

“In short, the software solutions is for the management of conditions on a platform.

In the bottom of is a kind of search-robot, that after carefully programmed parameters continuously scans the entire 56 different data sources.

The system can also generate graphs showing development and the relationship between processes.”

- digital background/next slide...

Finding
Petroleum

Transforming Offshore Operations - Working with Digital Technology



November 29, 2017 – Stavanger - Norwegian Petroleum Museum

Karl Erik Dahl
Concepts/Market Director



We had a headstart on digital transformation ...

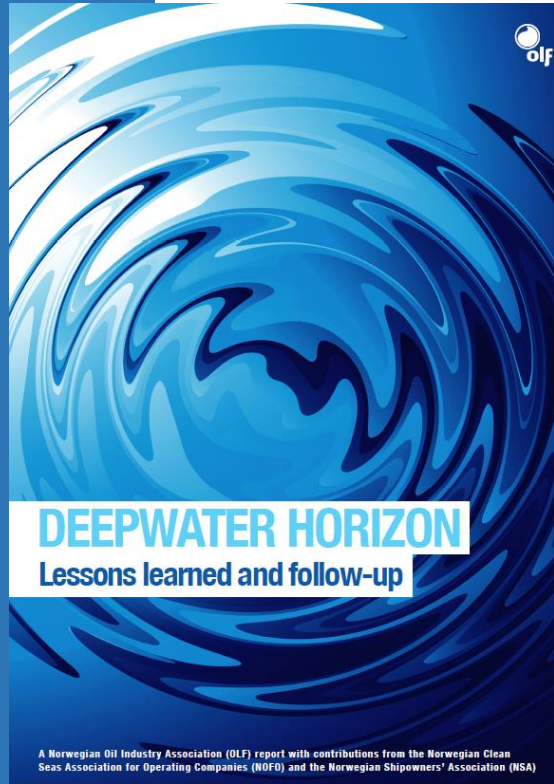


Used by 16
operating
units at Hydro
Production

Speaker topic;

Supporting drilling crew and management's risk awareness in operations using digitech

