From RIO to Odda

Odda Technology as

Core component & turn key producer

Odda Digital System as

Industry. 4.0 – visualManagement

Norwegian system industry

Lookback

Kongsberg Våpen from 1800 to 1945 -> 1970'
Mainly produces technology weapons, but slights over to civilian purposes

Statoil 1972
Norwegian government decides to establish Statoil to handle oil activity and explore and sell petroleum and systems

Kongsberg Offshore 1974
Norwegian government decides to establish Kongsberg Offshore to create an undersea technology industry in Norway, based on Kongsberg Våpen competence

Kongsberg Våpenfabrikk, Odda 1977
Establish Odda factory for the purpose of producing gas turbines and jet engines, trough the 80's converts to subsea factory

Odda Technology 2016
Established as a new company in Odda facilities to bring the system heritage further on.

Odda environment timeline

Key Events

Established by Kongsberg Våpenfabrikk

1977

1987

Acquired by Steinsvik

1990

First Subsea connection was produced in Odda, become the main supplier to NCS/Africa

2004

Acquired by NLI

Global cooperation with FMC”

2011

Aker, GE, OneSubsea

2015

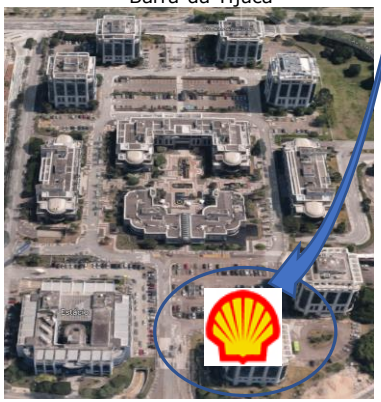
NLI group stops

2016

Odda Technology

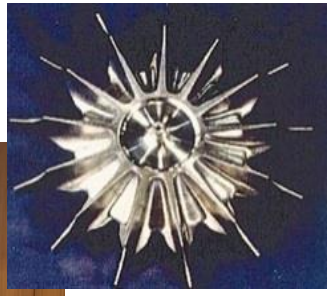
Odda Digital System established

Barra da Tijuca



Typical products

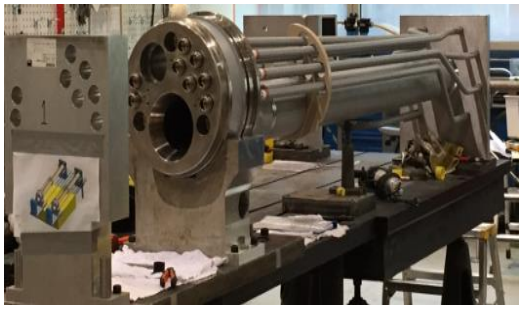
High accuracy & pressurized



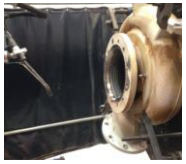
Gas turbines & jet engine parts

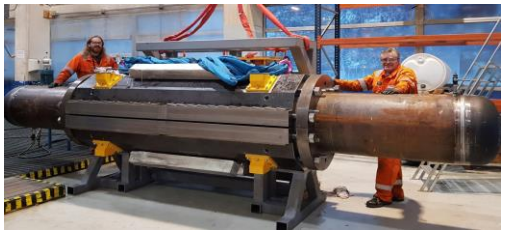
KG2/KG 5

Umbillical Hubs



Refurbishment Valves,Crushers & Pumps



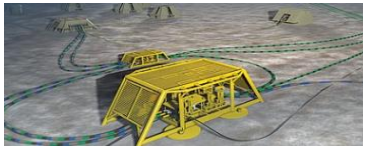


Pipe repair clamps

Hydraulic X-mas Tree Connectors

Multi/singelbore hubs & connectors

Project references / end customers



Kaombo **(Africa)**

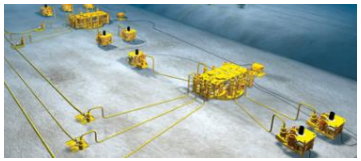
RLWI, TTRD **(NCS)**

Hyme, Gullfaks, Oseberg, Åsgard, Gjøa, Marulk, Visund, Yttergryta, Tyrihans, Vigdis, Smørbukk, Heidrun, Norne, Volve Loke, Tordis, Troll Ormen Lange, Statfjord , Johan Sverdrup **(NCS)**

