GCE | **NODE** | GLOBAL CENTRE OF EXPERTISE

A LEADING GLOBAL TECHNOLOGY CLUSTER

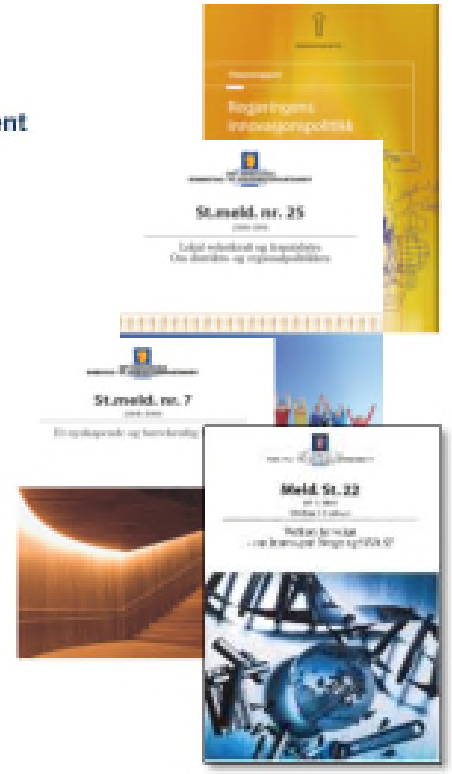
The Norwegian cluster program

Three levels:

- Arena
- Norwegian Center of Expertise
- Global Center of Expertise

- Co-funding (50 %)
- Advisory
- Knowledge and skills
- Networking
- Profiling

Innovation agencies:
Linking roles and resources



GCE NODE Strategic goals:

Maintain and increase global competitiveness in core markets

Expand competence and technology to new markets

Strategic focus

Increased competiveness and new markets

Digitalization

-SFI Offshore Mechatronics
- Data Highway
- NorTex Offshore Data Analytics

Smart Production

- Future Robotics
- Digitalization network
-ICT Security
-3D Printing
-Network for standardization

Blue Growth

- Offshore wind
- Deep sea mining
- Offshore Sea farming

Emerging Markets

-CCS /(U)
- Hydrogen
- Health
-Arctic & Cold climate
-New materials

Competence & New markets

• Sustainable value chain

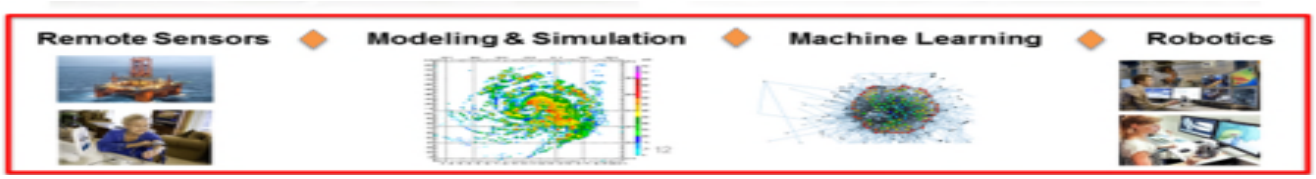
Sustainability and footprint

• Roadmap for the industry – 2030/2050 Ecotrack and documentation

Communications and Strategic Positioning

•OTC, ONS, Global Outlook, Energy Outlook, Sørlandets Oil& Gas Conference

A connected world – From sensors to IoT



Robotization and digitalization projects in the cluster:

- SFI Offshore Mechatronics
- Data Highway – Access to data in real time
- ICT data Security competence program
- 3D print / Additive Manufacturing (AM) technology project
- Digital sustainable business models
- Cost reduction program by use of digital solutions
- Future Robotics network
- NODE Digitalization Network

NCS - Status today

Suppliers - little access to data in real time = low level of services in real time during operations.

Integrated operations (IO) - the use of information technology to change work processes to achieve better decisions, remote control of equipment and processes, and to move the functions and personnel onshore.
Stortingsmelding nr. 38 Om petroleumsvirksomheten(2003-2004)

Connected existing fiber network giving fully integration of the teams on the vessel and onshore.
Little remote control.