Lessons: Underlying Organizational/Human Causes



Lack of major hazard leadership

Failure of MOC and SEMS

Compartmentalization of information

Ineffective management and oversight

Failure to analyze and appreciate risk

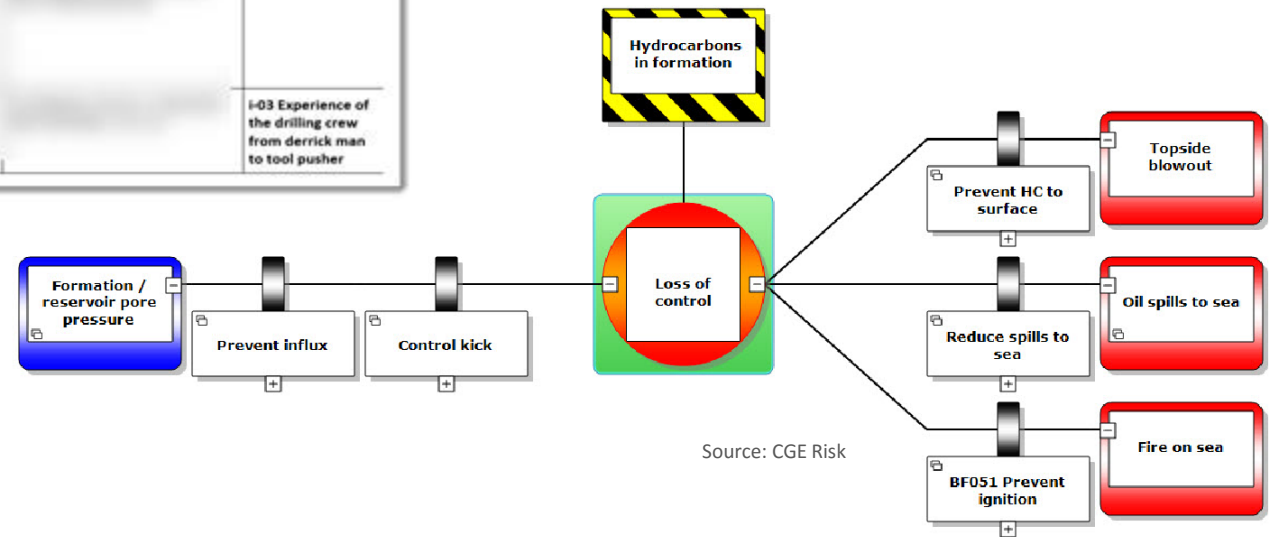
Failure of decisions support

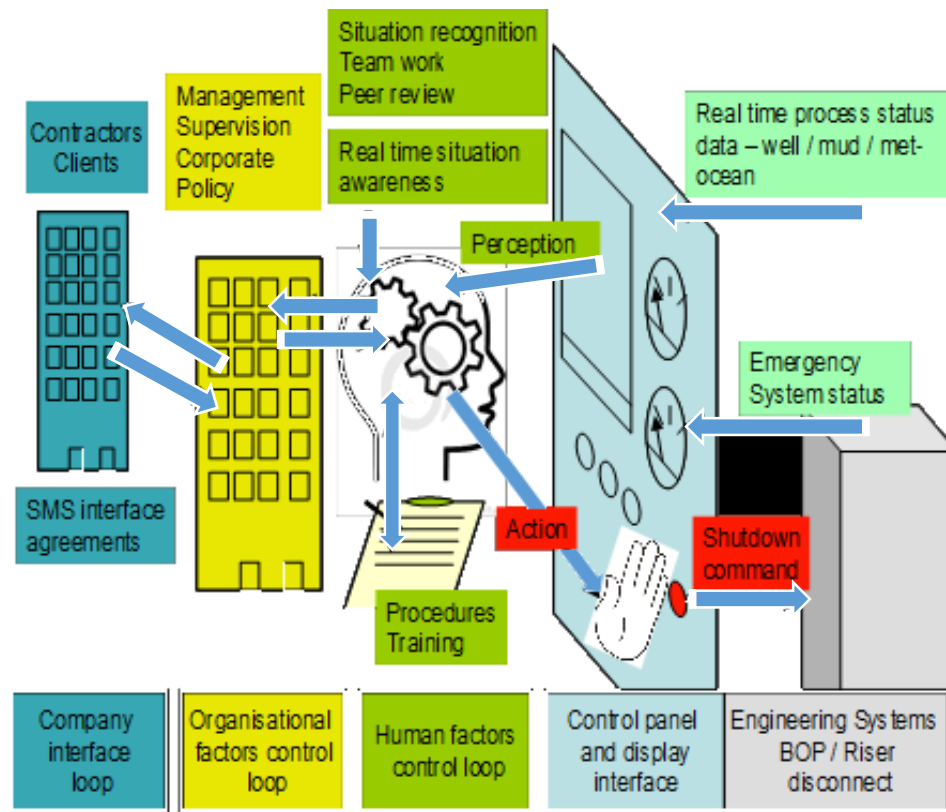
Industry responded - \$ investment in updating of documents and risk analysis