Girasoll Clov, Egina, Pazfloor, Rosa, Germ, Framo Girri, Kaombo **(Africa)** Laggan Tormore **(British CS)**

Ormen Lange, Draugen, Troll-B, -O2 **(NCS)** Shell Prelude **(Australia)** West Boreas **(MG)**

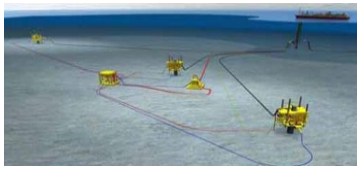
Wheatstone (Australia)



Brownfield, Great Western Flank, Enfield, Vincent **(Australia)**

Ekofisk **(NCS)**

Balder **(NCS)** Marulk **(NCS)**



Marulk **(NCS)** Kitan **(Australia)**

Baobab **(Africa)**

Block 17 ,Block 18 **(Africa)** Pluto **(Australia)** Shah Deniz **(Caspian Sea)**

Knarr **(NCS)**

Kirinskoye **(Sakalin)**

Major projects

Odda Technology

Major external contributors & stakeholders

Projects to finish

KAOMBO: AN AMBITIOUS ULTRA-DEEP-WATER OFFSHORE PROJECT

Johan Sverdrup–the North Sea giant

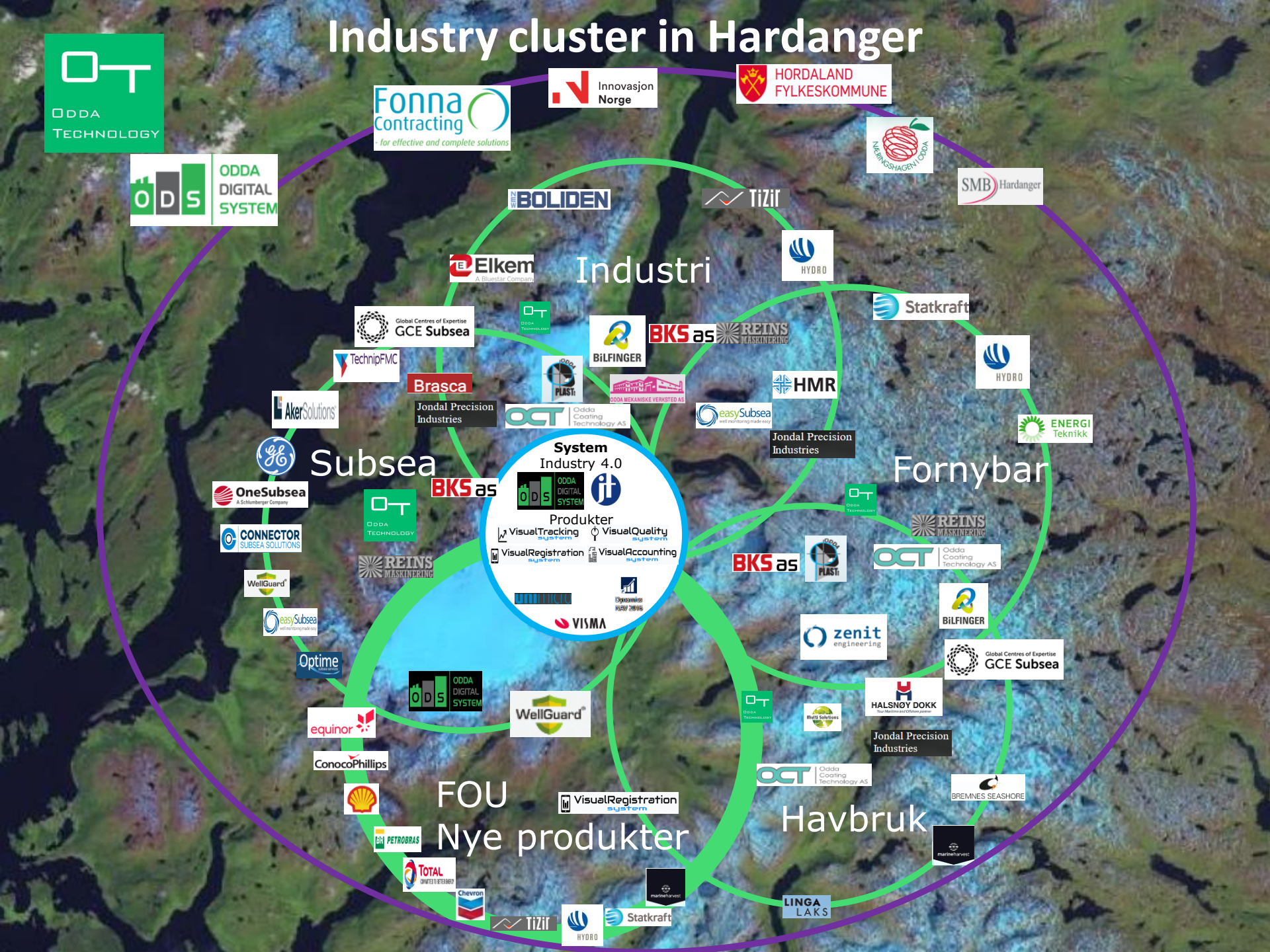
Rio de Janeiro