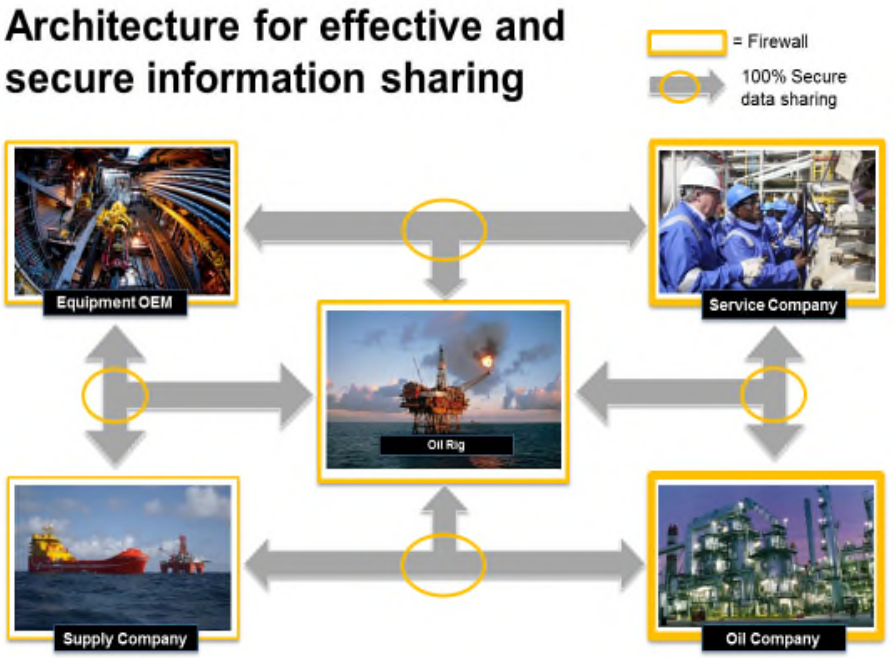
Operatørene har tilgang til rundt 70 000 signaler fra kontrollrommet. Foto: BP

Source: TU 12.09.2013

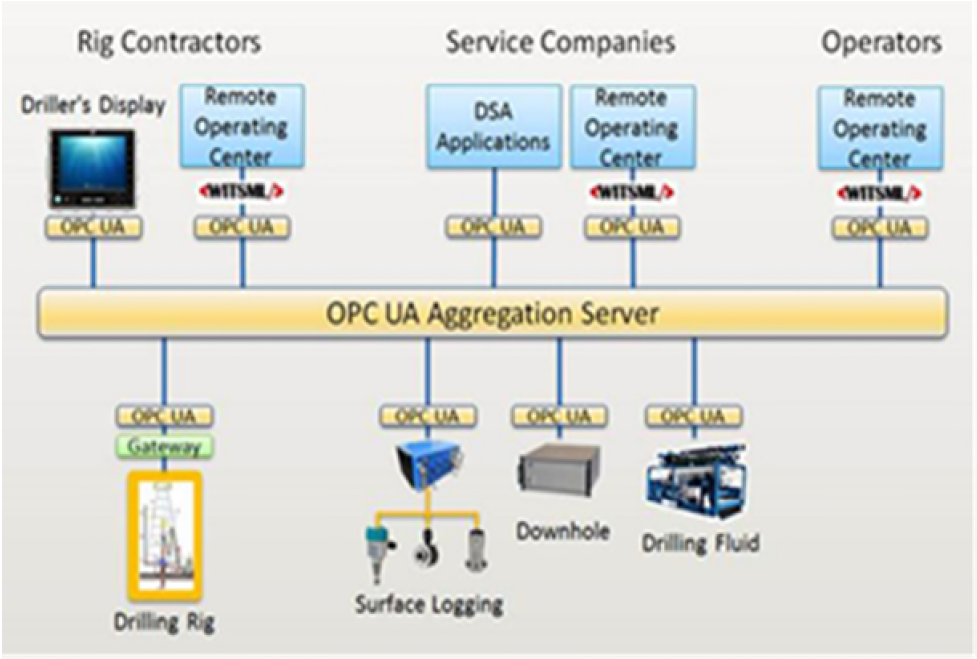
Architecture for effective and secure information sharing Example – Data highway project

= Firewall

100% Secure data sharing



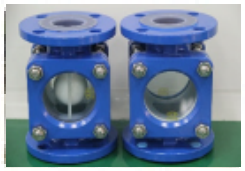
Data Highway partisipants: Schlumberger, Baker, Halliburton, Weatherford, NOV, MHWirth, Cameron