STRATEGY | MAIN REPORT

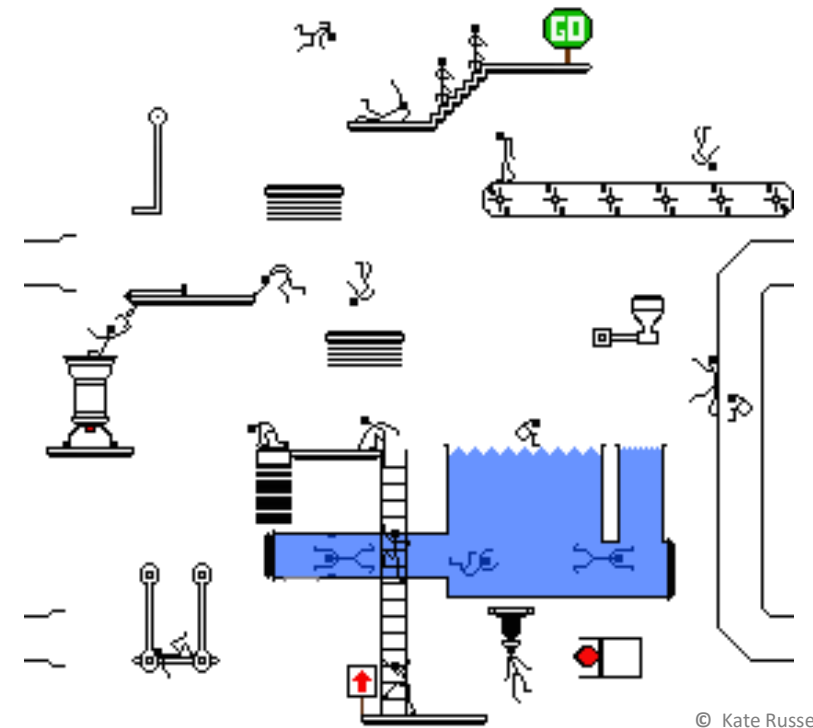
6.1 BF1: Prevent Well Control Problems

| SCE | OPERATIONAL BARRIER ELEMENT | ORGANISATIONAL BARRIER ELEMENT | REQUIREMENT | REQUIREMENT REFERENCE | INDICATOR |
|------------------|--|---|-------------|-----------------------|--|
| D1 - Mud Systems | Work Practice: Control of mud | | | | I-01 Availability of drilling mud |
| | Work Practice: Control of mud | | | | |
| | Work Practice: Kick detection related to drilling operations and control of mud | | | | |
| | Work Practice: Monitoring of mud properties | | | | |
| | Work Practice: Pressure handling when tripping | | | | |
| | Work Practice: Monitoring of stuck pipe | | | | I-03 Experience of the drilling crew from derrick man to tool pusher |
| | | Competency: Skills related to identifying kick | | | |





