ELDOR
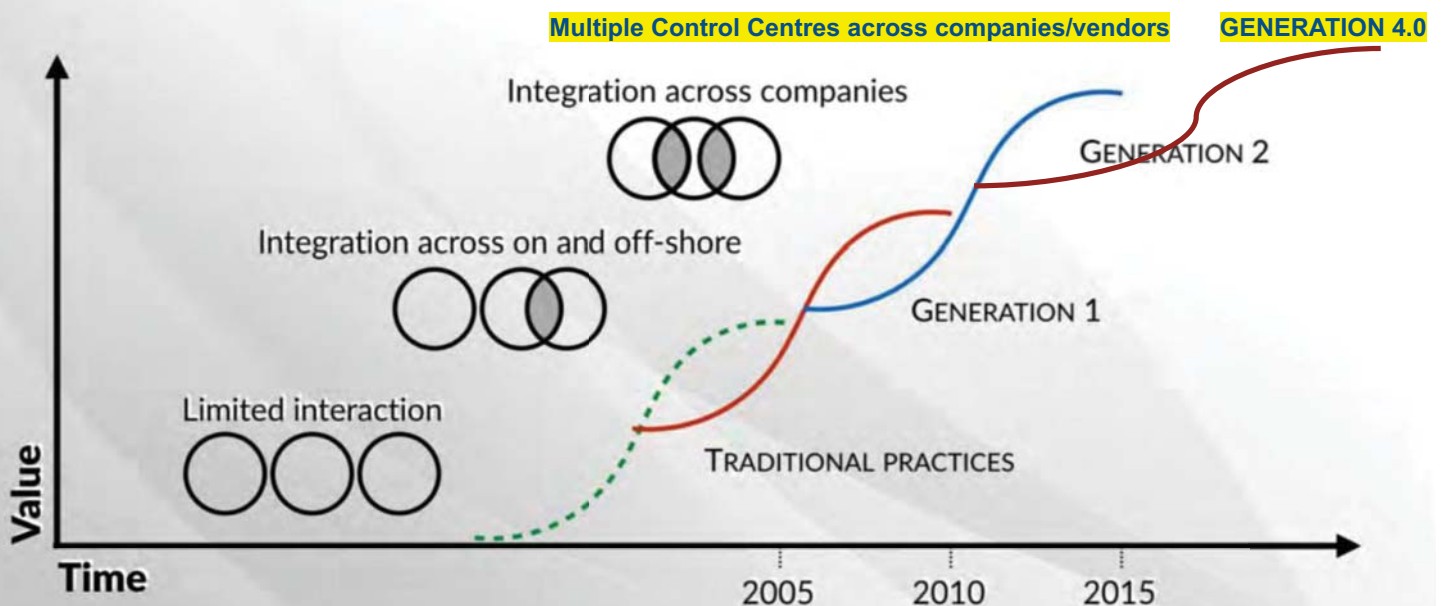deeper into details

The development steps of Integrated & Remote Operations From Martin Linge to generation 4.0 IO
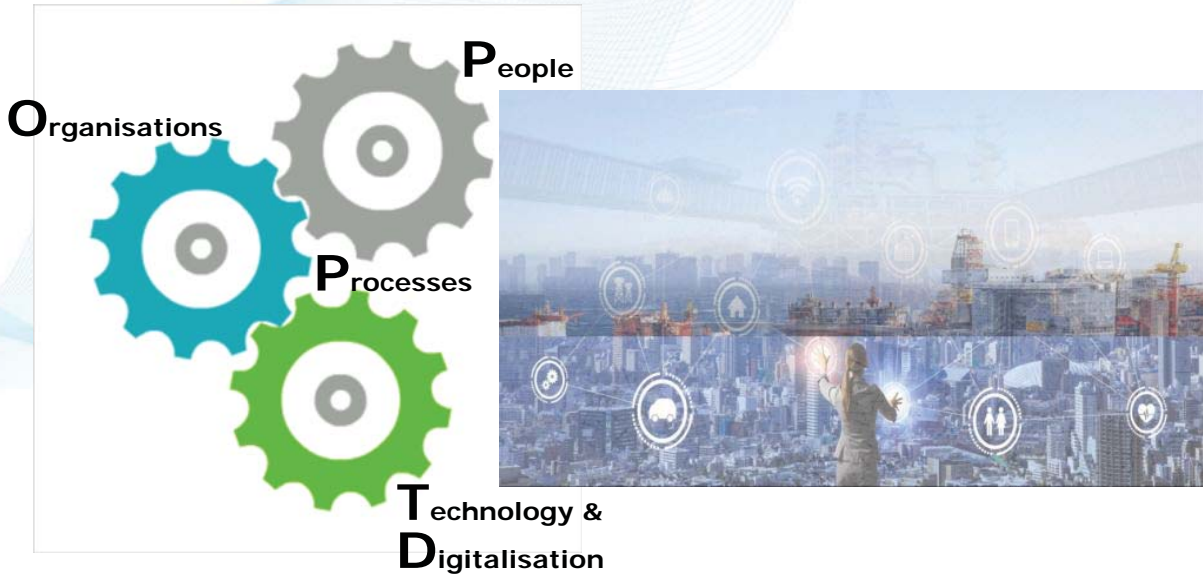
HFC