Odda

Odda Subsea 'cluster'

Pre-project
with GCE

Industry cluster in Hardanger



Norway - Brazil

Global collaboration

"Local value with global reach"

Collaboration with digitalized tools

Actors on all tiers in the development process

Collaboration BR/NO

"**Local value with global reach**"

- Young intelligence combined with established experience
- Join the best from both countries into a digitalized future

Rune Torblå, CEO - Odda Digital System

Rhuan Barreto, CTO – Odda Digital System

Company, products & opportunities

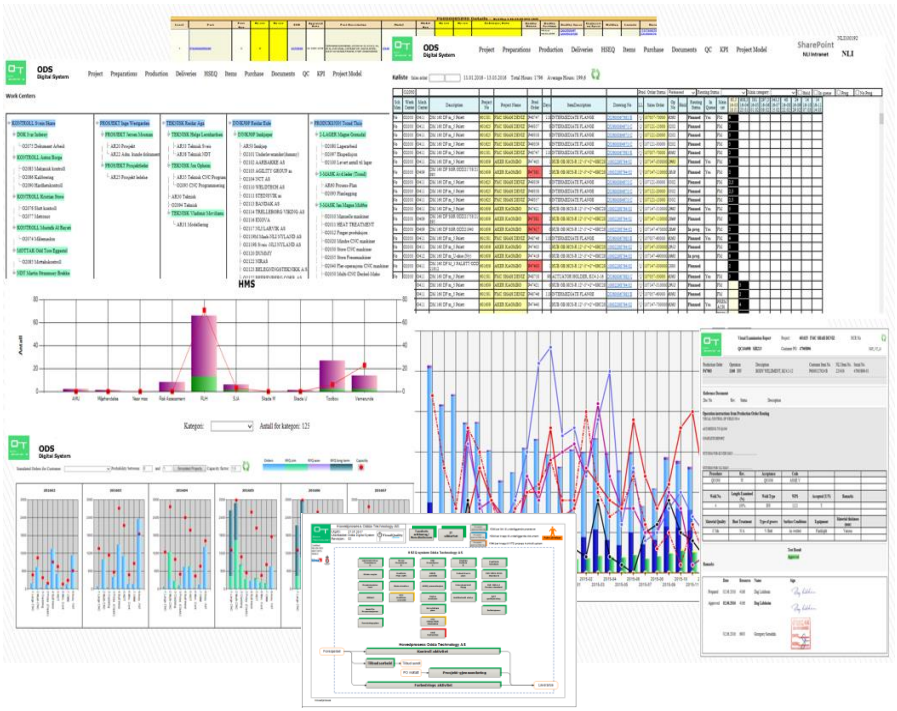
Odda Digital System as
Industry. 4.0

Industry. 4.0

Established as a spin of from Odda Technology

- **Subsea branch's need for control, cost reductions & efficiency**
- ✓ **Digitalize & visualize complex** project and production processes