Source: PSA



© Kate Russel

Complex Adaptive Systems Challenge



Barrier strategy



Performance standards



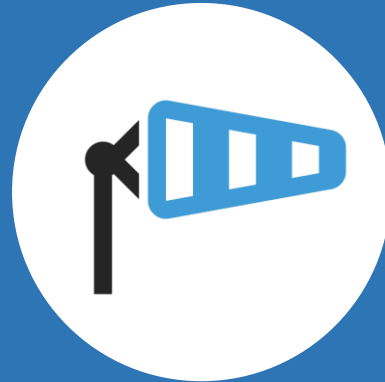
Technical condition



Maintenance



Competence situation

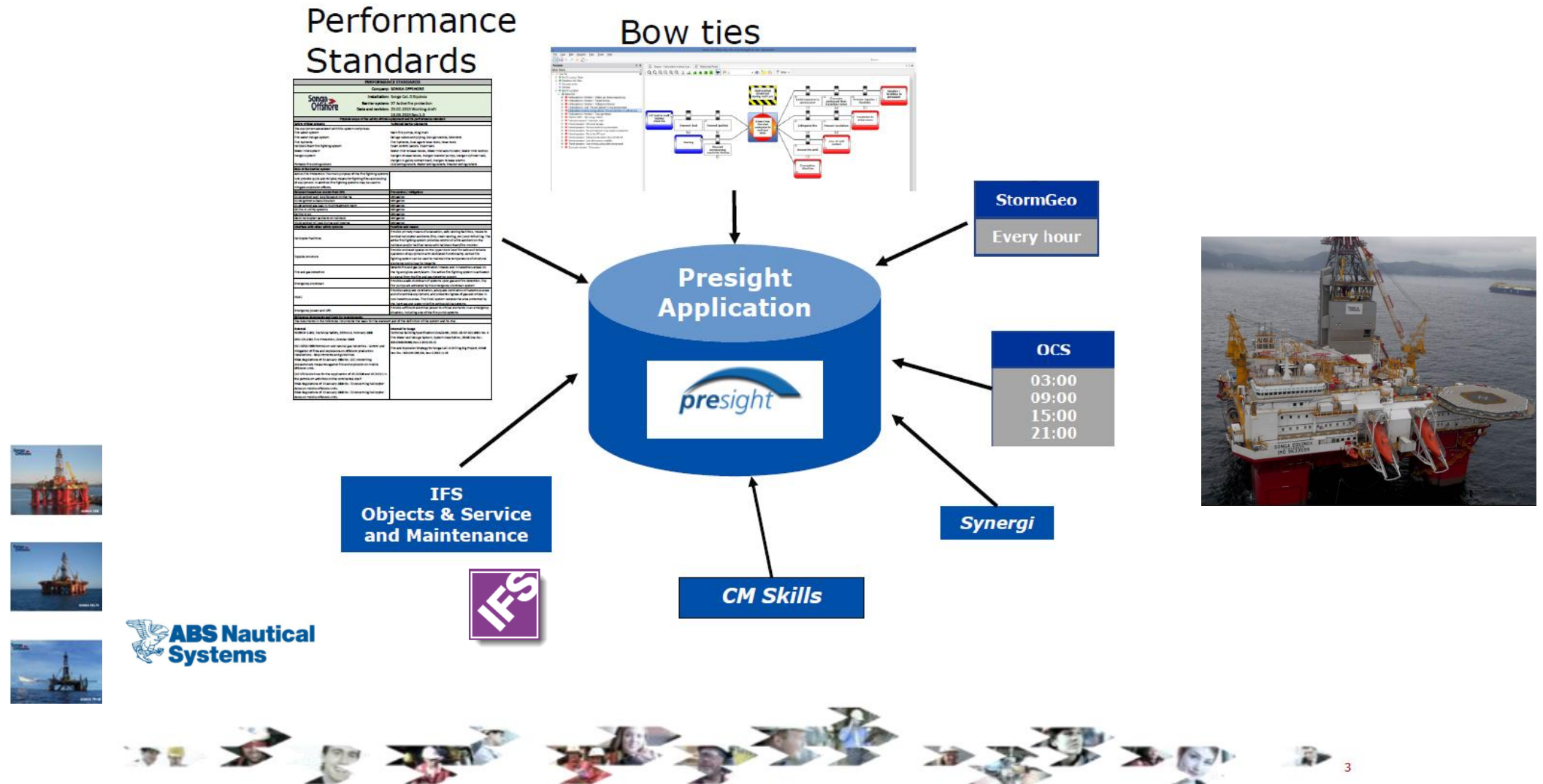