17 October 2018

Integrated Operations = "Use of technology and real time data to achieve safer, faster and better decisions. Collaboration across disciplines, companies, organizations and geographical boundaries/locations"
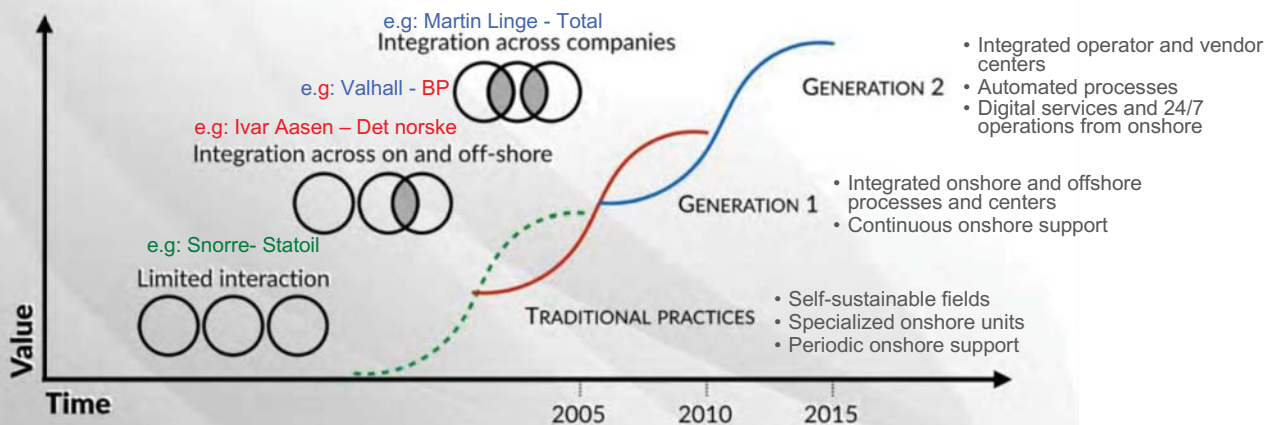
Integrated & Remote Operations

The "PPTO"- perspective – Seamless and improved collaboration & Remote Operations

Organisations
People
Processes
Technology &
Digitalisation

Martin Linge – A step against generation 2

Integrated Operations = **Collaboration** across disciplines, companies and organizational and geographical boundaries, made possible by real time data and new work processes, in order to reach **safer and better decisions - faster**

e.g: Martin Linge - Total
Integration across companies

e.g: Valhall - BP

e.g: Ivar Aasen – Det norske
Integration across on and off-shore

e.g: Snorre- Statoil
Limited interaction

GENERATION 2
• Integrated operator and vendor centers
• Automated processes
• Digital services and 24/7 operations from onshore

GENERATION 1
• Integrated onshore and offshore processes and centers
• Continuous onshore support

TRADITIONAL PRACTICES
• Self-sustainable fields
• Specialized onshore units
• Periodic onshore support

Value

Time

2005   2010   2015

Martin Linge Operating Philosophy
By use of extended implementation of Integrated & Remote Operations

- The ML O&M Philosophy states that the main objectives for Martin Linge Integrated & Remote Operations are to:
  - integrate all aspect of IO; People, Process, Technology and Organization
  - make quicker and better informed decisions in a distributed organization, based on right time information available to all disciplines independent of location throughout the field lifetime
  - achieve full condition monitoring and performance of equipment and systems by access to all field data from onshore, including data needed for production optimization and drilling performance
  - create working arenas and utilize technology suited for safer, quicker and better informed decisions

