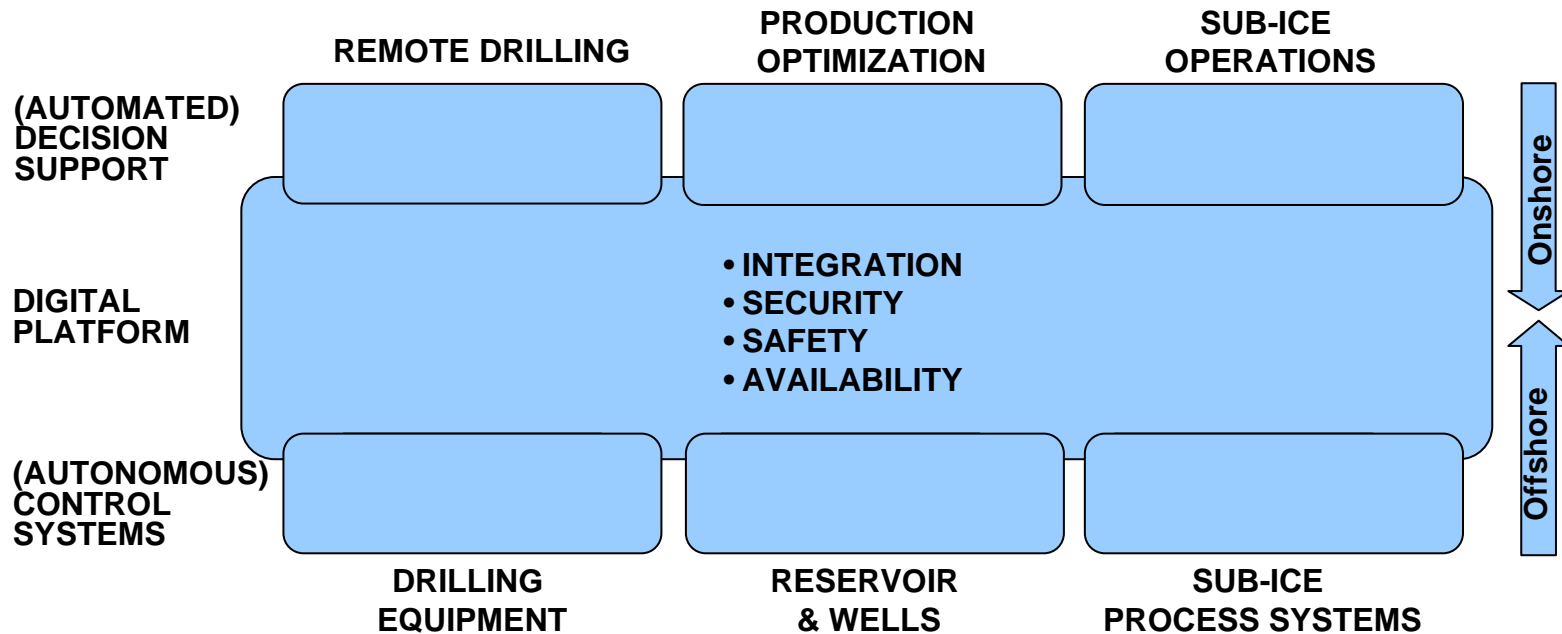


Activity 5 Activity 6 Activity 7



IO in the High North - Architectural Overview

Integrated Operations in the High North – Joint Industry Project

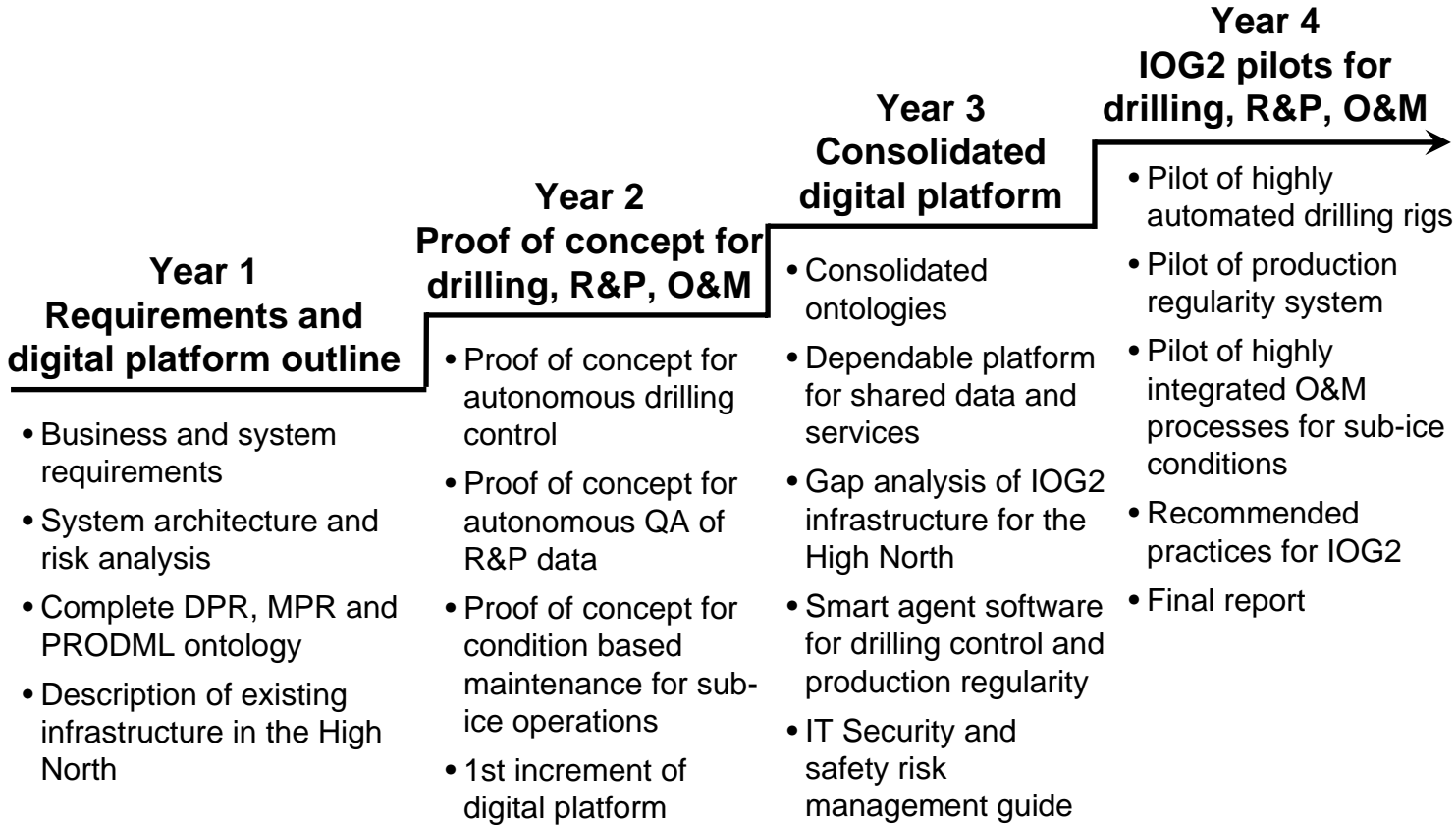


Picture inspired by IO center / NTNU & OLF work



Roadmap

Integrated Operations in the High North – Joint Industry Project



Main deliverables:

1. *Demonstrated reliable digital platform for IOG2 in the High North*
2. *IOG2 pilots within drilling, R&P, O&M in the High North*
3. *Decision Support for drilling, R&P, O&M*

Conceptualization

Industrialization / Take-up



Committed Participants and Funding

Integrated Operations in the High North – Joint Industry Project



- **Participating organisations May 2008:**
 - StatoilHydro, Norwegian Defence, IBM, DNV, National Oilwell Varco, Invenia, Computas, Epsis, TietoEnator, FMC, SAS Institute, Kongsberg, PSA, Centre of Integrated Operations, IRIS, NTNU, UiO, UiS, POSC Caesar, OLF, Abelia and FSi
 - Representing a total **committed funding of 70 MNOK** (RCN 17 MNOK)
- **The project has started as described with activity 2,3,4,5 and 7**
- **Activities 1 and 6 will start as soon as funding is secured**
- **Start-up 2008-05-01 - Duration 4 years**
- **Target total budget 100 MNOK**



Status of Perspective Participants

Integrated Operations in the High North – Joint Industry Project



- **In dialogue with:**

- Oil companies (3 MNOK per year is requested)
 - 1-2 additional participants
- Other large companies (2 MNOK per year is requested)
 - 2-3 additional participants
- Contractors (0.5 MNOK per year is requested)
 - 2-3 additional participants