Weather condition

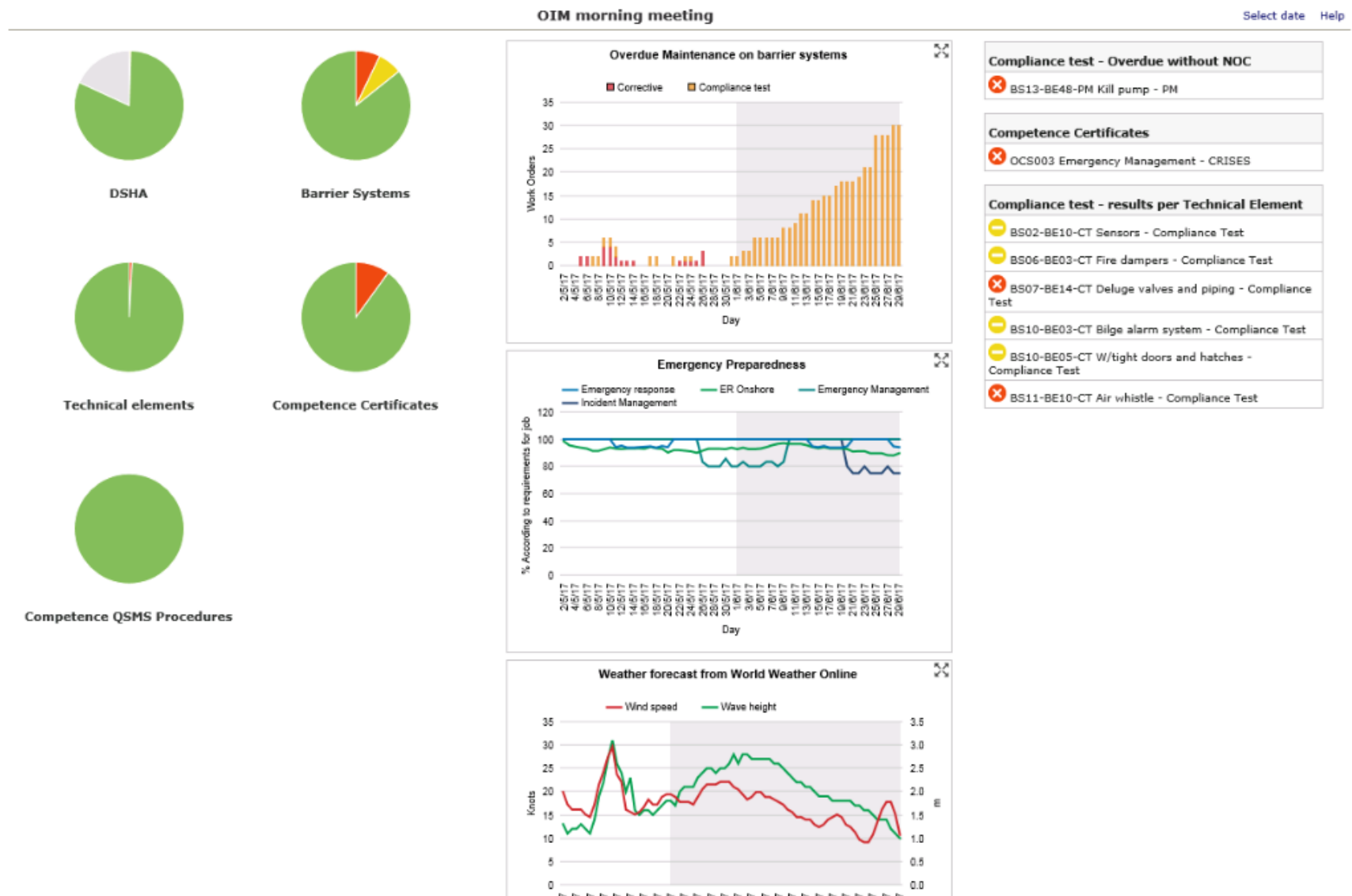


Simultaneous operation

Songa Offshore Build up



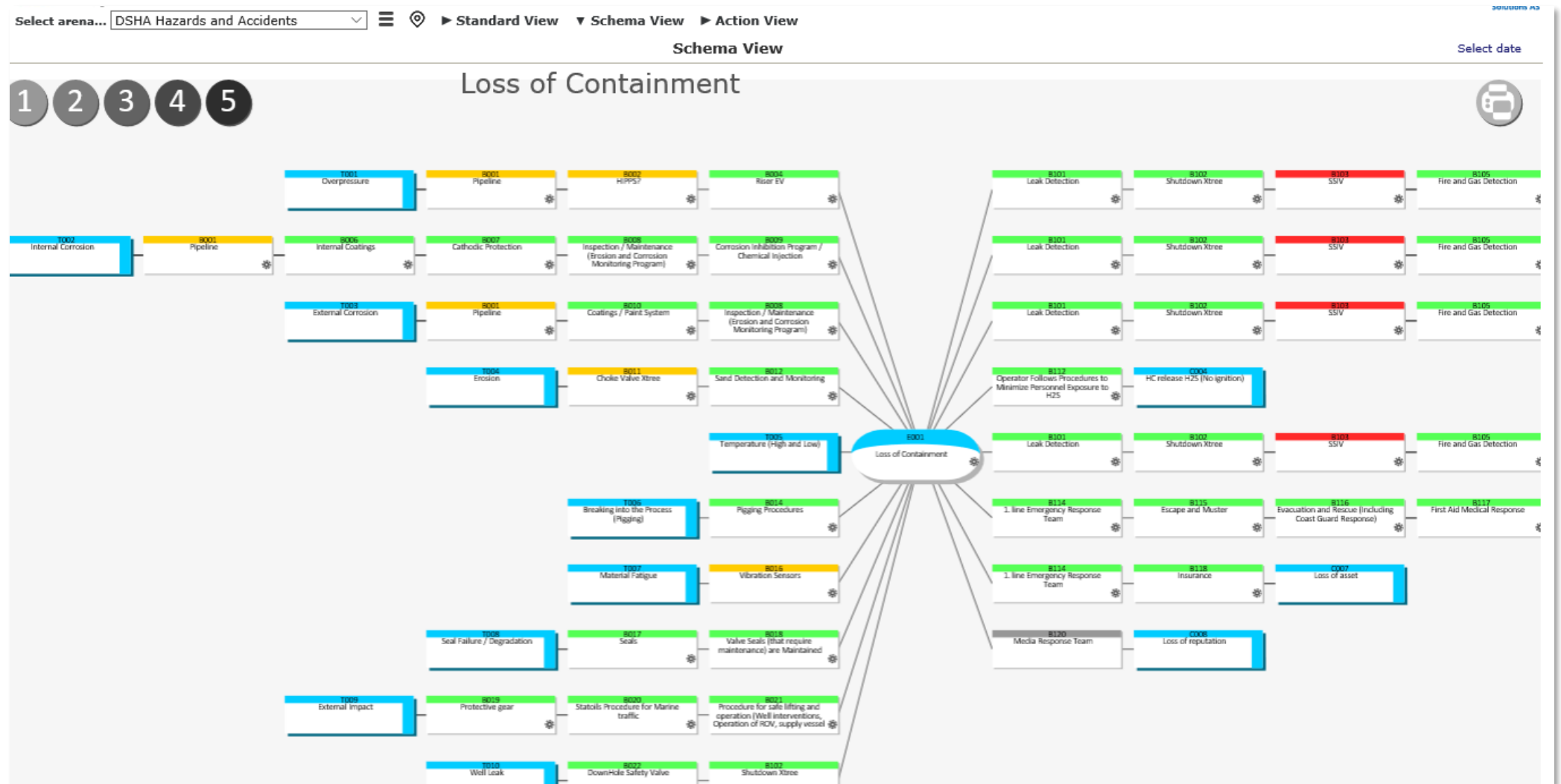
Digitalised MTO performance monitoring – User context for decision making