- The aim for Martin Linge is:
  - to work closer and more integrated together with selected vendors and service contractors (ref. the OLF IO Generation 2 model)

Martin Linge Control Centre according to ISO 11064 definition

Use of CRIOP and other HF scenario analyses to verify and validate
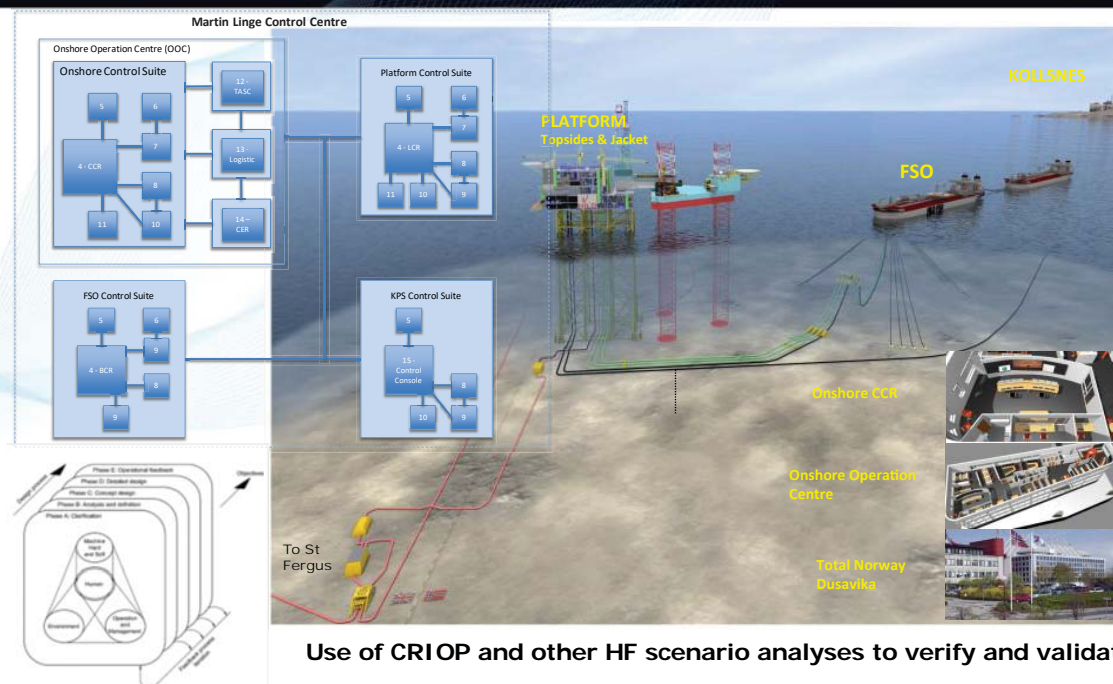
Digitalisation – A step towards IO generation 4.0

Our definition:

Applying **digital technologies,**
changes to people and
work processes to
increase production efficiency
while minimising environmental impact
and improving the safety of the people involved.

Some of the digital enabling technologies

REAL TIME CONNECTIVITY	CLOUD COMPUTING / STORAGE	VIRTUAL AND AUGUMENTED REALITY
ARTIFICIAL INTELLIGECE	IOT AND SENSORS	BIG DATA / ANALYTICS
AUTOMATIC PRODUCTION/ ROBOTICS	CYBER SECURITY REMOTE ACCESS	3D SCANNING / PRINTING

Business value drivers

- Operation & Maintenance Philosophies
- Feed-back from assets, Operations business units
- Lesson Learned from projects and modifications
- Continuous Improvements

Business Value Cases

- Develop "real" business value cases
- Scenario analyses
- Risk assessment
- Decision support Packages
- IO contract strategy

Digital Solutions

- People, Processes, Technology & Organisations
- Automation & Decision support
- Agile approach, but Verify and validate
- Change Management plans and implementation
- Stakeholder Management

Multifield Control Centres

- ✓ How do we define it?
- ✓ What is the limitations?
- ✓ Is it across industries?
- ✓ What competency and expertise is required for the future Multifield CC
- ✓ How to change the way of working and people involved?