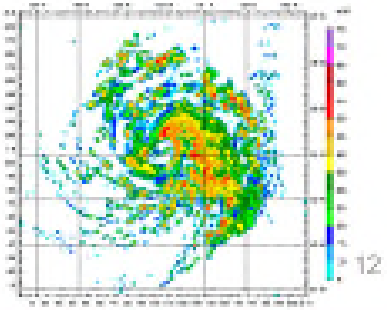


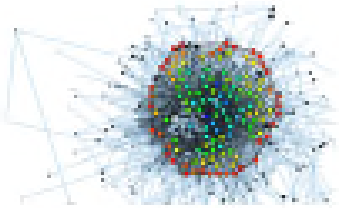
Agder today – High competence on digital solutions

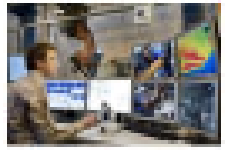
Generic competence for many business segments

Remote Sensors ◆ **Modeling & Simulation** ◆ **Machine Learning** ◆ **Robotics**









Data highway prosjektet

Future Robotics

Cooperation project with Germany 4.0

SFI Offshore Mechatronics

Nortex Data Science

Articifial Intelligence center

ICT Security Competence program

Mechatronic Innovation Lab

Center for Research Based Innovation

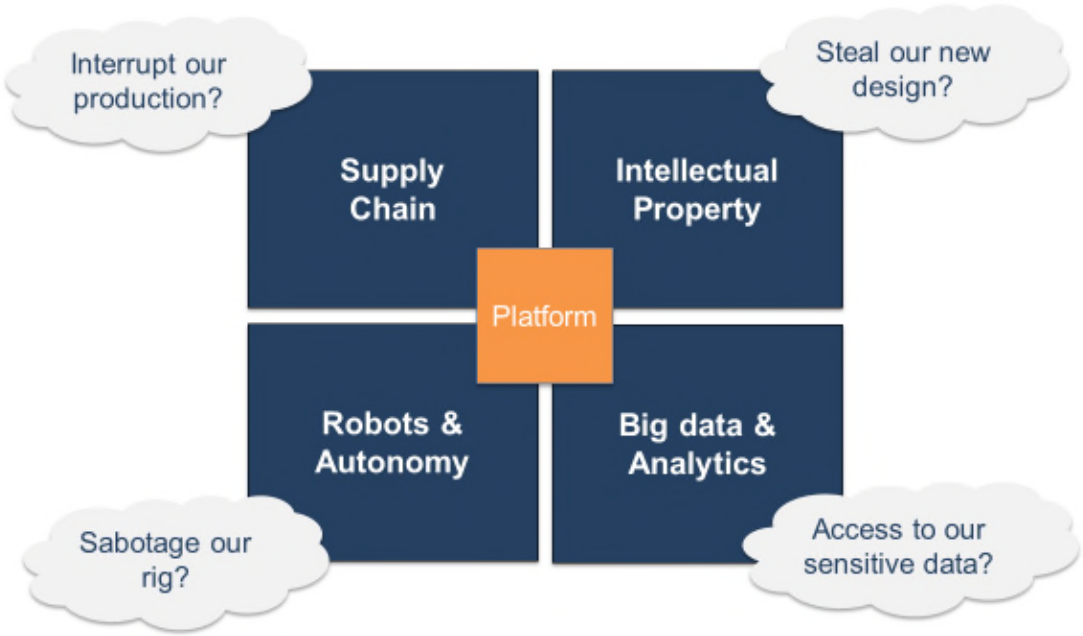
Focus on sensors, digitalization and robotization

WP 6 **Analysis, IT integration + Big data** UiA				WP 7 **Technology Vision**. GCE NODE	WP 0 **Project Mgt**. UiA Dissemination Exploitation Liason IPR Project infrastructure
WP 4 **Modelling, simulation & technology qualification** NTNU					
New Offshore Mechatronics					
WP 1 **Hydraulic & Electrical drives**. UiA	WP 2 **Motation compensation**. NTNU	WP 3 **Robotics & automation**. UiA	WP 5 **Monitoring techniques** Teknova		