- Key facts
  - ✓ Based In Odda
  - ✓ 8 resources
  - ✓ International capacities
  - ✓ Proven IT products
  - ✓ **Brazilian 'prepared'**



Digital industrial toolbox

Visualize complex processes

ODDA DIGITAL SYSTEM

VisualManagement system

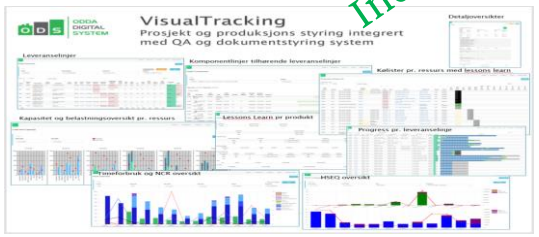
Industry. 4.0

Benefits

- Customers have direct access and avoid costly following up
- Suppliers work digital
- Sharing of HSEQ information
- Sharing of project & production info

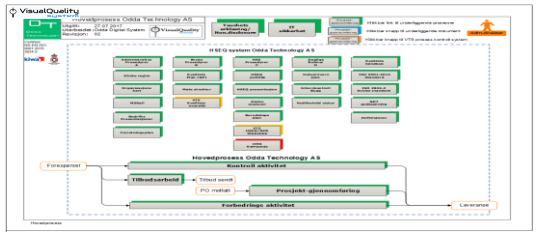
VisualTracking system

Digitalized process control system for supplier industry
Customer & sub supplier portals



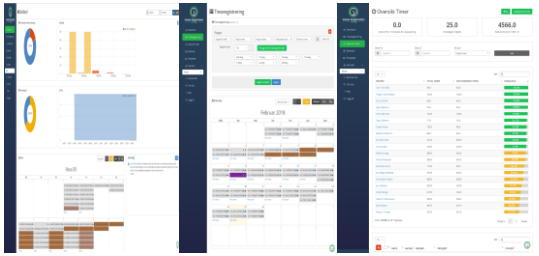
VisualQuality system

Digitalized ISO quality system, simple overview of procedures& processes



VisualRegistration system

Digitalized time registration, on pc & mobile

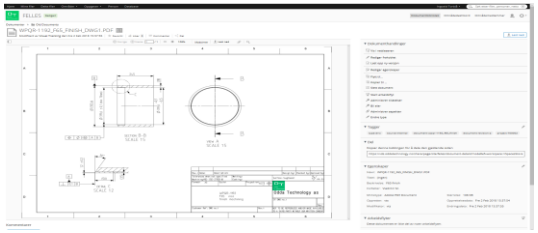


VisualAccounting system

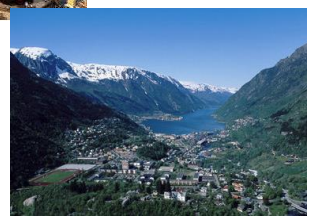
Digitalized quote & accounting system

VisualDocumentation system

Digitalized documentation system



From Rio to Odda



Opportunities

- Finep RCN Project
- Successful conversations with the Norwegian market
- Cooperation with ODS
- Digitalization as a strong driver in Norway
- Support from Odda Kommune and Hardangerråd

easySubsea Norway

Establishment of a company to bridge the gap between Brazil and Norway technology development

ODDA DIGITAL SYSTEM

Challenges

Brazil

- Financials
- Economy Downturn
- Market Mindset
- R&D Regulations in Early Phase

Norway

- Different Market Requirements
- Cultural Differences
- Competitivity on complex projects
- Costs

ODDA DIGITAL SYSTEM

Strategies

Short-Term

- Industrial Digitalization Industry 4.0
- Industrial Processes Integration
- Joint Business Development
- Merge of business plans

Long-Term

- Subsea Digitalization
- Sensing & Communication Technology
- Data Analysis
- Secure Development Funding for growth

Norway - Brazil

Global collaboration

Questions?

Brazil ⟷ Norway