Decision support for operations – status today and situation ahead



Dynamic bowtie diagrams with drill-down through schema to source system



Importantly – digital approach making a difference in off- & onshore operations

"Has increased barrier safety and risk awareness across our operations "

"Displine leaders and offshore crew is now driving our safety improvements"

"Now achieving 'pull vs push' in our safety performance needs from onshore"

"Red is not bad – now we know and can do something about it!"

"As Songa's drilling environment becomes more complex, we will continue to improve, as all of us can now recognise the signal from the noise"

Rig Manager - Songa Delta



Presight Effect

Day-to day use through permit meetings offshore

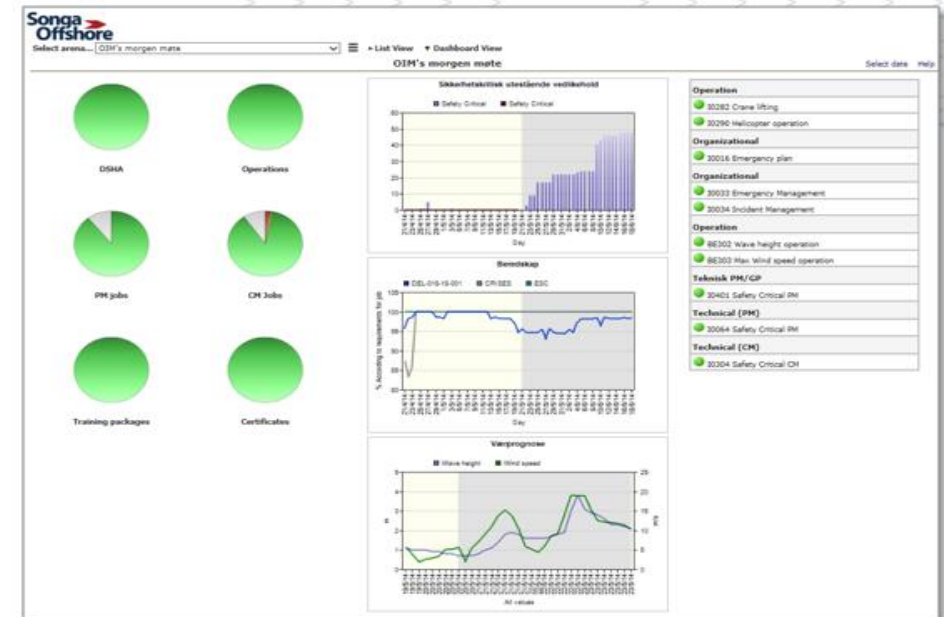
Part of morning meeting presentation with client

Heightened focus on barriers

User-friendly. Information easy to access.

Quality in sub systems increase ("Big brother")