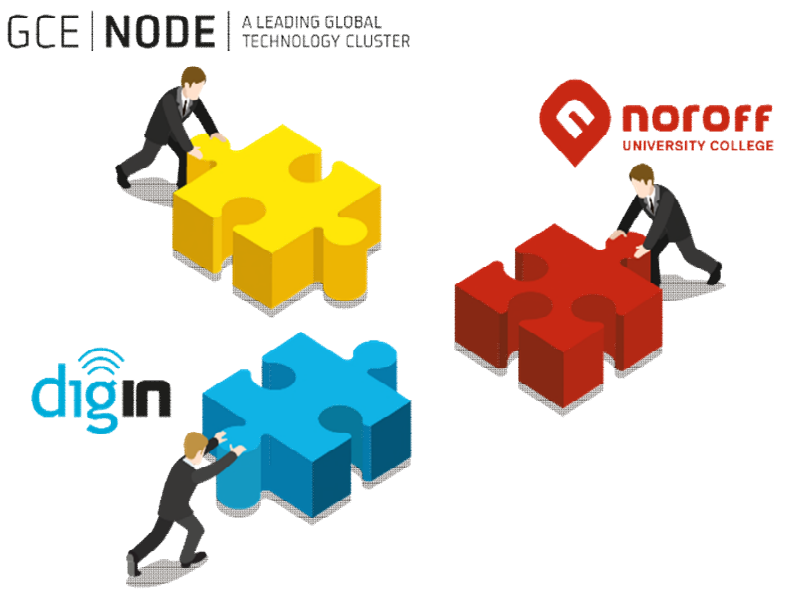
200 MNOK R&D project hosted by University of Agder (UiA)

Increased digitalization

Security – Critical to succeed

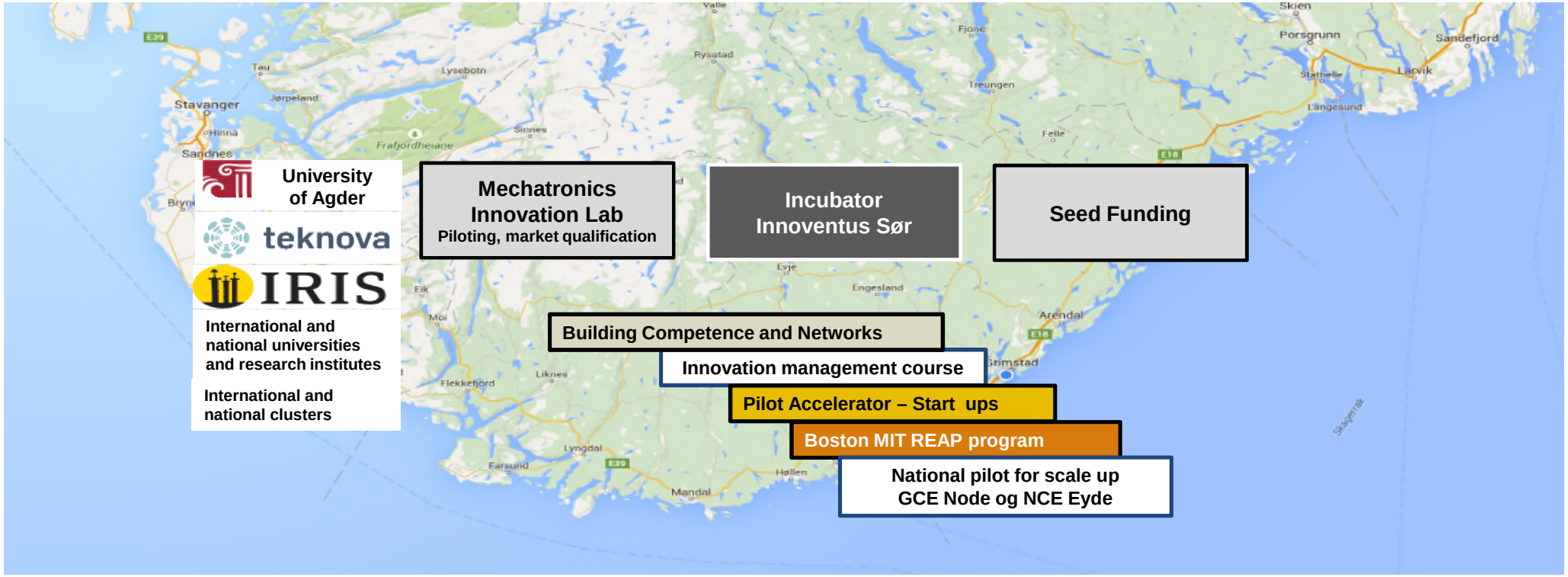


A collaboration program to develop competence program on ICT security

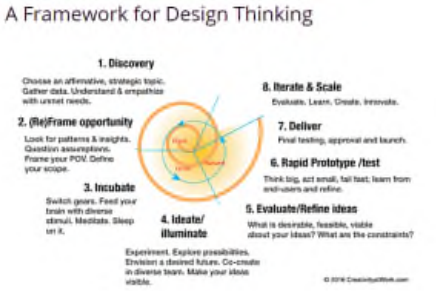


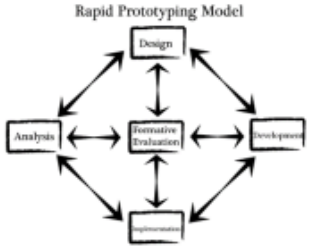
A network and ecosystem for digitalization and innovation

Agder - a competitive region for investments

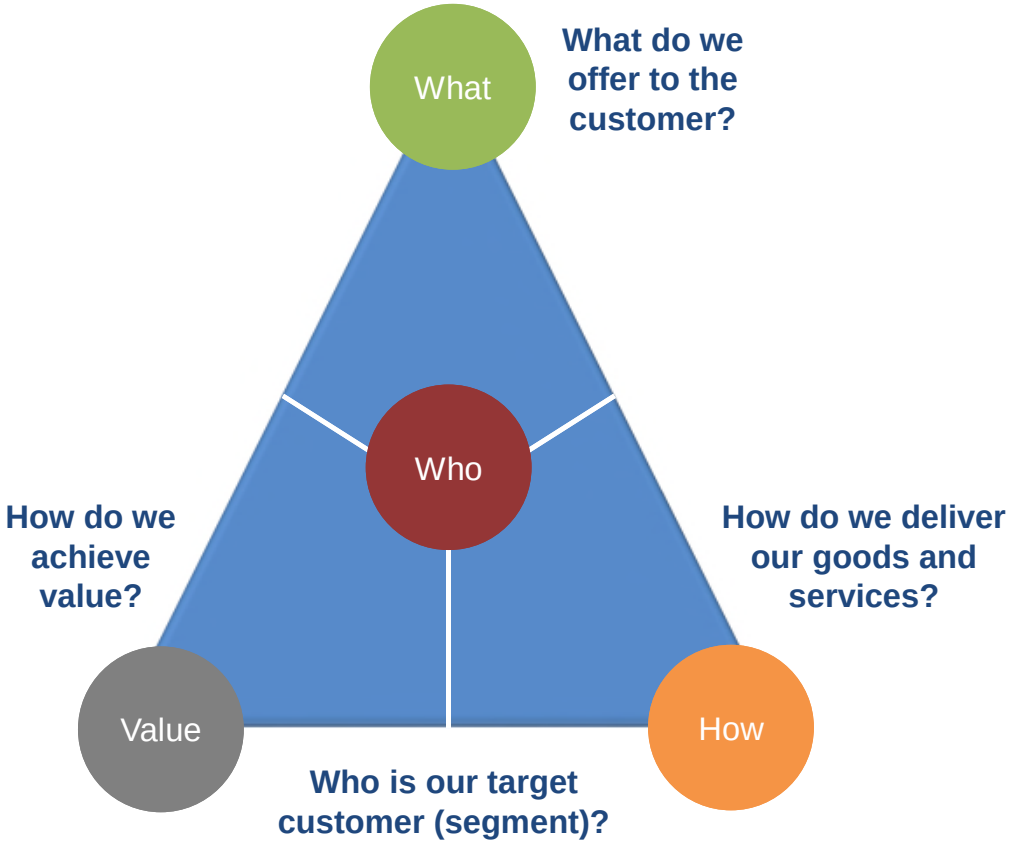


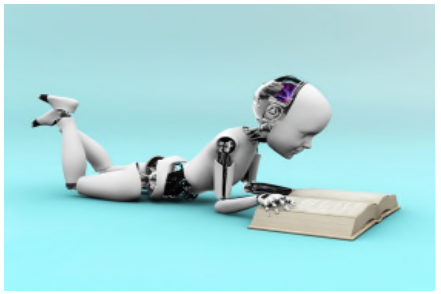
Mechatronics Innovation Lab – Focus robotization and digitalization



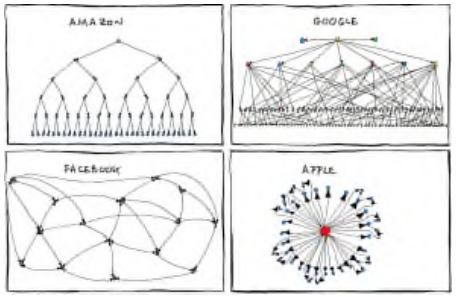


Digital transformation challenges business models





Artificial Intelligence & Machine Learning



Networked Organizational Structure

Digital Business Models

Open Data Flows with Business Models

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