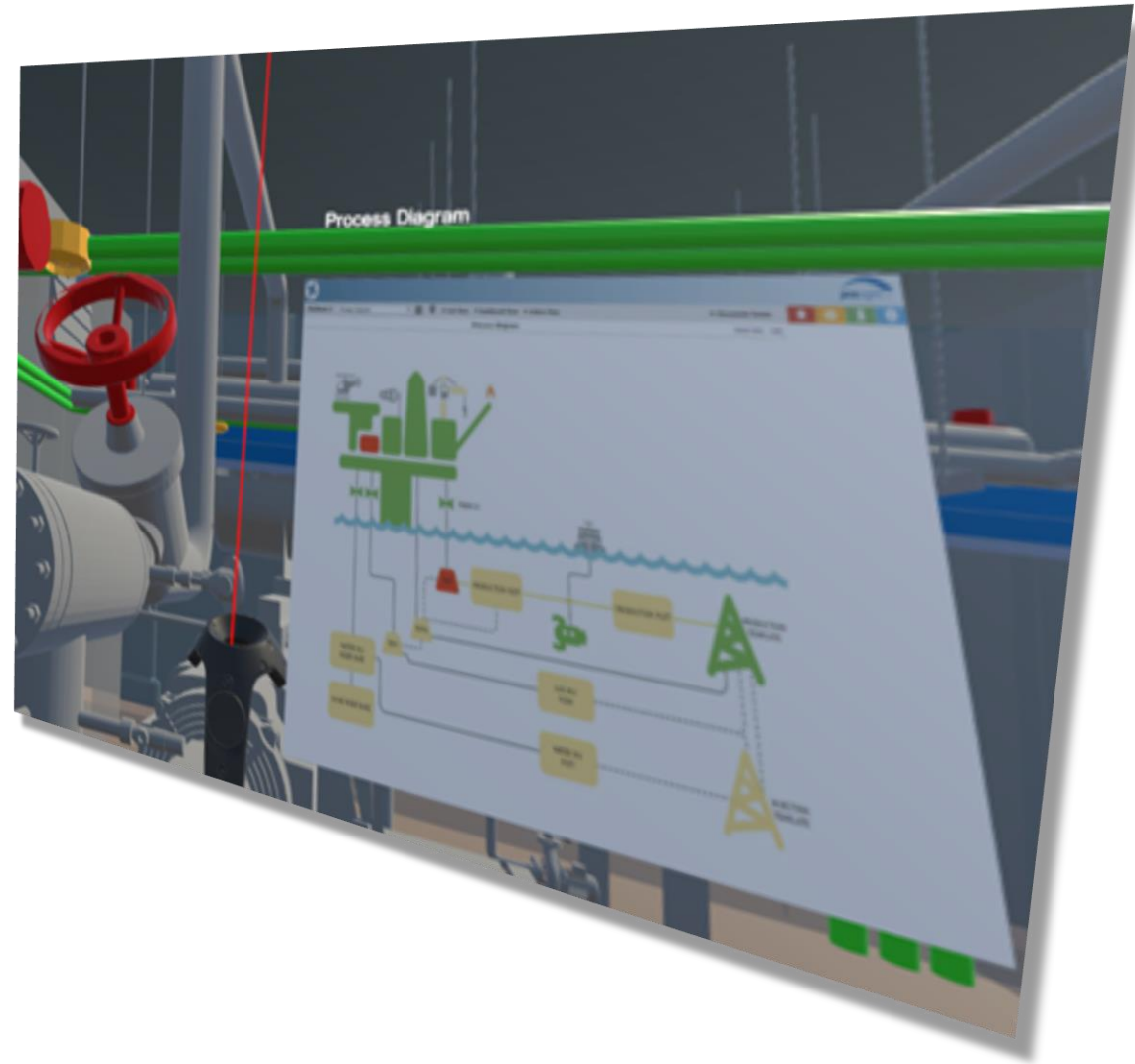
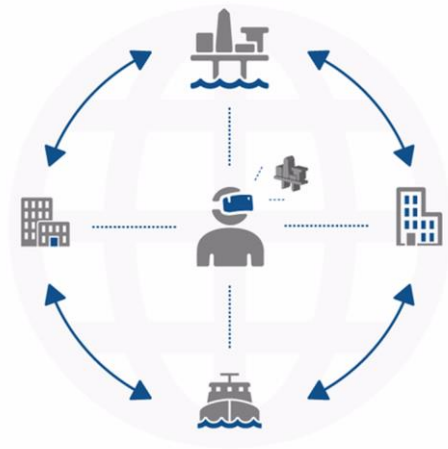
Seeing all elements of barrier management (Barrier functions)



Dashboard for OIMs morning meeting



Extended Reality solution for operations status and spatial awareness in planning



Presight R3ality –
Digitalisation Innovation
with offshore energy
systems expertise and
experience

Thank you for your attention.
Q&A...

Questions or clarifications to points in document, contact;

www.presight.com